AP-111

SWMU No. 10 Sludge Pits

Investigation Report (1)

March 2016

Chavez, Carl J, EMNRD

From: Riege, Ed <Ed.Riege@wnr.com>
Sent: Tuesday, December 20, 2016 7:40 AM
To: Kieling, John, NMENV
Cc: Cobrain, Dave, NMENV; VanHorn, Kristen, NMENV; Chavez, Carl J, EMNRD; king.laurie@epa.gov; Hains, Allen; Bailey, William; Scott Crouch
Subject: Investigation Report Solid Waste Management Unit (SWMU) No. 10 Sludge Pits
Attachments: 201612190703.pdf

Dear Mr. Kieling,
The attached letter with two copies of the SWMU 10 report and CDs is being sent certified mail to you. One hard copy and CD are also being mailed to Carl and will be uploaded to the OCD website.

Thanks,

Ed Riege
Remediation Manager

Western Refining
Gallup Refinery
92 Giant Crossing Road
Gallup, NM 87301
(505) 722-0217
ed.riege@wnr.com

Certified Mail # 7014 1820 0001 7489 0372

December 20, 2016

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

RE: INVESTIGATION REPORT SOLID WASTE MANAGEMENT UNIT (SWMU) No. 10
SLUDGE PITS
WESTERN REFINING SOUTHWEST, INC. GALLUP REFINERY
EPA ID # NMD000333211

Dear Mr. Kieling:

This investigation report was prepared pursuant to our June 10, 2016 letter to you.

If there are any questions regarding the enclosed Investigation Report, 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. Daniel J. Statile
VP Refining
Western Refining Southwest, Inc. – Gallup Refinery

Ed Riege
Remediation Manager
Western Refining Southwest, Inc. – Gallup Refinery

cc D. Cobrain NMED HWB
K. Van Horn, NMED
C. Chavez, OCD
L. King, EPA
A. Hains, WR El Paso

INVESTIGATION REPORT
Solid Waste Management Unit (SWMU)
No. 10 Sludge Pits

Western Refining

Gallup Refinery
Western Refining Southwest, Inc.
Gallup, New Mexico

EPA ID# NMD000333211

MARCH 2016

Scott Crouch, P.G
DiSorbo Consulting, LLC

DiSorbo
Environmental Consulting Firm

8501 North Mopac Expy | Suite 300 | Austin, TX 78759
512.693.4190 (P) | 512.279.3118 (F) | www.disorboconsult.com

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List of Acronyms

API	American Petroleum Institute
AOCs	areas of concern
BTEX	benzene, toluene, ethylbenzene, and xylene
bgl	below ground level (bgl)
CFR	Code of Federal Regulations
DRO	diesel range organics
DAF	dilution/attenuation factor
EPA	Environmental Protection Agency
gpm	gallons per minute
HI	hazard index
HSA	hollow-stem auger
IDW	investigation derived waste
LPG	liquefied petroleum gas
LTU	Land Treatment Unit
MADEP	Massachusetts Department of Environmental Protection
MCL	maximum contaminant level
msl	mean sea level
MW	monitoring well
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
RCRA	Resource Conservation and Recovery Act
PID	photoionization detector
PVC	polyvinyl chloride
SPH	separate phase hydrocarbon
SVOC	semi volatile organic compound
SWMUs	Solid Waste Management Units
TPH	total petroleum hydrocarbon
TVOC	total volatile organic content
TCLP	toxicity characteristic leaching procedure
USCS	unified soil classification system
VOC	volatile organic compound

WQCC Water Quality Control Commission

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) or Areas of Concern (AOCs). Pursuant to the terms and conditions of the facility's Resource Conservation and Recovery Act (RCRA) Post-Closure Care Permit and 20.4.1.500 New Mexico Administrative Code (NMAC), this environmental site investigation was completed for SWMU No. 10 (Sludge Pits).

The activities completed include sampling and analysis of soils and groundwater throughout the location of the former Sludge Pits to determine current concentrations of any potential contaminants resulting from historical operations and to delineate any such historical releases. This area was previously investigated in 1990 and 1994 with the collection of numerous soil samples during the RCRA Facility Investigation (RFI). The current investigation began on April 28, 2015 and continued through May 14, 2015. This included the completion of 17 soil borings with 48 soil samples (excluding additional quality assurance samples) collected for analysis of potential site-related constituents (e.g., volatile and semi-volatile organics, total petroleum hydrocarbons, and metals). Temporary well completions were installed in 8 boreholes of the 17 soil borings where saturation was encountered to allow collection of groundwater samples. Eight groundwater samples (excluding additional quality assurance samples) were collected for analysis of potential site-related constituents (e.g., volatile and semi-volatile organics, total petroleum hydrocarbons (TPH), metals, and inorganic/general water quality parameters).

At the former Sludge Pits, twelve organic constituents (1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, 2,4-dimethylphenol, 2-methylphenol, benzene, bromomethane, ethylbenzene, naphthalene, toluene, and xylenes) were detected at concentrations above their soil-to-groundwater [Dilution Attenuation Factor (DAF)= 20] screening levels but no individual organic constituents were reported at concentrations above their respective residential direct contact screening levels. Including diesel range organics (DRO) and motor oil range organics (MRO) with the aforementioned twelve individual organic constituents, the exceedances of screening levels occurred in 14 soil samples collected at nine soil borings (SWMU 10-4, SWMU 10-5,

SWMU 10-8, SWMU 10-9, SWMU 10-10, SWMU 10-11, SWMU 10-13, SWMU 10-14, and SWMU 10-17).

Five metals (arsenic, barium, cobalt, iron, and manganese) were detected in soils at concentrations above the DAF 20 soil-to-groundwater protection screening levels. Arsenic and iron were reported at concentrations above the DAF 20 soil-to-groundwater protection screening levels in all samples with detected concentrations. It is possible that many of these detections are reflective of naturally occurring concentrations but a site-specific background study will be required to make this determination.

There were numerous inorganic constituents (arsenic, barium, beryllium, chromium (total), cobalt, iron, lead, manganese, nickel, vanadium, chloride, and sulfate) detected at concentrations above residential/tap water screening levels in groundwater samples collected from the temporary well completions. These exceedances of screening levels for inorganic constituents occurred in every groundwater sampled analyzed. Seven organic constituents (1-methylnaphthalene, 2-methylnaphthalene, 1,2,4-trimethlybenzene,1,3,5-trimethylbenzene, benzene, MTBE, and naphthalene) were detected at concentrations above screening levels in three groundwater samples collected from soil borings SWMU 10-5, SWMU 10-11 and SWMU 10-15.

Western is recommending five additional soil borings to complete lateral delineation of impacts to soil and groundwater. In addition, a separate investigation is recommended to evaluate naturally occurring concentrations of inorganic constituents to determine if the observed concentrations of these constituents are related to site activities.

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 property covers approximately 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 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.

The area of investigation that is the subject of this report is shown on Figure 2 for the Sludge Pits (SWMU No. 10). 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 NMAC incorporating 40 Code of Federal Regulations (CFR) Section 264.101. The investigation was completed pursuant to the SWMU No. 10 Investigation Work Plan dated September 2014 (approved with modification March 2, 2015).

Section 2 presents background information for SWMU No. 10, including a review of historical waste management activities to help identity the types of waste handled, sources of releases, and previously known impacts to the environment. Section 3 describes the scope of work completed during the site investigation, including completion of soil borings, installation of temporary monitoring wells, and sample collection. The fourth section of the report explains the results of the field investigation, including the general surface and subsurface conditions and detailed site-specific information acquired during subsurface investigations. Section 5 explains the regulatory standards that are used for comparison to the analytical results and Section 6 presents the analytical results of soil and groundwater samples analyzed for volatile and semi-volatile organic constituents, TPH, metals, and inorganic/general chemistry constituents. The results of these analyses are compared

to applicable State or federal cleanup and screening levels. Section 7 summarizes and provides an evaluation of the potential impacts and provides recommendations for any future actions.

Section 2
Background

This section presents background information for the Sludge Pits (SWMU No. 10) including a review of historical waste management activities to identity the following:

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

2.1 Sludge Pits (SWMU No. 10)

The Sludge Pits were originally included as a SWMU in the 1988 Hazardous and Solid Waste Act (HSWA) permit and subsequently included for investigation in the 1990 RCRA Facility Investigation (RFI) Work Plan.

2.2 Operational History

The Sludge Pits were put into service in 1958 and were removed from service in 1980, when the sludge was removed and the pit area was covered with a layer of soil. The source of the fill soil is unknown, but the refinery has historically sourced fill from on-site borrow areas that were not used for site operations. The exact date in 1980 of the removal activity is unknown but the sludge materials in the pits were removed and placed in the RCRA Permitted Land Treatment Unit after the pits were removed from service (Geoscience Consultants, Ltd., 1985). The volume of materials removed is unknown. There were two pits that covered an area of approximately 130 feet by 80 feet and 70 feet by 50 feet with a depth of 2 feet (Figure 2). The pits were used to contain oily waste removed from the API Separator (e.g., K-051 API Separator Sludge).

An analysis of metals in the refinery wastewater, which flowed through the API Separator, was conducted in July and August 1980. A copy of the summarized results are included in Appendix F (Geoscience Consultants, Ltd., 1985). The metal with the highest concentration is chromium. The sample with the highest chromium concentration was the cooling water tower blowdown. The results are not speciated between chromium III and chromium VI. The fact that the highest concentration was reported at the cooling tower could indicate that at least one source of the chromium was the

cooling tower. It was a common practice during that time period to use chromium VI as a corrosion inhibitor in cooling tower operations and chromate is reported to have been used at the cooling towers (EPA, 1987). An analysis of the separator sludge was conducted in March 1984 and while it did report total chromium at 0.036 mg/l, it did not detect the presence of chromium VI (Appendix F).

2.3 Historical Site Investigations

In 1990, during the Phase I RFI eight soil borings (RFI1001V through RFI1008V) were completed to depths of 13 feet below ground surface (bgs) (Figure 3) (Giant Refining Company, 1991). Soil samples were collected from depths of 0.0 feet bgs, 3.0 feet bgs, 6.0 feet bgs, 9.0 feet bgs, and 12.5 feet bgs. The soil samples were analyzed for metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, mercury, potassium, selenium, vanadium, and zinc), volatile organic compounds (VOCs), and semi volatile organic compounds (SVOCs) 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) and EPA Regional Screening Levels are also included in Tables 1 and 2. Based on the detection of constituents in the samples collected in 1990, EPA directed that deeper samples be collected from the same area. As shown on Figure 4, eight additional soil borings (RFI1014V through RFI1021V) were drilled to depths of 25 feet bgs using hollow-stem augers with soil samples collected at depths of 19.0 feet bgs and 25.0 feet bgs (Giant Refining Company, 1994). The soil samples were analyzed for VOCs, SVOCs, and metals and the results are summarized in Table 2.

The analytical results for the soil samples collected in 1990 indicated the presence of arsenic, barium, cadmium, chromium (compared to chromium VI screening levels), cobalt, copper, mercury, benzene, ethylbenzene, toluene, xylenes, 2,4-dimethylphenol, 2-methylnaphthalene, o-cresol, m&p-cresol, fluorene, naphthalene, and phenol at concentrations above screening levels. The metals were initially compared to background concentrations in the 1991 RFI report; however, NMED has not approved background concentrations for metals and thus it is not currently known how the reported metals concentrations compare to naturally occurring concentrations. The metals were found at concentrations above screening levels in all samples, in particular for chromium when compared to chromium VI screening levels and cobalt. The soil samples collected in 1990 were not analyzed to determine the valence state of the chromium, but rather it was reported as total chromium. The organic constituents with concentrations above the screening levels were detected in samples collected at boring locations RFI1002 at a depth of 3 feet bgs, RFI1004 from depths of 3 feet bgs to 9 feet bgs, and RFI1005 from depths of 6 feet bgs to 12.5 feet bgs.

The analytical results for the soil samples collected in 1994 indicated the presence of barium and di-n-butyl phthalate at concentrations above their respective screening levels. Barium was detected in all but one soil sample (RFI1015V25.0) above the screening level of 300 mg/kg. Di-n-butyl phthalate was detected at concentrations above the screening level (7.0 mg/kg) in four soil samples (RIF1018V19.0, RFI1019V25.0, RIF1021V19.0, and RFI1021V25.0). Di-n-butyl phthalate is a phthalate ester (plasticizer) and is considered by EPA to be a common laboratory contaminant (EPA, 1989).

Giant proposed to implement the corrective action plan (in-place bioremediation) that had previously been submitted to EPA in February 1993 and approved, with modifications, by EPA on January 7, 1994. There is no record of additional testing of soils to evaluate the effectiveness of in-place bioremediation after EPA's approval of the corrective action plan. 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. The Summary Report is included as Appendix B of the 2014 SWMU 10 Investigation Work Plan (Western Refining Southwest, Inc., 2014). The observations were as follows:

- The sludge pits area was observed to be vacant and inactive. No sign of soil staining or residual waste was evident at or in the vicinity of the site;
- Native shrubs and grasses were observed growing throughout the general vicinity. No signs of distress were evident; and
- Local soil in the vicinity of the sludge pits is bentonitic clays and silts. Similar soil strata from a neighboring SWMU exhibited a hydraulic conductivity of less than 10^{-7} cm/sec.

Section 3
Scope of Activities

3.1 Soil Boring, Temporary Monitoring Well Installation and Sample Collection

Pursuant to the approved Investigation Work Plan, an investigation of soils and groundwater was conducted to determine and evaluate the presence, nature, extent, fate, and transport of contaminants. To accomplish this objective, soil borings and temporary monitoring wells were installed at the Sludge Pits (Figure 7).

As outlined in the Investigation Work Plan, there is the potential for constituents to have been released to soils at known locations and therefore a judgmental sampling design was implemented.

3.1.1 Site Investigation

The scope of work for the investigation at the Sludge Pits consisted of the installation of a minimum of ten soil borings throughout the area of the former Sludge Pits. Borings were scheduled to be drilled to a minimum depth of 20 feet or to the top of bedrock. The scope of work required the collection of a groundwater sample if groundwater was encountered. During the investigation seven additional soil borings were added to the scope in an effort to delineate the extent of impacted soils as observed visually, from the results field screening using a photoionization detector (PID), or elevated concentrations in initial laboratory analytical reports. Fifty soil samples (excluding additional quality assurance samples) were collected for analysis of potential site-related constituents including Skinner List volatile and semi-volatile organics, total petroleum (i.e., gasoline, diesel, and motor oil range) hydrocarbons, Skinner List metals, iron, and manganese.

Samples were collected at the 17 locations shown on Figure 7. Thirteen soil borings were advanced using hollow stem augers. Eight of these borings were on the original scope of work. Five borings completed using hollow stem augers were added during the investigation. Temporary wells were installed in seven of these boreholes and were subsequently sampled. The following list provides a summary of the soil borings advanced using hollow stem augers:

- SWMU 10-1; advanced to 20 feet below ground level (bgl); temporary well installed;
- SWMU 10-3; advanced to 20 feet bgl; temporary well installed;
- SWMU 10-4; advanced to 20 feet bgl;

- SWMU 10-5; advanced to 24 feet bgl; temporary well installed;
- SWMU 10-7; advanced to 20 feet bgl;
- SWMU 10-8; advanced to 20 feet bgl;
- SWMU 10-9; advanced to 20 feet bgl;
- SWMU 10-10; advanced to 20 feet bgl;
- SWMU 10-11; additional boring; advanced to 20 feet bgl; temporary well installed;
- SWMU 10-12; additional boring; advanced to 22 feet bgl; temporary well installed;
- SWMU 10-13; additional boring; advanced to 20 feet bgl;
- SWMU 10-14; additional boring; advanced to 23 feet bgl; temporary well installed; and
- SWMU 10-15; additional boring; advanced to 20 feet bgl; temporary well installed.

Four soil borings were advanced using a hand auger. This deviation from the Investigation Work Plan was necessary when the soil boring location was not accessible to the drilling rig (e.g., uneven terrain, overhead electrical lines, and below grade utility lines). Two of these soil borings were on the original scope of work. Two of the soil borings completed with a hand auger were added during the investigation. A temporary well was installed in one of the boreholes and was subsequently sampled. The following list provides a summary of the soil borings advanced using a hand augers:

- SWMU 10-2; advanced to 4 feet bgl (refusal);
- SWMU 10-6; advanced to 12 feet bgl (refusal);
- SWMU 10-16; additional boring; advanced to 9 feet bgl (refusal); temporary well installed and
- SWMU 10-17; additional boring; advanced to 8 feet bgl.

Groundwater samples were collected from eight temporary well completions. The groundwater samples were analyzed for Skinner List volatile and semi-volatile organics, total petroleum (i.e., gasoline, diesel, and motor oil range) hydrocarbons, Skinner List metals, iron, manganese, chloride, fluoride, and sulfate. The following list provides a brief summary of the groundwater sample collection.

- SWMU 10-1; developed and sampled; yielded enough water for a full analytical suite;
- SWMU 10-3; developed and sampled; yielded enough water for a full analytical suite;
- SWMU 10-5; sampled only due to slow recharge rate; yielded enough water for a full analytical suite;

- SWMU 10-11; developed and sampled; yielded enough water for a full analytical suite; sheen observed on purge water;
- SWMU 10-12; developed and sampled; yielded enough water for a full analytical suite;
- SWMU 10-14; developed and sampled; yielded enough water for a full analytical suite; sheen observed on purge water;
- SWMU 10-15; developed and sampled; yielded enough water for a full analytical suite; and
- SWMU 10-16; sampled only due to a small water column in the temporary well completion; yielded enough water for only VOCs, SVOCs, and gasoline, diesel, and motor oil range petroleum hydrocarbons analyses.

3.2 Collection and Management of Investigation Derived Waste

Drill cuttings, excess sample material and decontamination fluids, and all other investigation derived waste (IDW) associated with soil borings were contained and characterized using methods based on the boring locations and type of contaminants suspected or encountered. All drill cuttings generated during the investigation at the Sludge Pits were collected and put into 55-gallon drums. A composite sample of all 24 drums was collected using a decontaminated stainless steel spoon and sent to Hall Environmental Laboratory for waste characterization analysis. The sample was analyzed for the following:

- Reactivity – Cyanide (SW846 CH7);
- Reactivity – Sulfide (SW846 CH7);
- Ignitability (Method 1030);
- Corrosivity – pH (Method 9045);
- Anions (Method 300.0);
- RCRA 8 (TCLP) Metals (Method 6010B);
- Additional Metals (Method 6010B) (Calcium, Magnesium, Potassium; and Sodium);
- Diesel Range Organics (Method 8015B);
- Motor Oil Range Organics (Method 8015B);
- Gasoline Range Organics (Method 8015B);
- TCLP Volatiles (Method 1311/8260B); and
- TCLP Semi-volatiles (Method 1311/8270C).

The Hall analytical report (#1505A00) is included in Appendix D.

Based on the analysis, 24 non-hazardous/non-regulated drums (4,384 pounds) were shipped off-site to Advanced Chemical Treatment Facility for disposal. All purge water and decontamination water was disposed in the refinery wastewater system upstream of the API Separator.

3.3 Surveys

A global positioning system receiver was used to record the coordinates of each soil boring. These coordinates were recorded on the field boring logs.

Section 4
Field Investigation Results

This section provides a summary of the surface and subsurface conditions at the refinery, including the area near the Sludge Pits (SWMU No. 10). A discussion is included on the installation of soil borings, field screening of soils, and collection of soil samples for analysis. This is followed by a description of the installation of temporary well completions and the collection of groundwater samples.

4.1 Surface Conditions

A topographic map of the area near the Sludge Pits is included as Figure 5. 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 SWMU No. 10 is at an approximate elevation of 6,910 feet to 6,900 feet above mean sea level (msl).

The McKinley County soil survey identifies the soil in the area of SWMU No. 10 as the Simitarq-Celavar sandy loams (USDA, 2005). 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 Puerco River valley, north of the Zuni Uplift with overland flows directed northward to the tributaries of the Puerco River. The Puerco River continues to the west to the confluence with the Little Colorado River. The South Fork of the Puerco River is intermittent and retains flow only during and immediately following precipitation events.

4.2 Subsurface Conditions

During the utilities clearance of the Sludge Pit area several underground pipelines were detected. The depth of these pipelines is unknown. It is not known whether these pipelines are active or inactive.

4.2.1 Geology

The shallow subsurface soils consist of fluvial and alluvial deposits comprised of clay and silt with minor inter-bedded sand layers. 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 Petrified Forest 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 Group with prevailing flow from the southeast to the northwest, with some flow potentially to the northeast on the northeastern portion of the refinery property.

The Quaternary alluvium, which occurs at the land surface in the area of the former Sludge Pits, is mapped regionally as a narrow band trending west-northwest and running just north of I-40 (Figure 6). The Quaternary alluvium is thought to be the parent material of the Simitarq-Celavar soils discussed above in Section 4.1. Two cross sections of the shallow subsurface in the immediate vicinity of the Sludge Pits are included as Figures 8 and Figure 9. Figure 7 shows the location of the two cross sections. As shown on the cross sections, the predominant lithology is silty clay with lesser amounts of sand in varying proportions. The predominant sand body occurs in the western portion of cross section A-A' and near both ends of cross section B-B'.

An isopach map of the sand thickness is included as Figure 10. This reflects an absence of sand in the eastern portion of the investigation area with a thickness up to 9 feet measured in two borings (SWMU 10-11 and SWMU 10-14) in the western area. The sand is still present but thinner to the north at boring SWMU 10-15 and to the southwest in boring SWMU 10-16. A second map (Figure 11) was prepared to show the current elevation on top of the bedrock (Chinle Group). This surface is probably reflective of the land surface present when the Quaternary alluvium was deposited. A comparison between the sand isopach map and the map of the bedrock surface elevation indicates a general lack of sand across most of the area with the highest surface elevations. There is a prominent northwest-southeast trending ridge on the elevation map with sand present only in boring SWMU 10-13 along this feature. The sand interval present in boring SWMU 10-13 is higher relative to the stratigraphically equivalent sand in other borings (e.g., SWMU 10-11 and SWMU 10-12) and is not saturated in boring SWMU 10-13. The surface elevation of the bedrock is not totally controlling of the sand distribution, as sand is also absent in the area of SWMU 10-5 even though there is a significant drop in the surface elevation at this location. Excavations for the sludge pits were

conducted in this area; however, there is no compelling evidence to indicate the excavations extended into the bedrock or otherwise altered the bedrock surface observed today.

Subcropping beneath the Quaternary alluvium is the Triassic Chinle Group (Figure 6). The stratigraphy of the Chinle Group was described in detail for the nearby Fort Wingate quadrangle by Lucas et al, 1997. The Painted Desert Member of the Petrified Forest Formation is the uppermost member of the Chinle Group present in the area of the refinery. The Painted Desert Member is described as reddish-brown and grayish red mudstone with minor beds of resistant, laminated or crossbedded, litharenite. This is consistent with the bedrock encountered at the refinery, as depicted on cross sections A-A' and B-B' (Figures 8 and 9). Beneath the Painted Desert Member is the Sonsela Member, which is described by Lucas et al (1997) as gray to yellowish-brown, fine-grained to conglomeratic, crossbedded sandstone. The base of the Sonsela Member is recognized as a basin wide unconformity, which was termed the Tr-4 unconformity (Heckert and Lucas, 1996). The Blue Mesa Member, which underlies the Sonsela Member, is the lowest member of the Petrified Forest Formation. The Blue Mesa Member is described as mostly purple and greenish-gray mudstone.

4.2.2 Hydrogeology

Generally, the potentiometric surface of the shallow groundwater at the refinery follows the land surface (Figure 12). The presence of shallow groundwater in the area of SWMU 10 appears to be controlled by the elevation of the bedrock surface and the presence or absence of permeable sediments (sand vs. clay). Of the seventeen soil borings completed, all but two (SWMU 10-2 and SWMU 10-17) were of sufficient depth to have identified the presence of saturation; however, only eight borings did encounter saturation. Three (SWMU10-1, SWMU 10-3, and SWMU 10-5) of these eight soil borings, which are located in the eastern portion of the investigation area, did not encounter any significant sand intervals but rather encountered saturation within predominantly silty/sandy clay that is not anticipated to have sufficient permeability to produce practically usable quantities of groundwater. In fact, the yield of water was so low at SWMU 10-5 and SWMU 10-16 that it was not practicable to fully develop these wells and at SWMU 10-16, there was not a sufficient volume of water to allow analyses for all analytes. The primary occurrence of shallow groundwater was identified in the western portion of the investigation area in borings SWMU 10-11, SWMU 10-12, and SWMU 10-14 where significant sand was present and the elevation on top of the bedrock was lower.

The diverse properties and complex, irregular stratigraphy of the Quaternary alluvium across the refinery cause a wide range of hydraulic conductivity ranging from less than 10^{-2} cm/sec for gravel like sands immediately overlying the Painted Desert Member to 10^{-8} cm/sec in the clay soils located near the surface (Western Refining, 2009). Permeability tests performed on the Quaternary alluvium beneath the nearby Land Treatment Unit (LTU) indicated an average permeability of 1.9E-05 cm/sec (Appendix A). Permeability tests performed on soils in the area of the firewater pond indicated an average permeability of 1.1E-07 cm/sec (Appendix A).

As described above, the bedrock (i.e., Petrified Forest Formation) is mainly composed of low permeability materials (e.g., mudstone) with the exception of the Sonsela Member and some thinner sandstones within the overlying Painted Desert Member. Yield tests, including slug tests and pumping tests have been performed at the refinery to estimate the hydraulic conductivity of the Painted Desert Member (Appendix A). A slug test performed on July 3, 1984 in well OW-4 indicated a hydraulic conductivity of 4.0E-7 cm/sec. A pump test was performed in well OW-24 on February 20, 1985 and it yielded a hydraulic conductivity of 2.5E-7 cm/sec. The Painted Desert Member appears to be a competent aquitard to reduce the potential for downward migration of contaminants from groundwater that may occur within the overlying Quaternary alluvium.

The Sonsela Member is identified as the uppermost aquifer for RCRA monitoring purposes at the LTU because the overlying groundwater bearing units are not capable of supplying sufficient quantities of groundwater to meet the definitions of an aquifer. Wells completed in a thinner permeable sandstone layer within the Painted Desert Member are also monitored near the LTU as a potential early warning network. The Sonsela's highest point occurs southeast of the site and slopes downward to the northwest as it passes under the refinery. The Sonsela Member forms a water-bearing reservoir with artesian conditions throughout the central and western portions of the refinery property (Western, 2009). Aquifer test of the Sonsela Member conducted northeast of Prewitt indicated a transmissivity of greater than 100 ft^2/day (Stone and others, 1983). Yield tests conducted at the site have shown a much lower hydraulic conductivity of 0.34 ft/day (1.2E-04 cm/sec) (Appendix A).

4.3 Exploratory Drilling Investigations, Soil Sampling and Boring Abandonment

This subsection provides a description of surface and subsurface investigations to locate potential impacts to soils and also the potential for soil impacts to have migrated vertically to the underlying

groundwater. This includes soil field screening results, soil sampling intervals and methods for detection of surface and subsurface impacts in soils.

Discrete soil samples for laboratory analyses were scheduled for collection at the following intervals:

- 0.0-0.5 feet (at soil borings with evidence of impacts near the land surface);
- 2.0-2.5 feet or the top of native soil if identifiable (at all soil borings);
- >2.0 feet (from the interval in each soil boring with the greatest apparent degree of contamination, based on field observations and field screening);
- From the bottom of each borehole (all soil borings);
- From the 0.5 foot interval at the top of saturation (applicable only to borings that reached saturation); and
- additional intervals as determined based on field screening results.

A description of the field screening and soil sampling procedures are presented in Appendix B – Field Methods. Copies of the boring logs are provided in Appendix D. In addition to being included on the soil boring logs, the soil vapor (i.e., headspace) screening results are summarized in Table 3. The locations of the soil borings appear on Figure 7.

4.3.1 Soil Investigation

Thirteen soil borings were advanced using the hollow-stem auger (HSA) method to a minimum depth of 20 feet bgl and all of these soil borings were drilled to the bedrock (claystone/mudstone). Four soil borings were advanced using a hand auger due to accessibility limitations for the drilling rig and these borings did not reach bedrock. The drilling equipment and hand auger equipment was decontaminated between each borehole, as described in Appendix B. Detailed soil boring logs are included in Appendix C. The soil boring logs describe the subsurface lithology, the presence of saturation, the field screening results, and any temporary well construction details. The installation of soil borings and collection of soil samples are discussed below in numerical order.

<u>SWMU 10-1</u>

On April 28, 2015 the drilling rig was set up on location SWMU 10-1. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Three soil samples were collected from the following intervals:

- 2 feet bgl - 4 feet bgl – Photoionization Detector (PID) reading - 25.7 ppm;

- 4 feet bgl - 6 feet bgl – Highest PID reading - 30.9 ppm; and
- 18 feet bgl - 20 feet bgl – Bottom of borehole, PID reading - 3.6 ppm.

No petroleum hydrocarbon odor or particularly elevated PID readings were detected. There was no apparent discoloration (i.e., black staining) of the soils.

The lithology encountered consisted of a surficial silty clay from 0 feet bgl - 4 feet bgl with the PID readings ranging from 14.8 ppm to 25.7 ppm. A soft, low plastic sandy clay was encountered from 4 feet bgl - 8 feet bgl. The sandy clay was damp to very moist and appeared to be saturated at 6 feet bgl. The PID readings range from 30.9 ppm to 26.6 ppm. A firm, high plastic clay was encountered from 8 feet bgl - 14 feet bgl with PID readings ranging from 20.7 ppm to 9.2 ppm. A claystone/mudstone (Chinle Group- Painted Desert Member) was encountered from 14 feet bgl – 20 feet bgl. The claystone/mudstone was observed to be low plasticity, very stiff/hard, light reddish brown, and dry. No petroleum odors were detected in this interval. The PID readings ranging from 11.3 ppm to 3.6 ppm.

The sampling terminated at 20 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 4 feet to 14 feet. On April 29, 2015 the well was gauged, developed and sampled. On May 1, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-2

On May 4, 2015 sample collection at SWMU 10-2 was accomplished using a hand auger. Overhead utility lines and uneven terrain prevented mobilization of the HSA drilling rig to this location. Two soil samples were collected from 0 feet bgl - 2 feet bgl and 2 feet bgl – 4 feet bgl. No petroleum odors were detected. The PID readings were 10.5 ppm (0 feet bgl – 2 feet bgl) and 8.0 ppm (2 feet bgl - 4 feet bgl).

The lithology encountered consisted of surficial silty clay from 0 feet bgl - 2 feet bgl. This clay was low to moderately plastic, stiff, damp, brown, and gravelly. A moderate to high plastic clay was observed from 2 feet bgl – 4 feet bgl. The clay was very stiff, damp, and reddish brown.

Sampling was terminated at 4 feet bgl due to auger refusal. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. The borehole was grouted on May 14, 2015.

SWMU 10-3

On April 28, 2015 the drilling rig was set up on location SWMU 10-3. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Three soil samples were collected from the following intervals:

- 2 feet bgl - 4 feet bgl – PID reading - 24.2 ppm;
- 6 feet bgl - 8 feet bgl – Highest PID reading below 2 feet bgl – 4 feet bgl - 18.9 ppm; and
- 18 feet bgl - 20 feet bgl – Bottom of borehole, PID reading – 2.5 ppm.

No petroleum hydrocarbon odor or elevated PID readings were observed. There was no apparent discoloration of the soils.

The lithology encountered consisted of a silty clay from 0 - 8 feet bgl with the PID readings ranging from 12.9 ppm to 24.2 ppm. A soft, low plastic sandy clay was encountered from 8 feet bgl - 12 feet bgl. The sandy clay was damp to very moist and appeared to be saturated at 8 feet bgl. The PID readings range from 17.6 ppm to 13.7 ppm. A firm, moderately plastic, damp, brown clay was encountered from 12 feet bgl - 13 feet bgl. The PID reading from this interval was 11.2 ppm. A high plastic, firm, damp, brown/reddish brown clay was encountered from 13 feet bgl – 14 feet bgl. A claystone/mudstone was encountered from 14 feet bgl – 20 feet bgl. The claystone/mudstone was observed to be low plasticity, very stiff/hard, light reddish brown, and dry. No petroleum odors were detected in this interval. The PID readings range from 7.6 ppm to 2.5 ppm.

The sampling terminated at 20 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 4 feet to 14 feet. On April 29, 2015 the well was gauged, developed and sampled. On May 1, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-4

On April 29, 2015 the drilling rig was set up on location SWMU 10-4. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Four soil samples were collected from the following intervals:

- 0 feet bgl – 2 feet bgl – PID reading – 40.5 ppm, duplicate collected at this interval;
- 2 feet bgl - 4 feet bgl – PID reading – 335 ppm, petroleum odor, black staining;
- 6 feet bgl - 8 feet bgl – Highest PID reading below 2 feet bgl – 4 feet bgl – 42.7 ppm; and
- 18 feet bgl - 20 feet bgl – Bottom of the borehole, PID reading - 3.8 ppm.

A petroleum hydrocarbon odor was observed from 2 feet bgl – 10 feet bgl. Black staining was observed in the sample interval 2 feet bgl – 4 feet bgl.

The lithology encountered consisted of a silty clay from 0 feet bgl - 4 feet bgl with the PID readings ranging from 40.5 ppm to 335 ppm. A silty sandy clay with a faint odor was encountered from 4 feet bgl - 8 feet bgl. The clay had low plasticity and was observed to be firm to soft, damp, and reddish brown. The PID readings range from 36.8 ppm to 42.7 ppm. A stiff, highly plastic, damp, reddish brown clay was encountered from 8 feet bgl - 10 feet bgl. The clay had a faint odor with a PID reading of 37.8 ppm.

A low plastic, soft, damp, reddish brown sandy clay was encountered from 10 feet bgl – 12 feet bgl. The PID reading was 25.6 ppm. A low plastic, firm, damp to dry, silty clay was encountered from 12 feet bgl – 16 feet bgl. The PID readings range from 31.1 ppm to 32.9 ppm. The clay was reddish brown (with a trace of gray), crumbly, and dense at the base. A claystone was encountered from 16 feet bgl – 20 feet bgl. The claystone was observed to be very stiff, light reddish brown, and dry. No odors were detected in this interval. The PID readings ranging from 14.1 ppm to 3.8 ppm.

The sampling terminated at 20 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was not set at this location since saturation was not encountered during the soil sampling. On May 1, 2015 the borehole was grouted.

SWMU 10-5

On April 29, 2015 the drilling rig was set up on location SWMU 10-5. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Five soil samples were collected from the following intervals:

- 0 feet bgl - 2 feet bgl – Interval exhibited petroleum odor, PID reading of 108 ppm and black staining;
- 2 feet bgl – 4 feet bgl – Interval exhibited petroleum odor, PID reading of 61 ppm;
- 4 feet bgl – 6 feet bgl – Interval exhibited petroleum odor, highest PID reading below 2 feet bgl – 4 feet bgl - 445 ppm;
- 14 feet bgl - 16 feet bgl – Interval exhibited petroleum odor, elevated PID reading of 75.2 ppm occurring between two intervals with relatively low PID readings of 3.5 ppm (12 feet bgl – 14 feet bgl) and 9.4 ppm (16 feet bgl – 18 feet bgl) ; and
- 22 feet bgl - 24 feet bgl – Bottom of the borehole, no odor, PID reading of 10.7 ppm.

The lithology encountered consisted of a surficial silty clay from 0 feet bgl - 2 feet bgl with the PID reading of 108 ppm. A very soft, sticky clay was encountered from 2 feet bgl - 22 feet bgl. The clay varied in color from green to brownish green to grayish green. The clay exhibited a hydrocarbon odor. The PID readings range from 445 ppm to 3.5 ppm. A claystone was encountered from 22 feet bgl – 24 feet bgl. The claystone was observed to be very stiff, light reddish brown with gray seams. No odors were detected in this interval. The PID reading was 10.7 ppm.

The sampling terminated at 24 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 12 feet to 22 feet. On May 4, 2015 the well was gauged and sampled. On May 4, 2015 the well casing and screen were removed. Phase-separated hydrocarbon (3 feet bgl to 6 feet bgl) was observed on the outside of the PVC casing when it was removed from the borehole. The borehole was grouted.

SWMU 10-6

On May 4, 2015 sample collection at SWMU 10-6 was accomplished using a hand auger. Overhead utility lines and uneven terrain prevented the mobilization of the HSA drilling rig to this location. Two soil samples were collected from 2 feet bgl - 4 feet bgl and 10 feet bgl – 12 feet bgl. A duplicate soil

sample was collected from the 10 feet bgl – 12 feet bgl interval. No petroleum odors were detected and no discoloration of the soil was observed. The PID readings range from 2.7 ppm (0 feet bgl – 2 feet bgl) to 4.7 ppm (4 feet bgl - 6 feet bgl).

The lithology encountered consisted of surficial silty clay from 0 feet bgl - 8 feet bgl. This low to moderately plastic clay was firm, damp, and reddish brown. A high plastic clay was observed from 8 feet bgl – 10 feet bgl. The clay was very stiff, damp, and reddish brown. A low plastic clay was encountered from 10 feet bgl – 12 feet bgl. The clay was stiff, dry, and light reddish brown.

The sampling was terminated at 12 feet bgl due to refusal. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. The borehole was grouted on May 14, 2015.

SWMU 10-7

On May 1, 2015 the drilling rig was set up on location SWMU 10-7. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Three soil samples were collected from the following intervals:

- 2 feet bgl - 4 feet bgl – PID reading – 9.5 ppm, black staining was observed at the base of this interval;
- 4 feet bgl - 6 feet bgl – Highest PID reading below 2 – 4 feet bgl – 10.6 ppm; and
- 18 feet bgl - 20 feet bgl – Bottom of borehole, PID reading – 2.7 ppm.

No petroleum hydrocarbon odor or elevated PID readings were observed.

The lithology encountered consisted of a silty clay from 0 feet bgl - 4 feet bgl with the PID readings ranging from 6.2 ppm to 9.5 ppm. A stiff to firm, high plastic clay was encountered from 4 feet bgl – 8 feet bgl. The clay was damp and reddish brown. The PID readings range from 10.6 ppm to 9.7 ppm. A claystone was encountered from 8 feet bgl – 20 feet bgl. The claystone was observed to be very stiff, light reddish brown, and dry. No odors were observed in this interval with the PID readings ranging from 9.1 ppm to 2.7 ppm.

The sampling terminated at 20 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was not set at this location since saturation was not encountered during the soil sampling. On May 1, 2015 the borehole was grouted.

SWMU 10-8

On April 30, 2015 the drilling rig was set up on location SWMU 10-8. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Three soil samples were collected from the following intervals:

- 2 feet bgl - 4 feet bgl – Interval exhibited petroleum odor, PID reading of 1489 ppm and black staining at base;
- 4 feet bgl – 6 feet bgl – Interval exhibited petroleum odor, highest PID reading below 2 feet bgl – 4 feet bgl - 400 ppm; and
- 18 feet bgl - 20 feet bgl – Bottom of the borehole, no odor, PID reading of 5.7 ppm.

The lithology encountered consisted of a silty clay from 0 feet bgl - 2 feet bgl with the PID reading of 12.9 ppm. Silty sandy clay was encountered from 2 feet bgl – 6 feet bgl. Hydrocarbon odor and staining was observed in this interval. There was no recovery of soil from the 6 feet bgl – 8 feet bgl interval. A claystone/mudstone was encountered from 8 feet bgl – 20 feet bgl. The claystone/mudstone was observed to be very stiff, dry, light reddish brown and gray. No odors were detected in this interval. The PID readings range from 24.6 ppm to 5.7 ppm.

The sampling terminated at 20 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was not set at this location since saturation was not encountered during the soil sampling. On May 1, 2015 the borehole was grouted.

SWMU 10-9

On April 30, 2015 the drilling rig was set up on location SWMU 10-9. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Three soil samples were collected from the following intervals:

- 2 feet bgl - 4 feet bgl – PID reading of 19.1, no odor;

- 4 feet bgl – 6 feet bgl – Interval exhibited petroleum odor, highest PID reading below 2 feet bgl – 4 feet bgl - 380 ppm; black staining was observed; a duplicate soil sample was collected from this interval; and
- 18 feet bgl - 20 feet bgl – Bottom of the borehole, no odor, PID reading of 6.2 ppm.

The lithology encountered consisted of a silty clay from 0 feet bgl - 4 feet bgl with the PID readings of 18 ppm and 19.1 ppm. Sandy clay was encountered from 4 feet bgl – 6 feet bgl. Hydrocarbon odor and staining was observed in this interval. A claystone was encountered from 6 feet bgl – 20 feet bgl. The claystone was observed to be very stiff, damp to dry, light reddish brown and gray. The interval from 6 feet bgl – 8 feet bgl exhibited a hydrocarbon odor. The PID readings range from 28.9 ppm to 4 ppm.

The sampling terminated at 20 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was not set at this location since saturation was not encountered during the soil sampling. On May 1, 2015 the borehole was grouted.

SWMU 10-10

On April 30, 2015 the drilling rig was set up on location SWMU 10-10. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Three soil samples were collected from the following intervals:

- 2 feet bgl - 4 feet bgl – PID reading of 18.4 ppm, no odor;
- 4 feet bgl – 6 feet bgl – Interval exhibited petroleum odor, black staining, highest PID reading below 2 feet bgl – 4 feet bgl - 1685 ppm; and
- 18 feet bgl - 20 feet bgl – Bottom of the borehole, no odor, PID reading of 8.5 ppm.

The lithology encountered consisted of clayey sand from 0 feet bgl - 6 feet bgl with the PID readings of 11.9, 18.4, and 1685 ppm. The clayey sand exhibited a petroleum odor and black staining was observed. The clayey sand was compact to loose and dry to damp. A low plastic, soft, damp, sandy clay was encountered from 6 feet bgl – 10 feet bgl. Hydrocarbon odor and staining was observed in this interval. The PID readings were 1514 ppm (6 feet bgl – 8 feet bgl) and 686 ppm (8 feet bgl – 10 feet bgl). A silty clay was encountered from 10 feet bgl - 12 feet bgl. This clay also exhibited a hydrocarbon odor and hydrocarbon staining. The PID reading was 655 ppm. A claystone was

encountered from 12 feet bgl – 20 feet bgl. The claystone was observed to be very stiff/dense, dry, light reddish brown and gray. The interval from 12 feet bgl - 14 feet bgl exhibited a faint hydrocarbon odor. The PID readings range from 75 ppm (12 feet bgl – 14 feet bgl) to 8.5 ppm (18 feet bgl – 20 feet bgl).

The sampling terminated at 20 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was not set at this location since saturation was not encountered during the soil sampling. On May 1, 2015 the borehole was grouted.

SWMU 10-11

On May 12, 2015 the drilling rig was set up on location SWMU 10-11. Sample collection was accomplished using the HSA drilling method and split spoon samplers. A sample was not collected from the 2 feet bgl – 4 feet bgl interval due to poor recovery during the sampling process. Three soil samples were collected from the following intervals:

- 4 feet bgl - 6 feet bgl – Interval exhibited petroleum odor, black staining, PID reading of 524 ppm;
- 8 feet bgl – 10 feet bgl – Interval exhibited petroleum odor, black sludge/staining, PID reading of 570 ppm; and
- 18 feet bgl - 20 feet bgl – Bottom of the borehole, no odor, PID reading of 13.4 ppm.

The lithology encountered consisted of silty clay from 0 feet bgl - 4 feet bgl with the PID readings of 13.1 ppm and 4.0 ppm. This low plastic clay was firm, damp, brown, and did not exhibit an odor or staining.

Clayey sand was encountered from 4 feet bgl - 12 feet bgl. The sand was fine grain, compact, and moist to saturated. The sand was stained and exhibited a hydrocarbon odor. The PID readings range from 570 ppm to 8.5 ppm. In the 12 feet bgl – 14 feet bgl interval the clayey sand transitioned to a sandy clay that was damp to very moist and exhibited a petroleum odor. The PID reading was 69.2 ppm. Sandy clay extended to a depth of 17 feet bgl. A noticeable hydrocarbon odor extended to 16 feet bgl. The PID reading decreased from 20.6 ppm (14 feet bgl – 16 feet bgl) to 7.2 ppm (16 feet bgl - 18 feet bgl).

A claystone was encountered from 17 feet bgl – 20 feet bgl. The claystone was observed to be very stiff, damp to dry, and reddish purple. This bottom interval did not exhibit an odor. The PID reading from 18 feet bgl – 20 feet bgl was 13.4 ppm.

The sampling terminated at 20 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 3 feet to 13 feet. On May 14, 2015 the well was gauged, developed and sampled. On May 14, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-12

On May 12, 2015 the drilling rig was set up on location SWMU 10-12. Sample collection was accomplished using the HSA drilling method and split spoon samplers. A sample was not collected from the 2 feet bgl – 4 feet bgl interval due to poor recovery during the sampling process. Two soil samples were collected from the following intervals:

- 6 feet bgl - 8 feet bgl – Interval exhibited black staining and asphalt type rock, PID reading of 4.5 ppm; and
- 20 feet bgl – 22 feet bgl – Bottom of the borehole, no odor, PID reading of 1.5 ppm.

The lithology encountered consisted of a silty clay from 0 feet bgl – 11 feet bgl with the PID readings ranging from 3.0 ppm to 6.9 ppm. This low plastic clay was firm, damp, and brown. Black staining and asphalt type rock was observed in the 6 feet bgl – 8 feet bgl interval. A clayey sand was encountered from 11 feet bgl – 12 feet bgl. The sand was fine grained, compact, saturated, and brown. No odors were detected in this interval. The PID reading was 6.1 ppm.

A fine grained, loose, saturated, brown silty sand was encountered from 12 feet bgl – 16 feet bgl. The PID readings were 4.9 ppm (12 feet bgl – 14 feet bgl) and 2.9 ppm (14 feet bgl – 16 feet bgl). A low plastic, firm, damp, brown, sandy clay was encountered from 16 feet bgl - 18 feet bgl. The PID reading was 1.8 ppm and no odors were detected. A gravelly clay was encountered from 18 feet bgl – 20 feet bgl. No odors were exhibited from this interval. The PID reading was 1.2 ppm.

A claystone was encountered from 20 feet bgl to 22 feet bgl. The claystone was observed to be very stiff, damp to dry, reddish purple, gray and dark reddish brown. This bottom interval did not exhibit an odor. The PID reading from 20 feet bgl - 22 feet bgl was 1.5 ppm.

The sampling terminated at 22 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 4 feet to 14 feet. On May 14, 2015 the well was gauged, developed and sampled. On May 14, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-13

On May 13, 2015 the drilling rig was set up on location SWMU 10-13. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Three soil samples were collected from the following intervals:

- 2 feet bgl- 4 feet bgl – PID reading of 5.6, no odor;
- 6 feet bgl - 8 feet bgl – Interval exhibited odor and black staining, highest PID reading below 2 feet bgl – 4 feet bgl - 1055 ppm; and
- 18 feet bgl - 20 feet bgl – Bottom of the borehole, no odor, PID reading of 14.1 ppm.

The lithology encountered consisted of a silty clay from 0 - 6 feet bgl with the PID readings ranging from 4.4 ppm (0 feet bgl – 2 feet bgl) to 775 ppm (4 feet bgl – 6 feet bgl). This silty clay was observed to be low plastic, very stiff to firm, damp to dry, and calcareous. A high plastic clay was encountered from 6 feet bgl – 8 feet bgl. The clay was observed to be firm, damp, dark brown with black hydrocarbon staining. Petroleum odors were exhibited from the interval. This interval also had a PID reading of 1055 ppm. A gravelly clay similar to the clay encountered from 6 feet bgl – 8 feet bgl was encountered from 8 feet bgl – 9 feet bgl. This clay had a petroleum odor and PID reading of 721 ppm.

A claystone was encountered from 9 feet bgl – 20 feet bgl. The claystone was observed to be very stiff, dry, and reddish purple. The interval from 9 feet bgl - 10 feet bgl exhibited a faint hydrocarbon odor. The PID readings range from 11 to 14.1 ppm.

The sampling terminated at 20 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was not set at this location since saturation was not encountered during the soil sampling. On May 14, 2015 the borehole was grouted.

SWMU 10-14

On May 12, 2015 the drilling rig was set up on location SWMU 10-14. Sample collection was accomplished using the HSA drilling method and split spoon samplers. A sample was not collected from the 2 feet bgl – 4 feet bgl interval due to no soil recovery during the sampling process. Two soil samples were collected from the following intervals:

- 6 feet bgl - 8 feet bgl – Interval exhibited petroleum odor and was dark brown, highest PID reading below 2 feet bgl – 4 feet bgl - 900 ppm; and
- 21 feet bgl - 23 feet bgl – Bottom of the borehole, no odor, PID reading of 1.8 ppm.

The lithology encountered consisted of a silty clay from 0 feet bgl - 2 feet bgl with a PID reading of 3.2 ppm. This silty clay was observed to be low plastic, firm, dry to damp, and calcareous. No odor was exhibited from this interval. There was no recovery from the 2 feet bgl – 4 feet bgl interval. A loose, light tan, saturated clayey gravel was encountered from 4 feet bgl – 6 feet bgl. The PID reading was 10.1 ppm. A faint petroleum odor was detected. A high plastic clay was encountered from 6 feet bgl – 6.75 feet bgl. The clay was observed to be stiff, damp, dark brown with a petroleum odor. This interval had a PID reading of 900 ppm.

A saturated clayey sand was encountered from 6.75 feet bgl – 8 feet bgl. The sand was fine grain, compact, and dark brown. The sand had a petroleum odor. A sandy clay was encountered below the clayey sand and was found to have low plasticity, very soft, damp to moist, and brown. This interval had a petroleum odor. The PID reading was 23.7 ppm.

A clayey gravelly sand was encountered from 10 feet bgl – 16 feet bgl. The sand was fine to coarse, brown, and saturated. No odor was detected and the PID readings range from 15.9 feet bgl to 22.4 feet bgl. A low plastic gravelly clay was below the clayey gravelly sand. The clay was very stiff, damp, reddish brown and gray. No odors were detected. The PID readings were 7.9 ppm (16 feet bgl – 18 feet bgl) and 5.2 ppm (18 feet bgl – 19 feet bgl).

A claystone was encountered from 19 feet bgl – 23 feet bgl. The claystone was observed to be very stiff, dry, reddish brown and gray. No odors were detected. The PID readings range from 6.1 ppm to 1.8 ppm.

The sampling terminated at 23 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was installed with the screened interval ranging from 2 feet to 12 feet. On May 14, 2015 the well was gauged, developed and sampled. On May 14, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-15

On May 13, 2015 the drilling rig was set up on location SWMU 10-15. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Three soil samples were collected from the following intervals:

- 2 feet bgl - 4 feet bgl – PID reading of 11.1 ppm, faint petroleum odor, black staining at 3.5 feet bgl;
- 4 feet bgl - 6 feet bgl – Interval exhibited faint petroleum odor and black staining, highest PID reading below 2 feet bgl – 4 feet bgl – 13.9 ppm; and
- 18 feet bgl - 20 feet bgl – Bottom of the borehole, no odor, PID reading of 7.1 ppm.

The lithology encountered consisted of the following alternating clays and sands:

- Silty clay 0 feet bgl – 0.5 feet bgl (low plastic, firm, and dry to damp);
- Clay 0.5 feet bgl – 2 feet bgl (high plastic, soft, damp);
- Sandy Clay 2 feet bgl – 4.5 feet bgl (low to moderate plasticity, soft, damp with black staining at 3.5 feet bgl, faint petroleum odor);
- Clay 4.5 feet bgl – 5.5 feet bgl (high plastic, soft, damp, faint petroleum odor);
- Sandy Clay 5.5 feet bgl – 8 feet bgl (low plasticity, soft, damp with saturated sand seam at 7 feet bgl);
- Clayey Sand 8 feet bgl – 9.5 feet bgl (loose, fine grained to small gravel, saturated);
- Clay 9.5 feet bgl – 10 feet bgl (high plastic, stiff, damp);
- Silty Clay 10 feet bgl – 11.5 feet bgl (moderate plasticity, firm, damp);
- Sandy Clay 11.5 feet bgl – 12.5 feet bgl (fine grained, moist to saturated);

- Silty Clay 12.5 feet bgl – 13 feet bgl (low plastic, firm, and damp);
- Clayey Sand 13 feet bgl – 14 feet bgl (fine grained, loose, saturated);
- Sandy Clay 14 feet bgl – 16 feet bgl (low plastic, firm, and damp);
- Clay 16 feet bgl – 17.5 feet bgl (low plastic, stiff, and damp)
- Claystone 17.5 feet bgl – 20 feet bgl (very stiff, dry)

The PID readings range from 7.1 ppm (18 feet bgl – 20 feet bgl) to 13.9 ppm (4 feet bgl – 6 feet bgl). Saturation was encountered at the following depths:

- 7 feet bgl – Sand seam approximately 3 inches thick;
- 8 feet bgl - 9.5 feet bgl – Clayey sand;
- 11.5 feet bgl - 12.50 feet bgl – Sandy clay; and
- 13 feet bgl – 14 feet bgl – Clayey sand.

The sampling terminated at 20 feet bgl. Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice.

A temporary well was installed with the screened interval ranging from 6 feet to 16 feet. On May 14, 2015 the well was gauged, developed and sampled. On May 14, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-16

On May 13, 2015 sample collection at SWMU 10-16 was accomplished using the hand auger. Overhead utility lines prevented the mobilization of the HSA drilling rig to this location. Three soil samples were collected from the following depths:

- 2 feet bgl - 4 feet bgl – PID reading of 4.9 ppm;
- 4 feet bgl – 5.5 feet bgl – PID reading of 4.4 ppm, immediately above saturation; and
- 8 feet bgl – 9 feet bgl – PID reading of 6.8 ppm, bottom-most sample.

The lithology encountered consisted of silty clay from 0 feet bgl - 5 feet bgl. This low plastic clay was firm, damp, and brown. A low plastic sandy clay was observed from 5 feet bgl – 5.5 feet bgl. The clay was firm to soft, damp to moist, and brown. A saturated clayey sand was encountered from 5.5 feet bgl to 8 feet bgl. The sand was fine grained, loose, and brown. The sampling was terminated at

9 feet in a high plastic, stiff, damp, brown clay. No odors, elevated PID readings or soil staining were observed in the soils from this boring.

Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. A temporary well was installed with the screened interval ranging from 0 feet to 8.5 feet. On May 14, 2015 the well was gauged and sampled. The well was not purged due to the small fluid column in the well (2.78 feet). On May 14, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-17

On May 13, 2015 sample collection at SWMU 10-17 was accomplished using the hand auger. The lithology encountered consisted of silty clay from 0 feet bgl - 4 feet bgl. This low plastic, stiff clay was damp and brown. A clayey sand was encountered from 4 to 8 feet bgl. The sand was fine grained, compact, and damp to moist. The sand exhibited a petroleum odor and a PID reading of 1667 ppm. A soil sample and a duplicate soil sample were collected from the 6 feet bgl – 8 feet bgl interval. The sampling was terminated at 8 feet bgl. The soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. A temporary well was not installed at this location. On May 14, 2015 the borehole was grouted.

4.4 Temporary Monitor Well Construction and Groundwater Sampling

This subsection provides a description of groundwater investigations to locate potential impacts to the groundwater in the area of the Sludge Pits. This includes the installation of temporary monitor wells, measurement of fluid levels, well development/purging, collection of groundwater field data, and the collection of groundwater samples.

A description of the well installations and groundwater sampling procedures are presented in Appendix B – Field Methods. Copies of the boring logs that include the well settings are provided in Appendix C. Field measurements of groundwater stabilization parameters included pH, specific conductance, dissolved oxygen concentrations, oxidation-reduction potential, and temperature. These measurements are presented in Table 4 . The locations of the soil borings with temporary well completions appear on Figure 7.

4.4.1 Groundwater Investigation

Groundwater samples were collected from eight temporary well completions. The following list provides a brief summary of the well development and groundwater sample collection activities:

- SWMU 10-1; developed and sampled; yielded enough water for a full analytical suite;
- SWMU 10-3; developed and sampled; yielded enough water for a full analytical suite;
- SWMU 10-5; sampled only due to slow recharge rate; yielded enough water for a full analytical suite;
- SWMU 10-11; developed and sampled; yielded enough water for a full analytical suite; sheen observed on purge water;
- SWMU 10-12; developed and sampled; yielded enough water for a full analytical suite;
- SWMU 10-14; developed and sampled; yielded enough water for a full analytical suite; sheen observed on purge water;
- SWMU 10-15; developed and sampled; yielded enough water for a full analytical suite; and
- SWMU 10-16; sampled only due to a small water column in the temporary well completion; yielded enough water for VOCs, SVOCs, and gasoline, diesel, and motor oil range petroleum hydrocarbons analyses.

The drilling equipment and hand auger equipment was decontaminated between each borehole, as described in Appendix B. The well development and purging is also discussed in Appendix B. The installation of the temporary wells and collection of groundwater samples are discussed below in numerical order for the samples collected near the former Sludge Pits.

SWMU 10-1

On April 28, 2015 the drilling rig was set up on location SWMU 10-1. The boring was installed using the HSA drilling method. Groundwater was encountered at approximately 6 feet bgl in a sandy clay. A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 4 feet bgl to 14 feet bgl to include the sandy clay interval at a depth of 6 feet bgl to 8 feet bgl that indicated the presence of saturation. The screen extends downward to the top of the bedrock to also potentially encounter any groundwater on top of the bedrock surface. A sand filter pack was installed to approximately 2 feet bgl. A bentonite seal was installed to approximately 1 foot bgl. The top of casing was approximately 3.25 feet above ground level.

On April 29, 2015 the well was gauged. The depth to water was 10.63 feet below the top of casing (btoc). The groundwater level was approximately 7.38 feet bgl. Approximately 5 gallons of groundwater were developed/purged from the well by 9:20 am on April 29, 2015. The purge water was brown and turbid. The well was sampled on April 29, 2015 at 5:10 pm. There was a sufficient volume of groundwater to collect samples for a full analytical suite as specified in the Investigation Work Plan and discussed further in Section 6.2. All purge/development water was disposed at the bundle cleaning pad on April 29, 2015. On May 1, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-3

On April 28, 2015 the drilling rig was set up on location SWMU 10-3. The boring was installed using the HSA drilling method. Groundwater was encountered in sand seams that were identified in a sandy clay interval, which extended from 8 feet bgl to 12 feet bgl. A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 4 feet bgl to 14 feet bgl to cover the length of the silty clay from 8 feet bgl to 12 feet bgl, which was very moist and indicated the greatest potential to yield groundwater. The screen also extended to the top of bedrock to encounter any groundwater accumulating on this surface. A filter pack was installed to approximately 2 feet bgl. A bentonite seal was installed to approximately 1 foot bgl. The top of casing was approximately 3.13 feet above ground level.

On April 29, 2015 the well was gauged. The depth to water was 14.18 feet btoc. The groundwater level was approximately 11.05 feet bgl. Approximately two gallons of groundwater were developed/purged from the well on April 29, 2015. The purge water was brown, cloudy and did not exhibit an odor. There was enough groundwater to collect samples for a full analytical suite on April 29, 2015. All purge/development water was disposed at the bundle cleaning pad. On May 1, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-5

On April 29, 2015 the drilling rig was set up on location SWMU 10-5. The boring was installed using the HSA drilling method. Groundwater saturation was not readily apparent during the collection of soil samples, which consisted clay from the land surface to the top of bedrock at 22 feet bgl. A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 12 feet bgl to 22 feet bgl to include the top of bedrock. A filter pack was installed to approximately 10 feet bgl. A bentonite seal was installed to

approximately 9 feet bgl. The top of casing was approximately 3.00 feet above ground level. The well was gauged immediately after the installation of the well materials. No groundwater was detected in the well. The total depth of the well was 24.48 feet btoc (21.48 feet bgl).

On May 1, 2015 the well was gauged and the depth to groundwater was 19.48 feet btoc. The groundwater level was approximately 16.48 feet bgl. The fluid column in the well was 5 feet in thickness. On May 4, 2015 the well was gauged. The depth to water was 14.91 feet btoc. The groundwater level was approximately 11.91 feet bgl. The fluid column in the well was 9.57 feet.

Due to the very slow groundwater recharge rate in this well, the well was not developed/purged. There was enough groundwater to collect samples on May 4, 2015 for a full analytical suite. The water was slightly turbid and did not exhibit an odor.

On May 4, 2015 the well casing and screen were removed from the borehole. Separate phase hydrocarbon (SPH) was observed on the outside of the well casing at approximately three to six feet below ground level. This is above the level to which groundwater recovered and there was no indication of SPH in the soil samples, thus the source of the SPH is not readily apparent. The borehole was grouted.

SWMU 10-11

On May 12, 2015 the drilling rig was set up on location SWMU 10-11. The boring was installed using the HSA drilling method. Groundwater saturation was encountered at four feet bgl in a clayey sand that was black and exhibited a petroleum odor.

A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 3 feet bgl to 13 feet bgl to include all of the saturated clayey sand interval that extended from 4 feet to 12 feet, where it transitioned to a damp sandy clay. A filter pack was installed to approximately 1 feet bgl. A bentonite seal was installed to ground level. The top of casing was approximately 3.08 feet above ground level.

On May 14, 2015 the well was gauged. The depth to water was 6.43 feet btoc. The groundwater level was approximately 3.35 feet bgl. The depth to the bottom of the well was 16.65 feet btoc. Approximately 5.25 gallons of groundwater were developed/purged from the well on May 14, 2015 prior to collection of the groundwater samples.

The purge water was turbid and a sheen was observed on the purge water. The water did not exhibit an odor. There was enough groundwater to collect samples for a full analytical suite. All purge water was disposed at the bundle cleaning pad on May 14, 2015. On May 14, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-12

On May 12, 2015 the drilling rig was set up on location SWMU 10-12. The boring was installed using the HSA drilling method. Groundwater saturation was first encountered at 4 feet bgl in a very moist silty clay. A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 4 feet to 14 feet. The screen placement included the uppermost interval indicating the potential to produce water in the silty clay that extended from 4 feet bgl to 11 feet bgl and the underlying clayey/silty sand that was saturated. A filter pack was installed to approximately 2 feet bgl. A bentonite seal was installed to ground level. The top of casing was approximately 2.92 feet above ground level.

On May 14, 2015 the well was gauged. The depth to water was 6.30 feet btoc. The groundwater level was approximately 3.38 feet bgl. The depth to the bottom of the well was 17.48 feet btoc. Approximately 5.75 gallons of groundwater were developed/purged from the well by on May 14, 2015 prior to sample collection.

The purge water was turbid and did not exhibit an odor. There was enough groundwater to collect samples for a full analytical suite. All purge water was disposed at the bundle cleaning pad on May 14, 2015. On May 14, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-14

On May 12, 2015 the drilling rig was set up on location SWMU 10-14. The boring was installed using the HSA drilling method. Groundwater saturation was encountered at two feet bgl. A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 2 feet to 12 feet. The top of the well screened corresponded with the anticipated depth of groundwater and extended deeper to include the upper 10 feet of saturated soils. The screened soils included loose, light tan, saturated clayey gravel from 4 feet bgl to 6 feet bgl, a high plastic clay from 6 feet bgl to 6.75 feet bgl, saturated clayey sand from 6.75 feet bgl to 8

feet bgl, sandy clay from 8 feet bgl to 10 feet bgl, and clayey gravelly sand was encountered from 10 feet bgl to 16 feet bgl.

A filter pack was installed to approximately 1 feet bgl. A bentonite seal was installed to ground level. The top of casing was approximately 2.00 feet above ground level.

On May 14, 2015 the well was gauged. The depth to water was 6.00 feet btoc. The groundwater level was approximately 4.00 feet bgl. The depth to the bottom of the well was 14.50 feet btoc. Approximately 5 gallons of groundwater were purged from the well by on May 14, 2015 before collecting the groundwater samples.

The purge water was turbid, reddish brown and a sheen was observed on the purge water. The water did not exhibit an odor. There was enough groundwater to collect samples for a full analytical suite. All purge water was disposed at the bundle cleaning pad on May 14, 2015. On May 14, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-15

On May 13, 2015 the drilling rig was set up on location SWMU 10-15. The boring was installed using the HSA drilling method. Groundwater saturation was first encountered at 7 feet bgl in a sand seam within a sandy clay. A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 6 feet to 16 feet. The screened interval included the uppermost indication of saturation and included the 10-foot interval below. The screened soils included sandy clay from 6 to 8 feet bgl with saturated sand seams at 7 feet, saturated clayey sand from 8 feet bgl to 9.5 feet bgl, clay from 9.5 feet bgl to 10 feet bgl, silty clay from 10 feet bgl to 11.5 feet bgl, very moist to saturated sandy clay from 11.5 feet bgl to 12.5 feet bgl, silty clay from 12.5 feet bgl to 13 feet bgl, saturated clayey sand from 13 feet bgl to 14 feet bgl, and sandy clay from 14 feet bgl to 16 feet bgl.

A filter pack was installed to approximately 4 feet bgl. A bentonite seal was installed to ground level. The top of casing was approximately 3.33 feet above ground level.

On May 14, 2015 the well was gauged. The depth to water was 7.64 feet btoc. The groundwater level was approximately 4.31 feet bgl. The depth to the bottom of the well was 20.10 feet btoc. Approximately 6.5 gallons of groundwater were purged from the well by on May 14, 2015 and groundwater samples were collected.

The purge water was turbid and did not exhibit a petroleum odor. There was enough groundwater to collect samples for a full analytical suite. A duplicate groundwater sample was also collected from this location. All purge water was disposed at the bundle cleaning pad on May 14, 2015. On May 14, 2015 the well casing and screen were removed and the borehole was grouted.

SWMU 10-16

On May 13, 2015 sample collection at SWMU 10-16 was accomplished using the hand auger. Overhead utility lines prevented the mobilization of the HSA drilling rig to this location. Groundwater saturation was encountered at 5.5 feet bgl in a clayey sand. A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. Due to the shallow depth of the boring, it was possible to install the screen from ground level to bottom of the boring at 9 feet bgl. The soils indicating saturation consisted of clayey sand and extended from 5.5 feet bgl to 8 feet bgl. A filter pack and bentonite seal were not installed. The top of screen extended to approximately 1.5 feet above ground level.

On May 14, 2015 the well was gauged. The depth to water was 7.70 feet btoc. The groundwater level was approximately 6.20 feet bgl. The depth to the bottom of the well was 10.48 feet btoc. Due to the small fluid column (2.78 feet - 0.47 gallons) in this well, the well was not developed/purged. There was enough groundwater to collect samples for only VOCs, TPH, and SVOC analyses. The water was turbid and did not exhibit an odor.

Section 5
Regulatory Criteria

The applicable screening and potential cleanup levels are specified in NMED's *Risk Assessment Guidance for Site Investigations and Remediation* dated July 2015 and in the Environmental Protection Agency's (EPA) Regional Screening Levels dated November 2015.

For non-residential properties (e.g., the Gallup Refinery), the soil screening levels must be protective of commercial/industrial workers throughout the upper one foot of surface soils and construction workers throughout the upper ten feet based on NMED criteria. NMED residential soil screening levels are applied to the upper ten feet and soil screening levels for protection of groundwater apply throughout the vadose zone. EPA soil screening levels for direct contact exposure apply to the upper two feet of the vadose zone. To achieve closure as "corrective action complete without controls", the affected media must meet residential screening levels, which are presented in Table 5. Table 5 also provides a list of the available NMED and EPA soil screening levels for non-residential properties. While Table 5 indicates the various depths to which the individual soil screening levels are applicable, Table 7 discussed below does not include this level of detail.

The groundwater cleanup levels are based on New Mexico Water Quality Control Commission (WQCC) standards (20.6.2.7 WW NMAC, 20.6.2.3103, and 20.6.2.4103) unless there is a federal maximum contaminant level (MCL), in which case the lower of the two values is selected as the cleanup level. If neither a WCQQ standard nor an MCL is available, then the cleanup level is based on a NMED Tap Water Screening Level. If a NMED Tap Water Screening Level is not available for a constituent, then an EPA Regional Screening Level is used. If an EPA Regional Screening Level is for a carcinogenic compound, then the screening level is multiplied by 10 to bring the risk level to 1E-05 to be consistent with the NMED screening levels. Table 6 presents the groundwater cleanup levels, with the applicable cleanup level bolded.

The aforementioned Table 5 has soil screening levels for the soil-to-groundwater pathway that are based on a dilution/attenuation factor (DAF) of 1.0, which is NMED's most conservative screening level for this pathway. A review of site conditions (i.e., predominance of very fine-grained soils and limited occurrence of groundwater with low yields) indicates that a DAF of 1.0 is overly conservative, thus NMED's DAF value of 20, which was chosen to better reflect site-specific conditions at the

location of the former Sludge Pits. NMED has indicated that a DAF of 20 with 0.5 acre source areas is protective of groundwater where fine-grained sand is present (NMED, 2015).

The screening levels that are compared to individual soil sample results from SWMU No. 10 (Sludge Pits) are presented in Table 7. The screening levels included in Table 7 are based on residential and non-residential land use and include a screening level to evaluate the potential for constituents to migrate to groundwater using DAF value of 20. For the non-residential screening levels, the lower of the construction worker scenario and commercial/industrial scenario screening levels for each constituent is included in the data tables if NMED screening levels are available. If NMED soil screening levels are not available for a particular constituent, then EPA soils screening levels are used. If an EPA soil screening level is for a carcinogenic compound, then the screening level is multiplied by 10 to bring the risk level to 1E-05 to be consistent with the NMED screening levels. The screening levels in Table 7 have not been segregated based on depth of the soil sample as discussed above for Table 5. The screening levels that are compared to individual groundwater sample results from SWMU No. 10 are presented in Table 8.

A review of the NMED guidelines for TPH indicates that the TPH screening levels were developed based on screening levels and compositional assumptions developed by the Massachusetts Department of Environmental Protection (MADEP). The analytical results, as presented in Table 7, are reported for gasoline range organics (C6-C10), diesel range organics (>C10-C28), and motor oil range organics (>C28-C35). The applicable TPH screening levels for comparison to the individual soil samples are selected from Table 6-2 of the NMED guidance (NMED, 2015).

There are no soil screening levels for gasoline range organics and the individual compounds listed for groundwater (gasoline range criteria) are included in the list of analytes used for site samples. As there could have been a variety of petroleum types (e.g., crude oil or various refined products) going to the former Sludge Pits, the screening level for “unknown oil” was selected for comparison to the diesel range and motor oil range soil analytical results.

The motor oil range analytical results are compared to the “unknown oil” screening level as directed by NMED. However, it is noted that the laboratory analyses for motor oil range organics only reports results for the >C28 to C35 hydrocarbon range, while the “unknown oil” screening level is based on a hydrocarbon mixture assumed to include only C11-C22 aromatics.

Some of the individual constituents reported by the laboratory do not have screening levels but were all non-detect with respect to soil, except 4-isopropyltoluene and 3+4-methylphenol. With respect to groundwater, there were also detections of constituents that do not have screening levels. The constituents detected in groundwater that do not have screening levels include, 4-isopropyltoluene, 4-methyl-2-pentanone, n-butylbenzene, n-propylbenzene, and sec-butylbenzene. None of these constituents are classified as a known carcinogen.

Section 6
Site Impacts

This section discusses the chemical analyses performed and presents the analytical results that were obtained through the analysis of soil and groundwater samples, which were collected at the former Sludge Pits. The results for soils and groundwater analyses are presented and compared to applicable screening levels, as described in Section 5.0.

6.1 Soil Analytical Results

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

- SW-846 Method 8260/5035 volatile organic compounds;
- SW-846 Method 8270C semi-volatile organic compounds; and
- SW-846 Method 8015D gasoline, diesel, and motor oil range petroleum hydrocarbons.

Soil samples were analyzed for the following metals using the indicated analytical methods, respectively.

Analyte	Analytical Method
Antimony	SW-846 Method 6010B
Arsenic	SW-846 Method 6010B
Barium	SW-846 Method 6010B
Beryllium	SW-846 Method 6010B
Cadmium	SW-846 Method 6010B
Chromium	SW-846 Method 6010B
Cobalt	SW-846 Method 6010B
Cyanide	SW-846 Method 9012B

Analyte	Analytical Method
Hexavalent Chromium	SW-846 Method 3060A/7196A
Iron	SW-846 Method 6010B
Lead	SW-846 Method 6010B
Mercury	SW-846 Method 7471
Manganese	SW-846 Method 6010B
Nickel	SW-846 Method 6010B
Selenium	SW-846 Method 6010B
Silver	SW-846 Method 6010B
Vanadium	SW-846 Method 6010B
Zinc	SW-846 Method 6010B

The analytical results for soil samples collected at the former Sludge Pits are summarized in Table 7. The individual results that exceed the applicable cleanup levels are highlighted, as noted in the table footnotes. Maps showing the distribution of constituents detected in soils above the lowest applicable screening levels are included as Figures 13 through 27, with the exception of bromomethane, toluene, 2,4-dimethylphenol, and 2-methylphenol. These four constituents were detected in only a single soil sample at a concentration above the respective screening level and are discussed below. The concentrations shown on figures that exceed the screening levels in Table 7 are underlined on the figures. The laboratory analytical reports are included in Appendix D and the data validation of the results, which includes the analytical results for the associated QA/QC samples, is included in Appendix E.

The constituents that have concentrations in soils above screening levels as measured in samples collected from the Sludge Pits are discussed below.

Arsenic was detected at concentrations above the DAF screening level of 0.299 mg/kg in all of but two of the 48 soil samples analyzed. The concentrations are shown on Figure 13. The detected concentrations range from 0.84 mg/kg to 2.6 mg/kg. All sample results are less than the residential

soil screening level of 4.25 mg/kg. Although a site-specific background concentration has not been determined for arsenic, it is possible these relatively low concentrations are reflective naturally occurring concentrations of arsenic in site soils.

Barium was detected at concentrations above the DAF screening level of 2,700 mg/kg in one soil sample [SWMU 10-3 (6-8')] at a concentration of 2,900 mg/kg. The detected concentrations range from 52 to 2,900 mg/kg. The concentrations are plotted on Figure 14. All sample results are less than the residential soil screening level of 15,600 mg/kg and the non-residential soil screening level of 4,350 mg/kg.

Cobalt was detected at concentrations above the DAF screening level of 5.4 mg/kg in 19 soil samples [SWMU 10-1 (18-20'), SWMU 10-3 (6-8'), SWMU 10-3 (18-20'), SWMU 10-4 (18-20'), SWMU 10-5 (0-2'), SWMU 10-5 (22-24'), SWMU 10-6 (10-12'), SWMU 10-7 (4-6'), SWMU 10-7 (18-20'), SWMU 10-8 (18-20'), SWMU 10-9 (18-20'), SWMU 10-10 (18-20'), SWMU 10-11 (18-20'), SWMU 10-12 (6-8'), SWMU 10-12 (20-22'), SWMU 10-13 (6-8'), SWMU 10-13 (18-20'), SWMU 10-15 (18-20'), and SWMU 10-16 (8-9')] as indicated with highlighting in Table 7. The detected concentrations range from 1 to 9.1 mg/kg. The concentrations are plotted on Figure 15. All sample results are less than the residential soil screening level of 23 mg/kg. It was observed that the samples with the higher concentrations were consistently collected from the deepest sampled intervals, often from the bedrock that did not otherwise indicate the presence of contamination. The detections of cobalt above screening levels may be reflective of naturally occurring concentrations but a site-specific evaluation of background concentrations will be necessary to evaluate this hypothesis.

Iron was detected at concentrations above the DAF screening level of 7,000 mg/kg in all 48 soil samples analyzed. The concentrations are shown on Figure 16. The detected concentrations range from 7,200 mg/kg to 24,000 mg/kg. All sample results are less than the residential soil screening level of 55,000 mg/kg. It is likely that many of the reported iron concentrations are reflective of naturally occurring concentrations.

Manganese was detected at concentrations above the DAF screening level of 560 mg/kg in 17 soil samples [SWMU 10-2 (0-2'), SWMU 10-3 (2-4'), SWMU 10-3 (6-8'), SWMU 10-3 (18-20'), SWMU 10-4 (18-20'), SWMU 10-5 (0-2'), SWMU 10-5 (22-24'), SWMU 10-6 (10-12'), SWMU 10-7 (2-4'), SWMU 10-7 (4-6'), SWMU 10-8 (18-20'), SWMU 10-9 (18-20'), SWMU 10-10 (18-20'), SWMU 10-11 (18-20'), SWMU 10-12 (20-22'), SWMU 10-15 (18-20'), and SWMU 10-16 (8-9')] as indicated with

highlighting in Table 7. The detected concentrations range from 94 to 1,300 mg/kg. The concentrations are plotted on Figure 17. All sample results are less than the residential soil screening level of 1,800 mg/kg. Somewhat similar to cobalt, it was observed that many, but not all, of the samples with the higher concentrations were collected from the deepest sampled intervals, often from the bedrock that did not otherwise indicate the presence of contamination. It is likely that many of the reported manganese concentrations are reflective of naturally occurring concentrations.

There were six soil samples with concentrations of 1,2,4-trimethylbenzene above the DAF screening level of 0.42 mg/kg [SWMU 10-5 (4-6'), SWMU 10-8 (2-4'), SWMU 10-10 (4-6'), SWMU 10-11 (8-10'), SWMU 10-13 (6-8'), and SWMU 10-17 (6-8')] as indicated with highlighting in Table 7. The detected concentrations range from 0.0004 to 27 mg/kg. The concentrations are plotted on Figure 18. All sample results are less than the residential soil screening level of 58 mg/kg.

There were four soil samples with concentrations of 1,3,5-trimethylbenzene above the DAF screening level of 3.4 mg/kg [SWMU 10-5 (4-6'), SWMU 10-8 (2-4'), SWMU 10-10 (4-6'), and SWMU 10-17 (6-8')] as indicated with highlighting in Table 7. The detected concentrations range from 0.000318 to 10 mg/kg. The concentrations are plotted on Figure 19. All sample results are less than the residential soil screening level of 780 mg/kg.

1-Methylnaphthalene was detected at concentrations above the DAF screening level of 0.116 mg/kg in 13 soil samples [SWMU 10-4 (2-4'), SWMU 10-5 (0-2'), SWMU 10-5 (2-4'), SWMU 10-5 (4-6'), SWMU 10-5 (14-16'), SWMU 10-8 (2-4'), SWMU 10-8 (4-6'), SWMU 10-9 (4-6'), SWMU 10-10 (4-6'), SWMU 10-11 (4-6'), SWMU 10-11 (8-10'), SWMU 10-13 (6-8'), and SWMU 10-17 (6-8')] as indicated with highlighting in Table 7. The detected concentrations range from 0.000843 to 76 mg/kg and all detected concentrations are less than the residential screening level of 180 mg/kg. The concentrations are plotted on Figure 20.

2-Methylnaphthalene was detected at concentrations above the DAF screening level of 3.8 mg/kg in 7 soil samples [SWMU 10-5 (4-6'), SWMU 10-8 (2-4'), SWMU 10-10 (4-6'), SWMU 10-11 (4-6'), SWMU 10-11 (8-10'), SWMU 10-13 (6-8'), and SWMU 10-17 (6-8') as indicated with highlighting in Table 7. The detected concentrations range from 0.000852 to 130 mg/kg and all detected concentrations are less than the residential screening level of 240 mg/kg. The concentrations are plotted on Figure 21.

Benzene was detected at concentrations above the DAF screening level of 0.038 mg/kg in seven soil samples [SWMU 10-5 (2-4'), SWMU 10-5 (4-6'), SWMU 10-5 (14-16'), SWMU 10-8 (2-4'), SWMU 10-8 (4-6'), SWMU 10-10 (4-6'), and SWMU 10-17 (6-8')] as indicated with highlighting in Table 7. The detected concentrations range from 0.000788 to 8 mg/kg. The concentrations are plotted on Figure 22. All sample results are less than the residential soil screening level of 17.8 mg/kg.

There was one soil sample with a concentration of bromomethane above the DAF screening level of 0.0343 mg/kg [SWMU 10-11 (4-6')] as indicated with highlighting in Table 7. The detected concentrations range from 0.023 mg/kg to 0.12 mg/kg. All sample results are less than the residential soil screening level of 17.7 mg/kg.

There were five soil samples with a concentration of ethylbenzene above the DAF screening level of 0.262 mg/kg detected samples [SWMU 10-5 (4-6'), SWMU 10-8 (2-4'), SWMU 10-10 (4-6'), SWMU 10-13 (6-8'), and SWMU 10-17 (6-8')] as indicated with highlighting in Table 7. The detected concentrations range from 0.000313 mg/kg to 14 mg/kg. The concentrations are plotted on Figure 23. All sample results are less than the residential soil screening level of 75.1 mg/kg.

Naphthalene was detected at concentrations above the DAF screening level of 0.0823 mg/kg in 12 soil samples [SWMU 10-5 (0-2'), SWMU 10-5 (2-4'), SWMU 10-5 (4-6'), SWMU 10-5 (14-16'), SWMU 10-8 (2-4'), SWMU 10-8 (4-6'), SWMU 10-9 (4-6'), SWMU 10-10 (4-6'), SWMU 10-11 (4-6'), SWMU 10-11 (8-10'), SWMU 10-13 (6-8'), and SWMU 10-17 (6-8')] as indicated with highlighting in Table 7. The detected concentrations range from 0.000725 mg/kg to 26 mg/kg. The concentrations are plotted on Figure 24. All sample results are less than the residential soil screening level of 49.7 mg/kg.

There was one soil sample with a concentration of toluene above the DAF screening level of 12.1 mg/kg [SWMU 10-17 (6-8')] as indicated with highlighting in Table 7. The detected concentrations range from 0.000255 to 34 mg/kg. All sample results are less than the residential soil screening level of 5,230 mg/kg.

There were five soil samples with a concentration of xylenes above the DAF screening level of 2.98 mg/kg detected samples [SWMU 10-5 (4-6'), SWMU 10-8 (2-4'), SWMU 10-10 (4-6'), SWMU 10-13 (6-8'), and SWMU 10-17 (6-8')] as indicated with highlighting in Table 7. The detected concentrations range from 0.00108 mg/kg to 86 mg/kg. The concentrations are plotted on Figure 25. All sample results are less than the residential soil screening level of 871 mg/kg.

There was one soil sample with a concentration of 2,4-dimethylphenol above the DAF screening level of 6.45 mg/kg [SWMU 10-17 (6-8')] as indicated with highlighting in Table 7. This was also the only sample that had a detected concentration, which was 36 mg/kg. All sample results are less than the residential soil screening level of 1,230 mg/kg.

There was one soil sample with a concentration of 2-methylphenol (cresol,-o) above the DAF screening level of 15 mg/kg [SWMU 10-17 (6-8')] as indicated with highlighting in Table 7. This was also the only sample that had a detected concentration, which was 56 mg/kg. All sample results are less than the residential soil screening level of 3,200 mg/kg.

Diesel Range Organics were detected at concentrations above the residential soil screening level of 1,000 mg/kg in nine soil samples [SWMU 10-4 (2-4'), SWMU 10-5 (0-2'), SWMU 10-5 (4-6'), SWMU 10-8 (2-4'), SWMU 10-10 (4-6'), SWMU 10-11 (4-6'), SWMU 10-13 (6-8'), SWMU 10-14 (6-8') and SWMU 10-17 (6-8')] as indicated with highlighting in Table 7. The detected concentrations range from 24 to 9,700 mg/kg. The concentrations are plotted on Figure 26.

Motor Oil Range Organics were detected at concentrations above the residential soil screening level of 1,000 mg/kg in three soil samples [SWMU 10-5 (0-2'), SWMU 10-8 (2-4'), and SWMU 10-10 (4-6')] as indicated with highlighting in Table 7. The detected concentrations range from 53 mg/kg to 5,900 mg/kg. The concentrations are plotted on Figure 27.

6.2 Groundwater Analytical Results

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

- SW-846 Method 8260 volatile organic compounds;
- SW-846 Method 8270 semi-volatile organic compounds;
- SW-846 Method 8015D gasoline range organics; and
- SW-846 Method 8015M/D diesel and motor oil range organics.

Groundwater samples were analyzed for the following total and dissolved metals using the indicated analytical methods.

Analyte	Analytical Method
Antimony	SW-846 Method 200.8

Analyte	Analytical Method
Arsenic	SW-846 Method 200.8
Barium	SW-846 Method 200.7
Beryllium	SW-846 Method 200.7
Cadmium	SW-846 Method 200.7
Chromium	SW-846 Method 200.7
Cobalt	SW-846 Method 200.7
Iron	SW-846 Method 200.7
Lead	SW-846 Method 200.8
Manganese	SW-846 Method 200.7
Nickel	SW-846 Method 200.7
Selenium	SW-846 Method 200.8
Silver	SW-846 Method 200.7
Vanadium	SW-846 Method 200.7
Zinc	SW-846 Method 200.7

Groundwater samples were also analyzed for the following total metals using the indicated analytical methods.

Analyte	Analytical Method
Cyanide	SW-846 Method 9012B
Hexavalent Chromium	SW-846 Method 7199
Mercury	SW-846 Method 245.1

In addition, groundwater samples were analyzed for chloride, fluoride, and sulfate using EPA method 300.

The analytical results and the applicable cleanup levels are presented in Table 8. The individual results that exceed the applicable cleanup levels are highlighted. Maps depicting the distribution of the various constituents detected in groundwater samples above the screening levels are provided in Figures 28 through 38, with the concentrations that exceed the screening levels underlined. The results for the associated QA/QC samples and the data validation are provided in Appendix E. The laboratory analytical reports are included in Appendix D.

All of the groundwater samples collected at the former Sludge Pits were collected from temporary well completions and there are numerous metals detected in the total analyses at concentrations above their respective screening levels. The sample collected at temporary well SWMU 10-16 was not analyzed for metals because it did not produce a sufficient volume of water to run all analyses. The constituents with reported concentrations that exceed screening levels are discussed below.

Arsenic was detected above the screening level of 0.01 mg/l in six of the seven samples collected when reviewing both the total and dissolved analyses. This includes samples collected at SWMU 10-1, SWMU 10-3, SWMU 10-5, SWMU 10-11, SWMU 10-12, SWMU 10-14, and SWMU 10-15. The higher of the two results (total and dissolved analyses) are shown on Figure 28. The detected arsenic results range from 0.003 to 0.029 mg/l.

For the total analyses, barium was detected above the screening level of 0.004 mg/l in three of the seven samples collected, including SWMU 10-11, SWMU 10-12, and SWMU 10-14 with concentrations ranging from 5.3 mg/l to 7.3 mg/l. However, none of the samples from the dissolved analyses exceed the screening level of 1.0 mg/l. The dissolved analyses range from 0.085 mg/l to 0.45 mg/l.

Similar to barium, beryllium was detected above the screening level of 2.0 mg/l in three of the seven samples collected, including SWMU 10-11, SWMU 10-12, and SWMU 10-14 with concentrations ranging from 0.017 mg/l to 0.037 mg/l. However, none of the samples from the dissolved analyses exceed the screening level. The detected dissolved analyses range from 0.0004 mg/l to 0.0009 mg/l.

Chromium and vanadium were both detected above their respective screening levels in the total analyses of groundwater samples collected from the same three temporary wells (SWMU 10-11,

SWMU 10-12, and SWMU 10-14), while none of the dissolved analyses exceed screening levels. Chromium total analyses for detected results range from 0.0051 mg/l to 0.17 mg/l vs. the screening level of 0.05 mg/l. Dissolved analyses (detected results) for total chromium range from 0.0039 mg/l to 0.0094 mg/l. All results for chromium VI were non-detect. The detected results for total vanadium range from 0.01 mg/l to 0.17 mg/l in comparison to a screening level of 0.0631 mg/l. The detected results for dissolved vanadium range from 0.002 mg/l to 0.016 mg/l.

Cobalt (total analyses) was detected at concentrations above the screening in five (SWMU 10-1, SWMU 10-11, SWMU 10-12, SWMU 10-14, and SWMU 10-15) of the seven groundwater samples collected, but none of the dissolved analyses exceed the screening level. The total cobalt analyses range from 0.0056 mg/l to 0.14 mg/l vs. the screening level of 0.006 mg/l. The dissolved analyses for cobalt range from 0.0035 mg/l to 0.023 mg/l in comparison to the screening level of 0.05 mg/l.

Iron was detected above the screening level in samples analyzed for total (four exceedances at SWMU 10-1, SWMU 10-11, SWMU 10-12 and SWMU 10-14) and dissolved analyses (two exceedances at SWMU 10-12 and SWMU 10-14). The total analyses range from 2.6 mg/l to 140 mg/l in comparison to a screening level of 13.8 mg/l. The dissolved analyses range from 0.011 mg/l to 3.9 mg/l vs. a screening level of 1.0 mg/l. The dissolved analyses results are shown on Figure 29.

Lead (total analyses) was detected at concentrations above the screening in four (SWMU 10-1, SWMU 10-11, SWMU 10-12, and SWMU 10-14) of the seven groundwater samples collected, but none of the dissolved analyses exceed the screening level. The total lead analyses range from 0.0024 mg/l to 0.28 mg/l vs. the screening level of 0.015 mg/l. The dissolved analyses for lead range from 0.00074 mg/l to 0.0068 mg/l in comparison to the screening level of 0.015 mg/l.

Manganese was detected above the screening levels in both total and dissolved analyses. The total screening level of 2.0 mg/l was exceeded in four of the groundwater samples collected at temporary wells SWMU 10-11, SWMU 10-12, SWMU 10-14, and SWMU 10-15. The total analyses results range from 0.52 mg/l to 22 mg/l. All seven of the analyses of groundwater detected concentrations of dissolved manganese above the screening level of 0.2 mg/l, with concentrations ranging from 0.27 mg/l to 3.9 mg/l. The dissolved analyses results are shown on Figure 30.

One groundwater sample, which was collected at temporary well SWMU 10-15, has concentrations of nickel that exceed the screening level of 0.372 mg/l in both total and dissolved analyses. The

detected results for the total analyses range from 0.0044 mg/l to 0.64 mg/l, while the detected results for dissolved analyses range from 0.0028 mg/l to 0.65 mg/l. The dissolved analyses are shown on Figure 29.

Chloride was detected above the screening level in all seven groundwater samples with concentrations ranging from 330 mg/l to 7,100 mg/l vs. the screening level of 250 mg/l. Sulfate was detected above the screening level of 600 mg/l in one groundwater sample collected at temporary well SWMU 10-3. The sulfate concentrations range from 310 mg/l to 1,100 mg/l. The chloride and sulfate concentrations are shown on Figure 31.

1,2,4-Trimethylbenzene was detected above the screening level of 15 micrograms per liter (ug/l) in the groundwater sample collected at SWMU 10-11 at a concentration of 64 ug/l. The detected concentrations range from 0.18 ug/l to 64 ug/l and are shown on Figure 32.

The screening level for 1,3,5-Trimethylbenzene was exceeded in the groundwater sample collected at SWMU 10-11, with a detected result of 22 ug/l vs. the screening level of 12 ug/l. The detected concentrations range from 3.9 ug/l to 22 ug/l and are shown on Figure 33.

1-Methylnaphthalene was detected above the screening level of 11 ug/l in the groundwater sample collected at SWMU 10-11 at a concentration of 70 ug/l. The detected concentrations range from 3.1 ug/l to 70 ug/l and are shown on Figure 34.

2-Methylnaphthalene was detected above the screening level of 36 ug/l in the groundwater sample collected at SWMU 10-11 at a concentration of 98 ug/l. The detected concentrations range from 1.5 ug/l to 98 ug/l and are shown on Figure 35.

The screening level for benzene was exceeded in the groundwater sample collected at SWMU 10-5, with a detected result of 27 ug/l vs. the screening level of 5 ug/l. The detected concentrations range from 0.24 ug/l to 27 ug/l and are shown on Figure 36.

Methyl tert-butyl ether (MTBE) was detected slightly above the screening level of 143 ug/l in one groundwater sample, which was collected at SWMU 10-15, at a concentration of 150 ug/l. The detected concentrations range from 5.5 ug/l to 150 ug/l and are shown on Figure 37.

Naphthalene was detected above the screening level of 1.65 ug/l in a single groundwater sample collected at SWMU 10-11 at a concentration of 45 ug/l. The detected concentrations range from 0.52 ug/l to 45 ug/l and are shown on Figure 38.

6.3 General Groundwater Chemistry

The measurement of field purging parameters included measurement of groundwater pH, specific conductance, dissolved oxygen concentrations, oxidation-reduction potential, and temperature. The results of the measurements are included in Table 4 and fluid levels measured prior to purging are also presented in Table 4.

Section 7
Conclusions and Recommendations

This section summarizes and provides an evaluation of the potential impacts as shown in field screening data and analytical data. This is followed by recommendations for any future actions.

7.1 Conclusions

A cumulative risk evaluation for soils is presented in Table 9. The evaluation was conducted by taking the maximum reported soil concentration of each detected constituent and dividing by the residential screening level and non-residential screening levels as shown in the equations below. These calculations are separated for carcinogenic and non-carcinogenic constituents. The cumulative carcinogenic risk is 2.2 x 10^{-5} assuming residential land use and 5.19 x 10^{-6} for non-residential land use. The hazard index for residential land use is 3.8 and for non-residential land use is 1.62.

$$Site\ Risk = \left(\frac{conc_x}{SSL_x} + \frac{conc_y}{SSL_y} + \frac{conc_z}{SSL_z} + \cdots + \frac{conc_i}{SSL_i}\right) \times 10^{-5}$$

$$Site\ Hazard\ Index\ (HI) = \left(\frac{conc_x}{SSL_x} + \frac{conc_y}{SSL_y} + \frac{conc_z}{SSL_z} + \cdots + \frac{conc_i}{SSL_i}\right) \times 1$$

A cumulative risk evaluation for groundwater is presented in Table 10. The evaluation was conducted by taking the maximum reported concentration of each constituent detected in groundwater and dividing by the residential screening levels, as shown in the equation above in the discussion for soil. The dissolved analyses are used for metals where available. The cumulative carcinogenic risk level is calculated to be 4.17 x 10-4 and the hazard index is 69.3.

Soils

There are no reported concentrations in soil for individual constituents that exceed the residential soil screening levels. Only the results for DRO and MRO exceed the residential screening levels.

Five metals (arsenic, barium, cobalt, iron, and manganese) were detected at concentrations above the DAF 20 soil-to-groundwater protection screening levels. It is possible that many of these detections are reflective of naturally occurring concentrations but a site-specific background study

will be required to make this determination. Twelve organic constituents (1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, 2,4-dimethylphenol, 2-methylphenol, benzene, bromomethane, ethylbenzene, naphthalene, toluene, and xylenes) were detected at concentrations above their soil-to-groundwater (DAF 20) screening levels. The soil samples with concentrations of individual constituents exceeding the soil-to-groundwater (DAF 20) screening levels are generally located within the central portion of the area investigated, at borings SWMU 10-5, SWMU 10-8, SWMU 10-9, SWMU 10-10, SWMU 10-11, SWMU 10-13, SWMU 10-14, and SWMU 10-17. In addition, there is one individual constituent (1-methylnaphthalene) detected above the screening level at SWMU 10-4.

DRO and/or MRO were detected at concentrations above the screening levels in the same soil samples that had detections of individual organics constituents above screening levels with the single exception of SWMU 10-14 (6-8'). The detection of DRO at a concentration of 1,200 mg/kg in comparison to the screening level 1,000 mg/kg in sample SWMU 10-14 (6-8') was defined to the southwest at boring SWMU 10-16.

The lateral extent of impacts to soil were defined to the east and southeast in borings SWMU 10-1, SWMU 10-2, and SWMU 10-7. The lateral extent was defined to the west at borings SWMU 10-12 and SWMU 10-16. The lateral extent was defined on the northeast corner at boring SWMU 10-15. The vertical extent of impacts at concentrations above the soil-to-groundwater (DAF 20) soil screening levels was defined at every boring location with the single exception of SWMU 10-17. Boring SWMU 10-17 was completed with a hand auger due to access limitations to a depth of 8 feet within an impacted interval. This same impacted interval (e.g., 6 feet– 8 feet) was also identified in nearby boring SWMU 10-13. Soil boring SWMU 10-13 was accessible to the drilling rig and this boring was extended to bedrock and the vertical extent of impacts was defined for this area.

Groundwater

Of the seventeen borings completed, eight encountered saturation. Three of the borings that did not encounter saturation were completed with a hand auger and possibly saturation may be present at a deeper interval. The three temporary wells to the east (SWMU 10-1, SWMU 10-3, and SWMU 10-5) had particularly low yields while the temporary wells to the west (SWMU 10-11, SWMU 10-12 and SWMU 10-14), where a thicker sand interval was present, indicated higher yields.

There are a seemingly large number of metals detected at concentrations above residential/tap water screening levels in groundwater samples collected from the soil borings. The metals analytical

results may have been affected as the result of collecting groundwater samples at low producing temporary wells completions, which tend to produce more turbid water samples than permanent well completions in more productive aquifers. The metal screening levels were exceeded in every soil boring from which a groundwater sample was collected for metals analyses.

Seven organic constituents (1-methylnaphthalene, 2-methylnaphthalene, 1,2,4-trimethlybenzene,1,3,5-trimethylbenzene, benzene, MTBE, and naphthalene) were detected in groundwater samples collected from soil borings at concentrations above screening levels. Most of the reported concentrations are only slightly above the screening levels (i.e., generally less than one order of magnitude above the screening level). Benzene was only detected at one location (SWMU 10-5) above the screening of 5 ug/l, at 27 ug/l. Similarly, MTBE was detected above the screening level at a single location (SWMU 10-15) at a concentration of 150 ug/l vs. the screening level of 143 ug/l. Boring SWMU 10-15 is located cross- to up-gradient of most of the area of SWMU 10 (Figure 12). Based on the distribution of the MTBE concentrations and the hydraulic gradient, it appears that the elevated concentration of MTBE in boring SWMU 10-15 is more likely associated with the Aeration Basin than the former Sludge Pits. All of the other detections of organic constituents above screening levels occurred in the groundwater sample collected at boring SWMU 10-11.

Groundwater impacts for organic constituents were defined to the east in boring SWMU 10-1, to the southeast at boring SWMU 10-7 (dry), to the south/southwest at borings SWMU 10-14 and 10-16, and to the west at boring SWMU 10-12. The groundwater impacts from the former Sludge Pits are defined to the northeast at boring SWMU 10-14, which was drilled to a depth of 20 feet but did not encounter saturation. An additional boring (SWMU 10-15) was drilled further to the northeast based on impacted soil at SWMU 10-4 at a depth of 2 feet - 4 feet. The soil impact was not present at SWMU 10-15 and as discussed above the groundwater impact at SWMU 10-15 does not appear to be associated with the former Sludge Pits.

7.2 Recommendations

Five additional soil borings are recommended to complete the lateral delineation of impacts to soil and groundwater. These additional borings will be installed and sample collection and analysis will be completed pursuant to the approved Investigation Work Plan for SWMU No. 10 (Western Refining Southwest, Inc. 2014). Western did install seven “additional” borings (SWMU 10-11 through SWMU 10-17) based on field observations. On January 4, 2016, Western communicated to NMED the

intention to install yet five more “additional” soil borings as described below but logistical issues prevented the installation of these borings before the due date of this Investigation Report.

An additional soil boring to the south of boring SWMU 10-8 is recommended to delineate the impacts to soil observed at depths of 2 feet bgl – 6 feet bgl (Figure 39). Saturation was not present in boring SWMU 10-8. Similarly, an additional boring is recommended to the east of boring SWMU 10-4, where soil impacts were observed from 2 feet bgl – 4 feet bgl. Saturation was not encountered at SWMU 10-4.

Three additional soil borings are recommended in the area north of boring SWMU 10-17 (Figure 39). Some of the higher concentrations observed in soil were found at a depth of 6 feet bgl – 8 feet bgl in boring SWMU 10-17. These three borings will focus on delineating the north extent of impacts from the former Sludge Pits.

To determine if site concentrations of inorganic constituents are reflective of naturally occurring concentrations unaffected by site activities, Western proposes to conduct a background study. Western will prepare a Background Concentrations Investigation Work Plan and submit it for review by NMED.

Section 8
References

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Tables

TABLE 1
1990 RCRA Facility Investigation Soil Analytical Data
Western Refining Southwest, Inc. - Gallup Refinery

Analyte	Sample ID	RFI1001 V0.0	RFI1001 V3.0	RFI1001 D3.0	RFI1003 V12.5	RFI1003 V9.0	RFI1003 V6.0	RFI1003 V3.0	RFI1003 V0.0	RFI1004 V0.0	RFI1004 V3.0	RFI1004 V6.0	RFI1004 V9.0	RFI1004 V12.5	RFI1005 V0.0	RFI1005 V3.0	RFI1005 V6.0	RFI1005 V9.0	RFI1005 V12.5	RFI1005 D3.0	RFI1002 V0.0	RFI1002 V3.0	RFI1002 V6.0	RFI1002 V9.0	RFI1002 V12.5	RFI1005 D12.5	NMED Soil Screening Levels				EPA Regional Soil Screening Levels			
	Sample Depth (ft)	0	3	3	12.5	9	6	3	0	0	3	6	9	12.5	0	3	6	9	12.5	3	0	3	6	9	12.5	12.5	Residential Soil (mg/kg)	Industrial/ Occupational Soil (mg/kg)	Construction Worker Soil (mg/kg)	Risk-based SSL for a DAF of 1 (mg/kg)	Resident Soil (mg/kg)	Industrial Soil (mg/kg)	Groundwater Protection Risk-based (mg/kg)	Groundwater Protection MCL-based (mg/kg)
	Sample Date	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990								
Metals																																		
Antimony	mg/kg	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	NA	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	3.13E+01	4.54E+02	1.24E+02	6.61E-01	3.10E+01	4.10E+02	6.60E-01	2.70E-01
Arsenic	mg/kg	**0.97**	<1.0	<0.50	<1.0	**0.52**	**0.58**	**0.90**	**0.65**	**0.60**	**0.64**	**2.4**	**0.6**	<1.0	<1.0	**0.52**	**27.9**	**0.58**	<1.0	NA	**0.52**	**0.79**	**0.58**	<1.0	<0.50	<0.50	3.90E+00	1.77E+01	5.30E+01	1.31E-02	3.90E-01	1.60E+00	1.30E-03	2.90E-01
Barium	mg/kg	**372**	107	105	**392**	152	178	292	**317**	280	195	**422**	213	164	**315**	**321**	**700**	48.7	187	NA	188	231	**332**	201	171	124	1.56E+04	2.23E+05	4.35E+03	3.01E+02	1.50E+04	1.90E+05	3.00E+02	8.20E+01
Beryllium	mg/kg	0.7	1.0	1.1	1.1	1.0	1.0	0.65	0.96	0.93	0.79	0.80	1.00	1.1	0.88	0.85	0.76	1.4	1.2	NA	1.0	0.90	0.90	1.4	0.87	1.1	1.56E+02	2.26E+03	1.44E+02	5.77E+01	1.60E+02	2.00E+03	5.80E+01	3.20E+00
Cadmium	mg/kg	<0.50	0.70	<0.50	0.73	<0.50	<0.50	<0.50	<0.50	<0.50	0.56	<0.50	<0.50	<0.50	<0.50	<0.50	**1.5**	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	7.03E+01	8.97E+02	2.77E+02	1.37E+00	7.00E+01	8.00E+02	1.40E+00	3.80E-01
Chromium total results - CR III SL	mg/kg	60.1	6.1	7.8	7.5	5.9	6.5	6.1	9.5	5.6	11.6	398	21.7	7.2	6.8	6.3	4020	11.6	8.9	NA	7.0	117	6.7	8.0	6.4	6.1	1.17E+05	1.70E+06	4.65E+05	9.86E+07	1.20E+05	1.50E+06	9.90E+07	NA
Chromium total resutls - CR VI SL	mg/kg	**60.1**	**6.1**	**7.8**	**7.5**	**5.9**	**6.5**	**6.1**	**9.5**	**5.6**	**11.6**	**398**	**21.7**	**7.2**	**6.8**	**6.3**	**4020**	**11.6**	**8.9**	NA	**7.0**	**117**	**6.7**	**8.0**	**6.4**	**6.1**	2.97E+00	6.31E+01	6.56E+01	8.31E-03	2.30E+02	1.40E+03	2.10E+00	NA
Cobalt	mg/kg	**2.0**	**3.6**	**4.6**	**3.2**	**3.4**	**2.8**	**2.0**	**2.6**	**2.8**	**2.2**	**4.8**	**3.8**	**4.4**	**4.0**	**4.4**	**8.4**	**5.7**	**5.1**	NA	**4.3**	**4.4**	**3.9**	**6.0**	**5.4**	**3.9**	NA	NA	NA	NA	2.30E+01	3.00E+02	4.90E-01	NA
Copper	mg/kg	10.3	5.9	7.4	7.0	5.6	6.1	4.3	7.4	5.7	4.1	**29.0**	6.2	6.9	9.2	4.6	**215**	11.8	7.2	NA	6.4	16.5	5.2	7.7	7.7	7.8	3.10E+03	4.54E+04	1.24E+04	2.14E+01	NA	NA	NA	NA
Lead	mg/kg	11.1	5.5	6.3	7.8	8.1	6.5	5.5	8.4	8.2	7.0	50.0	12.5	13.3	13.2	11.8	337	16.1	14.2	NA	13.8	19.3	13.5	14.9	11.9	16.0	4.00E+02	8.00E+02	8.00E+02	NA	4.00E+02	8.00E+02	NA	NA
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	**1.3**	<0.10	<0.10	<0.10	<0.10	**2.9**	<0.10	<0.10	NA	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.56E+01	7.36E+01	1.36E+01	3.27E-02	4.30E+00	2.40E+01	3.00E-02	1.00E-01
Nickel	mg/kg	7.0	6.7	9.1	8.5	6.8	6.5	5.4	6.5	6.1	5.3	9.0	7.9	8.0	5.8	6.8	19.2	11.3	9.3	NA	6.4	9.2	6.5	9.5	8.5	6.9	1.56E+03	2.25E+04	6.19E+03	4.77E+01	1.40E+04	6.90E+04	4.80E+01	NA
Potassium	mg/kg	972	1310	1660	1410	1340	1070	856	1020	853	783	2320	1200	1210	850	834	3920	1450	1250	NA	806	1310	841	1380	1410	1010	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.91E+02	5.68E+03	1.55E+03	9.65E-01	3.90E+02	5.10E+03	9.50E-01	2.60E-01
Vanadium	mg/kg	16.3	14.0	16.3	17.5	14.3	12.9	15.2	15.7	15.5	14.4	18.6	13.9	13.7	14.5	14.1	24.2	18.7	16.2	NA	15.4	18.2	18.8	16.5	18.0	14.0	3.91E+02	5.68E+03	1.55E+03	1.83E+02	5.50E+02	7.20E+03	2.60E+02	NA
Zinc	mg/kg	81.3	14.7	17.7	16.1	13.9	13.0	12.9	16.4	14.0	15.2	81.2	12.5	12.5	11.8	13.1	538	17.9	14.3	NA	13.4	228	11.2	15.2	15.0	12.4	2.35E+04	3.41E+05	9.29E+04	6.82E+02	2.30E+04	3.10E+05	6.80E+02	NA
Method 8240																																		
1,1,1- Trichloroethane	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.56E+04	7.89E+04	1.48E+04	2.91E+00	9.00E+03	3.90E+04	3.30E+00	7.20E-02
1,1,2,2-Tetrachloroethane	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8.02E+00	4.35E+01	2.21E+02	2.13E-04	5.90E-01	2.90E+00	2.80E-05	NA
1,1,2- Trichloroethane	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.81E+00	1.33E+01	4.72E+02	1.12E-04	1.10E+00	5.50E+00	8.20E-05	1.70E-03
1,1- Dichloroethane	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.45E+01	3.59E+02	1.70E+03	5.98E-03	3.40E+00	1.70E+01	7.00E-04	NA
1,1-Dichloroethene	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4.49E+02	2.29E+03	4.32E+02	1.16E-01	2.50E+02	1.10E+03	1.20E-01	2.60E-03
1,2,3-Trichloropropane	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4.97E-02	3.76E-01	7.23E+00	2.50E-06	9.10E-02	4.10E-01	4.40E-06	NA
1,2-Dichloroethane	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.89E+00	4.35E+01	5.87E+01	3.56E-04	4.50E-01	2.20E+00	4.40E-05	1.50E-03
1,2-Dichloropropane	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.52E+01	8.44E+01	2.50E+01	1.07E-03	9.30E-01	4.70E+00	1.30E-04	1.70E-03
2-Butanone (MEK)	ug/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<500	<120	<20	<5	<5	<340	<10	<5	<5	<5	<5	<5	<5	<5	<5	3.71E+04	3.75E+05	8.43E+04	1.27E+00	2.80E+04	1.90E+05	1.50E+00	NA
2-Hexanone	ug/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<25	<4	<1	<1	<67	<2	<1	<1	<1	<1	<1	<1	<1	<1	NA	NA	NA	NA	2.0E+02	1.3E+03	8.8E-03	NA
4-Methyl-2-pentanone (MIBK)	ug/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<25	<4	<1	<1	<67	<2	<1	<1	<1	<1	<1	<1	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	ug/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<500	<120	<20	<5	<5	<340	<10	<5	<5	<5	<5	<5	<5	<5	<5	6.66E+04	8.68E+05	2.21E+05	3.86E+00	6.10E+04	6.10E+05	4.40E+00	NA
Benzene	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1.7**	<50.0	<12.0	<2.0	<0.5	<0.5	**37**	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.54E+01	8.47E+01	1.38E+02	1.73E-03	1.10E+00	5.60E+00	2.30E-04	2.80E-03
Bromodichloromethane	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.41E+00	3.01E+01	1.43E+02	2.71E-04	2.80E-01	1.40E+00	3.30E-05	NA
Bromoform	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.16E+02	2.42E+03	4.76E+03	6.04E-01	6.10E+01	2.20E+02	2.30E-03	NA
Bromomethane	ug/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<25	<4	<1	<1	<67	<2	<1	<1	<1	<1	<1	<1	<1	<1	1.65E+01	8.65E+01	1.64E+01	1.92E-03	7.90E+00	3.50E+01	2.20E-03	NA
Carbon disulfide	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.53E+03	8.33E+03	1.58E+03	2.83E-01	6.70E+02	3.00E+03	2.70E-01	NA
Carbon tetrachloride	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.08E+01	5.98E+01	2.26E+02	1.60E-03	2.50E-01	1.30E+00	7.90E-05	2.00E-03
Chlorobenzene	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.76E+02	2.12E+03	4.06E+02	4.92E-02	3.10E+02	1.50E+03	6.80E-02	7.50E-02
Chloroethane	ug/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<25	<4	<1	<1	<67	<2	<1	<1	<1	<1	<1	<1	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.86E+00	3.27E+01	1.54E+02	4.59E-04	3.00E-01	1.50E+00	5.50E-05	NA
Chloromethane	ug/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<25	<4	<1	<1	<67	<2	<1	<1	<1	<1	<1	<1	<1	<1	2.75E+02	1.29E+03	2.41E+02	4.40E-02	1.20E+02	5.10E+02	4.90E-02	NA
1,2- Dichloroethene (cis/trans)	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.56E+02	2.27E+03	6.19E+02	1.84E-02	7.80E+02	1.00E+04	1.10E-01	2.10E-02
cis-1,3-Dichloropropene	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.37E+01	1.77E+02	2.09E+02	1.24E-03	1.70E+00	8.40E+00	1.60E-04	NA
Di bromochloromethane	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.21E+01	6.24E+01	3.32E+02	3.31E-04	7.00E-01	3.40E+00	4.00E-05	NA
Dibromomethane	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	7.80E+02	1.00E+04	9.10E-02	NA
Dichlorodifluoromethane	ug/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<200	<50	<8	<2.0	<2.0	<130	<4	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	1.68E+02	7.98E+02	1.49E+02	3.72E-01	1.90E+02	7.80E+02	6.10E-01	NA
Ethylbenzene	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**5.6**	**81**	**43**	<2.0	<0.5	<0.5	**76**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.84E+01	3.78E+02	1.83E+03	1.30E-02	5.70E+00	2.90E+01	1.90E-03	8.90E-01
Methylene chloride	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4.09E+02	4.70E+03	1.12E+03	4.12E-02	1.10E+01	5.40E+01	1.20E-03	1.30E-03
Styrene	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.28E+03	5.00E+04	9.99E+03	1.39E+00	6.50E+03	3.80E+04	2.00E+00	1.20E-01
Tetrachloroethene	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.02E+00	3.66E+01	2.12E+02	4.30E-04	5.70E-01	2.70E+00	5.20E-05	2.40E-03
Toluene	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**14**	**220**	**120**	<2.0	<0.5	<0.5	**290**	**2.6**	0.98	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.68	5.27E+03	5.77E+04	1.34E+04	1.27E+00	5.00E+03	4.60E+04	1.70E+00	7.60E-01
trans-1,2-Dichloroethene	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.70E+02	1.44E+03	2.73E+02	2.69E-02	1.10E+02	5.00E+02	3.40E-02	3.20E-02
trans-1,3-Dichl oropropene	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.37E+01	1.77E+02	2.09E+02	1.24E-03	1.70E+00	8.40E+00	1.60E-04	NA
Trichloroethene	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8.77E+00	4.13E+01	7.68E+00	1.05E-03	2.80E+00	1.40E+01	6.10E-04	1.90E-03
Trichlorofluoromethane	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.41E+03	6.94E+03	1.30E+03	8.89E-01	8.00E+02	3.40E+03	8.40E-01	NA
Vinyl chloride	ug/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<2.5	<4	<1	<1	<67	<2	<1	<1	<1	<1	<1	<1	<1	<1	7.28E-01	2.61E+01	1.49E+02	5.42E-05	6.00E-02	1.70E+00	5.60E-06	7.00E-04
Xylenes (total)	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**54**	**470**	**310**	<2.0	<0.5	<0.5	**540**	**9.7**	**1.7**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.98**	8.14E+02	3.98E+03	7.43E+02	1.56E-01	6.00E+02	2.60E+03	2.30E-01	1.10E+01
Vinyl acetate	ug/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<25	<4	<1	<1	<67	<2	<1	<1	<1	<1	<1	<1	<1	<1	2.56E+03	1.23E+04	2.30E+03	7.59E-02	NA	NA	NA	NA
2-Chloroethyl vinyl ether	ug/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<25	<4	<1	<1	<67	<2	<1	<1	<1	<1	<1	<1	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	ug/kg	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<100	<250	<40	<10	<10	<670	<20	<10	<10	<10	<10	<10	<10	<10	<10	4.04E-01	1.92E+00	3.56E-01	7.28E-06	NA	NA	NA	NA
Acrylonitrile	ug/kg	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<100	<250	<40	<10	<10	<670	<20	<10	<10	<10	<10	<10	<10	<10	<10	4.55E+00	2.43E+01	3.76E+01	8.46E-05	NA	NA	NA	NA
Ethanol	ug/kg	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<100	<250	<40	<10	<10	<670	<20	<10	<10	<10	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	ug/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<25	<4	<1	<1	<67	<2	<1	<1	<1	<1	<1	<1	<1	<1	4.55E+03	3.80E+04	2.79E+04	1.14E-01	NA	NA	NA	NA
Iodomethane	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50.0	<12.0	<2.0	<0.5	<0.5	<34.0	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	7.4E-03	3.2E-02	6.2E-07	NA
Method 8270																																		
1,2,4,5-Tetrachlorobenzene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	7.30E+01	3.67E+02	6.87E+01	9.13E-03	8.70E+01	4.00E+02	1.30E-02	1.10E-01
1,2- Dichlorobenzene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	2.31E+03	1.40E+04	2.71E+03	2.80E-01	2.00E+03	1.00E+04	4.00E-01	6.60E-01
1,3- Dichlorobenzene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
1,4- Dichlorobenzene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	3.17E+01	1.77E+02	8.31E+02	3.19E-03	2.60E+00	1.30E+01	4.60E-04	8.10E-02
2,4,5-Trichlorophenol	ug/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<500	<25	<25	<25	<25	<50	<25	<25	<25	<25	6.11E+03	6.84E+04	2.38E+04	1.04E+01	6.10E+03	6.20E+04	9.40E+00	NA
2,4,6-Trichlorophenol	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	6.11E+01	6.84E+02	2.38E+02	1.04E-01	4.40E+01	1.60E+02	1.60E-02	NA
2,4-Dichlorophenol	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	1.83E+02	2.05E+03	7.15E+02	9.98E-02	1.80E+02	1.80E+03	1.80E-01	NA
2,4-Dimethylphenol	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**27**	<5.0	<5.0	<5.0	<5.0	<100	**12**	**79**	<5.0	<5.0	<10	<5.0	<5.0	<5.0	**5.3**	1.22E+03	1.37E+04	4.76E+03	6.65E-01	1.20E+03	1.20E+04	1.20E+00	NA
2,4-Dinitrophenol	ug/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<500	<25	<25	<25	<25	<50	<25	<25	<25	<25	1.22E+02	1.37E+03	4.76E+02	6.31E-02	1.20E+02	1.20E+03	6.80E-02	NA
2,4-Dinitrotoluene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	1.57E+01	6.18E+01	4.76E+02	2.25E-03	1.60E+00	5.50E+00	2.00E-04	NA
2,6-Dichlorophenol	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	6.11E+01	6.84E+02	2.38E+02	3.85E-02	6.10E+01	6.20E+02	3.40E-02	NA

TABLE 1
1990 RCRA Facility Investigation Soil Analytical Data
Western Refining Southwest, Inc. - Gallup Refinery

Analyte	Sample ID	RFI1001 V0.0	RFI1001 V3.0	RFI1001 D3.0	RFI1003 V12.5	RFI1003 V9.0	RFI1003 V6.0	RFI1003 V3.0	RFI1003 V0.0	RFI1004 V0.0	RFI1004 V3.0	RFI1004 V6.0	RFI1004 V9.0	RFI1004 V12.5	RFI1005 V0.0	RFI1005 V3.0	RFI1005 V6.0	RFI1005 V9.0	RFI1005 V12.5	RFI1005 D3.0	RFI1002 V0.0	RFI1002 V3.0	RFI1002 V6.0	RFI1002 V9.0	RFI1002 V12.5	RFI1005 D12.5	NMED Soil Screening Levels				EPA Regional Soil Screening Levels			
	Sample Depth (ft)	0	3	3	12.5	9	6	3	0	0	3	6	9	12.5	0	3	6	9	12.5	3	0	3	6	9	12.5	12.5	Residential Soil (mg/kg)	Industrial/ Occupational Soil (mg/kg)	Construction Worker Soil (mg/kg)	Risk-based SSL for a DAF of 1 (mg/kg)	Resident Soil (mg/kg)	Industrial Soil (mg/kg)	Groundwater Protection Risk-based (mg/kg)	Groundwater Protection MCL-based (mg/kg)
	Sample Date	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990								
2-Chloronaphthalene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	6.26E+03	9.08E+04	2.48E+04	1.14E+01	6.30E+03	8.20E+04	1.80E+01	NA
2-Chlorophenol	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	3.91E+02	5.68E+03	1.55E+03	1.16E-01	3.90E+02	5.10E+03	2.00E-01	NA
2-Methylnaphthalene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**290**	<5.0	**5**	<5.0	<5.0	**1400**	<5.0	<5.0	<5.0	<5.0	**56**	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	3.10E+02	4.10E+03	9.00E-01	NA
o-Cresol	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**16**	<5.0	<5.0	<5.0	<5.0	<100	**34**	**19**	<5.0	<5.0	<10	<5.0	<5.0	<5.0	**16**	NA	NA	NA	NA	3.10E+03	3.10E+04	2.00E+00	NA
2- Nitroaniline	ug/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<500	<25	<25	<25	<25	<50	<25	<25	<25	<25	NA	NA	NA	NA	1.80E+02	1.80E+03	3.30E-02	NA
2-Nitrophenol	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
3,3' -Dichlorobenzidine	ug/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<200	<10	<10	<10	<10	<20	<10	<10	<10	<10	1.08E+01	4.26E+01	3.64E+02	7.40E-03	1.10E+00	3.80E+00	2.30E-03	NA
m & p-Cresol(s)	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**26**	<5.0	<5.0	<5.0	<5.0	**120**	**68**	**34**	<5.0	<5.0	<10	<5.0	<5.0	<5.0	**28**	NA	NA	NA	NA	3.10E+02	3.10E+03	1.90E-01	NA
3- Nitroaniline	ug/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<500	<25	<25	<25	<25	<50	<25	<25	<25	<25	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-o-cresol	ug/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<500	<25	<25	<25	<25	<50	<25	<25	<25	<25	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl ether	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methvlphenol	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	2.40E+00	8.60E+00	1.20E-04	NA
4-Chlorophenyl	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
4- Nitroaniline	ug/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<500	<25	<25	<25	<25	<50	<25	<25	<25	<25	NA	NA	NA	NA	2.40E+01	8.60E+01	1.00E-03	NA
4-Nitrophenol	ug/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<500	<25	<25	<25	<25	<50	<25	<25	<25	<25	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	3.44E+03	3.67E+04	1.86E+04	1.69E+01	3.40E+03	3.30E+04	2.70E+01	NA
Acenaphthylene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	8.50E+01	3.00E+02	3.40E-03	NA
Anthracene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	1.72E+04	1.83E+05	6.68E+04	2.71E+02	1.70E+04	1.70E+05	4.50E+02	NA
Benzo(a)anthracene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	1.48E+00	2.34E+01	2.13E+02	7.83E-02	1.50E-01	2.10E+00	1.40E-02	NA
Benzo(a)pyrene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	1.48E-01	2.34E+00	2.13E+01	2.60E-02	1.50E-02	2.10E-01	4.60E-03	3.10E-01
Benzo(b)fluoranthene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	1.48E+00	2.34E+01	2.13E+02	2.65E-01	1.50E-01	2.10E+00	4.70E-02	NA
Benzo(g,h,i)perylene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	1.48E+01	2.34E+02	2.06E+03	2.60E+00	1.50E+00	2.10E+01	4.60E-01	NA
Benzoic acid	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	2.40E+05	2.50E+06	3.30E+01	NA
Benzyl alcohol	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	3.10E+04	3.10E+05	4.20E+00	NA
bis(2-Chloroethoxy)-methane	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	1.80E+02	1.80E+03	2.30E-02	NA
bis(2-Chloroethy1) ether	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	2.68E+00	1.42E+01	7.78E+01	2.63E-05	1.90E-01	9.00E-01	2.70E-06	NA
bis(2-Chloroisopropyl)-ether	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	9.15E+01	4.54E+02	3.10E+03	2.33E-03	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	3.47E+02	1.37E+03	4.76E+03	8.62E+00	3.50E+01	1.20E+02	1.60E+00	2.00E+00
Butyl benzyl phthalate	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	2.60E+02	9.10E+02	6.70E-01	NA
Chrysene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	1.48E+02	2.34E+03	2.06E+04	7.99E+00	1.50E+01	2.10E+02	1.40E+00	NA
Dibenz(a,h)anthracene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	1.48E-01	2.34E+00	2.13E+01	8.46E-02	1.50E-02	2.10E+02	1.50E-02	NA
Diethyl phthalate	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	4.89E+04	5.47E+05	1.91E+05	9.66E+00	4.90E+04	4.90E+05	1.30E+01	NA
Dimethyl phthalate	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	6.11E+05	6.84E+06	2.38E+06	8.06E+01	NA	NA	NA	NA
Di-n-butyl phthalate	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	6.11E+03	6.84E+04	2.38E+04	6.97E+00	NA	NA	NA	NA
Di-n-octyl phthalate	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	2.29E+03	2.44E+04	8.91E+03	1.22E+02	2.30E+03	2.20E+04	2.10E+02	NA
Fluorene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	13	<5.0	<5.0	<5.0	<5.0	**100**	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	2.29E+03	2.44E+04	8.91E+03	2.03E+01	2.30E+03	2.20E+04	3.30E+01	NA
Hexachlorobenzene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	3.04E+00	1.20E+01	1.03E+02	3.98E-03	3.00E-01	1.10E+00	2.90E-04	7.00E-03
Hexachlorobutadiene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	6.20E+00	2.20E+01	1.90E-03	NA
Hexachlorocyclopentadiene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	3.67E+02	4.10E+03	8.11E+02	5.27E-01	3.70E+02	3.70E+03	8.00E-01	1.80E-01
Hexachloroethane	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	4.28E+01	4.79E+02	1.67E+02	8.18E-03	3.50E+01	1.20E+02	3.20E-03	NA
Indeno(l,2,3-cd)pyrene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	1.48E+00	2.34E+01	2.13E+02	8.63E-01	1.50E-01	2.10E+00	1.60E-01	NA
Isophorone	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	5.12E+03	1.37E+05	4.75E+04	1.92E-01	5.10E+02	1.80E+03	2.20E-02	NA
Naphthalene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**54**	<5.0	<5.0	<5.0	<5.0	**340**	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	4.30E+01	2.41E+02	1.58E+02	3.57E-03	3.90E+00	2.00E+01	5.50E-04	NA
Nitrobenzene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	5.35E+01	3.00E+02	3.32E+02	6.24E-04	4.40E+00	2.20E+01	7.10E-05	NA
N-Nitroso-di-n-propylamine	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	6.90E-02	2.50E-01	1.10E-05	NA
N-Nitrosodimethylamine	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	9.93E+02	3.91E+03	3.36E+04	5.65E-01	9.90E+01	3.50E+02	1.70E-01	NA
Pentachlorophenol	ug/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<500	<25	<25	<25	<25	<50	<25	<25	<25	<25	8.94E+00	3.00E+01	3.10E+02	1.28E-02	3.00E+00	9.00E+00	3.90E-03	7.00E-03
Phenanthrene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	28	<5.0	<5.0	<5.0	<5.0	1.83E+03	2.05E+04	7.15E+03	2.86E+01	NA	NA	NA	NA
Phenol	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	**71**	**32**	<5.0	<5.0	<10	<5.0	<5.0	<5.0	**28**	1.83E+04	2.05E+05	6.88E+04	4.97E+00	1.80E+04	1.80E+05	8.10E+00	NA
Pyrene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	1.72E+03	1.83E+04	6.68E+03	8.94E+01	1.70E+03	1.70E+04	1.50E+02	NA
1- Naphthylamine	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	7.30E+01	3.67E+02	6.87E+01	9.13E-03	NA	NA	NA	NA
1,2-Diphenylhydrazine	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	6.7E-01	2.9E+00	2.5E-04	NA
1,3- Dinitrobenzene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	6.2E+00	8.2E+01	1.8E-03	NA
1-Chloronaphthalene	ug/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.26E+03	9.08E+04	2.48E+04	1.14E+01	NA	NA	NA	NA
2- Naphthylamine	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	3.0E-01	1.3E+00	2.0E-04	NA
2,3,4,6-Tetrachlorophenol	ug/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<500	<25	<25	<25	<25	<50	<25	<25	<25	<25	NA	NA	NA	NA	1.8E+03	2.5E+04	1.5E+00	NA
2,6-Dinitrotoluene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	6.11E+01	6.84E+02	2.38E+02	3.85E-02	NA	NA	NA	NA
2-Picoline	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	5.4E-03	1.0E-01	2.2E-03	NA
7,12-Dimethylbenz(a)-anthracene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	4.5E-04	8.5E-03	9.9E-05	NA
a, a-Dimethylphenethylamine	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	7.82E+03	1.14E+05	3.10E+04	9.17E-01	NA	NA	NA	NA
Diphenylamine	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	1.5E+03	2.1E+04	5.8E-01	NA
Ethyl methanesulfonate	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	5.4E+00	2.3E+01	1.6E-04	NA
N-Nitroso-di-n-butylamine	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	6.89E-01	2.92E+00	2.19E+01	3.78E-05	NA	NA	NA	NA
N-Nitrosodiphenyl amine	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	9.93E+02	3.91E+03	3.36E+04	5.65E-01	NA	NA	NA	NA
N-Nitrosopiperidine	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	2.5E-01	1.1E+00	1.4E-05	NA
p-Dimethylaminoazobenzene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	1.2E-01	5.0E-01	2.1E-05	NA
Pentachlorobenzene	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	4.89E+01	5.47E+02	1.91E+02	1.68E-01	NA	NA	NA	NA
Pentachloronitrobenzene	ug/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<500	<25	<25	<25	<25	<50	<25	<25	<25	<25	NA	NA	NA	NA	2.0E+00	8.9E+00	1.4E-03	NA

TABLE 1
1990 RCRA Facility Investigation Soil Analytical Data
Western Refining Southwest, Inc. - Gallup Refinery

Analyte	Sample ID	RFI1001 V0.0	RFI1001 V3.0	RFI1001 D3.0	RFI1003 V12.5	RFI1003 V9.0	RFI1003 V6.0	RFI1003 V3.0	RFI1003 V0.0	RFI1004 V0.0	RFI1004 V3.0	RFI1004 V6.0	RFI1004 V9.0	RFI1004 V12.5	RFI1005 V0.0	RFI1005 V3.0	RFI1005 V6.0	RFI1005 V9.0	RFI1005 V12.5	RFI1005 D3.0	RFI1002 V0.0	RFI1002 V3.0	RFI1002 V6.0	RFI1002 V9.0	RFI1002 V12.5	RFI1005 D12.5	NMED Soil Screening Levels				EPA Regional Soil Screening Levels			
	Sample Depth (ft)	0	3	3	12.5	9	6	3	0	0	3	6	9	12.5	0	3	6	9	12.5	3	0	3	6	9	12.5	12.5	Residential Soil (mg/kg)	Industrial/ Occupational Soil (mg/kg)	Construction Worker Soil (mg/kg)	Risk-based SSL for a DAF of 1 (mg/kg)	Resident Soil (mg/kg)	Industrial Soil (mg/kg)	Groundwater Protection Risk-based (mg/kg)	Groundwater Protection MCL-based (mg/kg)
	Sample Date	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990	6/28/1990								
Phenacetin	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<50	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	2.4E+02	1.0E+03	9.7E-03	NA
phenyl ether	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<50	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide (kerb)	ug/kg	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<100	<50	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	4.6E+03	6.2E+04	1.2E+00	NA

Bolded Value - concentration exceeds screening level
NA - Screening level not available or not analyzed
DAF - Dilution attentuation factor
NMED Screening levels (June 2012)
EPA Regional Screening Levels (Nov. 2012)

TABLE 2
1994 RCRA Facility Investigation Soil Analytical Data
Western Refining Southwest, Inc. - Gallup Refinery

Analyte	Sample ID	RFI1014 V19.0	RFI1014 V25.0	RFI1015 V19.0	RFI1015 V25.0	RFI1016 V19.0	RFI1016 V25.0	RFI1017 V19.0	RFI1017 V25.0	RFI1018 V19.0	RFI1018 V25.0	RFI1019 V19.0	RFI1019 V19.0D	RFI1019 V25.0	RFI1020 V19.0	RFI1020 V25.0	RFI1021 V19.0	RFI1021 V25.0	NMED Soil Screening Levels				EPA Regional Soil Screening Levels			
	Sample Depth (ft)	19	25	19	25	19	25	19	25	19	25	19	29	25	19	25	19	25	Residential Soil (mg/kg)	Industrial/ Occupational Soil (mg/kg)	Construction Worker Soil (mg/kg)	Risk-based SSL for a DAF of 1 (mg/kg)	Resident Soil (mg/kg)	Industrial Soil (mg/kg)	Groundwater Protection Risk-based (mg/kg)	Groundwater Protection MCL-based (mg/kg)
	Sample Date	7/26/1994	7/26/1994	7/26/1994	7/26/1994	7/26/1994	7/26/1994	7/26/1994	7/26/1994	7/27/1994	7/27/1994	7/27/1994	7/27/1994	7/27/1994	7/27/1994	7/27/1994	7/27/1994	7/27/1994	7/27/1994								
Metals																										
Arsenic	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	3.9E+00	1.8E+01	5.3E+01	1.3E-02	6.1E-01	2.4E+00	1.3E-03	2.90E-01
Barium	mg/kg	**370**	**1100**	**360**	190	**310**	**340**	**420**	**610**	**410**	**690**	**400**	**370**	**630**	**400**	**360**	**520**	**680**	1.6E+04	2.2E+05	4.4E+03	3.0E+02	1.5E+04	1.9E+05	1.2E+02	8.20E+01
Beryllium	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	1.6E+02	2.3E+03	1.4E+02	5.8E+01	1.6E+02	2.0E+03	1.3E+01	3.20E+00
Cadmium	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	7.0E+01	9.0E+02	2.8E+02	1.4E+00	NA	NA	5.2E-01	3.80E-01
Chromium	mg/kg	8.2	9.1	14	8	10	14	8.2	12	7.6	8.4	12	8.5	8.9	11	14	13	9.4	1.2E+05	1.7E+06	4.6E+05	9.9E+07	1.2E+05	1.5E+06	2.8E+07	NA
Lead	mg/kg	15	11	17	14	19	16	17	15	14	17	19	17	20	16	20	19	20	4.0E+02	8.0E+02	8.0E+02	NA	4.0E+02	8.0E+02		1.40E+01
Mercury	mg/kg	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	1.6E+01	7.4E+01	1.4E+01	3.3E-02	1.0E+01	4.3E+01	3.3E-02	1.00E-01
Nickel	mg/kg	17	18	18	18	19	20	19	18	17	15	16	13	17	16	19	16	17	1.6E+03	2.3E+04	6.2E+03	4.8E+01	1.5E+03	2.0E+04	2.0E+01	NA
Vanadium	mg/kg	4.1	5.3	5.2	4.8	<2.5	4.6	3.4	9.5	4.4	4.0	5.5	<2.5	3.3	4.3	5.0	6.8	4.7	3.9E+02	5.7E+03	1.5E+03	1.8E+02	3.9E+02	5.1E+03	6.3E+01	NA
8240/8260 Skinner List																										
1,2-Dibromoethane	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.9E-01	3.2E+00	1.6E+01	1.5E-05	3.4E-02	1.7E-01	1.8E-06	1.40E-05
1,4-Dichloroethane	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7.9E+00	4.4E+01	5.9E+01	3.6E-04	4.3E-01	2.2E+00	4.2E-05	1.40E-03
1,4-Dioxane	mg/kg	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	4.9E+01	1.9E+02	1.7E+03	1.2E-03	4.9E+00	1.7E+01	1.4E-04	NA
2-butanone (MEK)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.7E+04	3.7E+05	8.4E+04	1.3E+00	2.8E+04	2.0E+05	1.0E+00	NA
2-Chloroethylvinyl 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	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5E+01	8.5E+01	1.4E+02	1.7E-03	1.1E+00	5.4E+00	2.0E-04	2.60E-03
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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5E+03	8.3E+03	1.6E+03	2.8E-01	8.2E+02	3.7E+03	2.1E-01	
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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.8E+02	2.1E+03	4.1E+02	4.9E-02	2.9E+02	1.4E+03	4.9E-02	6.80E-02
Ethylbenzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.8E+01	3.8E+02	1.8E+03	1.3E-02	5.4E+00	2.7E+01	1.5E-03	7.80E-01
Styrene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.3E+03	5.0E+04	1.0E+04	1.4E+00	6.3E+03	3.6E+04	1.2E+00	1.10E-01
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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.3E+03	5.8E+04	1.3E+04	1.3E+00	5.0E+03	4.5E+04	5.9E-01	6.90E-01
Xylenes	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8.1E+02	4.0E+03	7.4E+02	1.6E-01	6.3E+02	2.7E+03	1.9E-01	9.80E+00
8270 Skinner List																										
1,2-Dichlorobenzene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	2.3E+03	1.4E+04	2.7E+03	2.8E-01	1.9E+03	9.8E+03	2.7E-01	5.80E-01
1,3-Dichlorobenzene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	3.2E+01	1.8E+02	8.3E+02	3.2E-03	2.4E+00	1.2E+01	4.0E-04	7.20E-02
2,4-Dimethylphenol	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.2E+03	1.4E+04	4.8E+03	6.7E-01	1.2E+03	1.2E+04	3.2E-01	NA
2,4-Dinitrophenol	mg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	1.2E+02	1.4E+03	4.8E+02	6.3E-02	1.2E+02	1.2E+03	3.4E-02	NA
7,12-Dimethylbenz(a)anthracene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	4.3E-04	6.2E-03	8.5E-05	NA
1 -Methylnaphthalene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	1.6E+01	5.3E+01	5.1E-03	NA
3-Methylphenol	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	6.1E+03	6.2E+04	1.1E+00	NA
4-Methylphenol	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	6.1E+03	6.2E+04	NA	1.1E+00
4-Nitrophenol	mg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.7E+04	1.8E+05	6.7E+04	2.7E+02	1.7E+04	1.7E+05	4.2E+01	NA
Benzo(a)anthracene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.5E+00	2.3E+01	2.1E+02	7.8E-02	1.5E-01	2.1E+00	1.0E-02	NA
Benzo(a)pyrene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.5E-01	2.3E+00	2.1E+01	2.6E-02	1.5E-02	2.1E-01	3.5E-03	2.40E-01
Benzo(b)flouranthene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.5E+00	2.3E+01	2.1E+02	2.7E-01	1.5E-01	2.1E+00	3.5E-02	NA
Benzo(k)flouranthene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.5E+01	2.3E+02	2.1E+03	2.6E+00	1.5E+00	2.1E+01	3.5E-01	NA
Bis(2-ethylhexyl)phthalate	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	3.5E+02	1.4E+03	4.8E+03	8.6E+00	3.5E+01	1.2E+02	1.1E+00	1.40E+00
Butyl benzyl phthalate	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	2.6E+02	9.1E+02	2.0E-01	NA
Chrysene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.5E+02	2.3E+03	2.1E+04	8.0E+00	1.5E+01	2.1E+02	1.1E+00	NA
Dibenz(a,j)acridine	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.5E-01	2.3E+00	2.1E+01	8.5E-02	1.5E-02	2.1E-01	1.1E-02	NA
Diethyl phthalate	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	4.9E+04	5.5E+05	1.9E+05	9.7E+00	4.9E+04	4.9E+05	4.7E+00	NA
Dimethyl phthalate	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6.1E+05	6.8E+06	2.4E+06	8.1E+01	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**13**	<5.0	<5.0	<5.0	**11**	<5.0	<5.0	**11**	**11**	6.1E+03	6.8E+04	2.4E+04	7.0E+00	6.1E+03	6.2E+04	1.7E+00	NA
Di-n-octyl phalate	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	6.1E+02	6.2E+03	4.4E+01	NA
Flouranthene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	2.3E+03	2.4E+04	8.9E+03	1.2E+02	2.3E+03	2.2E+04	7.0E+01	NA
Indene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
Methylchrysene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	4.3E+01	2.4E+02	1.6E+02	3.6E-03	3.6E+00	1.8E+01	4.7E-04	NA
Phenanthrene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.8E+03	2.1E+04	7.1E+03	2.9E+01	NA	NA	NA	NA
Phenol	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.8E+04	2.1E+05	6.9E+04	5.0E+00	1.8E+04	1.8E+05	2.6	NA
Pyrene	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.7E+03	1.8E+04	6.7E+03	8.9E+01	1.7E+03	1.7E+04	9.5E+00	NA
Pyridine	mg/kg	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	NA	NA	NA	NA	7.8E+01	1.0E+03	5.3E-03	NA
Quinoline	mg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	NA	N	NA	NA	1.6E-01	5.7E-01	6.8E-05	NA
Benzenethiol	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	N	NA	NA	7.8E+01	1.0E+03	8.6E-03	NA

Bolded Value - concentration exceeds screening level
NA - Screening level not available or not analyzed
DAF - Dilution attentuation factor
NMED Screening levels (June 2012)
EPA Regional Screening Levels (Nov. 2012)

TABLE 3
SWMU 10 SOIL BORING SAMPLES - VAPOR SCREENING RESULTS
WESTERN REFINING COMPANY SOUTHWEST INC. - GALLUP REFINERY
GALLUP, NEW MEXICO

Sample Interval Depth (ftbgl)	SWMU 10-1	SWMU 10-2	SWMU 10-3	SWMU 10-4	SWMU 10-5	SWMU 10-6	SWMU 10-7	SWMU 10-8	SWMU 10-9
0 - 2	14.8	10.5	12.9	40.5	108	2.7	6.2	12.9	18
2 - 4	25.7	8.0	24.2	335	61	4.3	9.5	1489	19.1
4 - 6	30.9		16.7	36.8	445	4.7	10.6	400	380
6 - 8	26.6		18.9	42.7	330	2.9	9.7	22.9	27
8 - 10	20.7		17.6	37.8	30.6	3.2	9.1	22.8	28.9
10 - 12	17.4		13.7	25.6	26.3	4.1	4.2	24.6	10.7
12 - 14	9.2		11.2	31.1	3.5		8.1	12.1	4
14 - 16	11.3		7.6	32.9	75.2		8.9	10.2	8.9
16 - 18	5.3		7.2	14.1	9.4		8.2	5.7	6.4
18 - 20	3.6		2.5	3.8	26.8		2.7		6.2
20 - 22					16.5				
22 - 24					10.7				

Sample Interval Depth (ftbgl)	SWMU 10-10	SWMU 10-11	SWMU 10-12	SWMU 10-13	SWMU 10-14	SWMU 10-15	SWMU 10-16	SWMU 10-17
0 - 2	11.9	13.1	3.0	4.4	3.2	11.4	10.4	3.8
2 - 4	18.4	4.0	5.4	5.6	No recovery	11.1	4.9	4.1
4 - 6	1685	524	6.0	775	10.1	13.9	4.4	292
6 - 8	1514	133	4.5	1055	900	12.4	8.4	1667
8 - 10	686	570	6.1	721	23.7	12.3	0.5	
10 - 12	655	8.5	6.9/6.1	11	15.9	10.7	6.8	
12 - 14	75	69.2	4.9	10.3	22.4	8.9		
14 - 16	18	20.6	2.9	10.4	16.9	8.4		
16 - 18	16.8	7.2	1.8	12.4	7.9	8.3		
18 - 20	8.5	13.4	1.2	14.1	5.2	7.1		
20 - 22			1.5		6.1 (1)			
22 - 24					1.8 (2)			

(1) 20 - 21 feet
(2) 21 - 23 feet
eet below ground level

TABLE 4
Groundwater Field Mesurements
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

WELL	DATE	DEPTH TO GROUNDWATER (ft) [2]	TEMPERATURE °C	SPECIFIC CONDUCTIVITY (uS/cm)	DISSOLVED OXYGEN (mg/L)	pH	OXYGEN REDUCTION POTENTIAL
SWMU 10-1	04/29/15	7.12	14.4	12186	6.74	7.1	333.8
SWMU 10-3	04/29/15	11.05	13.7	NM [1]	7.9	7.15	358
SWMU 10-5	05/04/15	11.91	12.4	10462	5.88	7.01	434
SWMU 10-11	05/14/15	3.35	12.1	7288	7.21	6.95	251.6
SWMU 10-12	05/14/15	3.38	12.2	2950	3.48	7.23	288.1
SWMU 10-14	05/14/15	12.50	11.2	2994	8.27	7.14	358.9
SWMU 10-15	05/14/15	4.31	12.7	8119	8.85	6.86	352.3
SWMU 10-16	05/14/15	6.20	NM	NM	NM	NM	NM

(1) Recorded data was 78.6 and is considered to be an error.
(2) Depth to groundwate estimated from land surface

TABLE 5
Soil Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	NMED Residential (0-10')	endpoint	EPA Residential (0-2')	endpoint	NMED IndOccSoil (0-1')	NMED IndOccSoil_Endpoint	NMED ConsWork Soil (0-10')	NMED ConsWork Soil_Endpoint	EPA Industrial Soil (0-2')	EPA IndSoil_keX	NMED DAF1 SoilGW	EPA GW_Risk-based SSL_SoilGW	EPA GW_MCL-based SSL_SoilGW
Metals (mg/kg)													
Antimony	3.13E+01	n	3.10E+01	n	5.19E+02	n	1.42E+02	n	4.70E+02	n	3.28E-01	3.50E-01	2.70E-01
Arsenic	4.25E+00	c	6.80E-01	c*	2.15E+01	c	5.74E+01	n	3.00E+00	c	1.50E-02	1.50E-03	2.90E-01
Barium	1.56E+04	n	1.50E+04	n	2.55E+05	nl	4.35E+03	n	2.20E+05	nm	1.35E+02	1.60E+02	8.20E+01
Beryllium	1.56E+02	n	1.60E+02	n	2.58E+03	n	1.48E+02	n	2.30E+03	n	9.79E+00	1.90E+01	3.20E+00
Cadmium	7.05E+01	n	7.10E+01	n	1.11E+03	n	7.21E+01	n	9.80E+02	n	4.69E-01	6.90E-01	3.80E-01
Chromium	9.66E+01	c	-	-	5.05E+02	c	1.34E+02	n	-	-	1.01E+04	-	1.80E+05
Hexavalent Chromium	3.05E+00	c	3.00E-01	n	7.21E+01	n	6.69E+01	c	6.30E+00	nm	4.84E-03	6.70E-04	-
Cobalt	-	-	2.30E+01	n	-	-	-	-	3.50E+02	n	-	2.70E-01	-
Cyanide	1.12E+01	n	2.70E+00	n	6.33E+01	n	1.21E+01	n	1.20E+01	n	2.61E-04	1.50E-02	2.00E+00
Iron	-	-	5.50E+04	n	-	-	-	-	8.20E+05	n	-	3.50E+02	
Lead	4.00E+02	IEUBK	4.00E+02	nL	8.00E+02	IEUBK	8.00E+02	IEUBK	8.00E+02	nL	-	-	1.40E+01
Manganese	-	-	1.80E+03	n	-	-	-	-	2.60E+04	n	-	2.80E+01	
Mercury	2.38E+01	ns	9.40E+00	ns	1.12E+02	ns	2.07E+01	ns	4.00E+01	ns	3.27E-02	3.30E-02	1.00E-01
Nickel	1.56E+03	n	8.40E+02	c	2.57E+04	n	6.19E+03	n	1.20E+04	c	2.42E+01	-	-
Selenium	3.91E+02	n	3.90E+02	n	6.49E+03	n	1.75E+03	n	5.80E+03	n	5.11E-01	5.20E-01	2.60E-01
Silver	3.91E+02	n	3.90E+02	n	6.49E+03	n	1.77E+03	n	5.80E+03	n	6.88E-01	8.00E-01	-
Vanadium	3.94E+02	n	3.90E+02	n	6.53E+03	n	6.14E+02	n	5.80E+03	n	6.31E+01	8.60E+01	-
Zinc	2.35E+04	n	2.30E+04	n	3.89E+05	nl	1.06E+05	n	3.50E+05	nm	3.71E+02	3.70E+02	-
Volatiles (mg/kg)													
1,1,1,2-Tetrachloroethane	2.81E+01	c	2.00E+00	c	1.37E+02	c	7.79E+02	cs	8.80E+00	cs	1.80E-03	2.20E-04	-
1,1,1-Trichloroethane	1.44E+04	ns	8.10E+03	ns	7.25E+04	ns	1.36E+04	ns	3.60E+04	ns	2.55E+00	2.80E+00	7.00E-02
1,1,2,2-Tetrachloroethane	7.98E+00	c	6.00E-01	c	3.94E+01	c	1.97E+02	c	2.70E+00	c	2.40E-04	2.80E-05	-
1,1,2-Trichloroethane	2.61E+00	n	1.10E+00	c	1.24E+01	c	2.30E+00	ns	5.00E+00	c	1.11E-04	8.90E-05	1.60E-03
1,1-Dichloroethane	7.86E+01	c	3.60E+00	c	3.83E+02	c	1.82E+03	cs	1.60E+01	c	6.79E-03	7.80E-04	-
1,1-Dichloroethene	4.40E+02	n	2.30E+02	n	2.26E+03	ns	4.24E+02	ns	1.00E+03	n	9.74E-02	1.00E-01	2.50E-03
1,1-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	-	-	6.30E+01	n	-	-	-	-	9.30E+02	n	-	2.10E-02	-
1,2,3-Trichloropropane	5.10E-02	c	5.10E-03	c	1.21E+00	c	6.31E+00	c	1.10E-01	c	2.60E-06	3.20E-07	-
1,2,4-Trichlorobenzene	8.29E+01	n	2.40E+01	n	4.23E+02	ns	7.91E+01	ns	1.10E+02	ns	8.82E-03	3.30E-03	2.00E-01
1,2,4-Trimethylbenzene	-	-	5.80E+01	n	-	-	-	-	2.40E+02	ns	-	2.10E-02	-
1,2-Dibromo-3-chloropropane	8.58E-02	c	5.30E-03	c	1.18E+00	c	5.53E+00	c	6.40E-02	c	1.17E-06	1.44E-07	8.60E-05
1,2-Dibromoethane (EDB)	6.72E-01	c	3.60E-02	c	3.31E+00	c	1.63E+01	c	1.60E-01	c	1.76E-05	2.10E-06	1.40E-05
1,2-Dichlorobenzene	2.15E+03	ns	1.80E+03	ns	1.30E+04	ns	2.50E+03	ns	9.30E+03	ns	2.29E-01	3.00E-01	5.80E-01
1,2-Dichloroethane (EDC)	8.32E+00	c	4.60E-01	c	4.07E+01	c	5.38E+01	n	2.00E+00	c	4.07E-04	4.80E-05	1.40E-03
1,2-Dichloropropane	1.78E+01	c	1.00E+00	c*	8.68E+01	c	2.54E+01	n	4.70E+00	c*	1.21E-03	1.50E-04	1.70E-03
1,3,5-Trimethylbenzene	-	-	7.80E+02	n	-	-	-	-	1.20E+04	n	-	1.70E-01	-
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 5
Soil Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	NMED Residential (0-10')	endpoint	EPA Residential (0-2')	endpoint	NMED IndOccSoil (0-1')	NMED IndOccSoil_Endpoint	NMED ConsWork Soil (0-10')	NMED ConsWork Soil_Endpoint	EPA Industrial Soil (0-2')	EPA IndSoil_keX	NMED DAF1 SoilGW	EPA GW_Risk-based SSL_SoilGW	EPA GW_MCL-based SSL_SoilGW
1,3-Dichloropropane	-	-	1.60E+03	n	-	-	-	-	2.30E+04	ns	-	1.30E-01	-
1,4-Dichlorobenzene	3.28E+01	c	2.60E+00	c	1.59E+02	c	7.46E+02	cs	1.10E+01	c	3.60E-03	4.60E-04	7.20E-02
1-Methylnaphthalene	-	-	1.80E+01	c	-	-	-	-	7.30E+01	c	-	5.80E-03	-
2,2-Dichloropropane	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone	3.74E+04	n	2.70E+04	ns	4.11E+05	nls	9.17E+04	nls	1.90E+05	nms	1.00E+00	1.20E+00	-
2-Chlorotoluene	1.56E+03	ns	1.60E+03	ns	2.60E+04	ns	7.08E+03	ns	2.30E+04	ns	1.78E-01	2.30E-01	-
2-Hexanone	-	-	2.00E+02	-	-	-	-	-	1.30E+03	-	-	8.80E-03	-
2-Methylnaphthalene	-	-	2.40E+02	n	-	-	-	-	3.00E+03	ns	-	1.90E-01	-
4-Chlorotoluene	-	-	1.60E+03	ns	-	-	-	-	2.30E+04	ns	-	2.40E-01	-
4-Isopropyltoluene	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone	5.81E+03	ns	-	-	8.16E+04	ns	2.02E+04	ns	-	-	2.40E-01	-	-
Acetone	6.63E+04	n	6.10E+04	n	9.60E+05	nls	2.42E+05	nls	6.70E+05	nms	2.49E+00	2.90E+00	-
Benzene	1.78E+01	c	1.20E+00	c*	8.72E+01	c	1.42E+02	n	5.10E+00	c*	1.90E-03	2.30E-04	2.60E-03
Bromobenzene	-	-	2.90E+02	n	-	-	-	-	1.80E+03	n	-	4.20E-02	-
Bromodichloromethane	6.19E+00	c	2.90E-01	c	3.02E+01	c	1.43E+02	c	1.30E+00	c	3.10E-04	3.60E-05	-
Bromoform	6.74E+02	c	1.90E+01	c*	3.25E+03	c	5.38E+03	n	8.60E+01	c*	2.05E-02	8.70E-04	-
Bromomethane	1.77E+01	n	6.80E+00	n	9.45E+01	n	1.79E+01	n	3.00E+01	n	1.71E-03	1.90E-03	-
Carbon disulfide	1.55E+03	ns	7.70E+02	ns	8.54E+03	ns	1.62E+03	ns	3.50E+03	ns	2.21E-01	2.40E-01	-
Carbon tetrachloride	1.07E+01	c	6.50E-01	c	5.25E+01	c	2.02E+02	ns	2.90E+00	c	1.66E-03	1.80E-04	1.90E-03
Chlorobenzene	3.78E+02	ns	2.80E+02	n	2.16E+03	ns	4.12E+02	ns	1.30E+03	ns	4.18E-02	5.30E-02	6.80E-02
Chloroethane	1.90E+04	ns	1.40E+04	ns	8.95E+04	nls	1.66E+04	nls	5.70E+04	ns	5.37E+00	5.90E+00	-
Chloroform	5.90E+00	c	3.20E-01	c	2.87E+01	c	1.34E+02	c	1.40E+00	c	5.46E-04	6.10E-05	-
Chloromethane	4.11E+01	n	1.10E+02	n	2.01E+02	cs	2.35E+02	n	4.60E+02	n	4.76E-03	4.90E-02	-
cis-1,2-DCE	1.56E+02	n	1.60E+02	n	2.60E+03	ns	7.08E+02	c	2.30E+03	ns	9.18E-03	1.10E-02	2.10E-02
cis-1,3-Dichloropropene	2.93E+01	c	1.80E+00	c*	1.46E+02	c	1.30E+02	ns	8.20E+00	c*	1.40E-03	1.70E-04	-
Dibromochloromethane	1.39E+01	c	7.50E-01	c	6.74E+01	c	3.40E+02	cs	3.30E+00	c	3.77E-04	4.50E-05	2.10E-02
Dibromomethane	-	-	2.30E+01	n	-	-	-	-	9.80E+01	ns	-	2.00E-03	-
Dichlorodifluoromethane	1.82E+02	n	8.70E+01	n	8.65E+02	ns	1.61E+02	ns	3.70E+02	n	3.61E-01	3.00E-01	-
Ethylbenzene	7.51E+01	c	5.80E+00	c	3.68E+02	cs	1.77E+03	cs	2.50E+01	c	1.31E-02	1.70E-03	7.80E-01
Hexachlorobutadiene	6.16E+01	n	1.20E+00	c**	3.29E+02	c	2.69E+02	n	5.30E+00	c*	4.39E-03	2.60E-04	-
Isopropylbenzene	2.36E+03	ns	1.90E+03	ns	1.42E+04	ns	2.74E+03	ns	9.90E+03	ns	5.69E-01	7.40E-01	-
Methyl tert-butyl ether (MTBE)	9.75E+02	c	4.70E+01	c	4.82E+03	c	2.42E+04	cs	2.10E+02	c	2.77E-02	3.20E-03	-
Methylene chloride	4.09E+02	n	5.70E+01	c	5.13E+03	c	1.21E+03	ns	1.00E+03	c	2.35E-02	2.91E-03	1.30E-03
Naphthalene	4.97E+01	c	3.80E+00	c*	2.41E+02	c	1.59E+02	n	1.70E+01	c*	4.11E-03	5.40E-04	-
n-Butylbenzene	-	-	3.90E+03	ns	-	-	-	-	5.80E+04	ns	-	3.20E+00	-
n-Propylbenzene	-	-	3.80E+03	ns	-	-	-	-	2.40E+04	ns	-	1.20E+00	-
sec-Butylbenzene	-	-	7.80E+03	ns	-	-	-	-	1.20E+05	nms	-	5.90E+00	-
Styrene	7.26E+03	ns	6.00E+03	ns	5.13E+04	ns	1.02E+04	ns	3.50E+04	ns	1.03E+00	1.30E+00	1.10E-01

TABLE 5
Soil Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	NMED Residential (0-10')	endpoint	EPA Residential (0-2')	endpoint	NMED IndOccSoil (0-1')	NMED IndOccSoil_Endpoint	NMED ConsWork Soil (0-10')	NMED ConsWork Soil_Endpoint	EPA Industrial Soil (0-2')	EPA IndSoil_keX	NMED DAF1 SoilGW	EPA GW_Risk-based SSL_SoilGW	EPA GW_MCL-based SSL_SoilGW
tert-Butylbenzene	-	-	7.80E+03	ns	-	-	-	-	1.20E+05	nms	-	1.60E+00	-
Tetrachloroethene (PCE)	1.11E+02	c	2.40E+01	c**	6.29E+02	c	1.20E+02	cs	1.00E+02	c**	1.60E-02	5.10E-03	2.30E-03
Toluene	5.23E+03	ns	4.90E+03	ns	6.13E+04	ns	1.40E+04	ns	4.70E+04	ns	6.07E-01	7.60E-01	6.90E-01
trans-1,2-DCE	2.95E+02	n	1.60E+03	n	1.61E+03	ns	3.05E+02	ns	2.30E+04	ns	2.35E-02	1.10E-01	3.10E-02
trans-1,3-Dichloropropene	2.93E+01	c	1.80E+00	c*	1.46E+02	c	1.30E+02	ns	8.20E+00	c*	1.40E-03	1.70E-04	-
Trichloroethene (TCE)	6.77E+00	n	9.40E-01	c**	3.65E+01	c	6.90E+00	cs	6.00E+00	c**	8.75E-04	1.80E-04	1.80E-03
Trichlorofluoromethane	1.23E+03	ns	7.30E+02	n	6.03E+03	ns	1.13E+03	ns	3.10E+03	ns	7.84E-01	7.30E-01	-
Vinyl chloride	7.42E-01	c	5.90E-02	c	2.84E+01	c	1.61E+02	c	1.70E+00	c	6.75E-05	6.50E-06	6.90E-04
Xylenes, Total	8.71E+02	ns	5.50E+02	ns	4.28E+03	ns	7.98E+02	ns	2.40E+03	ns	1.49E-01	1.90E-01	
Semi-volatiles (mg/kg)													
1,2,4-Trichlorobenzene	8.29E+01	n	2.40E+01	c**	4.23E+02	ns	7.91E+01	ns	1.10E+02	c**	8.82E-03	3.30E-03	2.00E-01
1,2-Dichlorobenzene	2.15E+03	ns	1.80E+03	ns	1.30E+04	ns	2.50E+03	ns	9.30E+03	ns	2.29E-01	3.00E-01	5.80E-01
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	3.28E+01	c	2.60E+00	c	1.59E+02	c	7.46E+02	cs	1.10E+01	c	3.60E-03	4.60E-04	7.20E-02
1-Methylnaphthalene	-	-	1.80E+01	c	-	-	-	-	7.30E+01	c	-	5.80E-03	-
2,4,5-Trichlorophenol	6.16E+03	n	6.30E+03	n	9.16E+04	n	2.69E+04	n	8.20E+04	n	3.31E+00	4.40E+00	-
2,4,6-Trichlorophenol	6.16E+01	n	4.90E+01	c**	9.16E+02	n	2.69E+02	n	2.10E+02	c**	3.37E-02	1.50E-02	-
2,4-Dichlorophenol	1.85E+02	n	1.90E+02	n	2.75E+03	n	8.07E+02	n	2.50E+03	n	4.13E-02	5.40E-02	-
2,4-Dimethylphenol	1.23E+03	n	1.30E+03	n	1.83E+04	n	5.38E+03	n	1.60E+04	n	3.22E-01	4.20E-01	-
2,4-Dinitrophenol	1.23E+02	n	1.30E+02	n	1.83E+03	n	5.38E+02	n	1.60E+03	n	3.35E-02	4.40E-02	-
2,4-Dinitrotoluene	1.71E+01	c	1.70E+00	c*	8.23E+01	c	5.36E+02	n	7.40E+00	c	2.46E-03	3.20E-04	-
2,6-Dinitrotoluene	3.56E+00	n	3.60E-01	c*	1.72E+01	n	8.09E+01	n	1.50E+00	c	5.10E-04	6.70E-05	-
2-Chloronaphthalene	6.26E+03	ns	4.80E+03	n	1.04E+05	ns	2.83E+04	ns	6.00E+04	n	2.85E+00	3.80E+00	-
2-Chlorophenol	3.91E+02	n	3.90E+02	n	6.49E+03	n	1.77E+03	n	5.80E+03	n	5.76E-02	7.40E-02	-
2-Methylnaphthalene	-	-	2.40E+02	n	-	-	-	-	3.00E+03	n	-	1.90E-01	-
'2-Methylphenol (cresol,o-)	-	-	3.20E+03	n	-	-	-	-	4.10E+04	n	-	7.50E-01	-
2-Nitroaniline	-	-	6.30E+02	n	-	-	-	-	8.00E+03	n	-	8.00E-02	-
2-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3´-Dichlorobenzidine	1.18E+01	c	1.20E+00	c	5.70E+01	c	4.10E+02	c	5.10E+00	c	6.14E-03	8.10E-04	-
3+4-Methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	4.93E+00	n	-	-	7.33E+01	n	2.15E+01	n	-	-	1.97E-03	-	-
4-Bromophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloroaniline	-	-	2.70E+00	c*	-	-	-	-	1.10E+01	c	-	1.60E-04	-
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitroaniline	-	-	2.70E+01	c**	-	-	-	-	1.10E+02	c*	-	1.60E-03	-
4-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 5
Soil Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	NMED Residential (0-10')	endpoint	EPA Residential (0-2')	endpoint	NMED IndOccSoil (0-1')	NMED IndOccSoil_Endpoint	NMED ConsWork Soil (0-10')	NMED ConsWork Soil_Endpoint	EPA Industrial Soil (0-2')	EPA IndSoil_keX	NMED DAF1 SoilGW	EPA GW_Risk-based SSL_SoilGW	EPA GW_MCL-based SSL_SoilGW
Acenaphthene	3.48E+03	n	3.60E+03	n	5.05E+04	n	1.51E+04	n	4.50E+04	n	4.12E+00	5.50E+00	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-
Aniline	-	-	9.50E+01	c**	-	-	-	-	4.00E+02	c*	-	4.60E-03	-
Anthracene	1.74E+04	n	1.80E+04	n	2.53E+05	nl	7.53E+04	n	2.30E+05	nm	4.25E+01	5.80E+01	-
Azobenzene	-	-	5.60E+00	c	-	-	-	-	2.60E+01	c	-	9.20E+04	-
Benz(a)anthracene	1.53E+00	c	1.60E-01	c	3.23E+01	c	2.40E+02	c	2.90E+00	c	9.11E-02	4.30E-03	-
Benzo(a)pyrene	1.53E-01	c	1.60E-02	c	3.23E+00	c	2.40E+01	c	2.90E-01	c	3.02E-02	4.00E-03	2.40E-01
Benzo(b)fluoranthene	1.53E+00	c	1.60E-01	c	3.23E+01	c	2.40E+02	c	2.90E+00	c	3.09E-01	4.10E-02	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	1.53E+01	c	1.60E+00	c	3.23E+02	c	2.31E+03	c	2.90E+01	c	3.02E+00	4.00E-01	-
Benzoic acid	-	-	2.50E+05	nm	-	-	-	-	3.30E+06	nm	-	1.80E+01	-
Benzyl alcohol	-	-	6.30E+03	n	-	-	-	-	8.20E+04	nm	-	4.80E-01	-
Bis(2-chloroethoxy)methane	-	-	1.90E+02	n	-	-	-	-	2.50E+03	n	-	1.30E-02	-
Bis(2-chloroethyl)ether	3.11E+00	c	2.30E-01	c	1.57E+01	c	1.95E+00	c	1.00E+00	c	3.03E-05	3.60E-06	-
Bis(2-chloroisopropyl)ether	9.93E+01	c	-	-	5.19E+02	cs	3.54E+03	cs	-	-	2.37E-03	-	-
Bis(2-ethylhexyl)phthalate	3.80E+02	cs	3.90E+01	c*	1.83E+03	cs	5.38E+03	n	1.60E+02	c	9.99E+00	1.30E+00	1.40E+00
Butyl benzyl phthalate	-	-	2.90E+02	c*	-	-	-	-	1.20E+03	c	-	2.30E-01	-
Carbazole	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	1.53E+02	c	1.60E+01	c	3.23E+03	c	2.31E+04	c	2.90E+02	c	9.30E+00	1.20E+00	-
Dibenz(a,h)anthracene	1.53E-01	c	1.60E-02	c	3.23E+00	c	2.40E+01	c	2.90E-01	c	3.05E-01	1.30E-02	-
Dibenzofuran	-	-	-	-	-	-	-	-	-	-	-	-	-
Diethyl phthalate	4.93E+04	n	5.10E+04	n	7.33E+05	nl	2.15E+05	nl	6.60E+05	nm	4.89E+00	6.10E+00	-
Dimethyl phthalate	6.11E+05	nl	-	-	6.84E+06	nl	2.38E+06	nl	-	-	8.06E+01	-	-
Di-n-butyl phthalate	6.16E+03	n	-	-	9.16E+04	n	2.69E+04	n	-	-	1.69E+00	-	-
Di-n-octyl phthalate	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	2.32E+03	n	2.40E+03	n	3.37E+04	n	1.00E+04	n	3.00E+04	n	6.69E+01	8.90E+01	-
Fluorene	2.32E+03	n	2.40E+03	n	3.37E+04	ns	1.00E+04	ns	3.00E+04	n	4.00E+00	5.40E+00	-
Hexachlorobenzene	3.33E+00	c	2.10E-01	c	1.60E+01	c	1.17E+02	c	9.60E-01	c	4.61E-03	1.20E-04	1.30E-02
Hexachlorobutadiene	6.16E+01	n	1.20E+00	c*	3.29E+02	c	2.69E+02	n	5.30E+00	c	4.39E-03	2.60E-04	-
Hexachlorocyclopentadiene	3.70E+02	n	1.80E+00	n	5.49E+03	n	8.67E+02	n	7.50E+00	n	6.68E-02	1.30E-03	1.60E-01
Hexachloroethane	4.31E+01	n	1.80E+00	c*	6.41E+02	n	1.88E+02	n	8.00E+00	c*	3.31E-03	2.00E-04	-
Indeno(1,2,3-cd)pyrene	1.53E+00	c	1.60E-01	c	3.23E+01	c	2.40E+02	c	2.90E+00	c	1.00E+00	1.30E-01	-
Isophorone	5.61E+03	c	5.70E+02	c*	2.70E+04	cs	5.37E+04	n	2.40E+03	c*	2.11E-01	2.60E-02	-
Naphthalene	4.97E+01	c	3.80E+00	c*	2.41E+02	c	1.59E+02	n	1.70E+01	c*	4.11E-03	5.40E-04	-
Nitrobenzene	6.04E+01	c	5.10E+00	c*	2.93E+02	c	3.53E+02	n	2.20E+01	c*	7.20E-04	9.20E-05	-
N-Nitrosodi-n-propylamine	-	-	7.80E-02	c	-	-	-	-	3.30E-01	c	-	8.10E-06	-
N-Nitrosodiphenylamine	7.94E-03	c	1.10E+02	c	1.71E-01	c	1.25E+00	c	4.70E+02	c	4.92E-07	6.60E-02	-
Pentachlorophenol	9.85E+00	c	1.00E+00	c	4.45E+01	c	3.46E+02	c	4.00E+00	c	3.04E-03	4.00E-04	1.00E-02

TABLE 5
Soil Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	NMED Residential (0-10')	endpoint	EPA Residential (0-2')	endpoint	NMED IndOccSoil (0-1')	NMED IndOccSoil_Endpoint	NMED ConsWork Soil (0-10')	NMED ConsWork Soil_Endpoint	EPA Industrial Soil (0-2')	EPA IndSoil_keX	NMED DAF1 SoilGW	EPA GW_Risk-based SSL_SoilGW	EPA GW_MCL-based SSL_SoilGW
Phenanthrene	1.74E+03	ns	-	-	2.53E+04	n	7.53E+03	n	-	-	4.30E+00	-	-
Phenol	1.83E+04	n	1.90E+04	n	2.75E+05	nl	7.74E+04	n	2.50E+05	nm	2.62E+00	3.30E+00	-
Pyrene	1.74E+03	n	1.80E+03	n	2.53E+04	n	7.53E+03	n	2.30E+04	n	9.59E+00	1.30E+01	-
Pyridine	-	-	7.80E+01	n	-	-	-	-	1.20E+03	n	-	6.80E-03	-
Total Petroleum Hydrocarbons (mg/kg)													
Gasoline Range Organics (GRO)	-	-	-	-	-	-	-	-	-	-	-	-	-
Diesel Range Organics (DRO)	1.00E+03	-	-	-	3.80E+03	-	-	-	-	-	-	-	-
Motor Oil Range Organics (MRO)	1.00E+03	-	-	-	3.80E+03	-	-	-	-	-	-	-	-

- No screening level or analytical result available
NMED - New Mexico Environment Department Risk Assessment Guidance for Site Investigations and Remediation (Dec. 2014)
EPA - Environmental Protection Agency Regional Screening Levels (Nov 2015)
NMED TPH Soil Screening Levels "uknown oil"
c -carcinogen
cs - carcinogenic, SSL may exceed saturation
c* - where: n SL < 100X c SL
c** - where n SL < 10X c SL
n - noncarcinogenic
ns - noncarcinogenic, SSL may exceed saturation
nl - noncarcinogenic, SSL may exceed ceiling limit
nm - concentration may exceed ceiling limit

TABLE 6
Groundwater Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL
Metals (ug/l) TOTAL						
Antimony	-	7.26	n	7.80	n	**6.00**
Arsenic	100	0.51	c	0.05	c	**10**
Barium	-	3277	n	3800	n	**2000**
Beryllium	-	12.39	n	25	n	**4**
Cadmium	-	6.24	n	9.20	n	**5**
Chromium	**50**	5.59	c	22000	n	100
Hexavalent Chromium	-	**0.25**	c	0.04	c	
Cobalt	-	-	-	**6**	n	-
Cyanide	**200**	1.46	n	1.50	n	200
Iron		**13822**	n	14000	n	-
Lead	50	-	-	15	L	**15**
Manganese		**2017.40**	n	430	n	-
Mercury	**2**	0.63	n	0.63	n	2
Nickel	-	**371.96**	n	200	n	-
Selenium	**50**	98.73	n	100	n	50
Silver	**50**	81.19	n	94	n	-
Vanadium	-	**63.07**	n	86	n	-
Zinc	**10000**	5960.45	n	6000	n	-
Chloride	**250000**	-	-	-	-	-
Fluoride	**1600**	1184.73	n	800	n	-
Sulfate	**600000**	-	-	-	-	-
Metals (ug/l) DISSOLVED						
Antimony (D)	-	7.26	n	7.80	n	**6**
Arsenic (D)	100	0.51	c	0.05	c	**10**
Barium (D)	**1000**	3277.35	n	3800	n	2000
Beryllium (D)	-	12.39	n	25	n	**4**
Cadmium (D)	10	6.24	n	9.20	n	**5**
Chromium (D)	**50**	5.59	c	22000	n	100
Cobalt (D)	**50**	-	-	6	n	-
Iron (D)	**1000**	13821.88	n	14000	n	-
Lead (D)	50	-	-	15	L	**15**
Manganese (D)	**200**	2017.40	n	430	n	-
Nickel (D)	-	**371.96**	n	200	n	-
Selenium (D)	**50**	98.73	n	100	n	50
Silver (D)	**50**	81.19	n	94	n	-
Vanadium (D)	-	**63.07**	n	86	n	-
Zinc (D)	**10000**	5960.45	n	6000	n	-
Volatiles (ug/l)						

TABLE 6
Groundwater Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL
1,1,1,2-Tetrachloroethane	-	**5.72**	c	0.57	c	-
1,1,1-Trichloroethane	**60**	8002.78	n	8000	n	200
1,1,2,2-Tetrachloroethane	**10**	0.76	c	0.08	c	-
1,1,2-Trichloroethane	10	0.41	c	0.28	c**	**5**
1,1-Dichloroethane	**25**	24.18	c	2.80	c	-
1,1-Dichloroethene	**5**	339.53	n	280	n	7
1,1-Dichloropropene	-	-	-	**0.47**	c*	-
1,2,3-Trichlorobenzene	-	-	-	**7**	n	-
1,2,3-Trichloropropane	-	**0.01**	c	0.0008	c	-
1,2,4-Trichlorobenzene (V)	-	4.12	n	1.20	c**	**70**
1,2,4-Trimethylbenzene	-	-	-	**15**	n	-
1,2-Dibromo-3-chloropropane	-	0.0032	c	0.0003	c	**0.20**
1,2-Dibromoethane (EDB)	0.1	0.07	c	0.01	c	**0.05**
1,2-Dichlorobenzene (V)	-	370.14	n	300	n	**600**
1,2-Dichloroethane (EDC)	10	1.49	c	0.17	c*	**5**
1,2-Dichloropropane	-	3.86	c	0.44	c*	**5**
1,3,5-Trimethylbenzene	-	-	-	**12**	n	-
1,3-Dichlorobenzene (V)	-	-	-	-	-	-
1,3-Dichloropropane	-	-	-	**370**	n	-
1,4-Dichlorobenzene (V)	-	4.27	c	0.48	c	**75**
1-Methylnaphthalene (V)	-	-	-	**1.10**	c	-
2,2-Dichloropropane	-	-	-	-	-	-
2-Butanone	-	**5564.70**	n	5600	n	-
2-Chlorotoluene	-	-	-	**240**	n	-
2-Hexanone	-	-	-	-	-	-
2-Methylnaphthalene (V)	-	-	-	**36**	n	-
4-Chlorotoluene	-	-	-	**250**	n	-
4-Isopropyltoluene	-	-	-	-	-	-
4-Methyl-2-pentanone	-	-	-	-	-	-
Acetone	-	**14063.57**	n	14000	n	-
Benzene	10	4.13	c	0.46	c*	**5**
Bromobenzene	-	-	-	**62**	n	-
Bromodichloromethane	-	**1.34**	c	0.13	c	-
Bromoform	-	-	-	**3.30**	c*	-
Bromomethane	-	**7.54**	n	7.50	n	-
Carbon disulfide	-	**809.54**	n	810	n	-
Carbon Tetrachloride	10	4.40	c	0.46	c	**5**
Chlorobenzene	-	91.25	n	78.00	n	**100**
Chloroethane	-	**20857.14**	-	-	-	-

TABLE 6
Groundwater Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL
Chloroform	**100**	1.93	c	0.22	c	-
Chloromethane	-	**20.31**	c	190.00	n	-
cis-1,2-DCE	-	73	n	36	n	**70**
cis-1,3-Dichloropropene	-	**4.70**	c	-	-	-
Dibromochloromethane	-	**1.68**	c	0.87	c	-
Dibromomethane	-	-	-	**8.30**	n	-
Dichlorodifluoromethane	-	**197.20**	n	200	n	-
Ethylbenzene	750	14.76	c	1.50	c	**700**
Hexachlorobutadiene (V)	-	**2.95**	c	0.14	c*	-
Isopropylbenzene	-	**446.85**	n	450	n	-
Methyl tert-butyl ether (MTBE)	-	**142.99**	c	14	c	-
Methylene Chloride	100	186.38	c	11	c**	**5**
Naphthalene (V)	-	**1.65**	c	0.17	c*	-
n-Butylbenzene	-	-	-	-	-	-
n-Propylbenzene	-	-	-	-	-	-
sec-Butylbenzene	-	-	-	-	-	-
Styrene	-	1622.22	n	1200	n	**100**
tert-Butylbenzene	-	-	-	-	-	-
Tetrachloroethene (PCE)	20	1.08	c	11	c**	**5**
Toluene	**750**	2281.25	n	1100	n	1000
trans-1,2-DCE	-	106.83	n	360	n	**100**
trans-1,3-Dichloropropene	-	**4.70**	c	0.47	c*	-
Trichloroethene (TCE)	100	3.40	n	0.49	c**	**5**
Trichlorofluoromethane	-	**1136.82**	n	5200	n	-
Vinyl chloride	**1**	0.16	c	0.02	c	2
Xylenes, Total	**620**	202.78	n	190	n	10000
Semivolatiles (ug/l)						
1,2,4-Trichlorobenzene	-	4.12	n	45	n	**70**
1,2-Dichlorobenzene	-	370.14	n	300	n	**600**
1,3-Dichlorobenzene	-	-	-	-	-	-
1,4-Dichlorobenzene	-	4.27	c	0.48	c	**75**
1-Methylnaphthalene	-	-	-	**1.10**	c	-
2,4,5-Trichlorophenol	-	**1165.98**	n	1200	n	-
2,4,6-Trichlorophenol	-	**11.88**	n	4.10	c**	-
2,4-Dichlorophenol	-	**45.30**	n	46	n	-
2,4-Dimethylphenol	-	**353.88**	n	360	n	-
2,4-Dinitrophenol	-	**38.79**	n	39	n	-
2,4-Dinitrotoluene	-	**2.37**	c	0.24	c	-
2,6-Dinitrotoluene	-	**0.48**	n	0.05	c	-

TABLE 6
Groundwater Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL
2-Chloronaphthalene	-	**732.56**	n	750	n	-
2-Chlorophenol	-	**91**	n	91	n	-
2-Methylnaphthalene	-	-	-	**36**	n	-
2-Methylphenol	-	-	-	**930**	n	-
2-Nitroaniline	-	-	-	**190**	n	-
2-Nitrophenol	-	-	-	-	-	-
3,3´-Dichlorobenzidine	-	**1.24**	c	0.13	c	-
3+4-Methylphenol	-	-	-	**930**	n	-
3-Nitroaniline	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	-	**1.51**	n	-	-	-
4-Bromophenyl phenyl ether	-	-	-	-	-	-
4-Chloro-3-methylphenol	-	-	-	-	-	-
4-Chloroaniline	-	-	-	**0.37**	c	-
4-Chlorophenyl phenyl ether	-	-	-	-	-	-
4-Nitroaniline	-	-	-	**3.80**	c*	-
4-Nitrophenol	-	-	-	-	-	-
Acenaphthene	-	**534.60**	n	530	n	-
Acenaphthylene	-	-	-	-	-	-
Aniline	-	-	-	**13**	c*	-
Anthracene	-	**1721.28**	n		n	-
Azobenzene	-	-	-	**0.12**	c	-
Benz(a)anthracene	-	**0.34**	c	0.01	c	-
Benzo(a)pyrene	0.7	0.03	c	0.00	c	**0.20**
Benzo(b)fluoranthene	-	**0.34**	c	0.03	c	-
Benzo(g,h,i)perylene	-	-	-	-	-	-
Benzo(k)fluoranthene	-	**3.43**	c	0.34	c	-
Benzoic acid	-	-	-	**75000**	n	-
Benzyl alcohol	-	-	-	**2000**	n	-
Bis(2-chloroethoxy)methane	-	-	-	**59**	n	-
Bis(2-chloroethyl)ether	-	**9.76**	c	0.01	c	-
Bis(2-chloroisopropyl)ether	-	**9.76**	c	-	-	-
Bis(2-ethylhexyl)phthalate	-	48	c	5.60	c*	**6**
Butyl benzyl phthalate	-	-	-	**16**	c	-
Carbazole	-	-	-	-	-	-
Chrysene	-	**34.32**	c	3.40	c	-
Dibenz(a,h)anthracene	-	**0.11**	c	0.0034	c	-
Dibenzofuran	-	-	-	-	-	-
Diethyl phthalate	-	**14800.52**	n	15000	n	-
Dimethyl phthalate	-	-	-	-	-	-

TABLE 6
Groundwater Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL
Di-n-butyl phthalate	-	**884.80**	n	-	-	-
Di-n-octyl phthalate	-	-	-	-	-	-
Fluoranthene	-	**802.20**	n	800	n	-
Fluorene	-	**287.64**	n	290	n	-
Hexachlorobenzene	-	0.42	c		c	**1**
Hexachlorobutadiene	-	**2.95**	c		c*	-
Hexachlorocyclopentadiene	-	219	n		n	**50**
Hexachloroethane	-	**6.80**	c		c**	-
Indeno(1,2,3-cd)pyrene	-	**0.34**	c		c	-
Isophorone	-	**779.04**	c		c	-
Naphthalene	-	**1.65**	c		c*	-
Nitrobenzene	-	**1.40**	n		c	-
N-Nitrosodimethylamine	-	**0.0017**	c		c	-
N-Nitrosodi-n-propylamine	-	-	-	**0.01**	c	-
N-Nitrosodiphenylamine	-	**0.0049**	c		c	-
Phenanthrene	-	**170.41**	n	-	-	-
Pentachlorophenol	-	1.68	c		c	**1**
Phenol	-	**5761.05**	n		n	-
Pyrene	-	**117.42**	n		n	-
Pyridine	-	-	-	**20**	n	-
TPH (mg/l)						
Gasoline Range Organics (GRO)	-	-	-	-	-	-
Diesel Range Organics (DRO)	-	-	-	-	-	-
Motor Oil Range Organics (MRO	-	-	-	-	-	-

- No screening level available

Bolded value represents applicable screeening level for comparion to site concentrations

EPA - Regional Screening Levels (Nov. 2015) -Tap Water

EPA - Regional Screening Levels (Nov. 2015) - MCL

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

NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (Dec. 2014)

Table 7
SWMU 10 Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SWMU 10-1 (2-4')	SWMU 10-1 (4-6')	SWMU 10-1 (18-20')	SWMU 10-2 (0-2')	SWMU 10-2 (2-4')	SWMU 10-3 (2-4')	SWMU 10-3 (6-8')	SWMU 10-3 (18-20')	SWMU 10-4 (0-2')	SWMU 10-4 (2-4')	SWMU 10-4 (6-8')	SWMU 10-4 (18-20')	SWMU 10-5 (0-2')
							1504C87-001	1504C87-002	1504C87-003	1505223-003*	1505223-004*	1504C87-004	1504C87-005	1504C87-006	1505004-001	1505004-002	1505004-003	1505004-004	1505003-001**
							4/28/2015	4/28/2015	4/28/2015	5/4/2015	5/4/2015	4/28/2015	4/28/2015	4/28/2015	4/29/2015	4/29/2015	4/29/2015	4/29/2015	4/29/2015
Metals (mg/kg)																			
Antimony	3.13E+01	(1)	1.42E+02	(5)	6.56E+00	(8)	< 1.5756 u	1.9 J	1.5 J	< 1.5365 u	1.7 J	< 1.5281 u	< 3.1112 u	< 1.5824 u	< 1.5131 u	< 1.6799 u	< 1.5535 u	< 1.5096 u	< 1.5344 u
Arsenic	4.25E+00	(1)	2.15E+01	(4)	2.99E-01	(8)	0.97 J	1.7 J	1.7 J	1.8 J	1.7 J	2.3 J	2.6 J	2.1 J	1.4 J	1.9 J	1.2 J	1.9 J	2.6 J
Barium	1.56E+04	(1)	4.35E+03	(5)	2.70E+03	(8)	200 v	130 v	170 v	390 v	810 v	280 v	2900 v	750 v	460 v	390 v	140 v	230 v	500 v
Beryllium	1.56E+02	(1)	1.48E+02	(5)	1.96E+02	(8)	1.1 v	1.1 v	1.1 v	0.91 v	0.98 v	0.88 v	0.92 v	1.1 v	0.71 v	0.98 v	0.84 v	1 v	0.99 v
Cadmium	7.05E+01	(1)	7.21E+01	(5)	9.39E+00	(8)	< 0.0333 u	< 0.0353 u	< 0.0324 u	< 0.0324 u	< 0.0318 u	< 0.0323 u	< 0.0657 u	< 0.0334 u	< 0.0319 u	< 0.0355 u	< 0.0328 u	< 0.0319 u	< 0.0324 u
Chromium	9.66E+01	(1)	1.34E+02	(5)	2.01E+05	(8)	10 v	10 v	16 v	11 v	11 v	17 v	29 v	14 v	14 v	9.9 v	7.2 v	15 v	54 v
Hexavalent Chromium	3.05E+00	(1)	6.69E+01	(5)	9.68E-02	(8)	< 2.4772 u	< 2.5306 u	< 2.3553 u	<1 u	<1 u	< 2.3677 u	< 2.4762 u	< 2.4156 u	< 2.2587 u	< 2.5279 u	< 2.3823 u	< 2.2991 u	<1.0 u
Cobalt	2.30E+01	(2)	3.50E+02	(6)	5.40E+00	(9)	5.2 v	5.4 v	7 v	4.6 v	5.1 v	5 v	6.4 v	8.8 v	3.8 v	4.8 v	4 v	7.4 v	6.7 v
Cyanide	1.12E+01	(1)	1.21E+01	(5)	5.22E-03	(8)	< 0.3097 u	< 0.3163 u	< 0.2944 u	< 0.2974 u	< 0.2865 u	< 0.296 u	< 0.3095 u	< 0.3019 u	< 0.2823 u	< 0.316 u	< 0.2978 u	< 0.2874 u	< 0.2973 u
Iron	5.50E+04	(2)	8.20E+05	(6)	7.00E+03	(9)	16000 v	17000 v	23000 v	15000 v	17000 v	15000 v	13000 v	22000 v	10000 v	14000 v	12000 v	21000 v	18000 v
Lead	4.00E+02	(1)	8.00E+02	(4)	2.80E+02	(10)	3.2 v	3.2 v	2 v	3.1 v	2.3 v	3.6 v	5.6 v	1.9 v	3.8 v	3.5 v	2.2 v	1.7 v	4.9 v
Manganese	1.80E+03	(2)	2.60E+04	(6)	5.60E+02	(9)	300 v	290 v	480 v	700 v	360 v	820 v	1000 v	1200 v	440 v	310 v	270 v	770 v	870 v
Mercury	2.38E+01	(1)	2.07E+01	(5)	6.54E-01	(8)	0.0066 J	0.0063 J	0.0036 J	0.014 J	0.0062 J	0.1 v	0.087 v	0.0049 J	0.034 J	0.0082 J	0.017 J	0.004 J	0.53 v
Nickel	1.56E+03	(1)	6.19E+03	(5)	4.85E+02	(8)	9.1 v	9.6 v	16 v	9.2 v	8.9 v	8.9 v	10 v	16 v	6.5 v	8.3 v	6.8 v	16 v	14 v
Selenium	3.91E+02	(1)	1.75E+03	(5)	1.02E+01	(8)	< 1.8348 u	< 1.9497 u	< 1.7891 u	< 1.7892 u	< 1.7549 u	< 1.7794 u	< 3.6229 u	< 1.8427 u	< 1.762 u	< 1.9562 u	< 1.809 u	< 1.7578 u	< 1.7868 u
Silver	3.91E+02	(1)	1.77E+03	(5)	1.38E+01	(8)	< 0.0357 u	< 0.0379 u	< 0.0348 u	< 0.0348 u	< 0.0341 u	< 0.0346 u	< 0.0704 u	< 0.0358 u	< 0.0342 u	< 0.038 u	< 0.0352 u	< 0.0342 u	< 0.0347 u
Vanadium	3.94E+02	(1)	6.14E+02	(5)	1.26E+03	(8)	20 v	18 v	17 v	21 v	22 v	22 v	23 v	16 v	17 v	20 v	15 v	22 v	26 v
Zinc	2.35E+04	(1)	1.06E+05	(5)	7.41E+03	(8)	17 v	16 v	22 v	18 v	17 v	25 v	35 v	27 v	29 v	16 v	13 v	22 v	150 v
Volatiles (mg/kg)																			
1,1,1,2-Tetrachloroethane	2.81E+01	(1)	1.37E+02	(4)	3.59E-02	(8)	< 0.0028 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0002 u	< 0.0003 u	< 0.0004 u	< 0.0003 u	< 0.0027 u	< 0.0002 u	< 0.0003 u	< 0.0025 u
1,1,1-Trichloroethane	1.44E+04	(1)	1.36E+04	(5)	5.11E+01	(8)	< 0.0052 u	< 0.0002 u	< 0.0003 u	< 0.0003 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0003 u	< 0.0003 u	< 0.005 u	< 0.0002 u	< 0.0003 u	< 0.0047 u
1,1,2,2-Tetrachloroethane	7.98E+00	(1)	3.94E+01	(4)	4.80E-03	(8)	< 0.0042 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.0003 u	< 0.0004 u	< 0.0005 u	< 0.0004 u	< 0.004 u	< 0.0003 u	< 0.0004 u	< 0.0038 u
1,1,2-Trichloroethane	2.61E+00	(1)	2.30E+00	(5)	2.23E-03	(8)	< 0.0041 u	< 0.0017 u	< 0.002 u	< 0.002 u	< 0.0017 u	< 0.0015 u	< 0.0016 u	< 0.0022 u	< 0.0019 u	< 0.0039 u	< 0.0015 u	< 0.0019 u	< 0.0037 u
1,1-Dichloroethane	7.86E+01	(1)	3.83E+02	(4)	1.36E-01	(8)	< 0.0138 u	< 0.0004 u	< 0.0005 u	< 0.0005 u	< 0.0004 u	< 0.0003 u	< 0.0004 u	< 0.0005 u	< 0.0004 u	< 0.0131 u	< 0.0004 u	< 0.0004 u	< 0.0124 u
1,1-Dichloroethene	4.40E+02	(1)	4.24E+02	(5)	1.95E+00	(8)	< 0.0024 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0002 u	< 0.0003 u	< 0.0004 u	< 0.0003 u	< 0.0023 u	< 0.0003 u	< 0.0003 u	< 0.0021 u
1,1-Dichloropropene	-	-	-	-	-	-	< 0.0051 u	< 0.0003 u	< 0.0004 u	< 0.0004 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0004 u	< 0.0004 u	< 0.0049 u	< 0.0003 u	< 0.0003 u	< 0.0046 u
1,2,3-Trichlorobenzene	6.30E+01	(2)	9.30E+02	(6)	4.20E-01	(9)	< 0.0074 u	< 0.0006 u	< 0.0007 u	< 0.0007 u	< 0.0006 u	< 0.0005 u	< 0.0006 u	< 0.0008 u	< 0.0007 u	< 0.007 u	< 0.0006 u	< 0.0007 u	< 0.0066 u
1,2,3-Trichloropropane	5.10E-02	(1)	1.21E+00	(4)	5.21E-05	(8)	< 0.0058 u	< 0.0006 u	< 0.0007 u	< 0.0007 u	< 0.0006 u	< 0.0005 u	< 0.0006 u	< 0.0008 u	< 0.0007 u	< 0.0055 u	< 0.0005 u	< 0.0007 u	< 0.0052 u
1,2,4-Trichlorobenzene	8.29E+01	(1)	7.91E+01	(5)	1.76E-01	(8)	< 0.00636 u	< 0.00064 u	< 0.00074 u	< 0.00074 u	< 0.00063 u	< 0.00055 u	< 0.00061 u	< 0.00081 u	< 0.00072 u	< 0.00603 u	< 0.00057 u	< 0.00069 u	< 0.00573 u
1,2,4-Trimethylbenzene	5.80E+01	(2)	2.40E+02	(6)	4.20E-01	(9)	0.0061 J	0.000619 J	0.00162 J	0.000938 J	0.000663 J	< 0.0004 u	0.000564 J	0.00184 J	0.00077 J	< 0.0016 u	0.000406 J	0.00277 v	0.063 v
1,2-Dibromo-3-chloropropane	8.58E-02	(1)	1.18E+00	(4)	2.34E-05	(8)	< 0.0059 u	< 0.0005 u	< 0.0006 u	< 0.0006 u	< 0.0005 u	< 0.0004 u	< 0.0005 u	< 0.0006 u	< 0.0006 u	< 0.0056 u	< 0.0005 u	< 0.0005 u	< 0.0053 u
1,2-Dibromoethane (EDB)	6.72E-01	(1)	3.31E+00	(4)	3.52E-04	(8)	< 0.0027 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0003 u	< 0.0002 u	< 0.0026 u	< 0.0002 u	< 0.0002 u	< 0.0025 u
1,2-Dichlorobenzene	2.15E+03	(1)	2.50E+03	(5)	4.58E+00	(8)	< 0.00208 u	< 0.00038 u	< 0.00044 u	< 0.00044 u	< 0.00037 u	< 0.00033 u	< 0.00036 u	< 0.00048 u	< 0.00042 u	< 0.00197 u	< 0.00034 u	< 0.00041 u	< 0.00187 u
1,2-Dichloroethane (EDC)	8.32E+00	(1)	4.07E+01	(4)	8.14E-03	(8)	< 0.0138 u	< 0.0005 u	< 0.0005 u	< 0.0005 u	< 0.0005 u	< 0.0004 u	< 0.0004 u	< 0.0006 u	< 0.0005 u	< 0.0131 u	< 0.0004 u	< 0.0005 u	< 0.0124 u
1,2-Dichloropropane	1.78E+01	(1)	2.54E+01	(5)	2.43E-02	(8)	< 0.0019 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.0003 u	< 0.0003 u	< 0.0005 u	< 0.0004 u	< 0.0018 u	< 0.0003 u	< 0.0004 u	< 0.0017 u
1,3,5-Trimethylbenzene	7.80E+02	(2)	1.20E+04	(6)	3.40E+00	(9)	< 0.0023 u	0.000318 J	0.000993 J	< 0.0003 u	< 0.0003 u	< 0.0003 u	0.000351 J	0.00123 J	0.000347 J	0.11 v	< 0.0003 u	0.00184 J	0.041 v
1,3-Dichlorobenzene	-	-	-	-	-	-	< 0.00406 u	< 0.00029 u	< 0.00033 u	< 0.00033 u	< 0.00028 u	< 0.00025 u	< 0.00027 u	< 0.00036 u	< 0.00032 u	< 0.00385 u	< 0.00025 u	< 0.00031 u	< 0.00365 u
1,3-Dichloropropane	1.60E+03	(2)	2.30E+04	(6)	2.60E+00	(9)	< 0.0048 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0002 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0045 u	< 0.0002 u	< 0.0003 u	< 0.0043 u
1,4-Dichlorobenzene	3.28E+01	(1)	1.59E+02	(4)	7.20E-02	(8)	< 0.00429 u	< 0.00026 u	< 0.00031 u	< 0.00031 u	< 0.00026 u	< 0.00023 u	< 0.00025 u	< 0.00034 u	< 0.0003 u	< 0.00407 u	< 0.00024 u	< 0.00029 u	< 0.00386 u
1-Methylnaphthalene	1.80E+02	(3)	7.30E+02	(7)	1.16E-01	(9)	< 0.02069 u	< 0.00067 u	< 0.00077 u	< 0.00078 u	< 0.00066 u	< 0.00058 u	< 0.00064 u	< 0.00085 u	< 0.00075 u	2.9 v	< 0.0006 u	< 0.00072 u	0.51 v
2,2-Dichloropropane	-	-	-	-	-	-	< 0.005 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0004 u	< 0.0003 u	< 0.0048 u	< 0.0003 u	< 0.0003 u	< 0.0045 u
2-Butanone	3.74E+04	(1)	9.17E+04	(5)	2.01E+01	(8)	< 0.0222 u	0.00257 J	0.00156 J	0.0038 J	0.00283 J	0.00273 J	0.00136 J	0.00151 J	0.00407 J	< 0.021 u	0.00153 J	< 0.0006 u	< 0.02 u
2-Chlorotoluene	1.56E+03	(1)	7.08E+03	(5)	3.56E+00	(8)	< 0.0039 u	< 0.0003 u	< 0.0004 u	< 0.0004 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0004 u	< 0.0004 u	< 0.0037 u	< 0.0003 u	< 0.0004 u	< 0.0035 u
2-Hexanone	2.00E+02	(2)	1.30E+03	(6)	1.76E-01	(9)	< 0.0085 u	< 0.0004 u	< 0.0004 u	0.000788 J	0.000672 J	0.000656 J	0.000588 J	0.000748 J	0.000886 J	< 0.008 u	0.000559 J	< 0.0004 u	< 0.0076 u
2-Methylnaphthalene	2.40E+02	(2)	3.00E+03	(6)	3.80E+00	(9)	< 0.02268 u	< 0.00067 u	< 0.00077 u	< 0.00077 u	< 0.00066 u	< 0.00058 u	< 0.00063 u	< 0.00084 u	< 0.00075 u	0.69 v	< 0.00059 u	< 0.00072 u	0.53 v
4-Chlorotoluene	1.60E+03	(2)	2.30E+04	(6)	4.80E+00	(9)	< 0.0026 u	< 0.0003 u	< 0.0004 u	< 0.0004 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0004 u	< 0.0004 u	< 0.0025 u	< 0.0003 u	< 0.0004 u	< 0.0023 u
4-Isopropyltoluene	-	-	-	-	-	-	< 0.0025 u	< 0.0007 u	< 0.0008 u	< 0.0008 u	< 0.0007 u	< 0.0006 u	< 0.0006 u	< 0.0008 u	< 0.0007 u	< 0.0023 u	< 0.0006 u	< 0.0007 u	0.0061 J
4-Methyl-2-pentanone	5.81E+03	(1)	2.02E+04	(5)	4.80E+00	(8)	< 0.006 u	< 0.0007 u	< 0.0008 u	< 0.0008 u	< 0.0007 u	< 0.0006 u	< 0.0007 u	< 0.0009 u	< 0.0008 u	< 0.0057 u	< 0.0006 u	< 0.0008 u	< 0.0054 u
Acetone	6.63E+04	(1)	2.42E+05	(5)	4.98E+01	(8)	0.043 J	0.00926 v	0.00324 J	0.0222 v	0.0199 v	0.0201 v	0.00534 J	0.00158 J	0.0237 v	< 0.0244 u	0.00619 J	0.0018 J	< 0.0232 u
Benzene	1.78E+01	(1)	8.72E+01	(4)	3.80E-02	(8)	< 0.0051 u	0.00211 v	0.0146 v	0.00171 J	0.00203 v	0.000872 J	0.00319 v	0.0141 v	0.00118 J	< 0.0049 u	0.0019 v	0.0204 v	0.014 J
Bromobenzene	2.90E+02	(2)	1.80E+03	(6)	8.40E-01	(9)	< 0.0026 u	< 0.0005 u	< 0.0006 u	< 0.0006 u	< 0.0005 u	< 0.0004 u	< 0.0005 u	< 0.0006 u	< 0.0005 u	< 0.0024 u	< 0.0004 u	< 0.0005 u	< 0.0023 u
Bromodichloromethane	6.19E+00	(1)	3.02E+01	(4)	6.21E-03	(8)	< 0.0028 u	< 0.0002 u	< 0.0003 u	< 0.0003 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0003 u	< 0.0003 u	< 0.0027 u	< 0.0002 u	< 0.0003 u	< 0.0025 u
Bromoform	6.74E+02	(1)	3.25E+03	(4)	4.11E-01	(8)	< 0.0028 u	< 0.0004 u	< 0.0005 u	< 0.0005 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.0006 u	< 0.0005 u	< 0.0026 u	< 0.0004 u	< 0.0005 u	< 0.0025 u
Bromomethane	1.77E+01	(1)	1.79E+01	(5)	3.43E-02	(8)	< 0.0067 u	< 0.001 u	< 0.0012 u	< 0.0012 u	< 0.001 u	< 0.0009 u	< 0.001 u	< 0.0013 u	< 0.0011 u	< 0.0063 u	< 0.0009 u	< 0.0011 u	< 0.006 u
Carbon disulfide	1.55E+03	(1)	1.62E+03	(5)	4.42E+00	(8)	< 0.0248 u	< 0.0008 u	< 0.0009 u	< 0.0009 u	< 0.0008 u	< 0.0007 u	< 0.0007 u	< 0.001 u	< 0.0009 u	< 0.0236 u	< 0.0007 u	< 0.0008 u	< 0.0224 u
Carbon tetrachloride	1.07E+01	(1)	5.25E+01	(4)	3.33E-02	(8)	< 0.0034 u	< 0.0003 u	< 0.0004 u	< 0.0004 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0004 u	< 0.0003 u	< 0.0032 u	< 0.0003 u	< 0.0003 u	< 0.003 u
Chlorobenzene	3.78E+02	(1)	4.12E+02	(5)	8.36E-01	(8)	< 0.0027 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0025 u	< 0.0002 u	< 0.0002 u	< 0.0024 u
Chloroethane	1.90E+04	(1)	1.66E+04	(5)	1.07E+02	(8)	< 0.0267 u	< 0.0017 u	< 0.002 u	< 0.002 u	< 0.0017 u	< 0.0015 u	< 0.0016 u	< 0.0022 u	< 0.0019 u	< 0.0253 u	< 0.0015 u	< 0.0019 u	< 0.024 u
Chloroform	5.90E+00	(1)	2.87E+01	(4)	1.09E-02	(8)	< 0.0036 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.0003 u	< 0.0003 u	< 0.0004 u	< 0.0004 u	< 0.0034 u	< 0.0003 u	< 0.0004 u	< 0.0032 u
Chloromethane	4.11E+01	(1)	2.01E+02	(4)	9.51E-02	(8)	< 0.004 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0003 u	< 0.0002 u	< 0.0038 u	< 0.0002 u	< 0.0002 u	< 0.0036 u
cis-1,2-DCE	1.56E+02	(1)	7.08E+02	(5)	1.84E-01	(8)	< 0.0044 u	< 0.0005 u	< 0.0005 u	< 0.0005 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.0006 u	< 0.0005 u	< 0.0041 u	< 0.0004 u	< 0.0005 u	< 0.0039 u
cis-1,3-Dichloropropene	2.93E+01	(1)	1.30E+02	(5)	2.80E-02	(8)	< 0.0024 u	< 0.0017 u	< 0.002 u	< 0.002 u	< 0.0017 u	< 0.0015 u	< 0.0016 u	< 0.0022 u	< 0.0019 u	< 0.0023 u	< 0.0015 u	< 0.0019 u	< 0.0022 u
Dibromochloromethane	1.39E+01	(1)	6.74E+01	(4)	7.54E-03	(8)	< 0.0026 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0002 u	< 0.0025 u	< 0.0002 u	< 0.0002 u	< 0.0023 u

Table 7
SWMU 10 Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SWMU 10-1 (2-4')		SWMU 10-1 (4-6')		SWMU 10-1 (18-20')		SWMU 10-2 (0-2')		SWMU 10-2 (2-4')		SWMU 10-3 (2-4')		SWMU 10-3 (6-8')		SWMU 10-3 (18-20')		SWMU 10-4 (0-2')		SWMU 10-4 (2-4')		SWMU 10-4 (6-8')		SWMU 10-4 (18-20')		SWMU 10-5 (0-2')	
							1504C87-001		1504C87-002		1504C87-003		1505223-003*		1505223-004*		1504C87-004		1504C87-005		1504C87-006		1505004-001		1505004-002		1505004-003		1505004-004		1505003-001**	
							4/28/2015		4/28/2015		4/28/2015		5/4/2015		5/4/2015		4/28/2015		4/28/2015		4/28/2015		4/29/2015		4/29/2015		4/29/2015		4/29/2015		4/29/2015	
Dibromomethane	2.30E+01	(2)	9.80E+01	(6)	4.00E-02	(9)	< 0.0036	u	< 0.001	u	< 0.0011	u	< 0.0011	u	< 0.001	u	< 0.0008	u	< 0.0009	u	< 0.0012	u	< 0.0011	u	< 0.0034	u	< 0.0009	u	< 0.0011	u	< 0.0033	u
Dichlorodifluoromethane	1.82E+02	(1)	1.61E+02	(5)	7.23E+00	(8)	< 0.0087	u	< 0.0007	u	< 0.0008	u	< 0.0008	u	< 0.0007	u	< 0.0006	u	< 0.0007	u	< 0.0009	u	< 0.0008	u	< 0.0082	u	< 0.0006	u	< 0.0008	u	< 0.0078	u
Ethylbenzene	7.51E+01	(1)	3.68E+02	(4)	2.62E-01	(8)	< 0.0032	u	0.0318	v	0.00192	J	0.000618	J	0.000468	J	0.000313	J	0.0008	J	0.00231	v	0.000703	J	0.0041	J	0.000421	J	0.00291	v	0.016	J
Hexachlorobutadiene	6.16E+01	(1)	2.69E+02	(5)	8.79E-02	(8)	< 0.00479	u	< 0.00034	u	< 0.0004	u	< 0.0004	u	< 0.00034	u	< 0.0003	u	< 0.00032	u	< 0.00043	u	< 0.00038	u	< 0.00454	u	< 0.0003	u	< 0.00037	u	< 0.00431	u
Isopropylbenzene	2.36E+03	(1)	2.74E+03	(5)	1.14E+01	(8)	< 0.0029	u	< 0.0004	u	< 0.0005	u	< 0.0005	u	< 0.0004	u	< 0.0003	u	< 0.0004	u	< 0.0005	u	< 0.0004	u	< 0.0028	u	< 0.0004	u	0.000482	J	< 0.0026	u
Methyl tert-butyl ether (MTBE)	9.75E+02	(1)	4.82E+03	(4)	5.53E-01	(8)	< 0.0049	u	0.00669	v	< 0.0008	u	< 0.0008	u	0.00283	v	< 0.0006	u	< 0.0007	u	< 0.0009	u	< 0.0008	u	< 0.0046	u	0.00139	J	< 0.0008	u	< 0.0044	u
Methylene chloride	4.09E+02	(1)	1.21E+03	(5)	4.71E-01	(8)	< 0.0138	u	0.000619	J	0.000566	J	0.000748	J	< 0.0004	u	0.000387	J	0.000547	J	0.00077	J	0.000606	J	< 0.0131	u	0.000529	J	0.000612	J	< 0.0124	u
Naphthalene	4.97E+01	(1)	1.59E+02	(5)	8.23E-02	(8)	< 0.00821	u	0.000877	J	< 0.00064	u	< 0.00065	u	< 0.00055	u	< 0.00048	u	< 0.00053	u	< 0.0007	u	< 0.00062	u	< 0.00778	u	< 0.0005	u	0.000742	J	0.12	v
n-Butylbenzene	3.90E+03	(2)	5.80E+04	(6)	6.40E+01	(9)	< 0.003	u	< 0.0007	u	< 0.0008	u	< 0.0008	u	< 0.0007	u	< 0.0006	u	< 0.0007	u	< 0.0009	u	< 0.0008	u	< 0.0028	u	< 0.0006	u	< 0.0008	u	0.0094	J
n-Propylbenzene	3.80E+03	(2)	2.40E+04	(6)	2.40E+01	(9)	< 0.0026	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0024	u	< 0.0003	u	0.00051	J	0.0051	J
sec-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	1.18E+02	(9)	< 0.0049	u	0.000593	J	0.000715	J	0.000658	J	< 0.0004	u	< 0.0004	u	0.000555	J	0.000781	J	0.000645	J	< 0.0047	u	0.000667	J	0.000714	J	< 0.0044	u
Styrene	7.26E+03	(1)	1.02E+04	(5)	2.06E+01	(8)	< 0.0063	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0002	u	< 0.0003	u	< 0.0004	u	< 0.0003	u	< 0.006	u	< 0.0003	u	< 0.0003	u	< 0.0057	u
tert-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	3.20E+01	(9)	< 0.004	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0002	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0037	u	< 0.0002	u	< 0.0003	u	< 0.0036	u
Tetrachloroethene (PCE)	1.11E+02	(1)	1.20E+02	(5)	3.21E-01	(8)	< 0.003	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0028	u	< 0.0003	u	< 0.0004	u	< 0.0027	u
Toluene	5.23E+03	(1)	1.40E+04	(5)	1.21E+01	(8)	< 0.0041	u	0.00253	v	0.00836	v	0.00191	J	0.00155	J	0.00116	J	0.00301	v	0.01	v	0.00263	v	< 0.0039	u	0.00162	v	0.0127	v	0.01	J
trans-1,2-DCE	2.95E+02	(1)	3.05E+02	(5)	4.69E-01	(8)	< 0.0022	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0002	u	< 0.0003	u	< 0.0004	u	< 0.0003	u	< 0.0021	u	< 0.0002	u	< 0.0003	u	< 0.002	u
trans-1,3-Dichloropropene	2.93E+01	(1)	1.30E+02	(5)	2.80E-02	(8)	< 0.0062	u	< 0.0002	u	< 0.0003	u	< 0.0003	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0003	u	< 0.0003	u	< 0.0059	u	< 0.0002	u	< 0.0002	u	< 0.0056	u
Trichloroethene (TCE)	6.77E+00	(1)	6.90E+00	(5)	1.75E-02	(8)	< 0.0034	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0032	u	< 0.0003	u	< 0.0004	u	< 0.003	u
Trichlorofluoromethane	1.23E+03	(1)	1.13E+03	(5)	1.57E+01	(8)	< 0.0104	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0099	u	< 0.0003	u	< 0.0004	u	< 0.0094	u
Vinyl chloride	7.42E-01	(1)	2.84E+01	(4)	1.35E-03	(8)	< 0.0138	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0131	u	< 0.0002	u	< 0.0002	u	< 0.0124	u
Xylenes, Total	8.71E+02	(1)	7.98E+02	(5)	2.98E+00	(8)	< 0.0096	u	0.197	v	0.00647	v	0.00206	v	0.00143	J	0.00108	J	0.00181	v	0.00707	v	0.00182	J	< 0.0091	u	0.00118	J	0.00975	v	0.14	v
Semi-volatiles (mg/kg)																																
1,2,4-Trichlorobenzene	8.29E+01	(1)	7.91E+01	(5)	1.76E-01	(8)	< 0.1259	u	< 0.1289	u	< 0.1198	u	< 0.1209	u	< 0.1175	u	< 0.2426	u	< 0.1259	u	< 0.1232	u	< 0.1146	u	< 0.1201	u	< 0.1177	u	< 0.1164	u	< 1.2319	u
1,2-Dichlorobenzene	2.15E+03	(1)	2.50E+03	(5)	4.58E+00	(8)	< 0.1176	u	< 0.1204	u	< 0.1119	u	< 0.113	u	< 0.1098	u	< 0.2266	u	< 0.1176	u	< 0.1151	u	< 0.1071	u	< 0.1122	u	< 0.11	u	< 0.1088	u	< 1.1511	u
1,3-Dichlorobenzene	-	-	-	-	-	-	< 0.1092	u	< 0.1118	u	< 0.1039	u	< 0.1049	u	< 0.102	u	< 0.2105	u	< 0.1092	u	< 0.1069	u	< 0.0994	u	< 0.1042	u	< 0.1021	u	< 0.101	u	< 1.0688	u
1,4-Dichlorobenzene	3.28E+01	(1)	1.59E+02	(4)	7.20E-02	(8)	< 0.1286	u	< 0.1317	u	< 0.1224	u	< 0.1236	u	< 0.1201	u	< 0.2478	u	< 0.1287	u	< 0.1258	u	< 0.1171	u	< 0.1227	u	< 0.1203	u	< 0.119	u	< 1.2587	u
1-Methylnaphthalene	1.80E+02	(3)	7.30E+02	(7)	1.16E-01	(9)	< 0.114	u	< 0.1167	u	< 0.1085	u	< 0.1095	u	< 0.1064	u	< 0.2196	u	< 0.114	u	< 0.1115	u	< 0.1038	u	3.6	v	< 0.1066	u	< 0.1054	u	< 1.1155	u
2,4,5-Trichlorophenol	6.16E+03	(1)	2.69E+04	(5)	6.62E+01	(8)	< 0.1433	u	< 0.1467	u	< 0.1364	u	< 0.1377	u	< 0.1338	u	< 0.2761	u	< 0.1433	u	< 0.1402	u	< 0.1304	u	< 0.1367	u	< 0.134	u	< 0.1326	u	< 1.4024	u
2,4,6-Trichlorophenol	6.16E+01	(1)	2.69E+02	(5)	6.74E-01	(8)	< 0.1422	u	< 0.1456	u	< 0.1353	u	< 0.1366	u	< 0.1328	u	< 0.2739	u	< 0.1422	u	< 0.1391	u	< 0.1294	u	< 0.1356	u	< 0.1329	u	< 0.1315	u	< 1.3913	u
2,4-Dichlorophenol	1.85E+02	(1)	8.07E+02	(5)	8.25E-01	(8)	< 0.123	u	< 0.1259	u	< 0.117	u	< 0.1181	u	< 0.1148	u	< 0.237	u	< 0.123	u	< 0.1203	u	< 0.1119	u	< 0.1173	u	< 0.115	u	< 0.1137	u	< 1.2034	u
2,4-Dimethylphenol	1.23E+03	(1)	5.38E+03	(5)	6.45E+00	(8)	< 0.0967	u	< 0.099	u	< 0.092	u	< 0.0929	u	< 0.0903	u	< 0.1863	u	< 0.0967	u	< 0.0946	u	< 0.088	u	< 0.0922	u	< 0.0904	u	< 0.0894	u	< 0.9459	u
2,4-Dinitrophenol	1.23E+02	(1)	5.38E+02	(5)	6.71E-01	(8)	< 0.0511	u	< 0.0523	u	< 0.0486	u	< 0.0491	u	< 0.0477	u	< 0.0985	u	< 0.0511	u	< 0.05	u	< 0.0465	u	< 0.0487	u	< 0.0478	u	< 0.0473	u	< 0.5	u
2,4-Dinitrotoluene	1.71E+01	(1)	8.23E+01	(4)	4.91E-02	(8)	< 0.11	u	< 0.1126	u	< 0.1047	u	< 0.1057	u	< 0.1027	u	< 0.212	u	< 0.11	u	< 0.1076	u	< 0.1001	u	< 0.1049	u	< 0.1029	u	< 0.1018	u	< 1.0766	u
2,6-Dinitrotoluene	3.56E+00	(1)	1.72E+01	(4)	1.02E-02	(8)	< 0.1367	u	< 0.14	u	< 0.1301	u	< 0.1313	u	< 0.1276	u	< 0.2634	u	< 0.1367	u	< 0.1337	u	< 0.1244	u	< 0.1304	u	< 0.1278	u	< 0.1264	u	< 1.3376	u
2-Chloronaphthalene	6.26E+03	(1)	2.83E+04	(5)	5.70E+01	(8)	< 0.1317	u	< 0.1349	u	< 0.1254	u	< 0.1266	u	< 0.123	u	< 0.2539	u	< 0.1318	u	< 0.1289	u	< 0.1199	u	< 0.1256	u	< 0.1232	u	< 0.1219	u	< 1.2893	u
2-Chlorophenol	3.91E+02	(1)	1.77E+03	(5)	1.15E+00	(8)	< 0.1148	u	< 0.1175	u	< 0.1092	u	< 0.1102	u	< 0.1072	u	< 0.2211	u	< 0.1148	u	< 0.1123	u	< 0.1045	u	< 0.1094	u	< 0.1073	u	< 0.1062	u	< 1.123	u
2-Methylnaphthalene	2.40E+02	(2)	3.00E+03	(6)	3.80E+00	(9)	< 0.1125	u	< 0.1152	u	< 0.1071	u	< 0.1081	u	< 0.1051	u	< 0.2168	u	< 0.1126	u	< 0.1101	u	< 0.1024	u	0.42	v	< 0.1052	u	< 0.1041	u	< 1.1013	u
'2-Methylphenol (cresol,o-)	3.20E+03	(2)	4.10E+04	(6)	1.50E+01	(9)	< 0.1233	u	< 0.1262	u	< 0.1173	u	< 0.1184	u	< 0.1151	u	< 0.2375	u	< 0.1233	u	< 0.1206	u	< 0.1122	u	< 0.1176	u	< 0.1153	u	< 0.114	u	< 1.2064	u
2-Nitroaniline	6.30E+02	(2)	8.00E+03	(6)	1.60E+00	(9)	< 0.1399	u	< 0.1433	u	< 0.1332	u	< 0.1344	u	< 0.1307	u	< 0.2696	u	< 0.14	u	< 0.1369	u	< 0.1274	u	< 0.1334	u	< 0.1308	u	< 0.1294	u	< 1.3693	u
2-Nitrophenol	-	-	-	-	-	-	< 0.1105	u	< 0.1132	u	< 0.1052	u	< 0.1062	u	< 0.1032	u	< 0.213	u	< 0.1106	u	< 0.1081	u	< 0.1006	u	< 0.1054	u	< 0.1033	u	< 0.1022	u	< 1.0816	u
3,3´-Dichlorobenzidine	1.18E+01	(1)	5.70E+01	(4)	1.23E-01	(8)	< 0.0947	u	< 0.097	u	< 0.0901	u	< 0.091	u	< 0.0884	u	< 0.1825	u	< 0.0947	u	< 0.0926	u	< 0.0862	u	< 0.0903	u	< 0.0885	u	< 0.0876	u	< 0.9267	u
3+4-Methylphenol	-	-	-	-	-	-	< 0.1274	u	< 0.1305	u	< 0.1213	u	< 0.1224	u	< 0.119	u	< 0.2456	u	< 0.1275	u	< 0.1247	u	< 0.116	u	< 0.1215	u	< 0.1192	u	< 0.1179	u	< 1.2472	u
3-Nitroaniline	-	-	-	-	-	-	< 0.1185	u	< 0.1213	u	< 0.1128	u	< 0.1138	u	< 0.1106	u	< 0.2283	u	< 0.1185	u	< 0.1159	u	< 0.1078	u	< 0.113	u	< 0.1108	u	< 0.1096	u	< 1.1595	u
4,6-Dinitro-2-methylphenol	4.93E+00	(1)	2.15E+01	(5)	3.94E-02	(8)	< 0.0669	u	< 0.0685	u	< 0.0636	u	< 0.0642	u	< 0.0624	u	< 0.1288	u	< 0.0669	u	< 0.0654	u	< 0.0609	u	< 0.0638	u	< 0.0625	u	< 0.0618	u	< 0.6543	u
4-Bromophenyl phenyl ether	-	-	-	-	-	-	< 0.1305	u	< 0.1336	u	< 0.1242	u	< 0.1253	u	< 0.1218	u	< 0.2514	u	< 0.1305	u	< 0.1276	u	< 0.1188	u	< 0.1244	u	< 0.122	u	< 0.1207	u	< 1.2768	u
4-Chloro-3-methylphenol	-	-	-	-	-	-	< 0.1224	u	< 0.1254	u	< 0.1165	u	< 0.1176	u	< 0.1143	u	< 0.2359	u	< 0.1225	u	< 0.1198	u	< 0.1115	u	< 0.1168	u	< 0.1145	u	< 0.1133	u	< 1.1982	u
4-Chloroaniline	2.70E+01	(3)	1.10E+02	(7)	3.20E-03	(9)	< 0.1137	u	< 0.1164	u	< 0.1082	u	< 0.1093	u	< 0.1062	u	< 0.2191	u	< 0.1138	u	< 0.1113	u	< 0.1035	u	< 0.1085	u	< 0.1063	u	< 0.1052	u	< 1.1129	u
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	< 0.1831	u	< 0.1875	u	< 0.1743	u	< 0.1759	u	< 0.171	u	< 0.3528	u	< 0.1832	u	< 0.1791	u	< 0.1667	u	< 0.1746	u	< 0.1712	u	< 0.1694	u	< 1.792	u
4-Nitroaniline	2.70E+02	(3)	1.10E+03	(7)	3.20E-02	(9)	< 0.1105	u	< 0.1131	u	< 0.1051	u	< 0.1061	u	< 0.1031	u	< 0.2128	u	< 0.1105	u	< 0.1081	u	< 0.1005	u	< 0.1053	u	< 0.1033	u	< 0.1022	u	< 1.0809	u
4-Nitrophenol	-	-	-	-	-	-	< 0.1059	u	< 0.1085	u	< 0.1008	u	< 0.1018	u	< 0.0989	u	< 0.2042	u	< 0.106	u	< 0.1037	u	< 0.0964	u	< 0.101	u	< 0.0991	u	< 0.098	u	< 1.0368	u
Acenaphthene	3.48E+03	(1)	1.51E+04	(5)	8.25E+01	(8)	< 0.1498	u	< 0.1534	u	< 0.1426	u	< 0.144	u	< 0.1399	u	< 0.2887	u	< 0.1499	u	< 0.1466	u	< 0.1364	u	< 0.1429	u	< 0.1401	u	< 0.1386	u	< 1.4664	u
Acenaphthylene	-	-	-	-	-	-	< 0.1246	u	< 0.1276	u	< 0.1186	u	< 0.1197	u	< 0.1163	u	< 0.24	u	< 0.1246	u	< 0.1219	u	< 0.1134	u	< 0.1188	u	< 0.1165	u	< 0.1152	u	< 1.2191	u
Aniline	9.50E+02	(3)	4.00E+03	(7)	9.20E-02	(9)	< 0.107	u	< 0.1096	u	< 0.1019	u	< 0.1028	u	< 0.0999	u	< 0.2062	u	< 0.1071	u	< 0.1047	u	< 0.0974	u	< 0.1021	u	< 0.1001	u	< 0.099	u	< 1.0475	u
Anthracene	1.74E+04	(1)	7.53E+04	(5)	8.51E+02	(8)	< 0.1045	u	< 0.107	u	< 0.0994	u	< 0.1003	u	< 0.0975	u	< 0.2013	u	< 0.1045	u	< 0.1022	u	< 0.0951	u	< 0.0996	u	< 0.0977	u	< 0.0966	u	< 1.0222	u
Azobenzene	5.60E+01	(3)	2.60E+02	(7)	1.84E+06	(9)	< 0.1379	u	< 0.1411	u	< 0.1312	u	< 0.1324	u	< 0.1287	u	< 0.2656	u	< 0.1379	u	< 0.1349	u	< 0.1255	u	< 0.1315	u	< 0.1289	u	< 0.1275	u	< 1.349	u
Benz(a)anthracene	1.53E+00	(1)	3.23E+01	(4)	1.82E+00	(8)	< 0.0966	u	< 0.099	u	< 0.092	u	< 0.0928	u	< 0.0902	u	< 0.1862	u	< 0.0967	u	< 0.0946	u	< 0.088	u	< 0.0922	u	< 0.0904	u	< 0.0894	u	< 0.9458	u
Benzo(a)pyrene	1.53E-01	(1)	3.23E+00	(4)	6.05E-01	(8)	< 0.138	u	< 0.1413	u	< 0.1313	u	< 0.1326	u	< 0.1289	u	< 0.2659	u	< 0.138	u	< 0.135	u	< 0.1256	u	< 0.1316	u	< 0.129	u	< 0.1277	u	< 1.3505	u
Benzo(b)fluoranthene	1.53E+00	(1)	3.23E+01	(4)	6.17E+00	(8)	< 0.1168	u	< 0.1196	u	< 0.1111	u	< 0.1122	u	< 0.109	u	< 0.225	u	< 0.1168	u	< 0.1142	u	< 0.1063	u	< 0.1114	u	< 0.1092	u	< 0.108	u	< 1.1427	u
Benzo(g,h,i)perylene	-	-	-	-	-	-	< 0.1399	u	< 0.1433	u	< 0.1332	u	< 0.1344	u	< 0.1307	u	< 0.2696	u	< 0.14	u	< 0.1369	u	< 0.1274	u	< 0.1335	u	< 0.1308	u	< 0.1294	u	< 1.3694	u
Benzo(k)fluoranthene	1.53E+01	(1)	3.23E+02	(4)	6.05E+01	(8)	< 0.139	u	< 0.1423	u	< 0.1323	u	< 0.1335	u	< 0.1298	u	< 0.2678	u	< 0.139	u	< 0.136	u	< 0.1265	u	< 0.1325	u	< 0.1299	u	< 0.1285	u	< 1.36	u
Benzoic acid	2.50E+05	(2)	3.30E+06	(6)	3.60E+02	(9)	< 0.0701	u	< 0.0717	u	< 0.0667	u	< 0.0673	u	< 0.0654	u	< 0.135	u	< 0.0701	u	< 0.0685	u	< 0.0638	u	< 0.0668	u	< 0.0655	u	< 0.0648	u	< 0.6857	u
Benzyl alcohol	6.30E+03	(2)	8.20E+04	(6)	9.60E+00	(9)	< 0.1092	u	< 0.1118	u	< 0.104	u	< 0.1049	u	< 0.102	u	< 0.2105	u	< 0.1093	u	< 0.1069	u	< 0.0994	u	< 0.1042	u	< 0.1021	u	< 0.101	u	< 1.0689	u
Bis(2-chloroethoxy)methane	1.90E+02	(2)	2.50E+03	(6)	2.60E-01	(9)	< 0.1174	u	< 0.1202	u	< 0.1117	u	< 0.1127	u	< 0.1096	u	< 0.2262	u	< 0.1174	u	< 0.1148	u	< 0.1068	u	< 0.1119	u	< 0.1097	u	< 0.1086	u	< 1.1486	u
Bis(2-chloroethyl)ether	3.11E+00	(1)	1.95E+00	(5)	6.05E-04	(8)	< 0.1215	u	< 0.1244	u	< 0.1156	u	< 0.1167	u	< 0.1135	u	< 0.2341	u	< 0.1215	u	< 0.1189	u	< 0.1106	u	< 0.1159	u	< 0.1136	u	< 0.1124	u	< 1.1891	u

Table 7
SWMU 10 Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SWMU 10-1 (2-4')		SWMU 10-1 (4-6')		SWMU 10-1 (18-20')		SWMU 10-2 (0-2')		SWMU 10-2 (2-4')		SWMU 10-3 (2-4')		SWMU 10-3 (6-8')		SWMU 10-3 (18-20')		SWMU 10-4 (0-2')		SWMU 10-4 (2-4')		SWMU 10-4 (6-8')		SWMU 10-4 (18-20')		SWMU 10-5 (0-2')	
							1504C87-001		1504C87-002		1504C87-003		1505223-003*		1505223-004*		1504C87-004		1504C87-005		1504C87-006		1505004-001		1505004-002		1505004-003		1505004-004		1505003-001**	
							4/28/2015		4/28/2015		4/28/2015		5/4/2015		5/4/2015		4/28/2015		4/28/2015		4/28/2015		4/29/2015		4/29/2015		4/29/2015		4/29/2015		4/29/2015	
Bis(2-chloroisopropyl)ether	9.93E+01	(1)	5.19E+02	(4)	4.73E-02	(8)	< 0.0939	u	< 0.0962	u	< 0.0894	u	< 0.0902	u	< 0.0877	u	< 0.181	u	< 0.094	u	< 0.0919	u	< 0.0855	u	< 0.0896	u	< 0.0878	u	< 0.0869	u	< 0.9193	u
Bis(2-ethylhexyl)phthalate	3.80E+02	(1)	1.83E+03	(4)	2.00E+02	(8)	< 0.1382	u	< 0.1415	u	< 0.1315	u	< 0.1327	u	< 0.129	u	0.29	J	< 0.1382	u	< 0.1352	u	< 0.1258	u	< 0.1318	u	< 0.1292	u	< 0.1278	u	< 1.352	u
Butyl benzyl phthalate	2.90E+03	(3)	1.20E+04	(7)	4.60E+00	(9)	< 0.1501	u	< 0.1537	u	< 0.1429	u	< 0.1442	u	< 0.1402	u	< 0.2893	u	< 0.1502	u	< 0.1469	u	< 0.1367	u	< 0.1432	u	< 0.1404	u	< 0.1389	u	< 1.4691	u
Carbazole	-	-	-	-	-	-	< 0.1145	u	< 0.1173	u	< 0.109	u	< 0.11	u	< 0.1069	u	< 0.2207	u	< 0.1146	u	< 0.112	u	< 0.1043	u	< 0.1092	u	< 0.1071	u	< 0.1059	u	< 1.1208	u
Chrysene	1.53E+02	(1)	3.23E+03	(4)	1.86E+02	(8)	< 0.1235	u	< 0.1264	u	< 0.1175	u	< 0.1186	u	< 0.1153	u	< 0.2379	u	< 0.1235	u	< 0.1208	u	< 0.1124	u	< 0.1178	u	< 0.1155	u	< 0.1142	u	< 1.2084	u
Dibenz(a,h)anthracene	1.53E-01	(1)	3.23E+00	(4)	6.11E+00	(8)	< 0.1332	u	< 0.1364	u	< 0.1268	u	< 0.128	u	< 0.1244	u	< 0.2567	u	< 0.1333	u	< 0.1303	u	< 0.1213	u	< 0.1271	u	< 0.1246	u	< 0.1232	u	< 1.3037	u
Dibenzofuran	-	-	-	-	-	-	< 0.1315	u	< 0.1347	u	< 0.1252	u	< 0.1263	u	< 0.1228	u	< 0.2534	u	< 0.1315	u	< 0.1287	u	< 0.1197	u	< 0.1254	u	< 0.123	u	< 0.1216	u	< 1.287	u
Diethyl phthalate	4.93E+04	(1)	2.15E+05	(5)	9.79E+01	(8)	< 0.1396	u	< 0.1429	u	< 0.1328	u	< 0.1341	u	< 0.1303	u	< 0.2689	u	< 0.1396	u	< 0.1365	u	< 0.127	u	< 0.1331	u	< 0.1305	u	< 0.1291	u	< 1.3657	u
Dimethyl phthalate	6.11E+05	(1)	2.38E+06	(5)	1.61E+03	(8)	< 0.1132	u	< 0.1159	u	< 0.1077	u	< 0.1087	u	< 0.1057	u	< 0.2181	u	< 0.1132	u	< 0.1107	u	< 0.103	u	< 0.1079	u	< 0.1058	u	< 0.1047	u	< 1.1075	u
Di-n-butyl phthalate	6.16E+03	(1)	2.69E+04	(5)	3.38E+01	(8)	< 0.1391	u	< 0.1424	u	< 0.1324	u	< 0.1336	u	< 0.1299	u	< 0.268	u	< 0.1391	u	< 0.1361	u	< 0.1266	u	< 0.1326	u	< 0.13	u	< 0.1286	u	< 1.361	u
Di-n-octyl phthalate	-	-	-	-	-	-	< 0.1369	u	< 0.1402	u	< 0.1303	u	< 0.1315	u	< 0.1278	u	< 0.2638	u	< 0.1369	u	< 0.1339	u	< 0.1246	u	< 0.1306	u	< 0.128	u	< 0.1266	u	< 1.3397	u
Fluoranthene	2.32E+03	(1)	1.00E+04	(5)	1.34E+03	(8)	< 0.1492	u	< 0.1528	u	< 0.142	u	< 0.1434	u	< 0.1393	u	< 0.2875	u	< 0.1493	u	< 0.146	u	< 0.1358	u	< 0.1423	u	< 0.1395	u	< 0.138	u	< 1.4603	u
Fluorene	2.32E+03	(1)	1.00E+04	(5)	8.00E+01	(8)	< 0.1674	u	< 0.1714	u	< 0.1593	u	< 0.1608	u	< 0.1563	u	< 0.3226	u	< 0.1674	u	< 0.1638	u	< 0.1524	u	0.22	J	< 0.1565	u	< 0.1549	u	< 1.6383	u
Hexachlorobenzene	3.33E+00	(1)	1.60E+01	(4)	9.22E-02	(8)	< 0.1161	u	< 0.1188	u	< 0.1105	u	< 0.1115	u	< 0.1084	u	< 0.2236	u	< 0.1161	u	< 0.1135	u	< 0.1056	u	< 0.1107	u	< 0.1085	u	< 0.1074	u	< 1.1358	u
Hexachlorobutadiene	6.16E+01	(1)	2.69E+02	(5)	8.79E-02	(8)	< 0.1217	u	< 0.1246	u	< 0.1158	u	< 0.1169	u	< 0.1136	u	< 0.2344	u	< 0.1217	u	< 0.119	u	< 0.1107	u	< 0.116	u	< 0.1138	u	< 0.1125	u	< 1.1906	u
Hexachlorocyclopentadiene	3.70E+02	(1)	8.67E+02	(5)	1.34E+00	(8)	< 0.0853	u	< 0.0873	u	< 0.0812	u	< 0.0819	u	< 0.0796	u	< 0.1644	u	< 0.0853	u	< 0.0834	u	< 0.0776	u	< 0.0813	u	< 0.0797	u	< 0.0789	u	< 0.8347	u
Hexachloroethane	4.31E+01	(1)	1.88E+02	(5)	6.62E-02	(8)	< 0.1095	u	< 0.1121	u	< 0.1042	u	< 0.1052	u	< 0.1022	u	< 0.2109	u	< 0.1095	u	< 0.1071	u	< 0.0996	u	< 0.1044	u	< 0.1023	u	< 0.1012	u	< 1.0712	u
Indeno(1,2,3-cd)pyrene	1.53E+00	(1)	3.23E+01	(4)	2.01E+01	(8)	< 0.1397	u	< 0.1431	u	< 0.133	u	< 0.1342	u	< 0.1305	u	< 0.2693	u	< 0.1398	u	< 0.1367	u	< 0.1272	u	< 0.1333	u	< 0.1307	u	< 0.1293	u	< 1.3676	u
Isophorone	5.61E+03	(1)	2.70E+04	(4)	4.22E+00	(8)	< 0.1311	u	< 0.1342	u	< 0.1248	u	< 0.126	u	< 0.1224	u	< 0.2526	u	< 0.1311	u	< 0.1283	u	< 0.1193	u	< 0.125	u	< 0.1226	u	< 0.1213	u	< 1.283	u
Naphthalene	4.97E+01	(1)	1.59E+02	(5)	8.23E-02	(8)	< 0.117	u	< 0.1198	u	< 0.1114	u	< 0.1124	u	< 0.1093	u	< 0.2255	u	< 0.117	u	< 0.1145	u	< 0.1065	u	< 0.1116	u	< 0.1094	u	< 0.1082	u	< 1.145	u
Nitrobenzene	6.04E+01	(1)	2.93E+02	(4)	1.44E-02	(8)	< 0.1266	u	< 0.1296	u	< 0.1205	u	< 0.1216	u	< 0.1182	u	< 0.244	u	< 0.1266	u	< 0.1239	u	< 0.1152	u	< 0.1207	u	< 0.1184	u	< 0.1171	u	< 1.239	u
N-Nitrosodi-n-propylamine	7.80E-01	(3)	3.30E+00	(7)	1.62E-04	(9)	< 0.1275	u	< 0.1305	u	< 0.1213	u	< 0.1224	u	< 0.119	u	< 0.2456	u	< 0.1275	u	< 0.1247	u	< 0.116	u	< 0.1216	u	< 0.1192	u	< 0.1179	u	< 1.2474	u
N-Nitrosodiphenylamine	7.94E-03	(1)	1.71E-01	(4)	9.84E-06	(8)	< 0.1101	u	< 0.1127	u	< 0.1048	u	< 0.1058	u	< 0.1028	u	< 0.2121	u	< 0.1101	u	< 0.1077	u	< 0.1002	u	< 0.105	u	< 0.1029	u	< 0.1018	u	< 1.0774	u
Pentachlorophenol	9.85E+00	(1)	4.45E+01	(4)	6.08E-02	(8)	< 0.0768	u	< 0.0786	u	< 0.0731	u	< 0.0738	u	< 0.0717	u	< 0.1479	u	< 0.0768	u	< 0.0751	u	< 0.0699	u	< 0.0732	u	< 0.0718	u	< 0.071	u	< 0.7513	u
Phenanthrene	1.74E+03	(1)	7.53E+03	(5)	8.59E+01	(8)	< 0.1286	u	< 0.1317	u	< 0.1224	u	< 0.1236	u	< 0.1201	u	< 0.2479	u	< 0.1287	u	< 0.1259	u	< 0.1171	u	0.8	v	< 0.1203	u	< 0.119	u	< 1.2589	u
Phenol	1.83E+04	(1)	7.74E+04	(5)	5.23E+01	(8)	< 0.1102	u	< 0.1128	u	< 0.1049	u	< 0.1059	u	< 0.1029	u	< 0.2124	u	< 0.1102	u	< 0.1078	u	< 0.1003	u	< 0.1051	u	< 0.103	u	< 0.1019	u	< 1.0785	u
Pyrene	1.74E+03	(1)	7.53E+03	(5)	1.92E+02	(8)	< 0.1587	u	< 0.1625	u	< 0.151	u	< 0.1525	u	< 0.1482	u	< 0.3058	u	< 0.1587	u	< 0.1553	u	< 0.1445	u	< 0.1514	u	< 0.1484	u	< 0.1468	u	< 1.5531	u
Pyridine	7.80E+01	(2)	1.20E+03	(6)	1.36E-01	(9)	< 0.1033	u	< 0.1058	u	< 0.0983	u	< 0.0993	u	< 0.0965	u	< 0.1991	u	< 0.1034	u	< 0.1011	u	< 0.0941	u	< 0.0985	u	< 0.0966	u	< 0.0956	u	< 1.0112	u
Total Petroleum Hydrocarbons (mg/kg)																																
Gasoline Range Organics (GRO)	-		-		-		< 1	u	< 1	u	< 1	u	< 1	u	< 1	u	< 1	u	< 1	u	< 1	u	< 1	u	25	v	< 1	u	< 1	u	2.5	J
Diesel Range Organics (DRO)	1.00E+03	(11)	3.80E+03	(11)	-		93	v	< 5	u	< 6	u	24	v	< 6	u	84	v	42	v	< 5	u	160	v	**4100**	v	< 5	u	< 5	u	**7700**	v
Motor Oil Range Organics (MRO)	1.00E+03	(11)	3.80E+03	(11)	-		53	v	< 49	u	< 50	u	58	v	< 50	u	90	v	69	v	< 49	u	330	v	690	v	< 49	u	< 49	u	**5900**	v

- No screening level or analytical result available
NMED - Risk Assessment Guidance for Site Investigations and Remediation (Dec. 2014)
EPA - Regional Screening Levels (Nov 2015)
(1) NMED Residential Screening Level
(2) EPA Residential Screening Level
(3) EPA Residential - Screening Levels (June 2015) multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Closure Permit because the constituent is listed as carcinogenic
(4) NMED Industrial Occupational Screening Level
(5) NMED Construction Worker Screening Level
(6) EPA Industrial - Screening Levels (June 2015)
(7) EPA Industrial - Screening Levels June 2015) multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Clousre Permit because the constituent is listed as carcinogenic
(8) SoilGW NMED Dilution Attenuation Factor (DAF) = 20
(9) SoilGW Risk-based EPA DAF = 20
(10) SoilGW MCL-based EPA DAF = 20
(11) NMED Table 6-2 TPH Soil Screening Levels "uknown oil" with DAF = 1.0 - see report Section 5 for use of screening levels

Bold represents value above Non-Residential Screening Level
yellow highlight represents value above Leachate (DAF) Screening Level
Bold with yellow highlight value exceeds Non-Residential Screening Level and DAF

* - sample reanalyzed for hexavalent chromium, see amended lab report #1505223
** - sample reanalyzed for hexavalent chromium, see lab report #1505003

Table 7
SWMU 10 Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SWMU 10-5 (2-4')		SWMU 10-5 (4-6')		SWMU 10-5 (14-16')		SWMU 10-5 (22-24')		SWMU 10-6 (2-4')		SWMU 10-6 (10-12')		SWMU 10-7 (2-4')		SWMU 10-7 (4-6')		SWMU 10-7 (18-20')		SWMU 10-8 (2-4')		SWMU 10-8 (4-6')		SWMU 10-8 (18-20')	
							1505003-002		1505003-003		1505003-004		1505003-005		1505223-001		1505223-002		1505059-001		1505059-002		1505059-003		1505057-005		1505057-006		1505057-007	
							4/29/2015		4/29/2015		4/29/2015		4/29/2015		5/4/2015		5/4/2015		5/1/2015		5/1/2015		5/1/2015		4/30/2015		4/30/2015		4/30/2015	
Metals (mg/kg)																														
Antimony	3.13E+01	(1)	1.42E+02	(5)	6.56E+00	(8)	< 1.8521	u	< 2.5689	u	< 2.4884	u	< 1.4919	u	< 1.4559	u	1.9	J	< 1.5741	u	< 7.9126	u	< 7.6176	u	< 1.4477	u	< 1.4892	u	< 1.5077	u
Arsenic	4.25E+00	(1)	2.15E+01	(4)	2.99E-01	(8)	1.9	J	1.5	J	1.5	J	1.6	J	1.8	J	2.1	J	2.1	J	2.2	J	< 1.6999	u	1.5	J	1.9	J	2	J
Barium	1.56E+04	(1)	4.35E+03	(5)	2.70E+03	(8)	190	v	110	v	120	v	200	v	1000	v	550	v	220	v	200	v	250	v	830	v	130	v	470	v
Beryllium	1.56E+02	(1)	1.48E+02	(5)	1.96E+02	(8)	1.4	v	1.8	v	1.8	v	0.99	v	1.1	v	1	v	0.85	v	0.92	v	1.1	v	0.65	v	0.83	v	0.99	v
Cadmium	7.05E+01	(1)	7.21E+01	(5)	9.39E+00	(8)	< 0.0391	u	0.062	J	< 0.0525	u	< 0.0315	u	< 0.0307	u	< 0.033	u	< 0.0332	u	< 0.0334	u	< 0.0322	u	< 0.0306	u	< 0.0314	u	< 0.0318	u
Chromium	9.66E+01	(1)	1.34E+02	(5)	2.01E+05	(8)	5	v	< 0.1174	u	2.5	v	15	v	9.3	v	14	v	11	v	11	v	16	v	29	v	11	v	20	v
Hexavalent Chromium	3.05E+00	(1)	6.69E+01	(5)	9.68E-02	(8)	< 2.9184	u	< 4.0338	u	< 3.8844	u	< 2.281	u	< 2.2114	u	< 2.3684	u	< 2.3708	u	< 2.3862	u	< 2.3465	u	< 2.2842	u	< 2.3284	u	< 2.3189	u
Cobalt	2.30E+01	(2)	3.50E+02	(6)	5.40E+00	(9)	2.9	v	1	v	2.3	v	7.4	v	4.8	v	8	v	4.8	v	5.7	v	7.2	v	3.9	v	4.5	v	8.7	v
Cyanide	1.12E+01	(1)	1.21E+01	(5)	5.22E-03	(8)	< 0.3648	u	< 0.5042	u	< 0.4855	u	< 0.2851	u	< 0.2764	u	< 0.2961	u	< 0.2963	u	< 0.2983	u	< 0.2933	u	< 0.2855	u	< 0.291	u	< 0.2899	u
Iron	5.50E+04	(2)	8.20E+05	(6)	7.00E+03	(9)	12000	v	7200	v	10000	v	18000	v	15000	v	20000	v	15000	v	16000	v	24000	v	14000	v	13000	v	17000	v
Lead	4.00E+02	(1)	8.00E+02	(4)	2.80E+02	(10)	9.2	v	17	v	16	v	< 0.1235	u	2.5	v	1.6	v	2.7	v	2.5	v	2.2	v	4.5	v	3.4	v	0.27	J
Manganese	1.80E+03	(2)	2.60E+04	(6)	5.60E+02	(9)	410	v	200	v	280	v	820	v	410	v	760	v	860	v	710	v	540	v	380	v	370	v	1200	v
Mercury	2.38E+01	(1)	2.07E+01	(5)	6.54E-01	(8)	0.0087	J	0.0085	J	0.011	J	0.0039	J	0.0055	J	< 0.0035	u	0.033	J	0.0057	J	0.0035	J	0.015	J	0.041	v	0.0037	J
Nickel	1.56E+03	(1)	6.19E+03	(5)	4.85E+02	(8)	4.4	v	0.69	J	3.1	v	15	v	8.2	v	16	v	8.4	v	10	v	16	v	6.9	v	7.8	v	16	v
Selenium	3.91E+02	(1)	1.75E+03	(5)	1.02E+01	(8)	< 2.1567	u	< 2.9914	u	< 2.8977	u	< 1.7373	u	< 1.6954	u	< 1.8212	u	< 1.8329	u	< 1.8428	u	< 1.7741	u	< 1.6858	u	< 1.7341	u	< 1.7557	u
Silver	3.91E+02	(1)	1.77E+03	(5)	1.38E+01	(8)	< 0.0419	u	< 0.0581	u	< 0.0563	u	< 0.0338	u	< 0.0329	u	< 0.0354	u	< 0.0356	u	< 0.0358	u	< 0.0345	u	< 0.0328	u	< 0.0337	u	< 0.0341	u
Vanadium	3.94E+02	(1)	6.14E+02	(5)	1.26E+03	(8)	11	v	2.3	J	7.2	v	18	v	21	v	14	v	23	v	24	v	23	v	22	v	17	v	15	v
Zinc	2.35E+04	(1)	1.06E+05	(5)	7.41E+03	(8)	22	v	24	v	27	v	23	v	14	v	23	v	20	v	19	v	24	v	17	v	18	v	24	v
Volatiles (mg/kg)																														
1,1,1,2-Tetrachloroethane	2.81E+01	(1)	1.37E+02	(4)	3.59E-02	(8)	< 0.0033	u	< 0.0651	u	< 0.0058	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0536	u	< 0.0026	u	< 0.0003	u
1,1,1-Trichloroethane	1.44E+04	(1)	1.36E+04	(5)	5.11E+01	(8)	< 0.0061	u	< 0.1206	u	< 0.0107	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0993	u	< 0.0048	u	< 0.0003	u
1,1,2,2-Tetrachloroethane	7.98E+00	(1)	3.94E+01	(4)	4.80E-03	(8)	< 0.0049	u	< 0.0962	u	< 0.0086	u	< 0.0004	u	< 0.0005	u	< 0.0005	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0792	u	< 0.0038	u	< 0.0004	u
1,1,2-Trichloroethane	2.61E+00	(1)	2.30E+00	(5)	2.23E-03	(8)	< 0.0048	u	< 0.0954	u	< 0.0085	u	< 0.0019	u	< 0.0021	u	< 0.0025	u	< 0.0019	u	< 0.0018	u	< 0.0022	u	< 0.0786	u	< 0.0038	u	< 0.0019	u
1,1-Dichloroethane	7.86E+01	(1)	3.83E+02	(4)	1.36E-01	(8)	< 0.0161	u	< 0.3176	u	< 0.0282	u	< 0.0004	u	< 0.0005	u	< 0.0006	u	0.000473	J	< 0.0004	u	< 0.0005	u	< 0.2615	u	< 0.0125	u	< 0.0004	u
1,1-Dichloroethene	4.40E+02	(1)	4.24E+02	(5)	1.95E+00	(8)	< 0.0028	u	< 0.0547	u	< 0.0049	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.045	u	< 0.0022	u	< 0.0003	u
1,1-Dichloropropene	-	-	-	-	-	-	< 0.006	u	< 0.1182	u	< 0.0105	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0004	u	< 0.0003	u	< 0.0004	u	< 0.0974	u	< 0.0047	u	< 0.0003	u
1,2,3-Trichlorobenzene	6.30E+01	(2)	9.30E+02	(6)	4.20E-01	(9)	< 0.0086	u	< 0.1695	u	< 0.0151	u	< 0.0007	u	< 0.0008	u	< 0.0009	u	< 0.0007	u	< 0.0007	u	< 0.0008	u	< 0.1395	u	< 0.0067	u	< 0.0007	u
1,2,3-Trichloropropane	5.10E-02	(1)	1.21E+00	(4)	5.21E-05	(8)	< 0.0067	u	< 0.1332	u	< 0.0118	u	< 0.0007	u	< 0.0007	u	< 0.0009	u	< 0.0007	u	< 0.0006	u	< 0.0008	u	< 0.1097	u	< 0.0053	u	< 0.0007	u
1,2,4-Trichlorobenzene	8.29E+01	(1)	7.91E+01	(5)	1.76E-01	(8)	< 0.00741	u	< 0.14652	u	< 0.01302	u	< 0.00071	u	< 0.00077	u	< 0.00093	u	< 0.00072	u	< 0.00066	u	< 0.00082	u	< 0.12063	u	< 0.00578	u	< 0.00071	u
1,2,4-Trimethylbenzene	5.80E+01	(2)	2.40E+02	(6)	4.20E-01	(9)	0.11	v	25	v	0.17	v	0.00263	v	0.00106	J	0.00363	v	< 0.0005	u	0.00194	v	0.00201	J	9.7	v	0.021	J	0.00236	v
1,2-Dibromo-3-chloropropane	8.58E-02	(1)	1.18E+00	(4)	2.34E-05	(8)	< 0.0069	u	< 0.1364	u	< 0.0121	u	< 0.0006	u	< 0.0006	u	< 0.0007	u	< 0.0006	u	< 0.0005	u	< 0.0006	u	< 0.1123	u	< 0.0054	u	< 0.0006	u
1,2-Dibromoethane (EDB)	6.72E-01	(1)	3.31E+00	(4)	3.52E-04	(8)	< 0.0032	u	< 0.0632	u	< 0.0056	u	< 0.0002	u	< 0.0002	u	< 0.0003	u	< 0.0002	u	< 0.0002	u	< 0.0003	u	< 0.0521	u	< 0.0025	u	< 0.0002	u
1,2-Dichlorobenzene	2.15E+03	(1)	2.50E+03	(5)	4.58E+00	(8)	< 0.00242	u	< 0.04789	u	< 0.00425	u	< 0.00042	u	< 0.00046	u	< 0.00055	u	< 0.00042	u	< 0.00039	u	< 0.00048	u	< 0.03943	u	< 0.00189	u	< 0.00042	u
1,2-Dichloroethane (EDC)	8.32E+00	(1)	4.07E+01	(4)	8.14E-03	(8)	< 0.0161	u	< 0.3176	u	< 0.0282	u	< 0.0005	u	< 0.0006	u	< 0.0007	u	< 0.0005	u	< 0.0005	u	< 0.0006	u	< 0.2615	u	< 0.0125	u	< 0.0005	u
1,2-Dichloropropane	1.78E+01	(1)	2.54E+01	(5)	2.43E-02	(8)	< 0.0022	u	< 0.0444	u	< 0.0039	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0365	u	< 0.0018	u	< 0.0004	u
1,3,5-Trimethylbenzene	7.80E+02	(2)	1.20E+04	(6)	3.40E+00	(9)	0.054	v	8.4	v	0.056	J	0.00179	J	0.000477	J	0.0022	J	< 0.0003	u	0.00119	J	0.00114	J	4.7	v	0.0048	J	0.00159	J
1,3-Dichlorobenzene	-	-	-	-	-	-	< 0.00473	u	< 0.09349	u	< 0.0083	u	< 0.00032	u	< 0.00035	u	< 0.00042	u	< 0.00032	u	< 0.0003	u	< 0.00037	u	< 0.07697	u	< 0.00369	u	< 0.00032	u
1,3-Dichloropropane	1.60E+03	(2)	2.30E+04	(6)	2.60E+00	(9)	< 0.0055	u	< 0.1094	u	< 0.0097	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.09	u	< 0.0043	u	< 0.0003	u
1,4-Dichlorobenzene	3.28E+01	(1)	1.59E+02	(4)	7.20E-02	(8)	< 0.005	u	< 0.0989	u	< 0.00879	u	< 0.0003	u	< 0.00032	u	< 0.00039	u	< 0.0003	u	< 0.00027	u	< 0.00034	u	< 0.08143	u	< 0.0039	u	< 0.00029	u
1-Methylnaphthalene	1.80E+02	(3)	7.30E+02	(7)	1.16E-01	(9)	0.63	v	46	v	0.38	v	0.000843	J	< 0.00081	u	< 0.00098	u	< 0.00075	u	< 0.00069	u	< 0.00086	u	27	v	0.37	v	< 0.00074	u
2,2-Dichloropropane	-	-	-	-	-	-	< 0.0059	u	< 0.1156	u	< 0.0103	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0952	u	< 0.0046	u	< 0.0003	u
2-Butanone	3.74E+04	(1)	9.17E+04	(5)	2.01E+01	(8)	< 0.0258	u	< 0.5105	u	< 0.0454	u	< 0.0006	u	0.00176	J	< 0.0008	u	0.00273	J	0.00175	J	< 0.0007	u	< 0.4203	u	< 0.0202	u	< 0.0006	u
2-Chlorotoluene	1.56E+03	(1)	7.08E+03	(5)	3.56E+00	(8)	< 0.0045	u	< 0.0897	u	< 0.008	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0004	u	< 0.0003	u	< 0.0004	u	< 0.0739	u	< 0.0035	u	< 0.0004	u
2-Hexanone	2.00E+02	(2)	1.30E+03	(6)	1.76E-01	(9)	< 0.0099	u	< 0.1953	u	< 0.0174	u	< 0.0004	u	0.000726	J	< 0.0005	u	0.000724	J	< 0.0004	u	< 0.0005	u	< 0.1608	u	< 0.0077	u	< 0.0004	u
2-Methylnaphthalene	2.40E+02	(2)	3.00E+03	(6)	3.80E+00	(9)	0.74	v	80	v	0.69	v	0.000852	J	< 0.00081	u	< 0.00097	u	< 0.00075	u	< 0.00069	u	< 0.00085	u	41	v	0.3	v	< 0.00074	u
4-Chlorotoluene	1.60E+03	(2)	2.30E+04	(6)	4.80E+00	(9)	< 0.003	u	< 0.06	u	< 0.0053	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0004	u	< 0.0003	u	< 0.0004	u	< 0.0494	u	< 0.0024	u	< 0.0004	u
4-Isopropyltoluene	-	-	-	-	-	-	0.0092	J	1.2	v	0.02	J	< 0.0007	u	< 0.0008	u	< 0.001	u	< 0.0007	u	< 0.0007	u	< 0.0009	u	0.95	v	0.014	J	< 0.0007	u
4-Methyl-2-pentanone	5.81E+03	(1)	2.02E+04	(5)	4.80E+00	(8)	< 0.007	u	< 0.1378	u	< 0.0122	u	< 0.0008	u	< 0.0009	u	< 0.0011	u	< 0.0008	u	< 0.0008	u	< 0.0009	u	< 0.1134	u	< 0.0054	u	< 0.0008	u
Acetone	6.63E+04	(1)	2.42E+05	(5)	4.98E+01	(8)	< 0.03	u	< 0.5921	u	< 0.0526	u	0.00186	J	0.00854	J	0.00589	J	0.0111	v	0.00723	J	0.00158	J	< 0.4875	u	< 0.0234	u	0.00466	J
Benzene	1.78E+01	(1)	8.72E+01	(4)	3.80E-02	(8)	0.04	J	8	v	0.049	J	0.0179	v	0.00387	v	0.0226	v	0.00239	v	0.0123	v	0.0149	v	0.2	J	0.047	v	0.0178	v
Bromobenzene	2.90E+02	(2)	1.80E+03	(6)	8.40E-01	(9)	< 0.003	u	< 0.0589	u	< 0.0052	u	< 0.0005	u	< 0.0006	u	< 0.0007	u	< 0.0005	u	< 0.0005	u	< 0.0006	u	< 0.0485	u	< 0.0023	u	< 0.0005	u
Bromodichloromethane	6.19E+00	(1)	3.02E+01	(4)	6.21E-03	(8)	< 0.0033	u	< 0.0649	u	< 0.0058	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0002	u	< 0.0003	u	< 0.0535	u	< 0.0026	u	< 0.0003	u
Bromoform	6.74E+02	(1)	3.25E+03	(4)	4.11E-01	(8)	< 0.0032	u	< 0.0638	u	< 0.0057	u	< 0.0005	u	< 0.0005	u	< 0.0006	u	< 0.0005	u	< 0.0005	u	< 0.0006	u	< 0.0526	u	< 0.0025	u	< 0.0005	u
Bromomethane	1.77E+01	(1)	1.79E+01	(5)	3.43E-02	(8)	< 0.0078	u	< 0.1533	u	< 0.0136	u	< 0.0011	u	< 0.0012	u	< 0.0015	u	< 0.0011	u	< 0.0011	u	< 0.0013	u	< 0.1262	u	< 0.0061	u	< 0.0011	u
Carbon disulfide	1.55E+03	(1)	1.62E+03	(5)	4.42E+00	(8)	< 0.0289	u	< 0.5714	u	< 0.0508	u	< 0.0009	u	< 0.0009	u	< 0.0011	u	< 0.0009	u	< 0.0008	u	< 0.001	u	< 0.4705	u	< 0.0226	u	< 0.0009	u
Carbon tetrachloride	1.07E+01	(1)	5.25E+01	(4)	3.33E-02	(8)	< 0.0039	u	< 0.0773	u	< 0.0069	u	< 0.0003	u	< 0.0004	u	< 0.0005	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0637	u	< 0.0031	u	< 0.0003	u
Chlorobenzene	3.78E+02	(1)	4.12E+02	(5)	8.36E-01	(8)	< 0.0031	u	< 0.0611	u	< 0.0054	u	< 0.0002	u	< 0.0002	u	< 0.0003	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0503	u	< 0.0024	u	< 0.0002	u
Chloroethane	1.90E+04	(1)	1.66E+04	(5)	1.07E+02	(8)	< 0.0311	u	< 0.6146	u	< 0.0546	u	< 0.0019	u	< 0.0021	u	< 0.0025	u	< 0.0019	u	< 0.0018	u	< 0.0022	u	< 0.506	u	< 0.0243	u	< 0.0019	u
Chloroform	5.90E+00	(1)	2.87E+01	(4)	1.09E-02	(8)	< 0.0042	u	< 0.0828	u	< 0.0074	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0681	u	< 0.0033	u	< 0.0004	u
Chloromethane	4.11E+01	(1)	2.01E+02	(4)	9.51E-02	(8)	< 0.0047	u	< 0.0919	u	< 0.0082	u	< 0.0002	u	< 0.0002	u	< 0.0003	u	< 0.0002	u	< 0.0002	u	< 0.0003	u	< 0.0757	u	< 0.0036	u	< 0.0002	u
cis-1,2-DCE	1.56E+02	(1)	7.08E+02	(5)	1.84E-01	(8)	< 0.0051	u	< 0.1005	u	< 0.0089	u	< 0.0005	u	< 0.0005	u	< 0.0007	u	< 0.0005	u	< 0.0005	u	< 0.0006	u	< 0.0827	u	< 0.004	u	< 0.0005	u
cis-1,3-Dichloropropene	2.93E+01	(1)	1.30E+02	(5)	2.80E-02	(8)	< 0.0028	u	< 0.0551	u	< 0.0049	u	< 0.0019	u	< 0.0021	u	< 0.0025	u	< 0.0019	u	< 0.0018	u	< 0.0022	u	< 0.0454	u	< 0.0022	u	< 0.0019	u
Dibromochloromethane	1.39E+01	(1)	6.74E+01	(4)	7.54E-03	(8)	< 0.003	u	< 0.0595	u	< 0.0053	u	< 0.0002	u	< 0.0002	u	< 0.0003	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.049	u	< 0.0024	u	< 0.0002	u

Table 7
SWMU 10 Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SWMU 10-5 (2-4')	SWMU 10-5 (4-6')	SWMU 10-5 (14-16')	SWMU 10-5 (22-24')	SWMU 10-6 (2-4')	SWMU 10-6 (10-12')	SWMU 10-7 (2-4')	SWMU 10-7 (4-6')	SWMU 10-7 (18-20')	SWMU 10-8 (2-4')	SWMU 10-8 (4-6')	SWMU 10-8 (18-20')
							1505003-002	1505003-003	1505003-004	1505003-005	1505223-001	1505223-002	1505059-001	1505059-002	1505059-003	1505057-005	1505057-006	1505057-007
							4/29/2015	4/29/2015	4/29/2015	4/29/2015	5/4/2015	5/4/2015	5/1/2015	5/1/2015	5/1/2015	4/30/2015	4/30/2015	4/30/2015
Dibromomethane	2.30E+01	(2)	9.80E+01	(6)	4.00E-02	(9)	< 0.0042 u	< 0.0836 u	< 0.0074 u	< 0.0011 u	< 0.0012 u	< 0.0014 u	< 0.0011 u	< 0.001 u	< 0.0012 u	< 0.0688 u	< 0.0033 u	< 0.0011 u
Dichlorodifluoromethane	1.82E+02	(1)	1.61E+02	(5)	7.23E+00	(8)	< 0.0101 u	< 0.1997 u	< 0.0177 u	< 0.0008 u	< 0.0008 u	< 0.001 u	< 0.0008 u	< 0.0007 u	< 0.0009 u	< 0.1644 u	< 0.0079 u	< 0.0008 u
Ethylbenzene	7.51E+01	(1)	3.68E+02	(4)	2.62E-01	(8)	0.03 J	14 v	0.026 J	0.00258 v	0.000767 J	0.0035 v	0.000502 J	0.00188 v	0.00213 J	1.4 v	0.044 v	0.00285 v
Hexachlorobutadiene	6.16E+01	(1)	2.69E+02	(5)	8.79E-02	(8)	< 0.00558 u	< 0.11026 u	< 0.00979 u	< 0.00038 u	< 0.00041 u	< 0.0005 u	< 0.00038 u	< 0.00035 u	< 0.00044 u	< 0.09078 u	< 0.00435 u	< 0.00038 u
Isopropylbenzene	2.36E+03	(1)	2.74E+03	(5)	1.14E+01	(8)	0.0046 J	2.6 v	0.013 J	< 0.0004 u	< 0.0005 u	< 0.0006 u	< 0.0004 u	< 0.0004 u	< 0.0005 u	0.52 J	0.012 J	0.000447 J
Methyl tert-butyl ether (MTBE)	9.75E+02	(1)	4.82E+03	(4)	5.53E-01	(8)	< 0.0057 u	< 0.1123 u	< 0.01 u	< 0.0008 u	< 0.0009 u	< 0.001 u	0.0014 J	0.000891 J	< 0.0009 u	< 0.0925 u	< 0.0044 u	< 0.0008 u
Methylene chloride	4.09E+02	(1)	1.21E+03	(5)	4.71E-01	(8)	< 0.0161 u	< 0.3176 u	< 0.0282 u	0.000565 J	0.000695 J	< 0.0006 u	0.000637 J	0.000686 J	0.000704 J	< 0.2615 u	< 0.0125 u	< 0.0005 u
Naphthalene	4.97E+01	(1)	1.59E+02	(5)	8.23E-02	(8)	0.16 v	26 v	0.11 J	0.000785 J	< 0.00067 u	0.00103 J	< 0.00063 u	< 0.00058 u	< 0.00071 u	7.8 v	0.14 v	0.000809 J
n-Butylbenzene	3.90E+03	(2)	5.80E+04	(6)	6.40E+01	(9)	0.016 J	1.9 J	0.038 J	< 0.0008 u	< 0.0009 u	< 0.001 u	< 0.0008 u	< 0.0007 u	< 0.0009 u	1.2 J	0.023 J	< 0.0008 u
n-Propylbenzene	3.80E+03	(2)	2.40E+04	(6)	2.40E+01	(9)	0.01 J	3.8 v	0.026 J	0.000469 J	< 0.0004 u	0.000638 J	< 0.0004 u	< 0.0003 u	< 0.0004 u	0.85 v	0.026 J	0.000428 J
sec-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	1.18E+02	(9)	< 0.0057 u	1.2 v	< 0.0101 u	0.000766 J	0.000695 J	0.000925 J	< 0.0005 u	0.00065 J	0.000792 J	0.51 J	0.011 J	0.000714 J
Styrene	7.26E+03	(1)	1.02E+04	(5)	2.06E+01	(8)	< 0.0074 u	< 0.1457 u	< 0.013 u	< 0.0003 u	< 0.0003 u	< 0.0004 u	< 0.0003 u	< 0.0003 u	< 0.0004 u	< 0.12 u	< 0.0058 u	< 0.0003 u
tert-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	3.20E+01	(9)	< 0.0046 u	< 0.091 u	< 0.0081 u	< 0.0003 u	< 0.0003 u	< 0.0004 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0749 u	< 0.0036 u	< 0.0003 u
Tetrachloroethene (PCE)	1.11E+02	(1)	1.20E+02	(5)	3.21E-01	(8)	< 0.0035 u	< 0.0688 u	< 0.0061 u	< 0.0004 u	< 0.0004 u	< 0.0005 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.0566 u	< 0.0027 u	< 0.0004 u
Toluene	5.23E+03	(1)	1.40E+04	(5)	1.21E+01	(8)	0.024 J	7.1 v	0.013 J	0.0112 v	0.00275 v	0.0146 v	0.00181 J	0.00801 v	0.00962 v	0.48 J	< 0.0037 u	0.0122 v
trans-1,2-DCE	2.95E+02	(1)	3.05E+02	(5)	4.69E-01	(8)	< 0.0026 u	< 0.0516 u	< 0.0046 u	< 0.0003 u	< 0.0003 u	< 0.0004 u	< 0.0003 u	< 0.0003 u	< 0.0004 u	< 0.0425 u	< 0.002 u	< 0.0003 u
trans-1,3-Dichloropropene	2.93E+01	(1)	1.30E+02	(5)	2.80E-02	(8)	< 0.0072 u	< 0.143 u	< 0.0127 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0002 u	< 0.0003 u	< 0.1177 u	< 0.0056 u	< 0.0002 u
Trichloroethene (TCE)	6.77E+00	(1)	6.90E+00	(5)	1.75E-02	(8)	< 0.0039 u	< 0.0773 u	< 0.0069 u	< 0.0004 u	< 0.0004 u	< 0.0005 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.0637 u	< 0.0031 u	< 0.0004 u
Trichlorofluoromethane	1.23E+03	(1)	1.13E+03	(5)	1.57E+01	(8)	< 0.0121 u	< 0.2397 u	< 0.0213 u	< 0.0004 u	< 0.0004 u	< 0.0005 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.1973 u	< 0.0095 u	< 0.0004 u
Vinyl chloride	7.42E-01	(1)	2.84E+01	(4)	1.35E-03	(8)	< 0.0161 u	< 0.3176 u	< 0.0282 u	< 0.0002 u	< 0.0002 u	< 0.0003 u	< 0.0002 u	< 0.0002 u	< 0.0003 u	< 0.2615 u	< 0.0125 u	< 0.0002 u
Xylenes, Total	8.71E+02	(1)	7.98E+02	(5)	2.98E+00	(8)	0.15 v	54 v	0.11 J	0.00849 v	0.0022 v	0.0116 v	0.00146 J	0.00622 v	0.00711 v	13 v	0.016 J	0.00872 v
Semi-volatiles (mg/kg)																		
1,2,4-Trichlorobenzene	8.29E+01	(1)	7.91E+01	(5)	1.76E-01	(8)	< 0.7588 u	< 0.2044 u	< 0.2032 u	< 0.1151 u	< 0.1126 u	< 0.1209 u	< 0.2417 u	< 0.1213 u	< 0.12 u	< 1.1646 u	< 0.1185 u	< 0.1177 u
1,2-Dichlorobenzene	2.15E+03	(1)	2.50E+03	(5)	4.58E+00	(8)	< 0.7091 u	< 0.191 u	< 0.1898 u	< 0.1076 u	< 0.1052 u	< 0.1129 u	< 0.2259 u	< 0.1134 u	< 0.1121 u	< 1.0882 u	< 0.1107 u	< 0.11 u
1,3-Dichlorobenzene	-	-	-	-	-	-	< 0.6584 u	< 0.1774 u	< 0.1763 u	< 0.0999 u	< 0.0977 u	< 0.1049 u	< 0.2097 u	< 0.1053 u	< 0.1041 u	< 1.0104 u	< 0.1028 u	< 0.1021 u
1,4-Dichlorobenzene	3.28E+01	(1)	1.59E+02	(4)	7.20E-02	(8)	< 0.7754 u	< 0.2089 u	< 0.2076 u	< 0.1176 u	< 0.1151 u	< 0.1235 u	< 0.247 u	< 0.124 u	< 0.1226 u	< 1.1899 u	< 0.1211 u	< 0.1202 u
1-Methylnaphthalene	1.80E+02	(3)	7.30E+02	(7)	1.16E-01	(9)	< 0.6871 u	16 v	< 0.184 u	< 0.1042 u	< 0.102 u	< 0.1094 u	< 0.2189 u	< 0.1099 u	< 0.1087 u	68 v	0.26 v	< 0.1066 u
2,4,5-Trichlorophenol	6.16E+03	(1)	2.69E+04	(5)	6.62E+01	(8)	< 0.8639 u	< 0.2327 u	< 0.2313 u	< 0.131 u	< 0.1282 u	< 0.1376 u	< 0.2752 u	< 0.1381 u	< 0.1366 u	< 1.3258 u	< 0.1349 u	< 0.134 u
2,4,6-Trichlorophenol	6.16E+01	(1)	2.69E+02	(5)	6.74E-01	(8)	< 0.857 u	< 0.2309 u	< 0.2295 u	< 0.13 u	< 0.1272 u	< 0.1365 u	< 0.273 u	< 0.137 u	< 0.1355 u	< 1.3153 u	< 0.1338 u	< 0.1329 u
2,4-Dichlorophenol	1.85E+02	(1)	8.07E+02	(5)	8.25E-01	(8)	< 0.7413 u	< 0.1997 u	< 0.1985 u	< 0.1124 u	< 0.11 u	< 0.1181 u	< 0.2361 u	< 0.1185 u	< 0.1172 u	< 1.1377 u	< 0.1158 u	< 0.115 u
2,4-Dimethylphenol	1.23E+03	(1)	5.38E+03	(5)	6.45E+00	(8)	< 0.5827 u	< 0.157 u	< 0.156 u	< 0.0884 u	< 0.0865 u	< 0.0928 u	< 0.1856 u	< 0.0932 u	< 0.0921 u	< 0.8942 u	< 0.091 u	< 0.0904 u
2,4-Dinitrophenol	1.23E+02	(1)	5.38E+02	(5)	6.71E-01	(8)	< 0.308 u	< 0.083 u	< 0.0825 u	< 0.0467 u	< 0.0457 u	< 0.0491 u	< 0.0981 u	< 0.0492 u	< 0.0487 u	< 0.4727 u	< 0.0481 u	< 0.0478 u
2,4-Dinitrotoluene	1.71E+01	(1)	8.23E+01	(4)	4.91E-02	(8)	< 0.6632 u	< 0.1787 u	< 0.1776 u	< 0.1006 u	< 0.0984 u	< 0.1056 u	< 0.2113 u	< 0.106 u	< 0.1049 u	< 1.0178 u	< 0.1036 u	< 0.1028 u
2,6-Dinitrotoluene	3.56E+00	(1)	1.72E+01	(4)	1.02E-02	(8)	< 0.824 u	< 0.222 u	< 0.2206 u	< 0.125 u	< 0.1223 u	< 0.1312 u	< 0.2625 u	< 0.1317 u	< 0.1303 u	< 1.2646 u	< 0.1287 u	< 0.1278 u
2-Chloronaphthalene	6.26E+03	(1)	2.83E+04	(5)	5.70E+01	(8)	< 0.7942 u	< 0.214 u	< 0.2126 u	< 0.1205 u	< 0.1179 u	< 0.1265 u	< 0.253 u	< 0.127 u	< 0.1256 u	< 1.2189 u	< 0.124 u	< 0.1232 u
2-Chlorophenol	3.91E+02	(1)	1.77E+03	(5)	1.15E+00	(8)	< 0.6918 u	< 0.1864 u	< 0.1852 u	< 0.1049 u	< 0.1027 u	< 0.1102 u	< 0.2204 u	< 0.1106 u	< 0.1094 u	< 1.0617 u	< 0.108 u	< 0.1073 u
2-Methylnaphthalene	2.40E+02	(2)	3.00E+03	(6)	3.80E+00	(9)	< 0.6784 u	26 v	< 0.1816 u	< 0.1029 u	< 0.1007 u	< 0.1081 u	< 0.2161 u	< 0.1085 u	< 0.1073 u	89 v	0.35 v	< 0.1052 u
'2-Methylphenol (cresol,o-)	3.20E+03	(2)	4.10E+04	(6)	1.50E+01	(9)	< 0.7432 u	< 0.2002 u	< 0.199 u	< 0.1127 u	< 0.1103 u	< 0.1184 u	< 0.2367 u	< 0.1188 u	< 0.1175 u	< 1.1405 u	< 0.1161 u	< 0.1152 u
2-Nitroaniline	6.30E+02	(2)	8.00E+03	(6)	1.60E+00	(9)	< 0.8435 u	< 0.2272 u	< 0.2258 u	< 0.128 u	< 0.1252 u	< 0.1344 u	< 0.2687 u	< 0.1349 u	< 0.1334 u	< 1.2945 u	< 0.1317 u	< 0.1308 u
2-Nitrophenol	-	-	-	-	-	-	< 0.6663 u	< 0.1795 u	< 0.1784 u	< 0.1011 u	< 0.0989 u	< 0.1061 u	< 0.2123 u	< 0.1065 u	< 0.1054 u	< 1.0225 u	< 0.1041 u	< 0.1033 u
3,3´-Dichlorobenzidine	1.18E+01	(1)	5.70E+01	(4)	1.23E-01	(8)	< 0.5708 u	< 0.1538 u	< 0.1528 u	< 0.0866 u	< 0.0847 u	< 0.0909 u	< 0.1818 u	< 0.0913 u	< 0.0903 u	< 0.876 u	< 0.0891 u	< 0.0885 u
3+4-Methylphenol	-	-	-	-	-	-	< 0.7683 u	< 0.207 u	< 0.2057 u	< 0.1165 u	< 0.114 u	< 0.1224 u	< 0.2448 u	< 0.1228 u	< 0.1215 u	< 1.1791 u	< 0.12 u	< 0.1191 u
3-Nitroaniline	-	-	-	-	-	-	< 0.7142 u	< 0.1924 u	< 0.1912 u	< 0.1083 u	< 0.106 u	< 0.1138 u	< 0.2275 u	< 0.1142 u	< 0.1129 u	< 1.0961 u	< 0.1115 u	< 0.1108 u
4,6-Dinitro-2-methylphenol	4.93E+00	(1)	2.15E+01	(5)	3.94E-02	(8)	< 0.4031 u	< 0.1086 u	< 0.1079 u	< 0.0611 u	< 0.0598 u	< 0.0642 u	< 0.1284 u	< 0.0644 u	< 0.0637 u	< 0.6186 u	< 0.0629 u	< 0.0625 u
4-Bromophenyl phenyl ether	-	-	-	-	-	-	< 0.7865 u	< 0.2119 u	< 0.2106 u	< 0.1193 u	< 0.1167 u	< 0.1253 u	< 0.2505 u	< 0.1258 u	< 0.1244 u	< 1.207 u	< 0.1228 u	< 0.122 u
4-Chloro-3-methylphenol	-	-	-	-	-	-	< 0.7381 u	< 0.1988 u	< 0.1976 u	< 0.112 u	< 0.1096 u	< 0.1176 u	< 0.2351 u	< 0.118 u	< 0.1167 u	< 1.1327 u	< 0.1153 u	< 0.1145 u
4-Chloroaniline	2.70E+01	(3)	1.10E+02	(7)	3.20E-03	(9)	< 0.6856 u	< 0.1847 u	< 0.1836 u	< 0.104 u	< 0.1018 u	< 0.1092 u	< 0.2184 u	< 0.1096 u	< 0.1084 u	< 1.0521 u	< 0.1071 u	< 0.1063 u
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	< 1.1039 u	< 0.2974 u	< 0.2955 u	< 0.1674 u	< 0.1638 u	< 0.1758 u	< 0.3516 u	< 0.1765 u	< 0.1745 u	< 1.6941 u	< 0.1724 u	< 0.1712 u
4-Nitroaniline	2.70E+02	(3)	1.10E+03	(7)	3.20E-02	(9)	< 0.6658 u	< 0.1794 u	< 0.1783 u	< 0.101 u	< 0.0988 u	< 0.1061 u	< 0.2121 u	< 0.1065 u	< 0.1053 u	< 1.0218 u	< 0.104 u	< 0.1033 u
4-Nitrophenol	-	-	-	-	-	-	< 0.6387 u	< 0.1721 u	< 0.171 u	< 0.0969 u	< 0.0948 u	< 0.1017 u	< 0.2035 u	< 0.1021 u	< 0.101 u	< 0.9802 u	< 0.0997 u	< 0.099 u
Acenaphthene	3.48E+03	(1)	1.51E+04	(5)	8.25E+01	(8)	< 0.9033 u	< 0.2434 u	< 0.2419 u	< 0.137 u	< 0.1341 u	< 0.1439 u	< 0.2878 u	< 0.1444 u	< 0.1428 u	< 1.3863 u	< 0.1411 u	< 0.1401 u
Acenaphthylene	-	-	-	-	-	-	< 0.751 u	< 0.2023 u	< 0.2011 u	< 0.1139 u	< 0.1115 u	< 0.1196 u	< 0.2392 u	< 0.1201 u	< 0.1187 u	< 1.1525 u	< 0.1173 u	< 0.1165 u
Aniline	9.50E+02	(3)	4.00E+03	(7)	9.20E-02	(9)	< 0.6453 u	< 0.1738 u	< 0.1728 u	< 0.0979 u	< 0.0958 u	< 0.1028 u	< 0.2056 u	< 0.1032 u	< 0.102 u	< 0.9902 u	< 0.1008 u	< 0.1001 u
Anthracene	1.74E+04	(1)	7.53E+04	(5)	8.51E+02	(8)	< 0.6297 u	< 0.1696 u	< 0.1686 u	< 0.0955 u	< 0.0935 u	< 0.1003 u	< 0.2006 u	< 0.1007 u	< 0.0996 u	< 0.9664 u	< 0.0983 u	< 0.0976 u
Azobenzene	5.60E+01	(3)	2.60E+02	(7)	1.84E+06	(9)	< 0.831 u	< 0.2239 u	< 0.2225 u	< 0.1261 u	< 0.1233 u	< 0.1324 u	< 0.2647 u	< 0.1329 u	< 0.1314 u	< 1.2753 u	< 0.1298 u	< 0.1289 u
Benz(a)anthracene	1.53E+00	(1)	3.23E+01	(4)	1.82E+00	(8)	< 0.5826 u	< 0.157 u	< 0.156 u	< 0.0884 u	< 0.0865 u	< 0.0928 u	< 0.1856 u	< 0.0932 u	< 0.0921 u	< 0.8941 u	< 0.091 u	< 0.0904 u
Benzo(a)pyrene	1.53E-01	(1)	3.23E+00	(4)	6.05E-01	(8)	< 0.8319 u	< 0.2241 u	< 0.2227 u	< 0.1262 u	< 0.1235 u	< 0.1325 u	< 0.265 u	< 0.133 u	< 0.1315 u	< 1.2767 u	< 0.1299 u	< 0.129 u
Benzo(b)fluoranthene	1.53E+00	(1)	3.23E+01	(4)	6.17E+00	(8)	< 0.7039 u	< 0.1896 u	< 0.1885 u	< 0.1068 u	< 0.1045 u	< 0.1121 u	< 0.2242 u	< 0.1126 u	< 0.1113 u	< 1.0803 u	< 0.1099 u	< 0.1092 u
Benzo(g,h,i)perylene	-	-	-	-	-	-	< 0.8436 u	< 0.2273 u	< 0.2259 u	< 0.128 u	< 0.1252 u	< 0.1344 u	< 0.2687 u	< 0.1349 u	< 0.1334 u	< 1.2946 u	< 0.1317 u	< 0.1308 u
Benzo(k)fluoranthene	1.53E+01	(1)	3.23E+02	(4)	6.05E+01	(8)	< 0.8377 u	< 0.2257 u	< 0.2243 u	< 0.1271 u	< 0.1243 u	< 0.1334 u	< 0.2669 u	< 0.1339 u	< 0.1325 u	< 1.2857 u	< 0.1308 u	< 0.1299 u
Benzoic acid	2.50E+05	(2)	3.30E+06	(6)	3.60E+02	(9)	< 0.4224 u	< 0.1138 u	< 0.1131 u	< 0.0641 u	< 0.0627 u	< 0.0673 u	< 0.1346 u	< 0.0675 u	< 0.0668 u	< 0.6482 u	< 0.066 u	< 0.0655 u
Benzyl alcohol	6.30E+03	(2)	8.20E+04	(6)	9.60E+00	(9)	< 0.6585 u	< 0.1774 u	< 0.1763 u	< 0.0999 u	< 0.0977 u	< 0.1049 u	< 0.2098 u	< 0.1053 u	< 0.1041 u	< 1.0105 u	< 0.1028 u	< 0.1021 u
Bis(2-chloroethoxy)methane	1.90E+02	(2)	2.50E+03	(6)	2.60E-01	(9)	< 0.7075 u	< 0.1906 u	< 0.1894 u	< 0.1073 u	< 0.105 u	< 0.1127 u	< 0.2254 u	< 0.1131 u	< 0.1119 u	< 1.0858 u	< 0.1105 u	< 0.1097 u
Bis(2-chloroethyl)ether	3.11E+00	(1)	1.95E+00	(5)	6.05E-04	(8)	< 0.7325 u	< 0.1973 u	< 0.1961 u	< 0.1111 u	< 0.1087 u	< 0.1167 u	< 0.2333 u	< 0.1171 u	< 0.1158 u	< 1.1241 u	< 0.1144 u	< 0.1136 u

Table 7
SWMU 10 Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SWMU 10-5 (2-4')		SWMU 10-5 (4-6')		SWMU 10-5 (14-16')		SWMU 10-5 (22-24')		SWMU 10-6 (2-4')		SWMU 10-6 (10-12')		SWMU 10-7 (2-4')		SWMU 10-7 (4-6')		SWMU 10-7 (18-20')		SWMU 10-8 (2-4')		SWMU 10-8 (4-6')		SWMU 10-8 (18-20')	
							1505003-002		1505003-003		1505003-004		1505003-005		1505223-001		1505223-002		1505059-001		1505059-002		1505059-003		1505057-005		1505057-006		1505057-007	
							4/29/2015		4/29/2015		4/29/2015		4/29/2015		5/4/2015		5/4/2015		5/1/2015		5/1/2015		5/1/2015		4/30/2015		4/30/2015		4/30/2015	
Bis(2-chloroisopropyl)ether	9.93E+01	(1)	5.19E+02	(4)	4.73E-02	(8)	< 0.5663	u	< 0.1526	u	< 0.1516	u	< 0.0859	u	< 0.0841	u	< 0.0902	u	< 0.1804	u	< 0.0905	u	< 0.0895	u	< 0.8691	u	< 0.0884	u	< 0.0878	u
Bis(2-ethylhexyl)phthalate	3.80E+02	(1)	1.83E+03	(4)	2.00E+02	(8)	< 0.8328	u	< 0.2244	u	< 0.223	u	< 0.1263	u	< 0.1236	u	< 0.1327	u	< 0.2653	u	< 0.1332	u	< 0.1317	u	< 1.2781	u	< 0.1301	u	< 0.1292	u
Butyl benzyl phthalate	2.90E+03	(3)	1.20E+04	(7)	4.60E+00	(9)	< 0.905	u	< 0.2438	u	< 0.2423	u	< 0.1373	u	< 0.1343	u	< 0.1441	u	< 0.2883	u	< 0.1447	u	< 0.1431	u	< 1.3889	u	< 0.1413	u	< 0.1403	u
Carbazole	-	-	-	-	-	-	< 0.6904	u	< 0.186	u	< 0.1849	u	< 0.1047	u	< 0.1025	u	< 0.11	u	< 0.2199	u	< 0.1104	u	< 0.1092	u	< 1.0596	u	< 0.1078	u	< 0.1071	u
Chrysene	1.53E+02	(1)	3.23E+03	(4)	1.86E+02	(8)	< 0.7444	u	< 0.2005	u	< 0.1993	u	< 0.1129	u	< 0.1105	u	< 0.1186	u	< 0.2371	u	< 0.119	u	< 0.1177	u	< 1.1424	u	< 0.1162	u	< 0.1154	u
Dibenz(a,h)anthracene	1.53E-01	(1)	3.23E+00	(4)	6.11E+00	(8)	< 0.8031	u	< 0.2164	u	< 0.215	u	< 0.1218	u	< 0.1192	u	< 0.1279	u	< 0.2558	u	< 0.1284	u	< 0.127	u	< 1.2325	u	< 0.1254	u	< 0.1245	u
Dibenzofuran	-	-	-	-	-	-	< 0.7928	u	< 0.2136	u	< 0.2123	u	< 0.1203	u	< 0.1177	u	< 0.1263	u	< 0.2526	u	< 0.1268	u	< 0.1254	u	< 1.2167	u	< 0.1238	u	< 0.1229	u
Diethyl phthalate	4.93E+04	(1)	2.15E+05	(5)	9.79E+01	(8)	< 0.8413	u	< 0.2266	u	< 0.2252	u	< 0.1276	u	< 0.1249	u	< 0.134	u	< 0.268	u	< 0.1345	u	< 0.133	u	< 1.2911	u	< 0.1314	u	< 0.1305	u
Dimethyl phthalate	6.11E+05	(1)	2.38E+06	(5)	1.61E+03	(8)	< 0.6822	u	< 0.1838	u	< 0.1827	u	< 0.1035	u	< 0.1013	u	< 0.1087	u	< 0.2173	u	< 0.1091	u	< 0.1079	u	< 1.047	u	< 0.1065	u	< 0.1058	u
Di-n-butyl phthalate	6.16E+03	(1)	2.69E+04	(5)	3.38E+01	(8)	< 0.8384	u	< 0.2259	u	< 0.2245	u	< 0.1272	u	< 0.1244	u	< 0.1335	u	< 0.2671	u	< 0.134	u	< 0.1326	u	< 1.2866	u	< 0.1309	u	< 0.13	u
Di-n-octyl phthalate	-	-	-	-	-	-	< 0.8252	u	< 0.2223	u	< 0.221	u	< 0.1252	u	< 0.1225	u	< 0.1314	u	< 0.2629	u	< 0.1319	u	< 0.1305	u	< 1.2665	u	< 0.1289	u	< 0.128	u
Fluoranthene	2.32E+03	(1)	1.00E+04	(5)	1.34E+03	(8)	< 0.8996	u	< 0.2423	u	< 0.2408	u	< 0.1365	u	< 0.1335	u	< 0.1433	u	< 0.2866	u	< 0.1438	u	< 0.1422	u	< 1.3805	u	< 0.1405	u	< 0.1395	u
Fluorene	2.32E+03	(1)	1.00E+04	(5)	8.00E+01	(8)	< 1.0092	u	1.4	v	< 0.2702	u	< 0.1531	u	< 0.1498	u	< 0.1607	u	< 0.3215	u	< 0.1614	u	< 0.1596	u	8.1	v	< 0.1576	u	< 0.1565	u
Hexachlorobenzene	3.33E+00	(1)	1.60E+01	(4)	9.22E-02	(8)	< 0.6997	u	< 0.1885	u	< 0.1873	u	< 0.1061	u	< 0.1038	u	< 0.1114	u	< 0.2229	u	< 0.1119	u	< 0.1106	u	< 1.0737	u	< 0.1093	u	< 0.1085	u
Hexachlorobutadiene	6.16E+01	(1)	2.69E+02	(5)	8.79E-02	(8)	< 0.7334	u	< 0.1976	u	< 0.1964	u	< 0.1112	u	< 0.1089	u	< 0.1168	u	< 0.2336	u	< 0.1173	u	< 0.116	u	< 1.1255	u	< 0.1145	u	< 0.1137	u
Hexachlorocyclopentadiene	3.70E+02	(1)	8.67E+02	(5)	1.34E+00	(8)	< 0.5142	u	< 0.1385	u	< 0.1377	u	< 0.078	u	< 0.0763	u	< 0.0819	u	< 0.1638	u	< 0.0822	u	< 0.0813	u	< 0.7891	u	< 0.0803	u	< 0.0797	u
Hexachloroethane	4.31E+01	(1)	1.88E+02	(5)	6.62E-02	(8)	< 0.6599	u	< 0.1778	u	< 0.1767	u	< 0.1001	u	< 0.0979	u	< 0.1051	u	< 0.2102	u	< 0.1055	u	< 0.1043	u	< 1.0127	u	< 0.1031	u	< 0.1023	u
Indeno(1,2,3-cd)pyrene	1.53E+00	(1)	3.23E+01	(4)	2.01E+01	(8)	< 0.8424	u	< 0.2269	u	< 0.2256	u	< 0.1278	u	< 0.125	u	< 0.1342	u	< 0.2684	u	< 0.1347	u	< 0.1332	u	< 1.2929	u	< 0.1316	u	< 0.1306	u
Isophorone	5.61E+03	(1)	2.70E+04	(4)	4.22E+00	(8)	< 0.7904	u	< 0.2129	u	< 0.2116	u	< 0.1199	u	< 0.1173	u	< 0.1259	u	< 0.2518	u	< 0.1264	u	< 0.125	u	< 1.2129	u	< 0.1234	u	< 0.1226	u
Naphthalene	4.97E+01	(1)	1.59E+02	(5)	8.23E-02	(8)	< 0.7053	u	5.8	v	< 0.1889	u	< 0.107	u	< 0.1047	u	< 0.1123	u	< 0.2247	u	< 0.1128	u	< 0.1115	u	18	v	0.15	J	< 0.1094	u
Nitrobenzene	6.04E+01	(1)	2.93E+02	(4)	1.44E-02	(8)	< 0.7632	u	< 0.2056	u	< 0.2043	u	< 0.1158	u	< 0.1133	u	< 0.1216	u	< 0.2431	u	< 0.122	u	< 0.1207	u	< 1.1713	u	< 0.1192	u	< 0.1184	u
N-Nitrosodi-n-propylamine	7.80E-01	(3)	3.30E+00	(7)	1.62E-04	(9)	< 0.7684	u	< 0.207	u	< 0.2057	u	< 0.1166	u	< 0.114	u	< 0.1224	u	< 0.2448	u	< 0.1229	u	< 0.1215	u	< 1.1792	u	< 0.12	u	< 0.1192	u
N-Nitrosodiphenylamine	7.94E-03	(1)	1.71E-01	(4)	9.84E-06	(8)	< 0.6637	u	< 0.1788	u	< 0.1777	u	< 0.1007	u	< 0.0985	u	< 0.1057	u	< 0.2114	u	< 0.1061	u	< 0.1049	u	< 1.0185	u	< 0.1036	u	< 0.1029	u
Pentachlorophenol	9.85E+00	(1)	4.45E+01	(4)	6.08E-02	(8)	< 0.4628	u	< 0.1247	u	< 0.1239	u	< 0.0702	u	< 0.0687	u	< 0.0737	u	< 0.1474	u	< 0.074	u	< 0.0732	u	< 0.7103	u	< 0.0723	u	< 0.0718	u
Phenanthrene	1.74E+03	(1)	7.53E+03	(5)	8.59E+01	(8)	1.1	J	3	v	< 0.2076	u	< 0.1176	u	< 0.1151	u	< 0.1235	u	< 0.247	u	< 0.124	u	< 0.1226	u	15	v	< 0.1211	u	< 0.1203	u
Phenol	1.83E+04	(1)	7.74E+04	(5)	5.23E+01	(8)	< 0.6644	u	< 0.179	u	< 0.1779	u	< 0.1008	u	< 0.0986	u	< 0.1058	u	< 0.2116	u	< 0.1062	u	< 0.105	u	< 1.0196	u	< 0.1038	u	< 0.103	u
Pyrene	1.74E+03	(1)	7.53E+03	(5)	1.92E+02	(8)	< 0.9567	u	< 0.2577	u	< 0.2562	u	< 0.1451	u	< 0.142	u	< 0.1524	u	< 0.3048	u	< 0.153	u	< 0.1513	u	< 1.4683	u	< 0.1494	u	< 0.1484	u
Pyridine	7.80E+01	(2)	1.20E+03	(6)	1.36E-01	(9)	< 0.6229	u	< 0.1678	u	< 0.1668	u	< 0.0945	u	< 0.0925	u	< 0.0992	u	< 0.1984	u	< 0.0996	u	< 0.0985	u	< 0.956	u	< 0.0973	u	< 0.0966	u
Total Petroleum Hydrocarbons (mg/kg)																														
Gasoline Range Organics (GRO)	-		-		-		4.7	v	740	v	13	v	< 1	u	< 1	u	< 1	u	< 1	u	< 1	u	< 1	u	670	v	10	v	< 1	u
Diesel Range Organics (DRO)	1.00E+03	(11)	3.80E+03	(11)	-		780	v	**3000**	v	< 5	u	< 6	u	< 6	u	< 5	u	39	v	< 6	u	< 5	u	**9700**	v	25	v	< 6.3	u
Motor Oil Range Organics (MRO)	1.00E+03	(11)	3.80E+03	(11)	-		300	v	< 484	u	< 50	u	< 50	u	< 50	u	< 48	u	< 49	u	< 50	u	< 49	u	**2000**	v	< 56	u	< 57	u

- No screening level or analytical result available
NMED - Risk Assessment Guidance for Site Investigations and Remediation (Dec. 2014)
EPA - Regional Screening Levels (Nov 2015)
(1) NMED Residential Screening Level
(2) EPA Residential Screening Level
(3) EPA Residential - Screening Levels (June 2015) multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Closure Permit because the constituent is listed as carcinogenic
(4) NMED Industrial Occupational Screening Level
(5) NMED Construction Worker Screening Level
(6) EPA Industrial - Screening Levels (June 2015)
(7) EPA Industrial - Screening Levels June 2015) multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Clousre Permit because the constituent is listed as carcinogenic
(8) SoilGW NMED Dilution Attenuation Factor (DAF) = 20
(9) SoilGW Risk-based EPA DAF = 20
(10) SoilGW MCL-based EPA DAF = 20
(11) NMED Table 6-2 TPH Soil Screening Levels "uknown oil" with DAF = 1.0 - see report Section 5 for use of screening levels

Bold represents value above Non-Residential Screening Level
yellow highlight represents value above Leachate (DAF) Screening Level
Bold with yellow highlight value exceeds Non-Residential Screening Level and DAF

* - sample reanalyzed for hexavalent chromium, see amended lab report #1505223
** - sample reanalyzed for hexavalent chromium, see lab report #1505003

Table 7
SWMU 10 Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SWMU 10-9 (2-4')		SWMU 10-9 (4-6')		SWMU 10-9 (18-20')		SWMU 10-10 (2-4')		SWMU 10-10 (4-6')		SWMU 10-10 (18-20')		SWMU 10-11 (4-6')		SWMU 10-11 (8-10')		SWMU 10-11 (18-20')		SWMU 10-12 (6-8')		SWMU 10-12 (20-22')		SWMU 10-13 (2-4')	
							1505057-001		1505057-002		1505057-003		1505058-001		1505058-002		1505058-003		1505570-003		1505570-004		1505570-003		1505617-001		1505617-002		1505617-003	
							4/30/2015		4/30/2015		4/30/2015		4/30/2015		4/30/2015		4/30/2015		5/12/2015		5/12/2015		5/12/2015		5/12/2015		5/12/2015		5/13/2015	
Metals (mg/kg)																														
Antimony	3.13E+01	(1)	1.42E+02	(5)	6.56E+00	(8)	< 1.5359	u	< 1.5635	u	< 1.5233	u	< 1.4463	u	< 1.5493	u	2.7	J	< 1.4896	u	< 3.243	u	< 3.0138	u	< 2.9662	u	< 1.4434	u	< 1.4296	u
Arsenic	4.25E+00	(1)	2.15E+01	(4)	2.99E-01	(8)	1.8	J	1.1	J	2.2	J	2.4	J	1.6	J	1.9	J	< 0.3324	u	0.91	J	0.84	J	1.9	J	2	J	1.3	J
Barium	1.56E+04	(1)	4.35E+03	(5)	2.70E+03	(8)	220	v	250	v	360	v	450	v	360	v	240	v	240	v	330	v	420	v	1700	v	500	v	260	v
Beryllium	1.56E+02	(1)	1.48E+02	(5)	1.96E+02	(8)	0.77	v	0.94	v	0.99	v	0.28	v	0.93	v	1	v	0.61	v	0.98	v	0.89	v	1.1	v	0.94	v	0.71	v
Cadmium	7.05E+01	(1)	7.21E+01	(5)	9.39E+00	(8)	< 0.0324	u	< 0.033	u	< 0.0322	u	< 0.0305	u	< 0.0327	u	< 0.0322	u	< 0.0314	u	< 0.0685	u	< 0.0318	u	< 0.0313	u	< 0.0305	u	< 0.0302	u
Chromium	9.66E+01	(1)	1.34E+02	(5)	2.01E+05	(8)	17	v	14	v	14	v	13	v	12	v	14	v	7.3	v	8.1	v	11	v	12	v	14	v	7.8	v
Hexavalent Chromium	3.05E+00	(1)	6.69E+01	(5)	9.68E-02	(8)	< 2.3327	u	< 2.4023	u	< 2.3271	u	< 2.2802	u	< 2.4258	u	< 2.3458	u	< 2.2359	u	< 2.4211	u	< 2.2794	u	< 2.3277	u	< 2.1955	u	< 2.1284	u
Cobalt	2.30E+01	(2)	3.50E+02	(6)	5.40E+00	(9)	4.6	v	5.3	v	7.6	v	3.1	v	4.1	v	7.9	v	3.5	v	5	v	7.7	v	5.7	v	9.1	v	4	v
Cyanide	1.12E+01	(1)	1.21E+01	(5)	5.22E-03	(8)	< 0.2916	u	< 0.3003	u	< 0.2909	u	< 0.285	u	< 0.3032	u	< 0.2932	u	< 0.2795	u	< 0.3026	u	< 0.2849	u	< 0.291	u	< 0.2744	u	< 0.2661	u
Iron	5.50E+04	(2)	8.20E+05	(6)	7.00E+03	(9)	12000	v	16000	v	20000	v	9200	v	13000	v	20000	v	9200	v	12000	v	16000	v	21000	v	20000	v	15000	v
Lead	4.00E+02	(1)	8.00E+02	(4)	2.80E+02	(10)	4.8	v	3.2	v	2.3	v	4.1	v	4	v	2	v	3.4	v	5.8	v	3.5	v	3.7	v	1.8	v	2.9	v
Manganese	1.80E+03	(2)	2.60E+04	(6)	5.60E+02	(9)	180	v	290	v	860	v	94	v	170	v	990	v	320	v	400	v	890	v	470	v	1300	v	390	v
Mercury	2.38E+01	(1)	2.07E+01	(5)	6.54E-01	(8)	0.07	J	0.0086	J	0.0059	J	0.044	v	0.012	J	< 0.0032	u	0.05	v	0.014	J	< 0.0032	u	< 0.0034	u	< 0.0032	u	< 0.003	u
Nickel	1.56E+03	(1)	6.19E+03	(5)	4.85E+02	(8)	7.7	v	10	v	15	v	4.4	v	7.7	v	17	v	5.8	v	7.8	v	13	v	10	v	16	v	6.5	v
Selenium	3.91E+02	(1)	1.75E+03	(5)	1.02E+01	(8)	< 1.7886	u	< 1.8206	u	< 1.7738	u	< 1.6842	u	< 1.8042	u	< 1.7762	u	< 1.7346	u	< 3.7764	u	< 1.7547	u	< 1.727	u	< 1.6808	u	< 1.6647	u
Silver	3.91E+02	(1)	1.77E+03	(5)	1.38E+01	(8)	< 0.0348	u	< 0.0354	u	< 0.0345	u	< 0.0327	u	< 0.0351	u	< 0.0345	u	< 0.0337	u	< 0.0734	u	< 0.0341	u	< 0.0336	u	< 0.0327	u	< 0.0323	u
Vanadium	3.94E+02	(1)	6.14E+02	(5)	1.26E+03	(8)	18	v	19	v	49	v	21	v	18	v	21	v	13	v	14	v	5.2	v	21	v	25	v	19	v
Zinc	2.35E+04	(1)	1.06E+05	(5)	7.41E+03	(8)	24	v	32	v	21	v	15	v	19	v	25	v	16	v	18	v	23	v	20	v	28	v	13	v
Volatiles (mg/kg)																														
1,1,1,2-Tetrachloroethane	2.81E+01	(1)	1.37E+02	(4)	3.59E-02	(8)	< 0.0003	u	< 0.0119	u	< 0.0004	u	< 0.0003	u	< 0.0489	u	< 0.0003	u	< 0.0129	u	< 0.0027	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.0004	u
1,1,1-Trichloroethane	1.44E+04	(1)	1.36E+04	(5)	5.11E+01	(8)	< 0.0002	u	< 0.022	u	< 0.0003	u	< 0.0002	u	< 0.0905	u	< 0.0003	u	< 0.0238	u	< 0.0049	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0004	u
1,1,2,2-Tetrachloroethane	7.98E+00	(1)	3.94E+01	(4)	4.80E-03	(8)	< 0.0004	u	< 0.0175	u	< 0.0005	u	< 0.0004	u	< 0.0722	u	< 0.0004	u	< 0.019	u	< 0.0039	u	< 0.0005	u	< 0.0005	u	< 0.0006	u	< 0.0005	u
1,1,2-Trichloroethane	2.61E+00	(1)	2.30E+00	(5)	2.23E-03	(8)	< 0.0018	u	< 0.0174	u	< 0.0024	u	< 0.0016	u	< 0.0716	u	< 0.0019	u	< 0.0189	u	< 0.0039	u	< 0.0024	u	< 0.0023	u	< 0.0028	u	< 0.0025	u
1,1-Dichloroethane	7.86E+01	(1)	3.83E+02	(4)	1.36E-01	(8)	< 0.0004	u	< 0.0578	u	< 0.0006	u	< 0.0004	u	< 0.2384	u	< 0.0004	u	< 0.0628	u	< 0.0129	u	< 0.0006	u	< 0.0005	u	< 0.0006	u	< 0.0006	u
1,1-Dichloroethene	4.40E+02	(1)	4.24E+02	(5)	1.95E+00	(8)	< 0.0003	u	< 0.01	u	< 0.0004	u	< 0.0003	u	< 0.041	u	< 0.0003	u	< 0.0108	u	< 0.0022	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0004	u
1,1-Dichloropropene	-	-	-	-	-	-	< 0.0003	u	< 0.0215	u	< 0.0004	u	< 0.0003	u	< 0.0888	u	< 0.0003	u	< 0.0234	u	< 0.0048	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0005	u
1,2,3-Trichlorobenzene	6.30E+01	(2)	9.30E+02	(6)	4.20E-01	(9)	< 0.0006	u	< 0.0309	u	< 0.0009	u	< 0.0006	u	< 0.1272	u	< 0.0007	u	< 0.0335	u	< 0.0069	u	< 0.0009	u	< 0.0009	u	< 0.001	u	< 0.0009	u
1,2,3-Trichloropropane	5.10E-02	(1)	1.21E+00	(4)	5.21E-05	(8)	< 0.0006	u	< 0.0243	u	< 0.0008	u	< 0.0006	u	< 0.1	u	< 0.0007	u	< 0.0263	u	< 0.0054	u	< 0.0009	u	< 0.0008	u	< 0.001	u	< 0.0009	u
1,2,4-Trichlorobenzene	8.29E+01	(1)	7.91E+01	(5)	1.76E-01	(8)	< 0.00065	u	< 0.02668	u	< 0.00088	u	< 0.00059	u	< 0.10998	u	< 0.00069	u	< 0.02897	u	< 0.00596	u	< 0.0009	u	< 0.00087	u	< 0.00103	u	< 0.00093	u
1,2,4-Trimethylbenzene	5.80E+01	(2)	2.40E+02	(6)	4.20E-01	(9)	< 0.0005	u	0.42	v	0.00229	J	< 0.0004	u	13	v	0.00238	v	0.4	v	0.79	v	0.00377	v	< 0.0006	u	0.00203	J	< 0.0007	u
1,2-Dibromo-3-chloropropane	8.58E-02	(1)	1.18E+00	(4)	2.34E-05	(8)	< 0.0005	u	< 0.0248	u	< 0.0007	u	< 0.0005	u	< 0.1024	u	< 0.0005	u	< 0.027	u	< 0.0056	u	< 0.0007	u	< 0.0007	u	< 0.0008	u	< 0.0007	u
1,2-Dibromoethane (EDB)	6.72E-01	(1)	3.31E+00	(4)	3.52E-04	(8)	< 0.0002	u	< 0.0115	u	< 0.0003	u	< 0.0002	u	< 0.0475	u	< 0.0002	u	< 0.0125	u	< 0.0026	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u
1,2-Dichlorobenzene	2.15E+03	(1)	2.50E+03	(5)	4.58E+00	(8)	< 0.00038	u	< 0.00872	u	< 0.00052	u	< 0.00035	u	< 0.03595	u	< 0.00041	u	< 0.00947	u	< 0.00194	u	< 0.00053	u	< 0.00051	u	< 0.00061	u	< 0.00055	u
1,2-Dichloroethane (EDC)	8.32E+00	(1)	4.07E+01	(4)	8.14E-03	(8)	< 0.0005	u	< 0.0578	u	< 0.0006	u	< 0.0004	u	< 0.2384	u	< 0.0005	u	< 0.0628	u	< 0.0129	u	< 0.0007	u	< 0.0006	u	< 0.0007	u	< 0.0007	u
1,2-Dichloropropane	1.78E+01	(1)	2.54E+01	(5)	2.43E-02	(8)	< 0.0004	u	< 0.0081	u	< 0.0005	u	< 0.0003	u	< 0.0333	u	< 0.0004	u	< 0.0088	u	< 0.0018	u	< 0.0005	u	< 0.0005	u	< 0.0006	u	< 0.0005	u
1,3,5-Trimethylbenzene	7.80E+02	(2)	1.20E+04	(6)	3.40E+00	(9)	< 0.0003	u	0.12	J	0.00151	J	< 0.0003	u	4.7	v	0.00151	J	0.31	v	0.29	v	0.00245	v	< 0.0004	u	0.00134	J	< 0.0004	u
1,3-Dichlorobenzene	-	-	-	-	-	-	< 0.00029	u	< 0.01702	u	< 0.00039	u	< 0.00027	u	< 0.07018	u	< 0.00031	u	< 0.01848	u	< 0.0038	u	< 0.00041	u	< 0.00039	u	< 0.00046	u	< 0.00042	u
1,3-Dichloropropane	1.60E+03	(2)	2.30E+04	(6)	2.60E+00	(9)	< 0.0003	u	< 0.0199	u	< 0.0004	u	< 0.0002	u	< 0.0821	u	< 0.0003	u	< 0.0216	u	< 0.0045	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.0004	u
1,4-Dichlorobenzene	3.28E+01	(1)	1.59E+02	(4)	7.20E-02	(8)	< 0.00027	u	< 0.01801	u	< 0.00037	u	< 0.00025	u	< 0.07423	u	< 0.00029	u	< 0.01955	u	< 0.00402	u	< 0.00038	u	< 0.00036	u	< 0.00043	u	< 0.00039	u
1-Methylnaphthalene	1.80E+02	(3)	7.30E+02	(7)	1.16E-01	(9)	< 0.00068	u	1.1	v	< 0.00092	u	< 0.00062	u	28	v	< 0.00072	u	1.6	v	1.3	v	0.00126	J	< 0.00091	u	< 0.00108	u	< 0.00097	u
2,2-Dichloropropane	-	-	-	-	-	-	< 0.0003	u	< 0.021	u	< 0.0004	u	< 0.0003	u	< 0.0868	u	< 0.0003	u	< 0.0229	u	< 0.0047	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0004	u
2-Butanone	3.74E+04	(1)	9.17E+04	(5)	2.01E+01	(8)	0.00234	J	< 0.093	u	< 0.0008	u	0.00161	J	< 0.3832	u	0.00159	J	< 0.1009	u	< 0.0208	u	< 0.0008	u	0.00208	J	0.00234	J	0.00424	J
2-Chlorotoluene	1.56E+03	(1)	7.08E+03	(5)	3.56E+00	(8)	< 0.0003	u	< 0.0163	u	< 0.0005	u	< 0.0003	u	< 0.0674	u	< 0.0004	u	< 0.0177	u	< 0.0037	u	< 0.0005	u	< 0.0005	u	< 0.0005	u	< 0.0005	u
2-Hexanone	2.00E+02	(2)	1.30E+03	(6)	1.76E-01	(9)	< 0.0004	u	< 0.0356	u	< 0.0005	u	0.000582	J	< 0.1466	u	< 0.0004	u	< 0.0386	u	< 0.0079	u	< 0.0005	u	< 0.0005	u	< 0.0006	u	0.000962	J
2-Methylnaphthalene	2.40E+02	(2)	3.00E+03	(6)	3.80E+00	(9)	< 0.00068	u	1.5	v	< 0.00092	u	< 0.00062	u	48	v	< 0.00072	u	1.8	v	2.3	v	0.0013	J	< 0.00091	u	< 0.00107	u	< 0.00097	u
4-Chlorotoluene	1.60E+03	(2)	2.30E+04	(6)	4.80E+00	(9)	< 0.0003	u	< 0.0109	u	< 0.0005	u	< 0.0003	u	< 0.0451	u	< 0.0004	u	< 0.0119	u	< 0.0024	u	< 0.0005	u	< 0.0005	u	< 0.0005	u	< 0.0005	u
4-Isopropyltoluene	-	-	-	-	-	-	< 0.0007	u	< 0.0103	u	< 0.0009	u	< 0.0006	u	0.74	v	< 0.0007	u	< 0.0112	u	< 0.0023	u	< 0.0009	u	< 0.0009	u	< 0.0011	u	< 0.001	u
4-Methyl-2-pentanone	5.81E+03	(1)	2.02E+04	(5)	4.80E+00	(8)	< 0.0007	u	< 0.0251	u	< 0.001	u	< 0.0007	u	< 0.1034	u	< 0.0008	u	< 0.0272	u	< 0.0056	u	< 0.001	u	< 0.001	u	< 0.0012	u	< 0.0011	u
Acetone	6.63E+04	(1)	2.42E+05	(5)	4.98E+01	(8)	0.0184	v	< 0.1078	u	0.00359	J	0.00792	J	< 0.4444	u	0.00422	J	0.15	J	0.058	J	0.00262	J	0.00766	J	0.0074	J	0.0451	v
Benzene	1.78E+01	(1)	8.72E+01	(4)	3.80E-02	(8)	0.000788	J	< 0.0214	u	0.0159	v	< 0.0004	u	0.2	J	0.018	v	< 0.0233	u	< 0.0048	u	0.026	v	0.00132	J	0.0154	v	0.000909	J
Bromobenzene	2.90E+02	(2)	1.80E+03	(6)	8.40E-01	(9)	< 0.0005	u	< 0.0107	u	< 0.0007	u	< 0.0004	u	< 0.0442	u	< 0.0005	u	< 0.0117	u	< 0.0024	u	< 0.0007	u	< 0.0007	u	< 0.0008	u	< 0.0007	u
Bromodichloromethane	6.19E+00	(1)	3.02E+01	(4)	6.21E-03	(8)	< 0.0002	u	< 0.0118	u	< 0.0003	u	< 0.0002	u	< 0.0487	u	< 0.0003	u	< 0.0128	u	< 0.0026	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0003	u
Bromoform	6.74E+02	(1)	3.25E+03	(4)	4.11E-01	(8)	< 0.0005	u	< 0.0116	u	< 0.0006	u	< 0.0004	u	< 0.0479	u	< 0.0005	u	< 0.0126	u	< 0.0026	u	< 0.0006	u	< 0.0006	u	< 0.0007	u	< 0.0006	u
Bromomethane	1.77E+01	(1)	1.79E+01	(5)	3.43E-02	(8)	< 0.001	u	< 0.0279	u	< 0.0014	u	< 0.0009	u	< 0.115	u	< 0.0011	u	0.12	J	0.026	J	< 0.0014	u	< 0.0014	u	< 0.0016	u	< 0.0015	u
Carbon disulfide	1.55E+03	(1)	1.62E+03	(5)	4.42E+00	(8)	< 0.0008	u	< 0.104	u	< 0.0011	u	< 0.0007	u	< 0.4289	u	< 0.0008	u	< 0.113	u	< 0.0233	u	< 0.0011	u	< 0.0011	u	< 0.0012	u	< 0.0011	u
Carbon tetrachloride	1.07E+01	(1)	5.25E+01	(4)	3.33E-02	(8)	< 0.0003	u	< 0.0141	u	< 0.0004	u	< 0.0003	u	< 0.058	u	< 0.0003	u	< 0.0153	u	< 0.0031	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0005	u
Chlorobenzene	3.78E+02	(1)	4.12E+02	(5)	8.36E-01	(8)	< 0.0002	u	< 0.0111	u	< 0.0002	u	< 0.0002	u	< 0.0459	u	< 0.0002	u	< 0.0121	u	< 0.0025	u	< 0.0002	u	< 0.0002	u	< 0.0003	u	< 0.0003	u
Chloroethane	1.90E+04	(1)	1.66E+04	(5)	1.07E+02	(8)	< 0.0018	u	< 0.1119	u	< 0.0024	u	< 0.0016	u	< 0.4614	u	< 0.0019	u	< 0.1215	u	< 0.025	u	< 0.0024	u	< 0.0023	u	< 0.0028	u	< 0.0025	u
Chloroform	5.90E+00	(1)	2.87E+01	(4)	1.09E-02	(8)	< 0.0004	u	< 0.0151	u	< 0.0005	u	< 0.0003	u	< 0.0621	u	< 0.0004	u	< 0.0164	u	< 0.0034	u	< 0.0005	u	< 0.0005	u	< 0.0006	u	< 0.0005	u
Chloromethane	4.11E+01	(1)	2.01E+02	(4)	9.51E-02	(8)	< 0.0002	u	< 0.0167	u	< 0.0003	u	< 0.0002	u	< 0.069	u	< 0.0002	u	< 0.0182	u	< 0.0037	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u
cis-1,2-DCE	1.56E+02	(1)	7.08E+02	(5)	1.84E-01	(8)	< 0.0005	u	< 0.0183	u	< 0.0006	u	< 0.0004	u	< 0.0754	u	< 0.0005	u	< 0.0199	u	< 0.0041	u	< 0.0006	u	< 0.0006	u	< 0.0007	u	< 0.0007	u
cis-1,3-Dichloropropene	2.93E+01	(1)	1.30E+02	(5)	2.80E-02	(8)	< 0.0018	u	< 0.01	u	< 0.0024	u	< 0.0016	u	< 0.0414	u	< 0.0019	u	< 0.0109	u	< 0.0022	u	< 0.0024	u	< 0.0023	u	< 0.0028	u	< 0.0025	u
Dibromochloromethane	1.39E+01	(1)	6.74E+01	(4)	7.54E-03	(8)	< 0.0002	u	< 0.0108	u	< 0.0003	u	< 0.0002	u	< 0.0447	u	< 0.0002	u	< 0.0118	u	< 0.0024	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u

Table 7
SWMU 10 Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SWMU 10-9 (2-4')	SWMU 10-9 (4-6')	SWMU 10-9 (18-20')	SWMU 10-10 (2-4')	SWMU 10-10 (4-6')	SWMU 10-10 (18-20')	SWMU 10-11 (4-6')	SWMU 10-11 (8-10')	SWMU 10-11 (18-20')	SWMU 10-12 (6-8')	SWMU 10-12 (20-22')	SWMU 10-13 (2-4')
							1505057-001	1505057-002	1505057-003	1505058-001	1505058-002	1505058-003	1505570-003	1505570-004	1505570-003	1505617-001	1505617-002	1505617-003
							4/30/2015	4/30/2015	4/30/2015	4/30/2015	4/30/2015	4/30/2015	5/12/2015	5/12/2015	5/12/2015	5/12/2015	5/12/2015	5/13/2015
Dibromomethane	2.30E+01	(2)	9.80E+01	(6)	4.00E-02	(9)	< 0.001 u	< 0.0152 u	< 0.0013 u	< 0.0009 u	< 0.0628 u	< 0.0011 u	< 0.0165 u	< 0.0034 u	< 0.0014 u	< 0.0013 u	< 0.0016 u	< 0.0014 u
Dichlorodifluoromethane	1.82E+02	(1)	1.61E+02	(5)	7.23E+00	(8)	< 0.0007 u	< 0.0364 u	< 0.001 u	< 0.0007 u	< 0.1499 u	< 0.0008 u	< 0.0395 u	< 0.0081 u	< 0.001 u	< 0.001 u	< 0.0011 u	< 0.001 u
Ethylbenzene	7.51E+01	(1)	3.68E+02	(4)	2.62E-01	(8)	< 0.0003 u	0.04 J	0.00242 v	< 0.0003 u	3.6 v	0.00241 v	0.1 J	0.21 v	0.00371 v	< 0.0004 u	0.00249 J	< 0.0004 u
Hexachlorobutadiene	6.16E+01	(1)	2.69E+02	(5)	8.79E-02	(8)	< 0.00035 u	< 0.02007 u	< 0.00047 u	< 0.00032 u	< 0.08276 u	< 0.00037 u	< 0.0218 u	< 0.00448 u	< 0.00048 u	< 0.00047 u	< 0.00055 u	< 0.0005 u
Isopropylbenzene	2.36E+03	(1)	2.74E+03	(5)	1.14E+01	(8)	< 0.0004 u	0.016 J	< 0.0005 u	< 0.0004 u	1.2 v	< 0.0004 u	0.04 J	0.077 v	0.000607 J	< 0.0005 u	< 0.0006 u	< 0.0006 u
Methyl tert-butyl ether (MTBE)	9.75E+02	(1)	4.82E+03	(4)	5.53E-01	(8)	< 0.0007 u	< 0.0204 u	< 0.001 u	< 0.0007 u	< 0.0843 u	< 0.0008 u	< 0.0222 u	< 0.0046 u	< 0.001 u	< 0.001 u	< 0.0012 u	< 0.001 u
Methylene chloride	4.09E+02	(1)	1.21E+03	(5)	4.71E-01	(8)	0.000438 J	< 0.0578 u	< 0.0006 u	0.00051 J	< 0.2384 u	< 0.0005 u	< 0.0628 u	< 0.0129 u	0.000813 J	< 0.0006 u	< 0.0007 u	0.000685 J
Naphthalene	4.97E+01	(1)	1.59E+02	(5)	8.23E-02	(8)	< 0.00057 u	0.32 v	0.000873 J	< 0.00052 u	11 v	0.000725 J	0.54 v	0.46 v	0.00119 J	< 0.00076 u	< 0.0009 u	< 0.00081 u
n-Butylbenzene	3.90E+03	(2)	5.80E+04	(6)	6.40E+01	(9)	< 0.0007 u	0.065 J	< 0.001 u	< 0.0007 u	1.4 J	< 0.0008 u	0.063 J	0.098 v	< 0.001 u	< 0.001 u	< 0.0011 u	< 0.001 u
n-Propylbenzene	3.80E+03	(2)	2.40E+04	(6)	2.40E+01	(9)	< 0.0003 u	0.052 J	< 0.0004 u	< 0.0003 u	1.8 v	0.000372 J	0.057 J	0.12 v	0.00068 J	< 0.0004 u	< 0.0005 u	< 0.0005 u
sec-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	1.18E+02	(9)	< 0.0004 u	0.021 J	0.000849 J	< 0.0004 u	0.75 v	0.000688 J	< 0.0224 u	0.051 v	0.000947 J	0.000831 J	0.000964 J	< 0.0006 u
Styrene	7.26E+03	(1)	1.02E+04	(5)	2.06E+01	(8)	< 0.0003 u	< 0.0265 u	< 0.0004 u	< 0.0003 u	< 0.1094 u	< 0.0003 u	< 0.0288 u	< 0.0059 u	< 0.0004 u	< 0.0004 u	< 0.0005 u	< 0.0004 u
tert-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	3.20E+01	(9)	< 0.0003 u	< 0.0166 u	< 0.0004 u	< 0.0002 u	< 0.0683 u	< 0.0003 u	< 0.018 u	< 0.0037 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.0004 u
Tetrachloroethene (PCE)	1.11E+02	(1)	1.20E+02	(5)	3.21E-01	(8)	< 0.0003 u	< 0.0125 u	< 0.0005 u	< 0.0003 u	< 0.0516 u	< 0.0004 u	< 0.0136 u	< 0.0028 u	< 0.0005 u	< 0.0005 u	< 0.0005 u	< 0.0005 u
Toluene	5.23E+03	(1)	1.40E+04	(5)	1.21E+01	(8)	0.000797 J	< 0.0172 u	0.0115 v	0.000255 J	5 v	0.0104 v	0.021 J	0.02 J	0.0162 v	0.00101 J	0.0101 v	0.000885 J
trans-1,2-DCE	2.95E+02	(1)	3.05E+02	(5)	4.69E-01	(8)	< 0.0003 u	< 0.0094 u	< 0.0004 u	< 0.0003 u	< 0.0387 u	< 0.0003 u	< 0.0102 u	< 0.0021 u	< 0.0004 u	< 0.0004 u	< 0.0004 u	< 0.0004 u
trans-1,3-Dichloropropene	2.93E+01	(1)	1.30E+02	(5)	2.80E-02	(8)	< 0.0002 u	< 0.026 u	< 0.0003 u	< 0.0002 u	< 0.1073 u	< 0.0002 u	< 0.0283 u	< 0.0058 u	< 0.0003 u	< 0.0003 u	< 0.0004 u	< 0.0003 u
Trichloroethene (TCE)	6.77E+00	(1)	6.90E+00	(5)	1.75E-02	(8)	< 0.0003 u	< 0.0141 u	< 0.0005 u	< 0.0003 u	< 0.0581 u	< 0.0004 u	< 0.0153 u	< 0.0031 u	< 0.0005 u	< 0.0005 u	< 0.0005 u	< 0.0005 u
Trichlorofluoromethane	1.23E+03	(1)	1.13E+03	(5)	1.57E+01	(8)	< 0.0004 u	< 0.0436 u	< 0.0005 u	< 0.0003 u	< 0.1799 u	< 0.0004 u	< 0.0474 u	< 0.0098 u	< 0.0005 u	< 0.0005 u	< 0.0006 u	< 0.0005 u
Vinyl chloride	7.42E-01	(1)	2.84E+01	(4)	1.35E-03	(8)	< 0.0002 u	< 0.0578 u	< 0.0003 u	< 0.0002 u	< 0.2384 u	< 0.0002 u	< 0.0628 u	< 0.0129 u	< 0.0003 u	< 0.0003 u	< 0.0003 u	< 0.0003 u
Xylenes, Total	8.71E+02	(1)	7.98E+02	(5)	2.98E+00	(8)	< 0.001 u	0.26 J	0.00807 v	< 0.001 u	29 v	0.00797 v	0.73 v	1.7 v	0.0121 v	< 0.0014 u	0.00583 v	< 0.0015 u
Semi-volatiles (mg/kg)																		
1,2,4-Trichlorobenzene	8.29E+01	(1)	7.91E+01	(5)	1.76E-01	(8)	< 1.0207 u	< 1.017 u	< 0.1186 u	< 0.2327 u	< 1.2417 u	< 0.1206 u	< 1.1468 u	< 1.2306 u	< 0.1164 u	< 0.1186 u	< 0.1125 u	< 0.1079 u
1,2-Dichlorobenzene	2.15E+03	(1)	2.50E+03	(5)	4.58E+00	(8)	< 0.9537 u	< 0.9502 u	< 0.1108 u	< 0.2175 u	< 1.1602 u	< 0.1126 u	< 1.0716 u	< 1.1499 u	< 0.1087 u	< 0.1108 u	< 0.1051 u	< 0.1009 u
1,3-Dichlorobenzene	-	-	-	-	-	-	< 0.8856 u	< 0.8824 u	< 0.1029 u	< 0.2019 u	< 1.0774 u	< 0.1046 u	< 0.995 u	< 1.0678 u	< 0.101 u	< 0.1029 u	< 0.0976 u	< 0.0937 u
1,4-Dichlorobenzene	3.28E+01	(1)	1.59E+02	(4)	7.20E-02	(8)	< 1.0429 u	< 1.0391 u	< 0.1212 u	< 0.2378 u	< 1.2688 u	< 0.1232 u	< 1.1718 u	< 1.2575 u	< 0.1189 u	< 0.1211 u	< 0.1149 u	< 0.1103 u
1-Methylnaphthalene	1.80E+02	(3)	7.30E+02	(7)	1.16E-01	(9)	< 0.9242 u	1.1 J	< 0.1074 u	< 0.2107 u	17 v	< 0.1092 u	14 v	3.8 v	< 0.1054 u	< 0.1074 u	< 0.1019 u	< 0.0977 u
2,4,5-Trichlorophenol	6.16E+03	(1)	2.69E+04	(5)	6.62E+01	(8)	< 1.162 u	< 1.1577 u	< 0.135 u	< 0.265 u	< 1.4136 u	< 0.1372 u	< 1.3056 u	< 1.401 u	< 0.1325 u	< 0.135 u	< 0.1281 u	< 0.1229 u
2,4,6-Trichlorophenol	6.16E+01	(1)	2.69E+02	(5)	6.74E-01	(8)	< 1.1528 u	< 1.1485 u	< 0.134 u	< 0.2629 u	< 1.4024 u	< 0.1362 u	< 1.2952 u	< 1.3899 u	< 0.1314 u	< 0.1339 u	< 0.127 u	< 0.1219 u
2,4-Dichlorophenol	1.85E+02	(1)	8.07E+02	(5)	8.25E-01	(8)	< 0.9971 u	< 0.9934 u	< 0.1159 u	< 0.2274 u	< 1.213 u	< 0.1178 u	< 1.1203 u	< 1.2022 u	< 0.1137 u	< 0.1158 u	< 0.1099 u	< 0.1054 u
2,4-Dimethylphenol	1.23E+03	(1)	5.38E+03	(5)	6.45E+00	(8)	< 0.7838 u	< 0.7809 u	< 0.0911 u	< 0.1787 u	< 0.9535 u	< 0.0926 u	< 0.8806 u	< 0.945 u	< 0.0894 u	< 0.091 u	< 0.0864 u	< 0.0829 u
2,4-Dinitrophenol	1.23E+02	(1)	5.38E+02	(5)	6.71E-01	(8)	< 0.4143 u	< 0.4128 u	< 0.0481 u	< 0.0945 u	< 0.504 u	< 0.0489 u	< 0.4655 u	< 0.4995 u	< 0.0472 u	< 0.0481 u	< 0.0457 u	< 0.0438 u
2,4-Dinitrotoluene	1.71E+01	(1)	8.23E+01	(4)	4.91E-02	(8)	< 0.892 u	< 0.8888 u	< 0.1037 u	< 0.2034 u	< 1.0852 u	< 0.1054 u	< 1.0023 u	< 1.0755 u	< 0.1017 u	< 0.1036 u	< 0.0983 u	< 0.0943 u
2,6-Dinitrotoluene	3.56E+00	(1)	1.72E+01	(4)	1.02E-02	(8)	< 1.1083 u	< 1.1043 u	< 0.1288 u	< 0.2527 u	< 1.3483 u	< 0.1309 u	< 1.2453 u	< 1.3363 u	< 0.1264 u	< 0.1287 u	< 0.1222 u	< 0.1172 u
2-Chloronaphthalene	6.26E+03	(1)	2.83E+04	(5)	5.70E+01	(8)	< 1.0683 u	< 1.0644 u	< 0.1241 u	< 0.2436 u	< 1.2996 u	< 0.1262 u	< 1.2003 u	< 1.288 u	< 0.1218 u	< 0.1241 u	< 0.1177 u	< 0.113 u
2-Chlorophenol	3.91E+02	(1)	1.77E+03	(5)	1.15E+00	(8)	< 0.9305 u	< 0.9271 u	< 0.1081 u	< 0.2122 u	< 1.132 u	< 0.1099 u	< 1.0455 u	< 1.1219 u	< 0.1061 u	< 0.1081 u	< 0.1026 u	< 0.0984 u
2-Methylnaphthalene	2.40E+02	(2)	3.00E+03	(6)	3.80E+00	(9)	< 0.9125 u	1 J	< 0.106 u	< 0.2081 u	25 v	< 0.1078 u	23 v	5.7 v	< 0.104 u	< 0.106 u	< 0.1006 u	< 0.0965 u
'2-Methylphenol (cresol,o-)	3.20E+03	(2)	4.10E+04	(6)	1.50E+01	(9)	< 0.9996 u	< 0.996 u	< 0.1162 u	< 0.2279 u	< 1.2161 u	< 0.1181 u	< 1.1231 u	< 1.2052 u	< 0.114 u	< 0.1161 u	< 0.1102 u	< 0.1057 u
2-Nitroaniline	6.30E+02	(2)	8.00E+03	(6)	1.60E+00	(9)	< 1.1346 u	< 1.1304 u	< 0.1318 u	< 0.2587 u	< 1.3802 u	< 0.134 u	< 1.2748 u	< 1.368 u	< 0.1294 u	< 0.1318 u	< 0.125 u	< 0.12 u
2-Nitrophenol	-	-	-	-	-	-	< 0.8962 u	< 0.8929 u	< 0.1041 u	< 0.2044 u	< 1.0902 u	< 0.1059 u	< 1.0069 u	< 1.0805 u	< 0.1022 u	< 0.1041 u	< 0.0988 u	< 0.0948 u
3,3´-Dichlorobenzidine	1.18E+01	(1)	5.70E+01	(4)	1.23E-01	(8)	< 0.7678 u	< 0.765 u	< 0.0892 u	< 0.1751 u	< 0.934 u	< 0.0907 u	< 0.8627 u	< 0.9257 u	< 0.0875 u	< 0.0892 u	< 0.0846 u	< 0.0812 u
3+4-Methylphenol	-	-	-	-	-	-	< 1.0334 u	< 1.0296 u	< 0.1201 u	< 0.2356 u	< 1.2572 u	< 0.1221 u	< 1.1611 u	< 1.246 u	< 0.1178 u	< 0.12 u	< 0.1139 u	< 0.1093 u
3-Nitroaniline	-	-	-	-	-	-	< 0.9607 u	< 0.9572 u	< 0.1116 u	< 0.2191 u	< 1.1687 u	< 0.1135 u	< 1.0794 u	< 1.1583 u	< 0.1095 u	< 0.1116 u	< 0.1059 u	< 0.1016 u
4,6-Dinitro-2-methylphenol	4.93E+00	(1)	2.15E+01	(5)	3.94E-02	(8)	< 0.5422 u	< 0.5402 u	< 0.063 u	< 0.1236 u	< 0.6596 u	< 0.064 u	< 0.6092 u	< 0.6537 u	< 0.0618 u	< 0.063 u	< 0.0598 u	< 0.0573 u
4-Bromophenyl phenyl ether	-	-	-	-	-	-	< 1.0579 u	< 1.054 u	< 0.1229 u	< 0.2412 u	< 1.287 u	< 0.125 u	< 1.1886 u	< 1.2755 u	< 0.1206 u	< 0.1229 u	< 0.1166 u	< 0.1119 u
4-Chloro-3-methylphenol	-	-	-	-	-	-	< 0.9928 u	< 0.9892 u	< 0.1154 u	< 0.2264 u	< 1.2077 u	< 0.1173 u	< 1.1155 u	< 1.197 u	< 0.1132 u	< 0.1153 u	< 0.1094 u	< 0.105 u
4-Chloroaniline	2.70E+01	(3)	1.10E+02	(7)	3.20E-03	(9)	< 0.9221 u	< 0.9187 u	< 0.1072 u	< 0.2103 u	< 1.1218 u	< 0.1089 u	< 1.0361 u	< 1.1118 u	< 0.1051 u	< 0.1071 u	< 0.1016 u	< 0.0975 u
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	< 1.4847 u	< 1.4793 u	< 0.1725 u	< 0.3386 u	< 1.8062 u	< 0.1754 u	< 1.6682 u	< 1.7902 u	< 0.1693 u	< 0.1725 u	< 0.1636 u	< 0.157 u
4-Nitroaniline	2.70E+02	(3)	1.10E+03	(7)	3.20E-02	(9)	< 0.8956 u	< 0.8923 u	< 0.1041 u	< 0.2042 u	< 1.0895 u	< 0.1058 u	< 1.0063 u	< 1.0798 u	< 0.1021 u	< 0.104 u	< 0.0987 u	< 0.0947 u
4-Nitrophenol	-	-	-	-	-	-	< 0.8591 u	< 0.8559 u	< 0.0998 u	< 0.1959 u	< 1.0451 u	< 0.1015 u	< 0.9652 u	< 1.0358 u	< 0.0979 u	< 0.0998 u	< 0.0947 u	< 0.0908 u
Acenaphthene	3.48E+03	(1)	1.51E+04	(5)	8.25E+01	(8)	< 1.215 u	< 1.2106 u	< 0.1412 u	< 0.2771 u	< 1.4781 u	< 0.1435 u	< 1.3652 u	< 1.465 u	< 0.1385 u	< 0.1411 u	< 0.1339 u	< 0.1285 u
Acenaphthylene	-	-	-	-	-	-	< 1.0101 u	< 1.0064 u	< 0.1174 u	< 0.2303 u	< 1.2288 u	< 0.1193 u	< 1.1349 u	< 1.2178 u	< 0.1152 u	< 0.1173 u	< 0.1113 u	< 0.1068 u
Aniline	9.50E+02	(3)	4.00E+03	(7)	9.20E-02	(9)	< 0.8679 u	< 0.8647 u	< 0.1009 u	< 0.1979 u	< 1.0558 u	< 0.1025 u	< 0.9751 u	< 1.0464 u	< 0.0989 u	< 0.1008 u	< 0.0957 u	< 0.0918 u
Anthracene	1.74E+04	(1)	7.53E+04	(5)	8.51E+02	(8)	< 0.847 u	< 0.8439 u	< 0.0984 u	< 0.1931 u	< 1.0304 u	< 0.1 u	< 0.9516 u	< 1.0212 u	< 0.0966 u	< 0.0984 u	< 0.0933 u	< 0.0896 u
Azobenzene	5.60E+01	(3)	2.60E+02	(7)	1.84E+06	(9)	< 1.1178 u	< 1.1137 u	< 0.1299 u	< 0.2549 u	< 1.3598 u	< 0.132 u	< 1.2559 u	< 1.3477 u	< 0.1274 u	< 0.1298 u	< 0.1232 u	< 0.1182 u
Benz(a)anthracene	1.53E+00	(1)	3.23E+01	(4)	1.82E+00	(8)	< 0.7837 u	< 0.7808 u	< 0.0911 u	< 0.1787 u	< 0.9534 u	< 0.0926 u	< 0.8805 u	< 0.9449 u	< 0.0893 u	< 0.091 u	< 0.0864 u	< 0.0829 u
Benzo(a)pyrene	1.53E-01	(1)	3.23E+00	(4)	6.05E-01	(8)	< 1.119 u	< 1.1149 u	< 0.13 u	< 0.2552 u	< 1.3613 u	< 0.1322 u	< 1.2573 u	< 1.3492 u	< 0.1276 u	< 0.13 u	< 0.1233 u	< 0.1183 u
Benzo(b)fluoranthene	1.53E+00	(1)	3.23E+01	(4)	6.17E+00	(8)	< 0.9468 u	< 0.9434 u	< 0.11 u	< 0.2159 u	< 1.1518 u	< 0.1118 u	< 1.0638 u	< 1.1416 u	< 0.1079 u	< 0.11 u	< 0.1044 u	< 0.1001 u
Benzo(g,h,i)perylene	-	-	-	-	-	-	< 1.1347 u	< 1.1305 u	< 0.1318 u	< 0.2587 u	< 1.3803 u	< 0.134 u	< 1.2749 u	< 1.3681 u	< 0.1294 u	< 0.1318 u	< 0.1251 u	< 0.12 u
Benzo(k)fluoranthene	1.53E+01	(1)	3.23E+02	(4)	6.05E+01	(8)	< 1.1268 u	< 1.1227 u	< 0.1309 u	< 0.2569 u	< 1.3708 u	< 0.1331 u	< 1.2661 u	< 1.3586 u	< 0.1285 u	< 0.1309 u	< 0.1242 u	< 0.1192 u
Benzoic acid	2.50E+05	(2)	3.30E+06	(6)	3.60E+02	(9)	< 0.5681 u	< 0.5661 u	< 0.066 u	< 0.1295 u	< 0.6912 u	< 0.0671 u	< 0.6383 u	< 0.685 u	< 0.0648 u	< 0.066 u	< 0.0626 u	< 0.0601 u
Benzyl alcohol	6.30E+03	(2)	8.20E+04	(6)	9.60E+00	(9)	< 0.8857 u	< 0.8824 u	< 0.1029 u	< 0.202 u	< 1.0774 u	< 0.1046 u	< 0.9951 u	< 1.0679 u	< 0.101 u	< 0.1029 u	< 0.0976 u	< 0.0937 u
Bis(2-chloroethoxy)methane	1.90E+02	(2)	2.50E+03	(6)	2.60E-01	(9)	< 0.9516 u	< 0.9482 u	< 0.1106 u	< 0.217 u	< 1.1577 u	< 0.1124 u	< 1.0692 u	< 1.1474 u	< 0.1085 u	< 0.1105 u	< 0.1049 u	< 0.1006 u
Bis(2-chloroethyl)ether	3.11E+00	(1)	1.95E+00	(5)	6.05E-04	(8)	< 0.9852 u	< 0.9816 u	< 0.1145 u	< 0.2247 u	< 1.1986 u	< 0.1164 u	< 1.107 u	< 1.1879 u	< 0.1123 u	< 0.1144 u	< 0.1086 u	< 0.1042 u

Table 7
SWMU 10 Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SWMU 10-9 (2-4')		SWMU 10-9 (4-6')		SWMU 10-9 (18-20')		SWMU 10-10 (2-4')		SWMU 10-10 (4-6')		SWMU 10-10 (18-20')		SWMU 10-11 (4-6')		SWMU 10-11 (8-10')		SWMU 10-11 (18-20')		SWMU 10-12 (6-8')		SWMU 10-12 (20-22')		SWMU 10-13 (2-4')	
							1505057-001		1505057-002		1505057-003		1505058-001		1505058-002		1505058-003		1505570-003		1505570-004		1505570-003		1505617-001		1505617-002		1505617-003	
							4/30/2015		4/30/2015		4/30/2015		4/30/2015		4/30/2015		4/30/2015		5/12/2015		5/12/2015		5/12/2015		5/12/2015		5/12/2015		5/13/2015	
Bis(2-chloroisopropyl)ether	9.93E+01	(1)	5.19E+02	(4)	4.73E-02	(8)	< 0.7617	u	< 0.759	u	< 0.0885	u	< 0.1737	u	< 0.9267	u	< 0.09	u	< 0.8559	u	< 0.9184	u	< 0.0868	u	< 0.0885	u	< 0.084	u	< 0.0806	u
Bis(2-ethylhexyl)phthalate	3.80E+02	(1)	1.83E+03	(4)	2.00E+02	(8)	1.5	J	< 1.1161	u	< 0.1302	u	< 0.2554	u	< 1.3628	u	< 0.1323	u	< 1.2586	u	< 1.3506	u	< 0.1277	u	< 0.1301	u	< 0.1235	u	< 0.1185	u
Butyl benzyl phthalate	2.90E+03	(3)	1.20E+04	(7)	4.60E+00	(9)	< 1.2173	u	< 1.2128	u	< 0.1414	u	< 0.2776	u	< 1.4808	u	< 0.1438	u	< 1.3677	u	< 1.4677	u	< 0.1388	u	< 0.1414	u	< 0.1342	u	< 0.1287	u
Carbazole	-	-	-	-	-	-	< 0.9286	u	< 0.9253	u	< 0.1079	u	< 0.2118	u	< 1.1297	u	< 0.1097	u	< 1.0434	u	< 1.1197	u	< 0.1059	u	< 0.1079	u	< 0.1023	u	< 0.0982	u
Chrysene	1.53E+02	(1)	3.23E+03	(4)	1.86E+02	(8)	< 1.0012	u	< 0.9976	u	< 0.1163	u	< 0.2283	u	< 1.218	u	< 0.1183	u	< 1.1249	u	< 1.2072	u	< 0.1141	u	< 0.1163	u	< 0.1103	u	< 0.1059	u
Dibenz(a,h)anthracene	1.53E-01	(1)	3.23E+00	(4)	6.11E+00	(8)	< 1.0802	u	< 1.0763	u	< 0.1255	u	< 0.2463	u	< 1.3141	u	< 0.1276	u	< 1.2137	u	< 1.3025	u	< 0.1232	u	< 0.1255	u	< 0.1191	u	< 0.1142	u
Dibenzofuran	-	-	-	-	-	-	< 1.0664	u	< 1.0625	u	< 0.1239	u	< 0.2432	u	< 1.2973	u	< 0.126	u	< 1.1981	u	< 1.2857	u	< 0.1216	u	< 0.1239	u	< 0.1175	u	< 0.1128	u
Diethyl phthalate	4.93E+04	(1)	2.15E+05	(5)	9.79E+01	(8)	< 1.1316	u	< 1.1275	u	< 0.1315	u	< 0.258	u	< 1.3766	u	< 0.1337	u	< 1.2714	u	< 1.3644	u	< 0.129	u	< 0.1314	u	< 0.1247	u	< 0.1197	u
Dimethyl phthalate	6.11E+05	(1)	2.38E+06	(5)	1.61E+03	(8)	< 0.9176	u	< 0.9143	u	< 0.1066	u	< 0.2092	u	< 1.1163	u	< 0.1084	u	< 1.031	u	< 1.1064	u	< 0.1046	u	< 0.1066	u	< 0.1011	u	< 0.097	u
Di-n-butyl phthalate	6.16E+03	(1)	2.69E+04	(5)	3.38E+01	(8)	< 1.1276	u	< 1.1235	u	< 0.131	u	< 0.2571	u	< 1.3718	u	< 0.1332	u	< 1.267	u	< 1.3596	u	< 0.1286	u	< 0.131	u	< 0.1243	u	< 0.1192	u
Di-n-octyl phthalate	-	-	-	-	-	-	< 1.11	u	< 1.1059	u	< 0.129	u	< 0.2531	u	< 1.3503	u	< 0.1311	u	< 1.2472	u	< 1.3383	u	< 0.1266	u	< 0.1289	u	< 0.1223	u	< 0.1174	u
Fluoranthene	2.32E+03	(1)	1.00E+04	(5)	1.34E+03	(8)	< 1.2099	u	< 1.2055	u	< 0.1406	u	< 0.2759	u	< 1.4719	u	< 0.1429	u	< 1.3595	u	< 1.4588	u	< 0.1379	u	< 0.1405	u	< 0.1334	u	< 0.128	u
Fluorene	2.32E+03	(1)	1.00E+04	(5)	8.00E+01	(8)	< 1.3574	u	< 1.3524	u	< 0.1577	u	< 0.3095	u	2.2	J	< 0.1603	u	1.8	J	< 1.6366	u	< 0.1548	u	< 0.1577	u	< 0.1496	u	< 0.1435	u
Hexachlorobenzene	3.33E+00	(1)	1.60E+01	(4)	9.22E-02	(8)	< 0.9411	u	< 0.9376	u	< 0.1094	u	< 0.2146	u	< 1.1448	u	< 0.1112	u	< 1.0574	u	< 1.1347	u	< 0.1073	u	< 0.1093	u	< 0.1037	u	< 0.0995	u
Hexachlorobutadiene	6.16E+01	(1)	2.69E+02	(5)	8.79E-02	(8)	< 0.9865	u	< 0.9829	u	< 0.1146	u	< 0.2249	u	< 1.2001	u	< 0.1165	u	< 1.1084	u	< 1.1894	u	< 0.1125	u	< 0.1146	u	< 0.1087	u	< 0.1043	u
Hexachlorocyclopentadiene	3.70E+02	(1)	8.67E+02	(5)	1.34E+00	(8)	< 0.6916	u	< 0.6891	u	< 0.0804	u	< 0.1577	u	< 0.8413	u	< 0.0817	u	< 0.777	u	< 0.8339	u	< 0.0788	u	< 0.0803	u	< 0.0762	u	< 0.0731	u
Hexachloroethane	4.31E+01	(1)	1.88E+02	(5)	6.62E-02	(8)	< 0.8875	u	< 0.8843	u	< 0.1031	u	< 0.2024	u	< 1.0797	u	< 0.1048	u	< 0.9972	u	< 1.0701	u	< 0.1012	u	< 0.1031	u	< 0.0978	u	< 0.0939	u
Indeno(1,2,3-cd)pyrene	1.53E+00	(1)	3.23E+01	(4)	2.01E+01	(8)	< 1.1331	u	< 1.129	u	< 0.1317	u	< 0.2584	u	< 1.3785	u	< 0.1338	u	< 1.2731	u	< 1.3662	u	< 0.1292	u	< 0.1316	u	< 0.1249	u	< 0.1198	u
Isophorone	5.61E+03	(1)	2.70E+04	(4)	4.22E+00	(8)	< 1.0631	u	< 1.0592	u	< 0.1235	u	< 0.2424	u	< 1.2933	u	< 0.1256	u	< 1.1944	u	< 1.2817	u	< 0.1212	u	< 0.1235	u	< 0.1172	u	< 0.1124	u
Naphthalene	4.97E+01	(1)	1.59E+02	(5)	8.23E-02	(8)	< 0.9487	u	< 0.9453	u	< 0.1102	u	< 0.2163	u	5.9	v	< 0.1121	u	5.3	v	1.2	J	< 0.1082	u	< 0.1102	u	< 0.1046	u	< 0.1003	u
Nitrobenzene	6.04E+01	(1)	2.93E+02	(4)	1.44E-02	(8)	< 1.0266	u	< 1.0228	u	< 0.1193	u	< 0.2341	u	< 1.2489	u	< 0.1213	u	< 1.1534	u	< 1.2378	u	< 0.117	u	< 0.1192	u	< 0.1131	u	< 0.1086	u
N-Nitrosodi-n-propylamine	7.80E-01	(3)	3.30E+00	(7)	1.62E-04	(9)	< 1.0335	u	< 1.0297	u	< 0.1201	u	< 0.2357	u	< 1.2573	u	< 0.1221	u	< 1.1612	u	< 1.2461	u	< 0.1178	u	< 0.12	u	< 0.1139	u	< 0.1093	u
N-Nitrosodiphenylamine	7.94E-03	(1)	1.71E-01	(4)	9.84E-06	(8)	< 0.8927	u	< 0.8894	u	< 0.1037	u	< 0.2036	u	< 1.086	u	< 0.1054	u	< 1.003	u	< 1.0763	u	< 0.1018	u	< 0.1037	u	< 0.0984	u	< 0.0944	u
Pentachlorophenol	9.85E+00	(1)	4.45E+01	(4)	6.08E-02	(8)	< 0.6225	u	< 0.6203	u	< 0.0723	u	< 0.142	u	< 0.7573	u	< 0.0735	u	< 0.6995	u	< 0.7506	u	< 0.071	u	< 0.0723	u	< 0.0686	u	< 0.0658	u
Phenanthrene	1.74E+03	(1)	7.53E+03	(5)	8.59E+01	(8)	< 1.0431	u	< 1.0393	u	< 0.1212	u	< 0.2379	u	4.1	v	< 0.1232	u	3.6	v	< 1.2577	u	< 0.1189	u	< 0.1212	u	< 0.115	u	< 0.1103	u
Phenol	1.83E+04	(1)	7.74E+04	(5)	5.23E+01	(8)	< 0.8936	u	< 0.8903	u	< 0.1038	u	< 0.2038	u	< 1.0871	u	< 0.1055	u	< 1.004	u	< 1.0774	u	< 0.1019	u	< 0.1038	u	< 0.0985	u	< 0.0945	u
Pyrene	1.74E+03	(1)	7.53E+03	(5)	1.92E+02	(8)	< 1.2868	u	< 1.2822	u	< 0.1495	u	< 0.2934	u	< 1.5655	u	< 0.152	u	< 1.4459	u	< 1.5516	u	< 0.1467	u	< 0.1495	u	< 0.1418	u	< 0.1361	u
Pyridine	7.80E+01	(2)	1.20E+03	(6)	1.36E-01	(9)	< 0.8378	u	< 0.8348	u	< 0.0974	u	< 0.191	u	< 1.0193	u	< 0.099	u	< 0.9414	u	< 1.0102	u	< 0.0955	u	< 0.0973	u	< 0.0923	u	< 0.0886	u
Total Petroleum Hydrocarbons (mg/kg)																														
Gasoline Range Organics (GRO)	-		-		-		< 1	u	12	J	< 1	u	< 1	u	560	v	< 1	u	40	v	68	v	< 1	u	< 1	u	2.4	J	< 1	u
Diesel Range Organics (DRO)	1.00E+03	(11)	3.80E+03	(11)	-		210	v	300	v	< 6.2	u	59	v	**8900**	v	< 5	u	**3800**	v	870	v	< 6.4	u	< 5	u	< 6	u	< 5	u
Motor Oil Range Organics (MRO)	1.00E+03	(11)	3.80E+03	(11)	-		170	v	120	v	< 56	u	98	v	**1600**	v	< 50	u	680	v	280	v	< 58	u	< 50	u	< 50	u	< 48	u

- No screening level or analytical result available
NMED - Risk Assessment Guidance for Site Investigations and Remediation (Dec. 2014)
EPA - Regional Screening Levels (Nov 2015)
(1) NMED Residential Screening Level
(2) EPA Residential Screening Level
(3) EPA Residential - Screening Levels (June 2015) multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Closure Permit because the constituent is listed as carcinogenic
(4) NMED Industrial Occupational Screening Level
(5) NMED Construction Worker Screening Level
(6) EPA Industrial - Screening Levels (June 2015)
(7) EPA Industrial - Screening Levels June 2015) multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Clousre Permit because the constituent is listed as carcinogenic
(8) SoilGW NMED Dilution Attenuation Factor (DAF) = 20
(9) SoilGW Risk-based EPA DAF = 20
(10) SoilGW MCL-based EPA DAF = 20
(11) NMED Table 6-2 TPH Soil Screening Levels "uknown oil" with DAF = 1.0 - see report Section 5 for use of screening levels

Bold represents value above Non-Residential Screening Level
yellow highlight represents value above Leachate (DAF) Screening Level
Bold with yellow highlight value exceeds Non-Residential Screening Level and DAF

* - sample reanalyzed for hexavalent chromium, see amended lab report #1505223
** - sample reanalyzed for hexavalent chromium, see lab report #1505003

Table 7
SWMU 10 Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SWMU 10-13 (6-8')		SWMU 10-13 (18-20')		SWMU 10-14 (6-8')		SWMU 10-14 (21-23')		SWMU 10-15 (2-4')		SWMU 10-15 (4-6')		SWMU 10-15 (18-20')		SWMU 10-16 (2-4')		SWMU 10-16 (4-5.5')		SWMU 10-16 (8-9')		SWMU 10-17 (6-8')	
							1505617-004		1505617-005		1505570-001		1505570-002		1505617-006		1505617-007		1505617-008		1505705-001		1505705-002		1505705-003		1505617-009	
							5/13/2015		5/13/2015		5/12/2015		5/12/2015		5/13/2015		5/13/2015		5/13/2015		5/13/2015		5/13/2015		5/13/2015		5/13/2015	
Metals (mg/kg)																												
Antimony	3.13E+01	(1)	1.42E+02	(5)	6.56E+00	(8)	< 3.1409	u	< 2.8483	u	< 3.0545	u	< 7.0836	u	< 1.6215	u	< 1.4891	u	< 2.8183	u	< 1.4809	u	< 1.4396	u	< 1.4877	u	< 3.0564	u
Arsenic	4.25E+00	(1)	2.15E+01	(4)	2.99E-01	(8)	1.3	J	1.2	J	0.87	J	1.1	J	1.1	J	1.3	J	2.1	J	1.8	J	1.4	J	1.3	J	1.5	J
Barium	1.56E+04	(1)	4.35E+03	(5)	2.70E+03	(8)	200	v	110	v	160	v	220	v	52	v	120	v	850	v	500	v	430	v	55	v	200	v
Beryllium	1.56E+02	(1)	1.48E+02	(5)	1.96E+02	(8)	1.2	v	1.1	v	0.78	v	0.79	v	1	v	1	v	1	v	0.79	v	0.73	v	0.78	v	1	v
Cadmium	7.05E+01	(1)	7.21E+01	(5)	9.39E+00	(8)	< 0.0332	u	< 0.0301	u	< 0.0322	u	< 0.0299	u	< 0.0342	u	< 0.0314	u	< 0.0297	u	< 0.0313	u	< 0.0304	u	< 0.0314	u	< 0.0323	u
Chromium	9.66E+01	(1)	1.34E+02	(5)	2.01E+05	(8)	11	v	15	v	7	v	8.9	v	9.2	v	9.1	v	13	v	9.3	v	8.8	v	10	v	11	v
Hexavalent Chromium	3.05E+00	(1)	6.69E+01	(5)	9.68E-02	(8)	< 2.3615	u	< 2.1997	u	< 2.2523	u	< 2.2093	u	< 2.3898	u	< 2.3405	u	< 2.1714	u	< 0.7191	u	< 0.7103	u	< 0.7148	u	< 2.2901	u
Cobalt	2.30E+01	(2)	3.50E+02	(6)	5.40E+00	(9)	5.9	v	6.3	v	4.5	v	5	v	4.7	v	4.6	v	7.4	v	4.4	v	4.2	v	5.7	v	5.3	v
Cyanide	1.12E+01	(1)	1.21E+01	(5)	5.22E-03	(8)	< 0.2952	u	< 0.275	u	< 0.2815	u	< 0.2762	u	< 0.2987	u	< 0.2926	u	< 0.2714	u	< 0.0438	u	< 0.0433	u	< 0.0436	u	< 0.2863	u
Iron	5.50E+04	(2)	8.20E+05	(6)	7.00E+03	(9)	18000	v	23000	v	11000	v	15000	v	15000	v	17000	v	20000	v	15000	v	15000	v	17000	v	16000	v
Lead	4.00E+02	(1)	8.00E+02	(4)	2.80E+02	(10)	5.2	v	2.3	v	3.6	v	3.6	v	5.1	v	3.7	v	1.8	v	2.9	v	3	v	3.3	v	4.4	v
Manganese	1.80E+03	(2)	2.60E+04	(6)	5.60E+02	(9)	190	v	430	v	430	v	410	v	490	v	200	v	980	v	460	v	240	v	810	v	210	v
Mercury	2.38E+01	(1)	2.07E+01	(5)	6.54E-01	(8)	< 0.0034	u	< 0.0031	u	0.0046	J	0.0032	J	< 0.0033	u	< 0.0032	u	< 0.0031	u	0.0048	J	0.0037	J	0.0054	J	< 0.0031	u
Nickel	1.56E+03	(1)	6.19E+03	(5)	4.85E+02	(8)	11	v	15	v	7.1	v	11	v	8.7	v	8.3	v	15	v	7.7	v	7.2	v	10	v	9.6	v
Selenium	3.91E+02	(1)	1.75E+03	(5)	1.02E+01	(8)	< 1.8287	u	< 1.6583	u	< 1.7784	u	< 1.6497	u	< 1.8882	u	< 1.734	u	< 1.6409	u	< 1.7245	u	< 1.6763	u	< 1.7324	u	< 1.7795	u
Silver	3.91E+02	(1)	1.77E+03	(5)	1.38E+01	(8)	< 0.0355	u	< 0.0322	u	< 0.0346	u	< 0.0321	u	< 0.0367	u	< 0.0337	u	< 0.0319	u	< 0.0335	u	< 0.0326	u	< 0.0337	u	< 0.0346	u
Vanadium	3.94E+02	(1)	6.14E+02	(5)	1.26E+03	(8)	19	v	15	v	13	v	7.3	v	17	v	15	v	21	v	21	v	22	v	20	v	19	v
Zinc	2.35E+04	(1)	1.06E+05	(5)	7.41E+03	(8)	17	v	21	v	14	v	16	v	15	v	15	v	23	v	15	v	14	v	18	v	17	v
Volatiles (mg/kg)																												
1,1,1,2-Tetrachloroethane	2.81E+01	(1)	1.37E+02	(4)	3.59E-02	(8)	< 0.0028	u	< 0.0004	u	< 0.0023	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.052	u
1,1,1-Trichloroethane	1.44E+04	(1)	1.36E+04	(5)	5.11E+01	(8)	< 0.0051	u	< 0.0003	u	< 0.0043	u	< 0.0003	u	< 0.0003	u	< 0.0002	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0964	u
1,1,2,2-Tetrachloroethane	7.98E+00	(1)	3.94E+01	(4)	4.80E-03	(8)	< 0.0409	u	< 0.0005	u	< 0.0034	u	< 0.0005	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0005	u	< 0.0004	u	< 0.0004	u	< 0.0769	u
1,1,2-Trichloroethane	2.61E+00	(1)	2.30E+00	(5)	2.23E-03	(8)	< 0.0041	u	< 0.0023	u	< 0.0034	u	< 0.0022	u	< 0.0019	u	< 0.0017	u	< 0.0022	u	< 0.0021	u	< 0.0019	u	< 0.0018	u	< 0.0763	u
1,1-Dichloroethane	7.86E+01	(1)	3.83E+02	(4)	1.36E-01	(8)	< 0.0135	u	< 0.0005	u	< 0.0113	u	< 0.0005	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0005	u	< 0.0004	u	< 0.0004	u	< 0.2539	u
1,1-Dichloroethene	4.40E+02	(1)	4.24E+02	(5)	1.95E+00	(8)	< 0.0023	u	< 0.0004	u	< 0.002	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0437	u
1,1-Dichloropropene	-	-	-	-	-	-	< 0.005	u	< 0.0004	u	< 0.0042	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0945	u
1,2,3-Trichlorobenzene	6.30E+01	(2)	9.30E+02	(6)	4.20E-01	(9)	< 0.072	u	< 0.0008	u	< 0.006	u	< 0.0008	u	< 0.0007	u	< 0.0006	u	< 0.0008	u	< 0.0008	u	< 0.0007	u	< 0.0007	u	< 0.1355	u
1,2,3-Trichloropropane	5.10E-02	(1)	1.21E+00	(4)	5.21E-05	(8)	< 0.0566	u	< 0.0008	u	< 0.0048	u	< 0.0008	u	< 0.0007	u	< 0.0006	u	< 0.0008	u	< 0.0007	u	< 0.0007	u	< 0.0006	u	< 0.1065	u
1,2,4-Trichlorobenzene	8.29E+01	(1)	7.91E+01	(5)	1.76E-01	(8)	< 0.06224	u	< 0.00084	u	< 0.00522	u	< 0.00082	u	< 0.00071	u	< 0.00064	u	< 0.00083	u	< 0.00077	u	< 0.00071	u	< 0.00067	u	< 0.11712	u
1,2,4-Trimethylbenzene	5.80E+01	(2)	2.40E+02	(6)	4.20E-01	(9)	5.2	v	0.0023	v	< 0.0014	u	0.00376	v	< 0.0005	u	< 0.0004	u	0.00497	v	< 0.0005	u	< 0.0005	u	0.00269	v	27	v
1,2-Dibromo-3-chloropropane	8.58E-02	(1)	1.18E+00	(4)	2.34E-05	(8)	< 0.0579	u	< 0.0007	u	< 0.0049	u	< 0.0007	u	< 0.0006	u	< 0.0005	u	< 0.0007	u	< 0.0006	u	< 0.0006	u	< 0.0005	u	< 0.109	u
1,2-Dibromoethane (EDB)	6.72E-01	(1)	3.31E+00	(4)	3.52E-04	(8)	< 0.0027	u	< 0.0003	u	< 0.0023	u	< 0.0003	u	< 0.0002	u	< 0.0002	u	< 0.0003	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0506	u
1,2-Dichlorobenzene	2.15E+03	(1)	2.50E+03	(5)	4.58E+00	(8)	< 0.02034	u	< 0.0005	u	< 0.0017	u	< 0.00049	u	< 0.00042	u	< 0.00037	u	< 0.00049	u	< 0.00045	u	< 0.00042	u	< 0.00039	u	< 0.03828	u
1,2-Dichloroethane (EDC)	8.32E+00	(1)	4.07E+01	(4)	8.14E-03	(8)	< 0.0135	u	< 0.0006	u	< 0.0113	u	< 0.0006	u	< 0.0005	u	< 0.0005	u	< 0.0006	u	< 0.0006	u	< 0.0005	u	< 0.0005	u	< 0.2539	u
1,2-Dichloropropane	1.78E+01	(1)	2.54E+01	(5)	2.43E-02	(8)	< 0.0019	u	< 0.0005	u	< 0.0016	u	< 0.0005	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.0355	u
1,3,5-Trimethylbenzene	7.80E+02	(2)	1.20E+04	(6)	3.40E+00	(9)	1.9	v	0.00154	J	< 0.0019	u	0.00233	v	< 0.0003	u	< 0.0003	u	0.00318	v	< 0.0004	u	< 0.0003	u	0.0017	J	10	v
1,3-Dichlorobenzene	-	-	-	-	-	-	< 0.03972	u	< 0.00038	u	< 0.00333	u	< 0.00037	u	< 0.00032	u	< 0.00028	u	< 0.00037	u	< 0.00035	u	< 0.00032	u	< 0.0003	u	< 0.07473	u
1,3-Dichloropropane	1.60E+03	(2)	2.30E+04	(6)	2.60E+00	(9)	< 0.0046	u	< 0.0004	u	< 0.0039	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0874	u
1,4-Dichlorobenzene	3.28E+01	(1)	1.59E+02	(4)	7.20E-02	(8)	< 0.04201	u	< 0.00035	u	< 0.00352	u	< 0.00034	u	< 0.0003	u	< 0.00026	u	< 0.00034	u	< 0.00032	u	< 0.00029	u	< 0.00028	u	< 0.07905	u
1-Methylnaphthalene	1.80E+02	(3)	7.30E+02	(7)	1.16E-01	(9)	11	v	< 0.00088	u	< 0.01699	u	< 0.00086	u	< 0.00075	u	< 0.00067	u	< 0.00087	u	< 0.00081	u	< 0.00075	u	< 0.0007	u	48	v
2,2-Dichloropropane	-	-	-	-	-	-	< 0.0049	u	< 0.0004	u	< 0.0041	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0924	u
2-Butanone	3.74E+04	(1)	9.17E+04	(5)	2.01E+01	(8)	< 0.0217	u	0.00181	J	< 0.0182	u	< 0.0007	u	< 0.0006	u	0.00114	J	0.00227	J	0.00304	J	0.00146	J	0.00173	J	< 0.4081	u
2-Chlorotoluene	1.56E+03	(1)	7.08E+03	(5)	3.56E+00	(8)	< 0.0381	u	< 0.0004	u	< 0.0032	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.0717	u
2-Hexanone	2.00E+02	(2)	1.30E+03	(6)	1.76E-01	(9)	< 0.0083	u	< 0.0005	u	< 0.007	u	< 0.0005	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	0.000787	J	0.000669	J	< 0.0004	u	< 0.1561	u
2-Methylnaphthalene	2.40E+02	(2)	3.00E+03	(6)	3.80E+00	(9)	20	v	< 0.00088	u	< 0.01863	u	< 0.00086	u	< 0.00074	u	< 0.00066	u	< 0.00086	u	< 0.0008	u	< 0.00074	u	< 0.0007	u	87	v
4-Chlorotoluene	1.60E+03	(2)	2.30E+04	(6)	4.80E+00	(9)	< 0.0255	u	< 0.0004	u	< 0.0021	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.048	u
4-Isopropyltoluene	-	-	-	-	-	-	0.37	v	< 0.0009	u	< 0.002	u	< 0.0009	u	< 0.0007	u	< 0.0007	u	< 0.0009	u	< 0.0008	u	< 0.0007	u	< 0.0007	u	1.6	v
4-Methyl-2-pentanone	5.81E+03	(1)	2.02E+04	(5)	4.80E+00	(8)	< 0.0059	u	< 0.001	u	< 0.0049	u	< 0.0009	u	< 0.0008	u	< 0.0007	u	< 0.0009	u	< 0.0009	u	< 0.0008	u	< 0.0008	u	< 0.1101	u
Acetone	6.63E+04	(1)	2.42E+05	(5)	4.98E+01	(8)	< 0.0252	u	0.00217	J	0.054	J	0.00282	J	0.00666	J	0.0032	J	0.00238	J	0.0254	v	0.00651	J	0.00313	J	< 0.4733	u
Benzene	1.78E+01	(1)	8.72E+01	(4)	3.80E-02	(8)	< 0.005	u	0.0194	v	< 0.0042	u	0.0224	v	0.00119	J	0.00144	J	0.0292	v	0.00112	J	0.00221	v	0.0176	v	1.9	v
Bromobenzene	2.90E+02	(2)	1.80E+03	(6)	8.40E-01	(9)	< 0.025	u	< 0.0006	u	< 0.0021	u	< 0.0006	u	< 0.0005	u	< 0.0005	u	< 0.0006	u	< 0.0006	u	< 0.0005	u	< 0.0005	u	< 0.0471	u
Bromodichloromethane	6.19E+00	(1)	3.02E+01	(4)	6.21E-03	(8)	< 0.0028	u	< 0.0003	u	< 0.0023	u	< 0.0003	u	< 0.0003	u	< 0.0002	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0002	u	< 0.0519	u
Bromoform	6.74E+02	(1)	3.25E+03	(4)	4.11E-01	(8)	< 0.0271	u	< 0.0006	u	< 0.0023	u	< 0.0006	u	< 0.0005	u	< 0.0004	u	< 0.0006	u	< 0.0005	u	< 0.0005	u	< 0.0005	u	< 0.051	u
Bromomethane	1.77E+01	(1)	1.79E+01	(5)	3.43E-02	(8)	0.023	J	< 0.0013	u	0.023	J	< 0.0013	u	< 0.0011	u	< 0.001	u	< 0.0013	u	< 0.0012	u	< 0.0011	u	< 0.0011	u	< 0.1225	u
Carbon disulfide	1.55E+03	(1)	1.62E+03	(5)	4.42E+00	(8)	< 0.0243	u	< 0.001	u	< 0.0204	u	< 0.001	u	0.000968	J	< 0.0008	u	< 0.001	u	< 0.0009	u	< 0.0009	u	< 0.0008	u	< 0.4567	u
Carbon tetrachloride	1.07E+01	(1)	5.25E+01	(4)	3.33E-02	(8)	< 0.0033	u	< 0.0004	u	< 0.0028	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0618	u
Chlorobenzene	3.78E+02	(1)	4.12E+02	(5)	8.36E-01	(8)	< 0.0026	u	< 0.0002	u	< 0.0022	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0489	u
Chloroethane	1.90E+04	(1)	1.66E+04	(5)	1.07E+02	(8)	< 0.0261	u	< 0.0023	u	< 0.0219	u	< 0.0022	u	< 0.0019	u	< 0.0017	u	< 0.0022	u	< 0.0021	u	< 0.0019	u	< 0.0018	u	< 0.4913	u
Chloroform	5.90E+00	(1)	2.87E+01	(4)	1.09E-02	(8)	< 0.0035	u	< 0.0005	u	< 0.003	u	< 0.0005	u	< 0.0004	u	< 0.0004	u	< 0.0005	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.0662	u
Chloromethane	4.11E+01	(1)	2.01E+02	(4)	9.51E-02	(8)	< 0.0039	u	< 0.0003	u	< 0.0033	u	< 0.0003	u	< 0.0002	u	< 0.0002	u	< 0.0003	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0735	u
cis-1,2-DCE	1.56E+02	(1)	7.08E+02	(5)	1.84E-01	(8)	< 0.0043	u	< 0.0006	u	< 0.0036	u	< 0.0006	u	< 0.0005	u	< 0.0005	u	< 0.0006	u	< 0.0005	u	< 0.0005	u	< 0.0005	u	< 0.0803	u
cis-1,3-Dichloropropene	2.93E+01	(1)	1.30E+02	(5)	2.80E-02	(8)	< 0.0023	u	< 0.0023	u	< 0.002	u	< 0.0022	u	< 0.0019	u	< 0.0017	u	< 0.0022	u	< 0.0021	u	< 0.0019	u	< 0.0018	u	< 0.044	u
Dibromochloromethane	1.39E+01	(1)	6.74E+01	(4)	7.54E-03	(8)	< 0.0025	u	< 0.0003	u	< 0.0021	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.0476	u

Table 7
SWMU 10 Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SWMU 10-13 (6-8')		SWMU 10-13 (18-20')		SWMU 10-14 (6-8')		SWMU 10-14 (21-23')		SWMU 10-15 (2-4')		SWMU 10-15 (4-6')		SWMU 10-15 (18-20')		SWMU 10-16 (2-4')		SWMU 10-16 (4-5.5')		SWMU 10-16 (8-9')		SWMU 10-17 (6-8')	
							1505617-004		1505617-005		1505570-001		1505570-002		1505617-006		1505617-007		1505617-008		1505705-001		1505705-002		1505705-003		1505617-009	
							5/13/2015		5/13/2015		5/12/2015		5/12/2015		5/13/2015		5/13/2015		5/13/2015		5/13/2015		5/13/2015		5/13/2015		5/13/2015	
Dibromomethane	2.30E+01	(2)	9.80E+01	(6)	4.00E-02	(9)	< 0.0036	u	< 0.0013	u	< 0.003	u	< 0.0013	u	< 0.0011	u	< 0.001	u	< 0.0013	u	< 0.0012	u	< 0.0011	u	< 0.001	u	< 0.0668	u
Dichlorodifluoromethane	1.82E+02	(1)	1.61E+02	(5)	7.23E+00	(8)	< 0.0085	u	< 0.0009	u	< 0.0071	u	< 0.0009	u	< 0.0008	u	< 0.0007	u	< 0.0009	u	< 0.0008	u	< 0.0008	u	< 0.0007	u	< 0.1596	u
Ethylbenzene	7.51E+01	(1)	3.68E+02	(4)	2.62E-01	(8)	1.3	v	0.00216	J	< 0.0026	u	0.00331	v	0.000345	J	0.000367	J	0.00472	v	< 0.0003	u	0.000401	J	0.00347	v	11	v
Hexachlorobutadiene	6.16E+01	(1)	2.69E+02	(5)	8.79E-02	(8)	< 0.04684	u	< 0.00045	u	< 0.00393	u	< 0.00044	u	< 0.00038	u	< 0.00034	u	< 0.00044	u	< 0.00041	u	< 0.00038	u	< 0.00036	u	< 0.08814	u
Isopropylbenzene	2.36E+03	(1)	2.74E+03	(5)	1.14E+01	(8)	0.67	v	< 0.0005	u	< 0.0024	u	0.000543	J	< 0.0004	u	< 0.0004	u	0.000689	J	< 0.0005	u	< 0.0004	u	0.000539	J	3.1	v
Methyl tert-butyl ether (MTBE)	9.75E+02	(1)	4.82E+03	(4)	5.53E-01	(8)	< 0.0048	u	< 0.0009	u	< 0.004	u	< 0.0009	u	0.00478	v	0.00936	v	< 0.0009	u	< 0.0009	u	< 0.0008	u	< 0.0008	u	< 0.0898	u
Methylene chloride	4.09E+02	(1)	1.21E+03	(5)	4.71E-01	(8)	< 0.0135	u	0.000655	J	< 0.0113	u	< 0.0005	u	0.000498	J	< 0.0004	u	< 0.0005	u	< 0.0005	u	0.000506	J	0.000611	J	< 0.2539	u
Naphthalene	4.97E+01	(1)	1.59E+02	(5)	8.23E-02	(8)	3.8	v	0.000791	J	< 0.00674	u	0.00101	J	< 0.00062	u	< 0.00055	u	0.00109	J	< 0.00067	u	< 0.00062	u	0.000845	J	20	v
n-Butylbenzene	3.90E+03	(2)	5.80E+04	(6)	6.40E+01	(9)	0.58	J	< 0.0009	u	< 0.0024	u	< 0.0009	u	< 0.0008	u	< 0.0007	u	< 0.0009	u	< 0.0008	u	< 0.0008	u	< 0.0007	u	2.8	v
n-Propylbenzene	3.80E+03	(2)	2.40E+04	(6)	2.40E+01	(9)	0.86	v	< 0.0004	u	< 0.0021	u	0.000587	J	< 0.0004	u	< 0.0003	u	0.000889	J	< 0.0004	u	< 0.0004	u	0.000494	J	5.2	v
sec-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	1.18E+02	(9)	0.36	v	0.000813	J	0.0097	J	0.000853	J	0.000632	J	0.000564	J	0.000889	J	< 0.0005	u	< 0.0005	u	0.000683	J	1.8	v
Styrene	7.26E+03	(1)	1.02E+04	(5)	2.06E+01	(8)	< 0.0062	u	< 0.0004	u	< 0.0052	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.1165	u
tert-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	3.20E+01	(9)	< 0.0386	u	< 0.0003	u	< 0.0032	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0727	u
Tetrachloroethene (PCE)	1.11E+02	(1)	1.20E+02	(5)	3.21E-01	(8)	< 0.0029	u	< 0.0004	u	< 0.0025	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.055	u
Toluene	5.23E+03	(1)	1.40E+04	(5)	1.21E+01	(8)	0.11	v	0.00936	v	< 0.0034	u	0.0147	v	0.00109	J	0.0012	J	0.0204	v	0.00104	J	0.00151	J	0.0135	v	34	v
trans-1,2-DCE	2.95E+02	(1)	3.05E+02	(5)	4.69E-01	(8)	< 0.0022	u	< 0.0004	u	< 0.0018	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0004	u	< 0.0003	u	< 0.0003	u	< 0.0003	u	< 0.0412	u
trans-1,3-Dichloropropene	2.93E+01	(1)	1.30E+02	(5)	2.80E-02	(8)	< 0.0061	u	< 0.0003	u	< 0.0051	u	< 0.0003	u	< 0.0003	u	< 0.0002	u	< 0.0003	u	< 0.0003	u	< 0.0002	u	< 0.0002	u	< 0.1143	u
Trichloroethene (TCE)	6.77E+00	(1)	6.90E+00	(5)	1.75E-02	(8)	< 0.0033	u	< 0.0004	u	< 0.0028	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.0618	u
Trichlorofluoromethane	1.23E+03	(1)	1.13E+03	(5)	1.57E+01	(8)	< 0.0102	u	< 0.0005	u	< 0.0086	u	< 0.0004	u	< 0.0004	u	< 0.0003	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.0004	u	< 0.1916	u
Vinyl chloride	7.42E-01	(1)	2.84E+01	(4)	1.35E-03	(8)	< 0.0135	u	< 0.0003	u	< 0.0113	u	< 0.0003	u	< 0.0002	u	< 0.0002	u	< 0.0003	u	< 0.0002	u	< 0.0002	u	< 0.0002	u	< 0.2539	u
Xylenes, Total	8.71E+02	(1)	7.98E+02	(5)	2.98E+00	(8)	5	v	0.00769	v	< 0.0079	u	0.0115	v	0.00141	J	0.00123	J	0.0155	v	< 0.0012	u	< 0.0011	u	0.00946	v	86	v
Semi-volatiles (mg/kg)																												
1,2,4-Trichlorobenzene	8.29E+01	(1)	7.91E+01	(5)	1.76E-01	(8)	< 0.1208	u	< 0.1121	u	< 0.1148	u	< 0.1127	u	< 0.1216	u	< 0.12	u	< 0.1103	u	< 0.1145	u	< 0.1129	u	< 0.1144	u	< 1.1687	u
1,2-Dichlorobenzene	2.15E+03	(1)	2.50E+03	(5)	4.58E+00	(8)	< 0.1128	u	< 0.1048	u	< 0.1072	u	< 0.1053	u	< 0.1136	u	< 0.1121	u	< 0.103	u	< 0.107	u	< 0.1055	u	< 0.1069	u	< 1.0921	u
1,3-Dichlorobenzene	-	-	-	-	-	-	< 0.1048	u	< 0.0973	u	< 0.0996	u	< 0.0978	u	< 0.1055	u	< 0.1041	u	< 0.0957	u	< 0.0994	u	< 0.098	u	< 0.0992	u	< 1.0141	u
1,4-Dichlorobenzene	3.28E+01	(1)	1.59E+02	(4)	7.20E-02	(8)	< 0.1234	u	< 0.1146	u	< 0.1173	u	< 0.1152	u	< 0.1242	u	< 0.1226	u	< 0.1127	u	< 0.117	u	< 0.1154	u	< 0.1169	u	< 1.1942	u
1-Methylnaphthalene	1.80E+02	(3)	7.30E+02	(7)	1.16E-01	(9)	12	v	< 0.1015	u	< 0.1039	u	< 0.1021	u	< 0.1101	u	< 0.1087	u	< 0.0998	u	< 0.1037	u	< 0.1023	u	< 0.1036	u	76	v
2,4,5-Trichlorophenol	6.16E+03	(1)	2.69E+04	(5)	6.62E+01	(8)	< 0.1375	u	< 0.1277	u	< 0.1306	u	< 0.1283	u	< 0.1384	u	< 0.1366	u	< 0.1255	u	< 0.1304	u	< 0.1286	u	< 0.1302	u	< 1.3305	u
2,4,6-Trichlorophenol	6.16E+01	(1)	2.69E+02	(5)	6.74E-01	(8)	< 0.1364	u	< 0.1267	u	< 0.1296	u	< 0.1273	u	< 0.1373	u	< 0.1355	u	< 0.1245	u	< 0.1293	u	< 0.1275	u	< 0.1292	u	< 1.32	u
2,4-Dichlorophenol	1.85E+02	(1)	8.07E+02	(5)	8.25E-01	(8)	< 0.118	u	< 0.1096	u	< 0.1121	u	< 0.1101	u	< 0.1187	u	< 0.1172	u	< 0.1077	u	< 0.1119	u	< 0.1103	u	< 0.1117	u	< 1.1417	u
2,4-Dimethylphenol	1.23E+03	(1)	5.38E+03	(5)	6.45E+00	(8)	< 0.0927	u	< 0.0861	u	< 0.0881	u	< 0.0865	u	< 0.0933	u	< 0.0922	u	< 0.0847	u	< 0.0879	u	< 0.0867	u	< 0.0878	u	36	v
2,4-Dinitrophenol	1.23E+02	(1)	5.38E+02	(5)	6.71E-01	(8)	< 0.049	u	< 0.0455	u	< 0.0466	u	< 0.0458	u	< 0.0493	u	< 0.0487	u	< 0.0448	u	< 0.0465	u	< 0.0458	u	< 0.0464	u	< 0.4744	u
2,4-Dinitrotoluene	1.71E+01	(1)	8.23E+01	(4)	4.91E-02	(8)	< 0.1055	u	< 0.098	u	< 0.1003	u	< 0.0985	u	< 0.1062	u	< 0.1049	u	< 0.0964	u	< 0.1001	u	< 0.0987	u	< 0.1	u	< 1.0214	u
2,6-Dinitrotoluene	3.56E+00	(1)	1.72E+01	(4)	1.02E-02	(8)	< 0.1311	u	< 0.1218	u	< 0.1246	u	< 0.1224	u	< 0.132	u	< 0.1303	u	< 0.1197	u	< 0.1244	u	< 0.1226	u	< 0.1242	u	< 1.2691	u
2-Chloronaphthalene	6.26E+03	(1)	2.83E+04	(5)	5.70E+01	(8)	< 0.1264	u	< 0.1174	u	< 0.1201	u	< 0.118	u	< 0.1272	u	< 0.1256	u	< 0.1154	u	< 0.1199	u	< 0.1182	u	< 0.1197	u	< 1.2232	u
2-Chlorophenol	3.91E+02	(1)	1.77E+03	(5)	1.15E+00	(8)	< 0.1101	u	< 0.1022	u	< 0.1046	u	< 0.1028	u	< 0.1108	u	< 0.1094	u	< 0.1005	u	< 0.1044	u	< 0.103	u	< 0.1043	u	< 1.0655	u
2-Methylnaphthalene	2.40E+02	(2)	3.00E+03	(6)	3.80E+00	(9)	21	v	< 0.1003	u	< 0.1026	u	< 0.1008	u	< 0.1087	u	< 0.1073	u	< 0.0986	u	< 0.1024	u	< 0.101	u	< 0.1023	u	130	v
'2-Methylphenol (cresol,o-)	3.20E+03	(2)	4.10E+04	(6)	1.50E+01	(9)	2.2	v	< 0.1098	u	< 0.1124	u	< 0.1104	u	< 0.119	u	< 0.1175	u	< 0.108	u	< 0.1122	u	< 0.1106	u	< 0.112	u	56	v
2-Nitroaniline	6.30E+02	(2)	8.00E+03	(6)	1.60E+00	(9)	< 0.1342	u	< 0.1247	u	< 0.1276	u	< 0.1253	u	< 0.1351	u	< 0.1334	u	< 0.1226	u	< 0.1273	u	< 0.1255	u	< 0.1271	u	< 1.2991	u
2-Nitrophenol	-	-	-	-	-	-	< 0.106	u	< 0.0985	u	< 0.1008	u	< 0.099	u	< 0.1067	u	< 0.1054	u	< 0.0968	u	< 0.1006	u	< 0.0992	u	< 0.1004	u	< 1.0262	u
3,3´-Dichlorobenzidine	1.18E+01	(1)	5.70E+01	(4)	1.23E-01	(8)	< 0.0908	u	< 0.0844	u	< 0.0863	u	< 0.0848	u	< 0.0914	u	< 0.0903	u	< 0.0829	u	< 0.0862	u	< 0.085	u	< 0.086	u	< 0.8792	u
3+4-Methylphenol	-	-	-	-	-	-	0.79	v	< 0.1135	u	< 0.1162	u	< 0.1141	u	< 0.1231	u	< 0.1215	u	< 0.1116	u	< 0.116	u	< 0.1143	u	< 0.1158	u	100	v
3-Nitroaniline	-	-	-	-	-	-	< 0.1137	u	< 0.1056	u	< 0.108	u	< 0.1061	u	< 0.1144	u	< 0.113	u	< 0.1038	u	< 0.1078	u	< 0.1063	u	< 0.1077	u	< 1.1	u
4,6-Dinitro-2-methylphenol	4.93E+00	(1)	2.15E+01	(5)	3.94E-02	(8)	< 0.0641	u	< 0.0596	u	< 0.061	u	< 0.0599	u	< 0.0646	u	< 0.0637	u	< 0.0586	u	< 0.0608	u	< 0.06	u	< 0.0608	u	< 0.6208	u
4-Bromophenyl phenyl ether	-	-	-	-	-	-	< 0.1252	u	< 0.1162	u	< 0.1189	u	< 0.1168	u	< 0.126	u	< 0.1244	u	< 0.1143	u	< 0.1187	u	< 0.1171	u	< 0.1185	u	< 1.2113	u
4-Chloro-3-methylphenol	-	-	-	-	-	-	< 0.1175	u	< 0.1091	u	< 0.1116	u	< 0.1096	u	< 0.1182	u	< 0.1167	u	< 0.1073	u	< 0.1114	u	< 0.1098	u	< 0.1113	u	< 1.1368	u
4-Chloroaniline	2.70E+01	(3)	1.10E+02	(7)	3.20E-03	(9)	< 0.1091	u	< 0.1013	u	< 0.1037	u	< 0.1018	u	< 0.1098	u	< 0.1084	u	< 0.0996	u	< 0.1035	u	< 0.102	u	< 0.1033	u	< 1.0559	u
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	< 0.1757	u	< 0.1631	u	< 0.1669	u	< 0.164	u	< 0.1768	u	< 0.1746	u	< 0.1604	u	< 0.1666	u	< 0.1643	u	< 0.1664	u	< 1.7001	u
4-Nitroaniline	2.70E+02	(3)	1.10E+03	(7)	3.20E-02	(9)	< 0.106	u	< 0.0984	u	< 0.1007	u	< 0.0989	u	< 0.1067	u	< 0.1053	u	< 0.0968	u	< 0.1005	u	< 0.0991	u	< 0.1004	u	< 1.0255	u
4-Nitrophenol	-	-	-	-	-	-	< 0.1016	u	< 0.0944	u	< 0.0966	u	< 0.0949	u	< 0.1023	u	< 0.101	u	< 0.0928	u	< 0.0964	u	< 0.0951	u	< 0.0963	u	< 0.9837	u
Acenaphthene	3.48E+03	(1)	1.51E+04	(5)	8.25E+01	(8)	< 0.1438	u	< 0.1335	u	< 0.1366	u	< 0.1342	u	< 0.1447	u	< 0.1429	u	< 0.1313	u	< 0.1363	u	< 0.1344	u	< 0.1362	u	< 1.3913	u
Acenaphthylene	-	-	-	-	-	-	< 0.1195	u	< 0.111	u	< 0.1136	u	< 0.1115	u	< 0.1203	u	< 0.1188	u	< 0.1091	u	< 0.1133	u	< 0.1118	u	< 0.1132	u	< 1.1566	u
Aniline	9.50E+02	(3)	4.00E+03	(7)	9.20E-02	(9)	< 0.1027	u	< 0.0954	u	< 0.0976	u	< 0.0958	u	< 0.1034	u	< 0.102	u	< 0.0938	u	< 0.0974	u	< 0.096	u	< 0.0973	u	< 0.9938	u
Anthracene	1.74E+04	(1)	7.53E+04	(5)	8.51E+02	(8)	< 0.1002	u	< 0.0931	u	< 0.0952	u	< 0.0935	u	< 0.1009	u	< 0.0996	u	< 0.0915	u	< 0.095	u	< 0.0937	u	< 0.0949	u	< 0.9698	u
Azobenzene	5.60E+01	(3)	2.60E+02	(7)	1.84E+06	(9)	< 0.1322	u	< 0.1228	u	< 0.1257	u	< 0.1234	u	< 0.1331	u	< 0.1314	u	< 0.1208	u	< 0.1254	u	< 0.1237	u	< 0.1253	u	< 1.2799	u
Benz(a)anthracene	1.53E+00	(1)	3.23E+01	(4)	1.82E+00	(8)	< 0.0927	u	< 0.0861	u	< 0.0881	u	< 0.0865	u	< 0.0933	u	< 0.0921	u	< 0.0847	u	< 0.0879	u	< 0.0867	u	< 0.0878	u	< 0.8973	u
Benzo(a)pyrene	1.53E-01	(1)	3.23E+00	(4)	6.05E-01	(8)	< 0.1324	u	< 0.1229	u	< 0.1258	u	< 0.1236	u	< 0.1333	u	< 0.1316	u	< 0.1209	u	< 0.1256	u	< 0.1238	u	< 0.1254	u	< 1.2813	u
Benzo(b)fluoranthene	1.53E+00	(1)	3.23E+01	(4)	6.17E+00	(8)	< 0.112	u	< 0.104	u	< 0.1064	u	< 0.1046	u	< 0.1128	u	< 0.1113	u	< 0.1023	u	< 0.1062	u	< 0.1048	u	< 0.1061	u	< 1.0842	u
Benzo(g,h,i)perylene	-	-	-	-	-	-	< 0.1342	u	< 0.1247	u	< 0.1276	u	< 0.1253	u	< 0.1351	u	< 0.1334	u	< 0.1226	u	< 0.1273	u	< 0.1255	u	< 0.1272	u	< 1.2992	u
Benzo(k)fluoranthene	1.53E+01	(1)	3.23E+02	(4)	6.05E+01	(8)	< 0.1333	u	< 0.1238	u	< 0.1267	u	< 0.1244	u	< 0.1342	u	< 0.1325	u	< 0.1217	u	< 0.1264	u	< 0.1247	u	< 0.1263	u	< 1.2902	u
Benzoic acid	2.50E+05	(2)	3.30E+06	(6)	3.60E+02	(9)	< 0.0672	u	< 0.0624	u	< 0.0639	u	< 0.0627	u	< 0.0677	u	< 0.0668	u	< 0.0614	u	< 0.0638	u	< 0.0629	u	< 0.0637	u	< 0.6505	u
Benzyl alcohol	6.30E+03	(2)	8.20E+04	(6)	9.60E+00	(9)	< 0.1048	u	< 0.0973	u	< 0.0996	u	< 0.0978	u	< 0.1055	u	< 0.1041	u	< 0.0957	u	< 0.0994	u	< 0.098	u	< 0.0992	u	< 1.0141	u
Bis(2-chloroethoxy)methane	1.90E+02	(2)	2.50E+03	(6)	2.60E-01	(9)	< 0.1126	u	< 0.1046	u	< 0.107	u	< 0.1051	u	< 0.1133	u	< 0.1119	u	< 0.1028	u	< 0.1068	u	< 0.1053	u	< 0.1066	u	< 1.0897	u
Bis(2-chloroethyl)ether	3.11E+00	(1)	1.95E+00	(5)	6.05E-04	(8)	< 0.1166	u	< 0.1082	u	< 0.1108	u	< 0.1088	u	< 0.1173	u	< 0.1158	u	< 0.1064	u	< 0.1105	u	< 0.109	u	< 0.1104	u	< 1.1281	u

Table 7
SWMU 10 Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SWMU 10-13 (6-8')		SWMU 10-13 (18-20')		SWMU 10-14 (6-8')		SWMU 10-14 (21-23')		SWMU 10-15 (2-4')		SWMU 10-15 (4-6')		SWMU 10-15 (18-20')		SWMU 10-16 (2-4')		SWMU 10-16 (4-5.5')		SWMU 10-16 (8-9')		SWMU 10-17 (6-8')	
							1505617-004		1505617-005		1505570-001		1505570-002		1505617-006		1505617-007		1505617-008		1505705-001		1505705-002		1505705-003		1505617-009	
							5/13/2015		5/13/2015		5/12/2015		5/12/2015		5/13/2015		5/13/2015		5/13/2015		5/13/2015		5/13/2015		5/13/2015		5/13/2015	
Bis(2-chloroisopropyl)ether	9.93E+01	(1)	5.19E+02	(4)	4.73E-02	(8)	< 0.0901	u	< 0.0837	u	< 0.0856	u	< 0.0841	u	< 0.0907	u	< 0.0896	u	< 0.0823	u	< 0.0855	u	< 0.0843	u	< 0.0854	u	< 0.8722	u
Bis(2-ethylhexyl)phthalate	3.80E+02	(1)	1.83E+03	(4)	2.00E+02	(8)	< 0.1325	u	< 0.1231	u	< 0.1259	u	< 0.1237	u	< 0.1334	u	< 0.1317	u	< 0.121	u	< 0.1257	u	< 0.1239	u	< 0.1255	u	< 1.2827	u
Butyl benzyl phthalate	2.90E+03	(3)	1.20E+04	(7)	4.60E+00	(9)	< 0.144	u	< 0.1337	u	< 0.1369	u	< 0.1344	u	< 0.145	u	< 0.1431	u	< 0.1315	u	< 0.1366	u	< 0.1347	u	< 0.1364	u	< 1.3938	u
Carbazole	-	-	-	-	-	-	< 0.1099	u	< 0.102	u	< 0.1044	u	< 0.1025	u	< 0.1106	u	< 0.1092	u	< 0.1003	u	< 0.1042	u	< 0.1028	u	< 0.1041	u	< 1.0633	u
Chrysene	1.53E+02	(1)	3.23E+03	(4)	1.86E+02	(8)	< 0.1185	u	< 0.11	u	< 0.1126	u	< 0.1106	u	< 0.1192	u	< 0.1177	u	< 0.1082	u	< 0.1123	u	< 0.1108	u	< 0.1122	u	< 1.1464	u
Dibenz(a,h)anthracene	1.53E-01	(1)	3.23E+00	(4)	6.11E+00	(8)	< 0.1278	u	< 0.1187	u	< 0.1214	u	< 0.1193	u	< 0.1286	u	< 0.127	u	< 0.1167	u	< 0.1212	u	< 0.1195	u	< 0.1211	u	< 1.2369	u
Dibenzofuran	-	-	-	-	-	-	< 0.1262	u	< 0.1172	u	< 0.1199	u	< 0.1178	u	< 0.127	u	< 0.1254	u	< 0.1152	u	< 0.1197	u	< 0.118	u	< 0.1195	u	< 1.221	u
Diethyl phthalate	4.93E+04	(1)	2.15E+05	(5)	9.79E+01	(8)	< 0.1339	u	< 0.1243	u	< 0.1272	u	< 0.125	u	< 0.1348	u	< 0.133	u	< 0.1222	u	< 0.127	u	< 0.1252	u	< 0.1268	u	< 1.2957	u
Dimethyl phthalate	6.11E+05	(1)	2.38E+06	(5)	1.61E+03	(8)	< 0.1086	u	< 0.1008	u	< 0.1032	u	< 0.1013	u	< 0.1093	u	< 0.1079	u	< 0.0991	u	< 0.103	u	< 0.1015	u	< 0.1028	u	< 1.0507	u
Di-n-butyl phthalate	6.16E+03	(1)	2.69E+04	(5)	3.38E+01	(8)	< 0.1334	u	< 0.1239	u	< 0.1268	u	< 0.1245	u	< 0.1343	u	< 0.1326	u	< 0.1218	u	< 0.1265	u	< 0.1248	u	< 0.1264	u	< 1.2912	u
Di-n-octyl phthalate	-	-	-	-	-	-	< 0.1313	u	< 0.122	u	< 0.1248	u	< 0.1226	u	< 0.1322	u	< 0.1305	u	< 0.1199	u	< 0.1246	u	< 0.1228	u	< 0.1244	u	< 1.271	u
Fluoranthene	2.32E+03	(1)	1.00E+04	(5)	1.34E+03	(8)	< 0.1432	u	< 0.1329	u	< 0.136	u	< 0.1336	u	< 0.1441	u	< 0.1423	u	< 0.1307	u	< 0.1358	u	< 0.1339	u	< 0.1356	u	< 1.3854	u
Fluorene	2.32E+03	(1)	1.00E+04	(5)	8.00E+01	(8)	1.1	v	< 0.1491	u	0.2	J	< 0.1499	u	< 0.1617	u	< 0.1596	u	< 0.1466	u	< 0.1523	u	< 0.1502	u	< 0.1521	u	7.1	v
Hexachlorobenzene	3.33E+00	(1)	1.60E+01	(4)	9.22E-02	(8)	< 0.1113	u	< 0.1034	u	< 0.1058	u	< 0.1039	u	< 0.1121	u	< 0.1106	u	< 0.1017	u	< 0.1056	u	< 0.1041	u	< 0.1055	u	< 1.0776	u
Hexachlorobutadiene	6.16E+01	(1)	2.69E+02	(5)	8.79E-02	(8)	< 0.1167	u	< 0.1084	u	< 0.1109	u	< 0.1089	u	< 0.1175	u	< 0.116	u	< 0.1066	u	< 0.1107	u	< 0.1091	u	< 0.1105	u	< 1.1295	u
Hexachlorocyclopentadiene	3.70E+02	(1)	8.67E+02	(5)	1.34E+00	(8)	< 0.0818	u	< 0.076	u	< 0.0778	u	< 0.0764	u	< 0.0824	u	< 0.0813	u	< 0.0747	u	< 0.0776	u	< 0.0765	u	< 0.0775	u	< 0.7919	u
Hexachloroethane	4.31E+01	(1)	1.88E+02	(5)	6.62E-02	(8)	< 0.105	u	< 0.0975	u	< 0.0998	u	< 0.098	u	< 0.1057	u	< 0.1044	u	< 0.0959	u	< 0.0996	u	< 0.0982	u	< 0.0995	u	< 1.0163	u
Indeno(1,2,3-cd)pyrene	1.53E+00	(1)	3.23E+01	(4)	2.01E+01	(8)	< 0.1341	u	< 0.1245	u	< 0.1274	u	< 0.1251	u	< 0.1349	u	< 0.1332	u	< 0.1224	u	< 0.1271	u	< 0.1254	u	< 0.127	u	< 1.2975	u
Isophorone	5.61E+03	(1)	2.70E+04	(4)	4.22E+00	(8)	< 0.1258	u	< 0.1168	u	< 0.1195	u	< 0.1174	u	< 0.1266	u	< 0.125	u	< 0.1148	u	< 0.1193	u	< 0.1176	u	< 0.1191	u	< 1.2173	u
Naphthalene	4.97E+01	(1)	1.59E+02	(5)	8.23E-02	(8)	3.9	v	< 0.1042	u	< 0.1067	u	< 0.1048	u	< 0.113	u	< 0.1115	u	< 0.1025	u	< 0.1065	u	< 0.105	u	< 0.1063	u	24	v
Nitrobenzene	6.04E+01	(1)	2.93E+02	(4)	1.44E-02	(8)	< 0.1215	u	< 0.1128	u	< 0.1154	u	< 0.1134	u	< 0.1223	u	< 0.1207	u	< 0.1109	u	< 0.1152	u	< 0.1136	u	< 0.115	u	< 1.1755	u
N-Nitrosodi-n-propylamine	7.80E-01	(3)	3.30E+00	(7)	1.62E-04	(9)	< 0.1223	u	< 0.1136	u	< 0.1162	u	< 0.1141	u	< 0.1231	u	< 0.1215	u	< 0.1117	u	< 0.116	u	< 0.1144	u	< 0.1158	u	< 1.1834	u
N-Nitrosodiphenylamine	7.94E-03	(1)	1.71E-01	(4)	9.84E-06	(8)	< 0.1056	u	< 0.0981	u	< 0.1004	u	< 0.0986	u	< 0.1063	u	< 0.105	u	< 0.0964	u	< 0.1002	u	< 0.0988	u	< 0.1	u	< 1.0222	u
Pentachlorophenol	9.85E+00	(1)	4.45E+01	(4)	6.08E-02	(8)	< 0.0737	u	< 0.0684	u	< 0.07	u	< 0.0687	u	< 0.0741	u	< 0.0732	u	< 0.0673	u	< 0.0699	u	< 0.0689	u	< 0.0698	u	< 0.7128	u
Phenanthrene	1.74E+03	(1)	7.53E+03	(5)	8.59E+01	(8)	2.3	v	< 0.1146	u	< 0.1173	u	< 0.1152	u	< 0.1242	u	< 0.1226	u	< 0.1127	u	< 0.117	u	< 0.1154	u	< 0.1169	u	15	v
Phenol	1.83E+04	(1)	7.74E+04	(5)	5.23E+01	(8)	0.91	v	< 0.0982	u	< 0.1005	u	< 0.0987	u	< 0.1064	u	< 0.1051	u	< 0.0965	u	< 0.1003	u	< 0.0989	u	< 0.1001	u	52	v
Pyrene	1.74E+03	(1)	7.53E+03	(5)	1.92E+02	(8)	< 0.1523	u	< 0.1414	u	< 0.1447	u	< 0.1421	u	< 0.1533	u	< 0.1513	u	< 0.139	u	< 0.1444	u	< 0.1424	u	< 0.1442	u	< 1.4735	u
Pyridine	7.80E+01	(2)	1.20E+03	(6)	1.36E-01	(9)	< 0.0991	u	< 0.0921	u	< 0.0942	u	< 0.0925	u	< 0.0998	u	< 0.0985	u	< 0.0905	u	< 0.094	u	< 0.0927	u	< 0.0939	u	< 0.9594	u
Total Petroleum Hydrocarbons (mg/kg)																												
Gasoline Range Organics (GRO)	-		-		-		320	v	< 1	u	50	v	< 1	u	< 1	u	< 2.6	u	< 1	u	< 1	u	< 1	u	< 1	u	1300	v
Diesel Range Organics (DRO)	1.00E+03	(11)	3.80E+03	(11)	-		**2300**	v	< 5	u	**1200**	v	< 6.2	u	< 5	u	< 5	u	< 5	u	< 6	u	< 6	u	< 6	u	**7800**	v
Motor Oil Range Organics (MRO)	1.00E+03	(11)	3.80E+03	(11)	-		< 498	u	< 49	u	< 550	u	< 56	u	< 49	u	< 48	u	< 48	u	< 50	u	< 50	u	< 50	u	< 4776	u

- No screening level or analytical result available
NMED - Risk Assessment Guidance for Site Investigations and Remediation (Dec. 2014)
EPA - Regional Screening Levels (Nov 2015)
(1) NMED Residential Screening Level
(2) EPA Residential Screening Level
(3) EPA Residential - Screening Levels (June 2015) multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Closure Permit because the constituent is listed as carcinogenic
(4) NMED Industrial Occupational Screening Level
(5) NMED Construction Worker Screening Level
(6) EPA Industrial - Screening Levels (June 2015)
(7) EPA Industrial - Screening Levels June 2015) multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Clousre Permit because the constituent is listed as carcinogenic
(8) SoilGW NMED Dilution Attenuation Factor (DAF) = 20
(9) SoilGW Risk-based EPA DAF = 20
(10) SoilGW MCL-based EPA DAF = 20
(11) NMED Table 6-2 TPH Soil Screening Levels "uknown oil" with DAF = 1.0 - see report Section 5 for use of screening levels

Bold represents value above Non-Residential Screening Level
yellow highlight represents value above Leachate (DAF) Screening Level
Bold with yellow highlight value exceeds Non-Residential Screening Level and DAF

* - sample reanalyzed for hexavalent chromium, see amended lab report #1505223
** - sample reanalyzed for hexavalent chromium, see lab report #1505003

Table 8
SWMU 10 Groundwater Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Screening Levels	Source	SWMU 10-1-GW		SWMU 10-3-GW		SWMU 10-5-GW		SWMU 10-11-GW		SWMU 10-12-GW		SWMU 10-14-GW		SWMU 10-15-GW		SWMU 10-16-GW	
Lab ID			1505001-001		1505005-001		1505218-001		1505698-001		1505700-001		1505701-001		1505708-001		1505710-001	
Sample Date			4/29/2015		4/29/2015		5/4/2015		5/14/2015		5/14/2015		5/14/2015		5/14/2015		5/14/2015	
Metals (mg/l) TOTAL																		
Antimony	0.006	(2)	0.0011	v	0.0013	J	0.0008	J	< 0.002	u	< 0.002	u	< 0.002	u	< 0.002	u		
Arsenic	0.01	(2)	0.008	J	< 0.022	u	< 0.015	u	**0.016**	Z	**0.023**	Z	**0.029**	Z	**0.012**	Z		
Barium	2	(2)	0.74	v	0.28	v	0.57	v	**5.3**	Z	**7.3**	Z	**7**	Z	0.37	v		
Beryllium	0.004	(2)	0.0024	v	0.00091	J	0.0011	J	**0.017**	Z	**0.037**	Z	**0.035**	Z	0.0015	J		
Cadmium	0.005	(2)	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u	< 0.005	u	< 0.005	u	< 0.001	u		
Chromium	0.05	(3)	0.013	v	< 0.002	u	0.0051	J	**0.073**	v	**0.17**	Z	**0.15**	Z	0.0062	v		
Hexavalent Chromium	0.000252	(4)	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u		
Cobalt	0.006	(1)	**0.012**	v	0.0059	J	0.0056	J	**0.077**	v	**0.14**	v	**0.13**	v	**0.025**	v		
Cyanide	0.2	(3)	0.046	v	0.14	v	0.013	v	< 0.005	u	< 0.005	u	< 0.005	u	0.055	v		
Iron	13.800	(4)	**16**	Z	2.6	Z	5.7	Z	**86**	Z	**140**	Z	**130**	Z	9.4	Z		
Lead	0.015	(2)	**0.017**	Z	0.0024	J	0.0064	v	**0.18**	Z	**0.28**	Z	**0.24**	Z	0.014	v		
Manganese	2.020	(4)	1.2	Z	0.52	Z	0.69	Z	**13**	Z	**18**	Z	**22**	Z	**2.9**	Z		
Mercury	0.002	(3)	<0.000059	u	<0.000059	u	<0.000059	u	0.00075	v	0.00039	v	0.00021	v	<0.000059	u		
Nickel	0.372	(4)	0.19	Z	0.0067	J	0.0044	J	0.13	Z	0.26	Z	0.25	Z	**0.64**	Z		
Selenium	0.05	(3)	0.021	J	0.036	J	0.036	J	0.0099	J	0.008	J	0.01	J	0.019	v		
Silver	0.05	(3)	< 0.002	u	< 0.002	u	< 0.002	u	< 0.002	u	< 0.011	u	< 0.011	u	< 0.002	u		
Vanadium	0.0631	(4)	0.028	J	0.01	J	0.013	J	**0.12**	v	**0.17**	J	**0.16**	J	0.019	J		
Zinc	10	(3)	0.071	v	0.023	v	0.034	v	0.19	v	0.45	v	0.36	v	0.046	v		
Chloride	250	(3)	**3600**	v	**7100**	v	**2800**	v	**2000**	v	**330**	v	**370**	v	**2300**	v		
Fluoride	1.6	(3)	< 0.58	u	< 0.29	u	< 0.029	u	< 0.145	u	1.2	v	1.3	v	0.55	v		
Sulfate	600	(3)	340	v	**1100**	v	310	v	380	v	370	v	370	v	440	v		
Metals (mg/l) DISSOLVED																		
Antimony (D)	0.006	(2)	0.00093	J	0.00074	J	< 0.001	u	< 0.001	u	0.00023	J	<0.00014	u	< 0.001	u		
Arsenic (D)	0.01	(2)	0.01	J	**0.011**	J	**0.012**	J	0.0039	J	0.0025	v	0.003	v	**0.011**	J		
Barium (D)	1	(3)	0.45	v	0.23	v	0.32	v	0.24	v	0.085	v	0.18	v	0.22	v		
Beryllium (D)	0.004	(2)	0.00052	J	0.0004	J	0.00042	J	<0.00031	u	<0.00031	u	0.0009	J	<0.00031	u		
Cadmium (D)	0.005	(2)	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u		
Chromium (D)	0.05	(3)	0.0045	J	0.0056	J	0.0039	J	0.0054	J	0.008	v	0.0075	v	0.0094	v		
Cobalt (D)	0.05	(3)	0.0084	v	0.0081	v	0.0035	J	0.01	v	0.0044	J	0.0051	J	0.023	v		
Iron (D)	1	(3)	0.58	Z	0.068	v	0.011	J	0.78	Z	**2.6**	Z	**3.9**	Z	0.61	Z		
Lead (D)	0.015	(2)	0.001	J	<0.00013	u	<0.00013	u	0.00074	J	0.0014	v	0.0068	v	0.0026	J		
Manganese (D)	0.2	(3)	**0.93**	Z	**0.45**	Z	**0.27**	Z	**3.9**	Z	**0.91**	Z	**1.1**	Z	**2.4**	Z		
Nickel (D)	0.372	(4)	0.21	Z	0.0053	J	0.0028	J	0.024	v	0.012	v	0.011	v	**0.65**	Z		

Table 8
SWMU 10 Groundwater Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Screening Levels	Source	SWMU 10-1-GW		SWMU 10-3-GW		SWMU 10-5-GW		SWMU 10-11-GW		SWMU 10-12-GW		SWMU 10-14-GW		SWMU 10-15-GW		SWMU 10-16-GW	
Lab ID			1505001-001		1505005-001		1505218-001		1505698-001		1505700-001		1505701-001		1505708-001		1505710-001	
Sample Date			4/29/2015		4/29/2015		5/4/2015		5/14/2015		5/14/2015		5/14/2015		5/14/2015		5/14/2015	
Selenium (D)	0.05	(3)	0.03	v	0.041	J	0.036	J	0.0076	J	0.003	v	0.0031	v	0.02	v		
Silver (D)	0.05	(3)	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u	< 0.001	u		
Vanadium (D)	0.0631	(4)	0.0045	J	0.0048	J	0.002	J	0.0052	J	0.011	J	0.016	J	0.0057	J		
Zinc (D)	10	(3)	0.029	v	0.033	v	0.038	v	0.049	v	0.062	v	0.014	v	0.15	v		
Volatiles (ug/l)																		
1,1,1,2-Tetrachloroethane	5.72	(4)	< 0.11	u	< 0.11	u	< 0.11	u	< 0.221	u	< 0.221	u	< 0.221	u	< 0.221	u	< 0.11	u
1,1,1-Trichloroethane	60	(3)	< 0.078	u	< 0.078	u	< 0.078	u	< 0.155	u	< 0.155	u	< 0.155	u	< 0.155	u	< 0.078	u
1,1,2,2-Tetrachloroethane	10	(3)	< 0.18	u	< 0.18	u	< 0.18	u	< 0.359	u	< 0.359	u	< 0.359	u	< 0.359	u	< 0.18	u
1,1,2-Trichloroethane	5	(2)	< 0.079	u	< 0.079	u	< 0.079	u	< 0.158	u	< 0.158	u	< 0.158	u	< 0.158	u	< 0.079	u
1,1-Dichloroethane	25	(3)	< 0.4	u	< 0.4	u	< 0.4	u	0.93	J	< 0.8	u	< 0.8	u	< 0.8	u	3.1	v
1,1-Dichloroethene	5	(3)	< 0.099	u	< 0.099	u	0.12	J	< 0.199	u	< 0.199	u	< 0.199	u	< 0.199	u	0.73	J
1,1-Dichloropropene	-		< 0.115	u	< 0.115	u	< 0.115	u	< 0.23	u	< 0.23	u	< 0.23	u	< 0.23	u	< 0.115	u
1,2,3-Trichlorobenzene	-		< 0.266	u	< 0.266	u	< 0.266	u	< 0.533	u	< 0.533	u	< 0.533	u	< 0.533	u	< 0.266	u
1,2,3-Trichloropropane	0.00747	(4)	< 0.158	u	< 0.158	u	< 0.158	u	< 0.317	u	< 0.317	u	< 0.317	u	< 0.317	u	< 0.158	u
1,2,4-Trichlorobenzene	70	(2)	< 0.283	u	< 0.283	u	< 0.283	u	< 0.565	u	< 0.565	u	< 0.565	u	< 0.565	u	< 0.283	u
1,2,4-Trimethylbenzene	15	(1)	< 0.159	u	< 0.159	u	3.7	v	**64**	v	0.66	J	0.44	J	< 0.319	u	0.18	J
1,2-Dibromo-3-chloropropane	0.2	(2)	< 0.136	u	< 0.136	u	< 0.136	u	< 0.272	u	< 0.272	u	< 0.272	u	< 0.272	u	< 0.136	u
1,2-Dibromoethane (EDB)	0.05	(2)	< 0.134	u	< 0.134	u	< 0.134	u	< 0.267	u	< 0.267	u	< 0.267	u	< 0.267	u	< 0.134	u
1,2-Dichlorobenzene	600	(2)	< 0.118	u	< 0.118	u	< 0.118	u	< 0.237	u	< 0.237	u	< 0.237	u	< 0.237	u	< 0.118	u
1,2-Dichloroethane (EDC)	5	(2)	< 0.176	u	0.48	J	0.32	J	< 0.353	u	< 0.353	u	< 0.353	u	< 0.353	u	0.47	J
1,2-Dichloropropane	5	(2)	< 0.151	u	< 0.151	u	< 0.151	u	< 0.302	u	< 0.302	u	< 0.302	u	< 0.302	u	< 0.151	u
1,3,5-Trimethylbenzene	12	(1)	< 0.123	u	< 0.123	u	3.9	v	**22**	v	< 0.246	u	< 0.246	u	< 0.246	u	< 0.123	u
1,3-Dichlorobenzene	-		< 0.093	u	< 0.093	u	< 0.093	u	< 0.187	u	< 0.187	u	< 0.187	u	< 0.187	u	< 0.093	u
1,3-Dichloropropane	370	(1)	< 0.172	u	< 0.172	u	< 0.172	u	< 0.344	u	< 0.344	u	< 0.344	u	< 0.344	u	< 0.172	u
1,4-Dichlorobenzene	75	(2)	< 0.166	u	< 0.166	u	< 0.166	u	< 0.332	u	< 0.332	u	< 0.332	u	< 0.332	u	< 0.166	u
1-Methylnaphthalene	11	(5)	< 0.538	u	< 0.538	u	3.1	J	**70**	v	< 1.077	u	< 1.077	u	< 1.077	u	< 0.538	u
2,2-Dichloropropane	-		< 0.152	u	< 0.152	u	< 0.152	u	< 0.303	u	< 0.303	u	< 0.303	u	< 0.303	u	< 0.152	u
2-Butanone	5560	(4)	< 0.363	u	1.4	J	< 0.363	u	< 0.725	u	< 0.725	u	< 0.725	u	2.9	J	< 0.363	u
2-Chlorotoluene	240	(1)	< 0.079	u	< 0.079	u	< 0.079	u	< 0.158	u	< 0.158	u	< 0.158	u	< 0.158	u	< 0.079	u
2-Hexanone	-		< 0.477	u	< 0.477	u	< 0.477	u	< 0.953	u	< 0.953	u	< 0.953	u	< 0.953	u	< 0.477	u
2-Methylnaphthalene	36	(1)	< 0.594	u	< 0.594	u	3.8	J	**98**	v	1.5	J	< 1.189	u	< 1.189	u	< 0.594	u
4-Chlorotoluene	250	(1)	< 0.149	u	< 0.149	u	< 0.149	u	< 0.299	u	< 0.299	u	< 0.299	u	< 0.299	u	< 0.149	u
4-Isopropyltoluene	-		< 0.189	u	< 0.189	u	0.92	J	2.7	v	< 0.377	u	< 0.377	u	< 0.377	u	< 0.189	u
4-Methyl-2-pentanone	-		< 0.257	u	< 0.257	u	0.61	J	< 0.513	u	< 0.513	u	< 0.513	u	< 0.513	u	< 0.257	u

Table 8
SWMU 10 Groundwater Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
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	Screening Levels	Source	SWMU 10-1-GW		SWMU 10-3-GW		SWMU 10-5-GW		SWMU 10-11-GW		SWMU 10-12-GW		SWMU 10-14-GW		SWMU 10-15-GW		SWMU 10-16-GW	
Lab ID			1505001-001		1505005-001		1505218-001		1505698-001		1505700-001		1505701-001		1505708-001		1505710-001	
Sample Date			4/29/2015		4/29/2015		5/4/2015		5/14/2015		5/14/2015		5/14/2015		5/14/2015		5/14/2015	
Acetone	14100	(4)	< 0.936	u	< 0.936	u	< 0.936	u	8.8	J	3.4	J	2.7	J	9.7	J	1.6	J
Benzene	5	(2)	4.7	v	2.9	v	**27**	v	2.5	v	0.47	J	0.47	J	0.51	J	0.24	J
Bromobenzene	62	(1)	< 0.108	u	< 0.108	u	< 0.108	u	< 0.216	u	< 0.216	u	< 0.216	u	< 0.216	u	< 0.108	u
Bromodichloromethane	1.34	(4)	< 0.09	u	< 0.09	u	< 0.09	u	< 0.179	u	< 0.179	u	< 0.179	u	< 0.179	u	< 0.09	u
Bromoform	33	(5)	< 0.162	u	< 0.162	u	< 0.162	u	< 0.325	u	< 0.325	u	< 0.325	u	< 0.325	u	< 0.162	u
Bromomethane	7.54	(4)	< 1.161	u	< 1.161	u	< 1.161	u	< 2.322	u	< 2.322	u	< 2.322	u	< 2.322	u	< 1.161	u
Carbon disulfide	810	(4)	< 0.673	u	< 0.673	u	< 0.673	u	< 1.346	u	< 1.346	u	< 1.346	u	< 1.346	u	< 0.673	u
Carbon Tetrachloride	5	(2)	< 0.078	u	< 0.078	u	< 0.078	u	< 0.156	u	< 0.156	u	< 0.156	u	< 0.156	u	< 0.078	u
Chlorobenzene	100	(2)	< 0.093	u	< 0.093	u	< 0.093	u	< 0.187	u	< 0.187	u	< 0.187	u	< 0.187	u	< 0.093	u
Chloroethane	20900	(4)	< 0.105	u	< 0.105	u	< 0.105	u	< 0.209	u	< 0.209	u	< 0.209	u	< 0.209	u	< 0.105	u
Chloroform	100	(3)	< 0.215	u	< 0.215	u	< 0.215	u	< 0.43	u	< 0.43	u	< 0.43	u	< 0.43	u	< 0.215	u
Chloromethane	20.3	(4)	< 0.174	u	< 0.174	u	< 0.174	u	< 0.347	u	< 0.347	u	< 0.347	u	< 0.347	u	< 0.174	u
cis-1,2-DCE	70	(2)	< 0.081	u	< 0.081	u	< 0.081	u	< 0.161	u	< 0.161	u	< 0.161	u	< 0.161	u	0.39	J
cis-1,3-Dichloropropene	4.7	(4)	< 0.133	u	< 0.133	u	< 0.133	u	< 0.266	u	< 0.266	u	< 0.266	u	< 0.266	u	< 0.133	u
Dibromochloromethane	1.68	(4)	< 0.097	u	< 0.097	u	< 0.097	u	< 0.194	u	< 0.194	u	< 0.194	u	< 0.194	u	< 0.097	u
Dibromomethane	8.3	(1)	< 0.234	u	< 0.234	u	< 0.234	u	< 0.469	u	< 0.469	u	< 0.469	u	< 0.469	u	< 0.234	u
Dichlorodifluoromethane	197	(4)	< 0.692	u	< 0.692	u	< 0.692	u	< 1.385	u	< 1.385	u	< 1.385	u	< 1.385	u	< 0.692	u
Ethylbenzene	700	(2)	< 0.101	u	< 0.101	u	1.6	v	40	v	< 0.202	u	< 0.202	u	< 0.202	u	< 0.101	u
Hexachlorobutadiene	2.95	(4)	< 0.251	u	< 0.251	u	< 0.251	u	< 0.503	u	< 0.503	u	< 0.503	u	< 0.503	u	< 0.251	u
Isopropylbenzene	447	(4)	< 0.152	u	< 0.152	u	1.2	v	8.5	v	< 0.304	u	< 0.304	u	< 0.304	u	< 0.152	u
Methyl tert-butyl ether (MTBE)	143	(4)	6.1	v	5.5	v	< 0.174	u	14	v	13	v	16	v	**150**	v	19	v
Methylene Chloride	5	(2)	< 0.36	u	< 0.36	u	< 0.36	u	< 0.721	u	< 0.721	u	< 0.721	u	< 0.721	u	< 0.36	u
Naphthalene	1.65	(4)	< 0.218	u	< 0.218	u	< 0.218	u	**45**	v	0.52	J	< 0.436	u	< 0.436	u	< 0.218	u
n-Butylbenzene	-		< 0.245	u	< 0.245	u	0.4	J	3.4	J	< 0.491	u	< 0.491	u	< 0.491	u	< 0.245	u
n-Propylbenzene	-		< 0.163	u	0.31	J	0.64	J	11	v	< 0.326	u	< 0.326	u	< 0.326	u	< 0.163	u
sec-Butylbenzene	-		< 0.229	u	< 0.229	u	0.6	J	2.2	v	< 0.457	u	< 0.457	u	< 0.457	u	< 0.229	u
Styrene	100	(2)	< 0.106	u	< 0.106	u	< 0.106	u	< 0.211	u	< 0.211	u	< 0.211	u	< 0.211	u	< 0.106	u
tert-Butylbenzene	-		< 0.129	u	< 0.129	u	< 0.129	u	< 0.259	u	< 0.259	u	< 0.259	u	< 0.259	u	< 0.129	u
Tetrachloroethene (PCE)	5	(2)	< 0.16	u	< 0.16	u	< 0.16	u	< 0.321	u	< 0.321	u	< 0.321	u	< 0.321	u	< 0.16	u
Toluene	750	(3)	< 0.108	u	< 0.108	u	2.7	v	6	v	< 0.217	u	0.3	J	< 0.217	u	< 0.108	u
trans-1,2-DCE	100	(2)	< 0.094	u	< 0.094	u	< 0.094	u	< 0.188	u	< 0.188	u	< 0.188	u	< 0.188	u	< 0.094	u
trans-1,3-Dichloropropene	4.7	(4)	< 0.113	u	< 0.113	u	< 0.113	u	< 0.226	u	< 0.226	u	< 0.226	u	< 0.226	u	< 0.113	u
Trichloroethene (TCE)	5	(2)	< 0.163	u	< 0.163	u	< 0.163	u	< 0.327	u	< 0.327	u	< 0.327	u	< 0.327	u	0.77	J
Trichlorofluoromethane	1140	(4)	< 0.127	u	< 0.127	u	< 0.127	u	< 0.254	u	< 0.254	u	< 0.254	u	< 0.254	u	< 0.127	u

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Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Screening Levels	Source	SWMU 10-1-GW		SWMU 10-3-GW		SWMU 10-5-GW		SWMU 10-11-GW		SWMU 10-12-GW		SWMU 10-14-GW		SWMU 10-15-GW		SWMU 10-16-GW	
Lab ID			1505001-001		1505005-001		1505218-001		1505698-001		1505700-001		1505701-001		1505708-001		1505710-001	
Sample Date			4/29/2015		4/29/2015		5/4/2015		5/14/2015		5/14/2015		5/14/2015		5/14/2015		5/14/2015	
Vinyl chloride	1	(3)	< 0.125	u	< 0.125	u	< 0.125	u	< 0.251	u	< 0.251	u	< 0.251	u	< 0.251	u	0.47	J
Xylenes, Total	620	(3)	< 0.282	u	< 0.282	u	13	v	230	v	< 0.565	u	< 0.565	u	< 0.565	u	0.35	J
Semivolatiles (ug/l)																		
1,2,4-Trichlorobenzene	70	(2)	< 1.993	u	< 1.993	u	< 1.993	u	< 3.987	u	< 3.987	u	< 3.987	u	< 1.993	u	< 1.993	u
1,2-Dichlorobenzene	600	(2)	< 1.899	u	< 1.899	u	< 1.899	u	< 3.798	u	< 3.798	u	< 3.798	u	< 1.899	u	< 1.899	u
1,3-Dichlorobenzene	-		< 1.69	u	< 1.69	u	< 1.69	u	< 3.381	u	< 3.381	u	< 3.381	u	< 1.69	u	< 1.69	u
1,4-Dichlorobenzene	75	(2)	< 1.234	u	< 1.234	u	< 1.234	u	< 2.468	u	< 2.468	u	< 2.468	u	< 1.234	u	< 1.234	u
1-Methylnaphthalene	11	(5)	< 1.801	u	< 1.801	u	< 1.801	u	**20**	J	< 3.603	u	< 3.603	u	< 1.801	u	< 1.801	u
2,4,5-Trichlorophenol	1170	(4)	< 1.617	u	< 1.617	u	< 1.617	u	< 3.233	u	< 3.233	u	< 3.233	u	< 1.617	u	< 1.617	u
2,4,6-Trichlorophenol	11.9	(4)	< 1.258	u	< 1.258	u	< 1.258	u	< 2.517	u	< 2.517	u	< 2.517	u	< 1.258	u	< 1.258	u
2,4-Dichlorophenol	45.3	(4)	< 1.395	u	< 1.395	u	< 1.395	u	< 2.79	u	< 2.79	u	< 2.79	u	< 1.395	u	< 1.395	u
2,4-Dimethylphenol	354	(4)	< 1.854	u	< 1.854	u	< 1.854	u	< 3.708	u	< 3.708	u	< 3.708	u	< 1.854	u	< 1.854	u
2,4-Dinitrophenol	38.8	(4)	< 1.07	u	< 1.07	u	< 1.07	u	< 2.139	u	< 2.139	u	< 2.139	u	< 1.07	u	< 1.07	u
2,4-Dinitrotoluene	2.37	(4)	< 1.434	u	< 1.434	u	< 1.434	u	< 2.868	u	< 2.868	u	< 2.868	u	< 1.434	u	< 1.434	u
2,6-Dinitrotoluene	0.484	(4)	< 1.49	u	< 1.49	u	< 1.49	u	< 2.981	u	< 2.981	u	< 2.981	u	< 1.49	u	< 1.49	u
2-Chloronaphthalene	733	(4)	< 1.716	u	< 1.716	u	< 1.716	u	< 3.431	u	< 3.431	u	< 3.431	u	< 1.716	u	< 1.716	u
2-Chlorophenol	91	(4)	< 1.204	u	< 1.204	u	< 1.204	u	< 2.408	u	< 2.408	u	< 2.408	u	< 1.204	u	< 1.204	u
2-Methylnaphthalene	36	(1)	< 2.246	u	< 2.246	u	< 2.246	u	16	J	< 4.492	u	< 4.492	u	< 2.246	u	< 2.246	u
2-Methylphenol	930	(1)	< 1.246	u	< 1.246	u	< 1.246	u	< 2.491	u	< 2.491	u	< 2.491	u	< 1.246	u	< 1.246	u
2-Nitroaniline	190	(1)	< 1.795	u	< 1.795	u	< 1.795	u	< 3.589	u	< 3.589	u	< 3.589	u	< 1.795	u	< 1.795	u
2-Nitrophenol	-		< 1.231	u	< 1.231	u	< 1.231	u	< 2.463	u	< 2.463	u	< 2.463	u	< 1.231	u	< 1.231	u
3,3´-Dichlorobenzidine	1.24	(4)	< 2.608	u	< 2.608	u	< 2.608	u	< 5.217	u	< 5.217	u	< 5.217	u	< 2.608	u	< 2.608	u
3+4-Methylphenol	930	(1)	< 1.475	u	< 1.475	u	< 1.475	u	< 2.951	u	< 2.951	u	< 2.951	u	< 1.475	u	< 1.475	u
3-Nitroaniline	-		< 1.48	u	< 1.48	u	< 1.48	u	< 2.96	u	< 2.96	u	< 2.96	u	< 1.48	u	< 1.48	u
4,6-Dinitro-2-methylphenol	1.51	(4)	< 1.368	u	< 1.368	u	< 1.368	u	< 2.736	u	< 2.736	u	< 2.736	u	< 1.368	u	< 1.368	u
4-Bromophenyl phenyl ether	-		< 1.409	u	< 1.409	u	< 1.409	u	< 2.817	u	< 2.817	u	< 2.817	u	< 1.409	u	< 1.409	u
4-Chloro-3-methylphenol	-		< 1.351	u	< 1.351	u	< 1.351	u	< 2.701	u	< 2.701	u	< 2.701	u	< 1.351	u	< 1.351	u
4-Chloroaniline	3.7	(5)	< 1.874	u	< 1.874	u	< 1.874	u	< 3.748	u	< 3.748	u	< 3.748	u	< 1.874	u	< 1.874	u
4-Chlorophenyl phenyl ether	-		< 2.013	u	< 2.013	u	< 2.013	u	< 4.026	u	< 4.026	u	< 4.026	u	< 2.013	u	< 2.013	u
4-Nitroaniline	38	(5)	< 1.242	u	< 1.242	u	< 1.242	u	< 2.483	u	< 2.483	u	< 2.483	u	< 1.242	u	< 1.242	u
4-Nitrophenol	-		< 1.405	u	< 1.405	u	< 1.405	u	< 2.81	u	< 2.81	u	< 2.81	u	< 1.405	u	< 1.405	u
Acenaphthene	535	(4)	< 1.885	u	< 1.885	u	< 1.885	u	< 3.769	u	< 3.769	u	< 3.769	u	< 1.885	u	< 1.885	u
Acenaphthylene	-		< 1.866	u	< 1.866	u	< 1.866	u	< 3.732	u	< 3.732	u	< 3.732	u	< 1.866	u	< 1.866	u
Aniline	130	(5)	< 1.546	u	< 1.546	u	< 1.546	u	< 3.092	u	< 3.092	u	< 3.092	u	< 1.546	u	< 1.546	u

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Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Screening Levels	Source	SWMU 10-1-GW		SWMU 10-3-GW		SWMU 10-5-GW		SWMU 10-11-GW		SWMU 10-12-GW		SWMU 10-14-GW		SWMU 10-15-GW		SWMU 10-16-GW	
Lab ID			1505001-001		1505005-001		1505218-001		1505698-001		1505700-001		1505701-001		1505708-001		1505710-001	
Sample Date			4/29/2015		4/29/2015		5/4/2015		5/14/2015		5/14/2015		5/14/2015		5/14/2015		5/14/2015	
Anthracene	1720	(4)	< 1.605	u	< 1.605	u	< 1.605	u	< 3.21	u	< 3.21	u	< 3.21	u	< 1.605	u	< 1.605	u
Azobenzene	1.2	(5)	< 2.005	u	< 2.005	u	< 2.005	u	< 4.011	u	< 4.011	u	< 4.011	u	< 2.005	u	< 2.005	u
Benz(a)anthracene	0.343	(4)	< 2.506	u	< 2.506	u	< 2.506	u	< 5.013	u	< 5.013	u	< 5.013	u	< 2.506	u	< 2.506	u
Benzo(a)pyrene	0.2	(2)	< 2.724	u	< 2.724	u	< 2.724	u	< 5.448	u	< 5.448	u	< 5.448	u	< 2.724	u	< 2.724	u
Benzo(b)fluoranthene	0.343	(4)	< 2.403	u	< 2.403	u	< 2.403	u	< 4.806	u	< 4.806	u	< 4.806	u	< 2.403	u	< 2.403	u
Benzo(g,h,i)perylene	-		< 3.125	u	< 3.125	u	< 3.125	u	< 6.25	u	< 6.25	u	< 6.25	u	< 3.125	u	< 3.125	u
Benzo(k)fluoranthene	3.43	(4)	< 2.515	u	< 2.515	u	< 2.515	u	< 5.03	u	< 5.03	u	< 5.03	u	< 2.515	u	< 2.515	u
Benzoic acid	75000	(1)	< 1.026	u	< 1.026	u	< 1.026	u	< 2.051	u	< 2.051	u	< 2.051	u	< 1.026	u	7.1	J
Benzyl alcohol	2000	(1)	< 1.172	u	< 1.172	u	< 1.172	u	< 2.344	u	< 2.344	u	< 2.344	u	< 1.172	u	< 1.172	u
Bis(2-chloroethoxy)methane	59	(1)	< 1.805	u	< 1.805	u	< 1.805	u	< 3.61	u	< 3.61	u	< 3.61	u	< 1.805	u	< 1.805	u
Bis(2-chloroethyl)ether	9.76	(4)	< 1.774	u	< 1.774	u	< 1.774	u	< 3.547	u	< 3.547	u	< 3.547	u	< 1.774	u	< 1.774	u
Bis(2-chloroisopropyl)ether	9.76	(4)	< 2.059	u	< 2.059	u	< 2.059	u	< 4.119	u	< 4.119	u	< 4.119	u	< 2.059	u	< 2.059	u
Bis(2-ethylhexyl)phthalate	6	(2)	< 3.326	u	< 3.326	u	< 3.326	u	< 6.651	u	< 6.651	u	< 6.651	u	< 3.326	u	< 3.326	u
Butyl benzyl phthalate	160	(5)	< 2.37	u	< 2.37	u	< 2.37	u	< 4.74	u	< 4.74	u	< 4.74	u	< 2.37	u	< 2.37	u
Carbazole	-		< 1.49	u	< 1.49	u	< 1.49	u	< 2.98	u	< 2.98	u	< 2.98	u	< 1.49	u	< 1.49	u
Chrysene	34.3	(4)	< 2.154	u	< 2.154	u	< 2.154	u	< 4.309	u	< 4.309	u	< 4.309	u	< 2.154	u	< 2.154	u
Dibenz(a,h)anthracene	0.106	(4)	< 3.268	u	< 3.268	u	< 3.268	u	< 6.537	u	< 6.537	u	< 6.537	u	< 3.268	u	< 3.268	u
Dibenzofuran	-		< 1.902	u	< 1.902	u	< 1.902	u	< 3.804	u	< 3.804	u	< 3.804	u	< 1.902	u	< 1.902	u
Diethyl phthalate	14800	(4)	< 1.673	u	< 1.673	u	< 1.673	u	< 3.347	u	< 3.347	u	< 3.347	u	< 1.673	u	< 1.673	u
Dimethyl phthalate	-		< 1.995	u	< 1.995	u	< 1.995	u	< 3.99	u	< 3.99	u	< 3.99	u	< 1.995	u	< 1.995	u
Di-n-butyl phthalate	885	(4)	< 2.103	u	< 2.103	u	< 2.103	u	< 4.206	u	< 4.206	u	< 4.206	u	< 2.103	u	< 2.103	u
Di-n-octyl phthalate	-		< 1.939	u	< 1.939	u	< 1.939	u	< 3.879	u	< 3.879	u	< 3.879	u	< 1.939	u	< 1.939	u
Fluoranthene	802	(4)	< 1.476	u	< 1.476	u	< 1.476	u	< 2.951	u	< 2.951	u	< 2.951	u	< 1.476	u	< 1.476	u
Fluorene	288	(4)	< 1.672	u	< 1.672	u	< 1.672	u	< 3.344	u	< 3.344	u	< 3.344	u	< 1.672	u	< 1.672	u
Hexachlorobenzene	1	(2)	< 2.022	u	< 2.022	u	< 2.022	u	< 4.045	u	< 4.045	u	< 4.045	u	< 2.022	u	< 2.022	u
Hexachlorobutadiene	2.95	(4)	< 1.949	u	< 1.949	u	< 1.949	u	< 3.898	u	< 3.898	u	< 3.898	u	< 1.949	u	< 1.949	u
Hexachlorocyclopentadiene	50	(2)	< 1.471	u	< 1.471	u	< 1.471	u	< 2.942	u	< 2.942	u	< 2.942	u	< 1.471	u	< 1.471	u
Hexachloroethane	6.8	(4)	< 1.612	u	< 1.612	u	< 1.612	u	< 3.224	u	< 3.224	u	< 3.224	u	< 1.612	u	< 1.612	u
Indeno(1,2,3-cd)pyrene	0.343	(4)	< 2.46	u	< 2.46	u	< 2.46	u	< 4.919	u	< 4.919	u	< 4.919	u	< 2.46	u	< 2.46	u
Isophorone	779	(4)	< 1.952	u	< 1.952	u	< 1.952	u	< 3.905	u	< 3.905	u	< 3.905	u	< 1.952	u	< 1.952	u
Naphthalene	1.65	(4)	< 1.834	u	< 1.834	u	< 1.834	u	**4.4**	J	< 3.667	u	< 3.667	u	< 1.834	u	< 1.834	u
Nitrobenzene	1.4	(4)	< 1.494	u	< 1.494	u	< 1.494	u	< 2.988	u	< 2.988	u	< 2.988	u	< 1.494	u	< 1.494	u
N-Nitrosodimethylamine	0.00165	(4)	< 1.417	u	< 1.417	u	< 1.417	u	< 2.834	u	< 2.834	u	< 2.834	u	< 1.417	u	< 1.417	u
N-Nitrosodi-n-propylamine	0.11	(5)	< 2.036	u	< 2.036	u	< 2.036	u	< 4.073	u	< 4.073	u	< 4.073	u	< 2.036	u	< 2.036	u

Table 8
SWMU 10 Groundwater Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Screening Levels	Source	SWMU 10-1-GW		SWMU 10-3-GW		SWMU 10-5-GW		SWMU 10-11-GW		SWMU 10-12-GW		SWMU 10-14-GW		SWMU 10-15-GW		SWMU 10-16-GW	
Lab ID			1505001-001		1505005-001		1505218-001		1505698-001		1505700-001		1505701-001		1505708-001		1505710-001	
Sample Date			4/29/2015		4/29/2015		5/4/2015		5/14/2015		5/14/2015		5/14/2015		5/14/2015		5/14/2015	
N-Nitrosodiphenylamine	0.0049	(4)	< 2.467	u	< 2.467	u	< 2.467	u	< 4.934	u	< 4.934	u	< 4.934	u	< 2.467	u	< 2.467	u
Phenanthrene	170	(4)	< 1.997	u	< 1.997	u	< 1.997	u	< 3.993	u	< 3.993	u	< 3.993	u	< 1.997	u	< 1.997	u
Pentachlorophenol	1	(2)	< 1.137	u	< 1.137	u	< 1.137	u	< 2.275	u	< 2.275	u	< 2.275	u	< 1.137	u	< 1.137	u
Phenol	5760	(4)	< 1.085	u	< 1.085	u	< 1.085	u	< 2.171	u	< 2.171	u	< 2.171	u	< 1.085	u	< 1.085	u
Pyrene	117	(4)	< 2.318	u	< 2.318	u	< 2.318	u	< 4.636	u	< 4.636	u	< 4.636	u	< 2.318	u	< 2.318	u
Pyridine	20	(1)	< 1.674	u	< 1.674	u	< 1.674	u	< 3.348	u	< 3.348	u	< 3.348	u	< 1.674	u	< 1.674	u
TPH (mg/l)																		
Gasoline Range Organics (GRO)	-		0.028	J	0.033	J	0.21	v	1.5	v	< 0.08	u	< 0.08	u	0.78	v	< 0.04	u
Diesel Range Organics (DRO)	-		< 0.91	u	< 0.91	u	3.1	v	5.5	v	< 0.91	u	< 0.91	u	1	v	< 0.91	u
Motor Oil Range Organics (MRO)	-		< 5	u	< 5	u	< 5	u	< 5	u	< 5	u	< 5	u	< 5	u	< 5	u

- No screening level or analytical result available

450 - bolded value exceeds screening level

(1) EPA - Regional Screening Levels (Nov. 2015) -Tap Water
(2) EPA - Regional Screening Levels (Nov. 2015) - MCL
(3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less
(4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (Dec. 2014)
(5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds

v = reportable detection above the Practical quantitation limit (PQL)
u - result is not detected at method detection limit (MDL)
j - estimated result at concentration above MDL but less than PQL
z - concentration exceeds MCL

Table 9
Soil Cumulative Risk and Hazard Index Evaluation
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Maximum Concentration	Maximum Concentration divided by Residential Soil Screening Level	Maximum Concentration divided by Non-Residential Soil Screening Level
CARCINOGENIC CONSTITUENTS							
Metals (mg/kg)							
Arsenic	4.25E+00	(1)	2.15E+01	(4)	2.60E+00	6.12E-01	1.21E-01
Volatiles (mg/kg)							
1,1-Dichloroethane	7.86E+01	(1)	3.83E+02	(4)	4.73E-04	6.02E-06	1.23E-06
Benzene	1.78E+01	(1)	8.72E+01	(4)	8.00E+00	4.50E-01	9.17E-02
Ethylbenzene	7.51E+01	(1)	3.68E+02	(4)	1.40E+01	1.86E-01	3.81E-02
Methyl tert-butyl ether (MTBE)	9.75E+02	(1)	4.82E+03	(4)	9.36E-03	9.60E-06	1.94E-06
Methylene chloride	4.09E+02	(1)	1.21E+03	(5)	8.13E-04	1.99E-06	6.74E-07
Naphthalene	4.97E+01	(1)	1.59E+02	(5)	2.60E+01	5.24E-01	1.64E-01
Semi-volatiles (mg/kg)							
1-Methylnaphthalene	1.80E+02	(3)	7.30E+02	(7)	7.60E+01	4.22E-01	1.04E-01
Bis(2-ethylhexyl)phthalate	3.80E+02	(1)	1.83E+03	(4)	1.50E+00	3.94E-03	8.19E-04
Carcinogenic Constituents Cumulative Risk x 10^{-5}						**2.20E+00**	**5.19E-01**
NON-CARCINOGENIC CONSTITUENTS							
Metals (mg/kg)							
Antimony	3.13E+01	(1)	1.42E+02	(5)	2.70E+00	8.63E-02	1.91E-02
Barium	1.56E+04	(1)	4.35E+03	(5)	2.90E+03	1.86E-01	6.66E-01
Beryllium	1.56E+02	(1)	1.48E+02	(5)	1.80E+00	1.15E-02	1.22E-02
Cadmium	7.05E+01	(1)	7.21E+01	(5)	6.20E-02	8.79E-04	8.59E-04
Chromium	9.66E+01	(1)	1.34E+02	(5)	5.40E+01	5.59E-01	4.04E-01
Cobalt	2.30E+01	(2)	3.50E+02	(6)	9.10E+00	3.96E-01	2.60E-02
Iron	5.50E+04	(2)	8.20E+05	(6)	2.40E+04	4.36E-01	2.93E-02
Lead	4.00E+02	(1)	8.00E+02	(4)	1.70E+01	4.25E-02	2.13E-02
Manganese	1.80E+03	(2)	2.60E+04	(6)	1.30E+03	7.22E-01	5.00E-02
Mercury	2.38E+01	(1)	2.07E+01	(5)	5.30E-01	2.23E-02	2.56E-02
Nickel	1.56E+03	(1)	6.19E+03	(5)	1.70E+01	1.09E-02	2.74E-03
Vanadium	3.94E+02	(1)	6.14E+02	(5)	4.90E+01	1.24E-01	7.98E-02
Zinc	2.35E+04	(1)	1.06E+05	(5)	1.50E+02	6.39E-03	1.41E-03
Volatiles (mg/kg)							
1,2,4-Trimethylbenzene	5.80E+01	(2)	2.40E+02	(6)	2.70E+01	4.66E-01	1.13E-01
1,3,5-Trimethylbenzene	7.80E+02	(2)	1.20E+04	(6)	1.00E+01	1.28E-02	8.33E-04
2-Butanone	3.74E+04	(1)	9.17E+04	(5)	4.24E-03	1.13E-07	4.63E-08
2-Hexanone	2.00E+02	(2)	1.30E+03	(6)	9.62E-04	4.81E-06	7.40E-07
4-Methyl-2-pentanone	5.81E+03	(1)	2.02E+04	(5)	0.00E+00	0.00E+00	0.00E+00

Table 9
Soil Cumulative Risk and Hazard Index Evaluation
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Maximum Concentration	Maximum Concentration divided by Residential Soil Screening Level	Maximum Concentration divided by Non-Residential Soil Screening Level
Acetone	6.63E+04	(1)	2.42E+05	(5)	1.50E-01	2.26E-06	6.21E-07
Bromomethane	1.77E+01	(1)	1.79E+01	(5)	1.20E-01	6.77E-03	6.72E-03
Carbon disulfide	1.55E+03	(1)	1.62E+03	(5)	9.68E-04	6.23E-07	5.97E-07
Isopropylbenzene	2.36E+03	(1)	2.74E+03	(5)	3.10E+00	1.31E-03	1.13E-03
n-Butylbenzene	3.90E+03	(2)	5.80E+04	(6)	2.80E+00	7.18E-04	4.83E-05
n-Propylbenzene	3.80E+03	(2)	2.40E+04	(6)	5.20E+00	1.37E-03	2.17E-04
sec-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	1.80E+00	2.31E-04	1.50E-05
Toluene	5.23E+03	(1)	1.40E+04	(5)	3.40E+01	6.50E-03	2.42E-03
Xylenes, Total	8.71E+02	(1)	7.98E+02	(5)	8.60E+01	9.88E-02	1.08E-01
Semi-volatiles (mg/kg)							
2,4-Dimethylphenol	1.23E+03	(1)	5.38E+03	(5)	3.60E+01	2.92E-02	6.69E-03
2-Methylnaphthalene	2.40E+02	(2)	3.00E+03	(6)	1.30E+02	5.42E-01	4.33E-02
'2-Methylphenol (cresol,o-)	3.20E+03	(2)	4.10E+04	(6)	5.60E+01	1.75E-02	1.37E-03
Fluorene	2.32E+03	(1)	1.00E+04	(5)	8.10E+00	3.49E-03	8.07E-04
Phenanthrene	1.74E+03	(1)	7.53E+03	(5)	1.50E+01	8.63E-03	1.99E-03
Phenol	1.83E+04	(1)	7.74E+04	(5)	5.20E+01	2.84E-03	6.72E-04
Non-Carcinogenic Constituents Hazard Index						**3.80E+00**	**1.62E+00**

NMED - Risk Assessment Guidance for Site Investigations and Remediation (Dec. 2014)

EPA - Regional Screening

(1) NMED Residential Screening

(2) EPA Residential Screening

(3) EPA Residential - Screening Levels (June 2015) multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Closure Permit because the constituent is listed as carcinogenic

(4) NMED Industrial Occupational Screening Level

(5) NMED Construction Worker Screening Level

(6) EPA Industrial - Screening Levels (June 2015)

(7) EPA Industrial - Screening Levels June 2015) multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Clousre Permit because the constituent is listed as carcinogenic

Table 10
Groundwater Cumulative Risk and Hazard Index Evaluation
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Screening Levels	Source	Maximum Concentration	Maximum Concentration divided by Residential Groundwater Screening Level
CARCINOGENIC CONSTITUENTS				
Metals (mg/l) DISSOLVED				
Arsenic (D)	1.00E-02	(2)	1.20E-02	1.20E+00
Chromium (D)	5.00E-02	(3)	9.40E-03	1.88E-01
Volatiles (ug/l)				
1,1-Dichloroethane	2.50E+01	(3)	9.30E-01	3.72E-02
1,2-Dichloroethane (EDC)	5.00E+00	(2)	4.80E-01	9.60E-02
1-Methylnaphthalene	1.10E+01	(5)	7.00E+01	6.36E+00
Benzene	5.00E+00	(2)	2.70E+01	5.40E+00
Ethylbenzene	7.00E+02	(2)	4.00E+01	5.71E-02
Methyl tert-butyl ether (MTBE)	1.43E+02	(4)	1.50E+02	1.05E+00
Naphthalene	1.65E+00	(4)	4.50E+01	2.73E+01
Carcinogenic Constituents Cumulative Risk x 10^{-5}				**4.17E+01**
NON-CARCINOGENIC CONSTITUENTS				
Metals TOTAL & Water Quality Parameters (mg/l)				
Cyanide	2.00E-01	(3)	1.40E-01	7.00E-01
Mercury	2.00E-03	(3)	7.50E-04	3.75E-01
Chloride	2.50E+02	(3)	7.10E+03	2.84E+01
Fluoride	1.60E+00	(3)	1.30E+00	8.13E-01
Sulfate	6.00E+02	(3)	1.10E+03	1.83E+00
Metals (mg/l) DISSOLVED				
Antimony (D)	6.00E-03	(2)	9.30E-04	1.55E-01
Barium (D)	1.00E+00	(3)	4.50E-01	4.50E-01
Beryllium (D)	4.00E-03	(2)	9.00E-04	2.25E-01
Cobalt (D)	5.00E-02	(3)	2.30E-02	4.60E-01

Table 10
Groundwater Cumulative Risk and Hazard Index Evaluation
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Screening Levels	Source	Maximum Concentration	Maximum Concentration divided by Residential Groundwater Screening Level
Iron (D)	1.00E+00	(3)	3.90E+00	3.90E+00
Lead (D)	1.50E-02	(2)	6.80E-03	4.53E-01
Manganese (D)	2.00E-01	(3)	3.90E+00	1.95E+01
Nickel (D)	3.72E-01	(4)	6.50E-01	1.75E+00
Selenium (D)	5.00E-02	(3)	4.10E-02	8.20E-01
Vanadium (D)	6.31E-02	(4)	1.60E-02	2.54E-01
Zinc (D)	1.00E+01	(3)	1.50E-01	1.50E-02
Volatiles (ug/l)				
1,1-Dichloroethene	5.00E+00	(3)	1.20E-01	2.40E-02
1,2,4-Trimethylbenzene	1.50E+01	(1)	6.40E+01	4.27E+00
1,3,5-Trimethylbenzene	1.20E+01	(1)	2.20E+01	1.83E+00
2-Butanone	5.56E+03	(4)	2.90E+00	5.22E-04
2-Methylnaphthalene	3.60E+01	(1)	9.80E+01	2.72E+00
Acetone	1.41E+04	(4)	9.70E+00	6.88E-04
Isopropylbenzene	4.47E+02	(4)	8.50E+00	1.90E-02
Toluene	7.50E+02	(3)	6.00E+00	8.00E-03
Xylenes, Total	6.20E+02	(3)	2.30E+02	3.71E-01
Non-Carcinogenic Constituents Hazard Index				**6.93E+01**

(1) EPA - Regional Screening Levels (Nov. 2015) -Tap Water

(2) EPA - Regional Screening Levels (Nov. 2015) - MCL

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

(4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (Dec. 2014)

(5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds

Figures

Appendix A
Hydrogeologic Data

TEST PUMPING OF CHINLE SHALE

METHODOLOGY AND DESCRIPTION OF THE TEST

The test consisted of a 5 hour pumping period and a 2 hour recovery period. An air-driven piston pump capable of sustaining pumping rates as low as 10 gallons/hour (0.167 gpm) was used for the test. Water level measurments were taken with an electronic sounder. The well (OW-24) is located approximately 250 feet northwest of the land treatment facility and is completed within the Chinle shale. The lithologic and completion log of the well is attached (Figure F-2).

Pumping began at 1515 hours on February 20, 1985 at a rate of 10 gallons/hour. The produced water was very turbid. Clogging of the pump and pump lines necessitated continuous monitoring and adjustment of the discharge.

After 4 hours of pumping at 10 gallons/hour, the drawdown of the well appeared to stabilize at about 7 feet. The discharge rate was increased to 20 gallons/hour in order to more effectively stress the aquitard. After one hour of additional pumping a total drawdown of 12 feet was observed. However, this higher pumping rate increased the turbidity of the discharge and caused instability of the pumping rate. The lack of control of the discharge rate and the potential of diamage to the pump forced the termination of the test after a total of 5 hours of pumping.

Water level recovery was observed for 100 minutes. At this time the water level had recovered to within 90% of the pre-pumping level.

TABLE F-1

Pump Test Data, OW-24

PUMP TEST ANALYSIS

Field measurements are summarized in Table F-1. Due to the short pumping time and potential well-bore and gravel-pack effects, the final analysis was based on methods developed by Shafer, for low-conductivity materials.

Partial penetration effects were neglected in the analysis because the low pumping rates and the expected anisotropy of the aquitard would prevent significant vertical flow to the well bore. The low pumping rate was also designed to completely drain the gravel pack in the well to insure accurate recovery data.

A copy of Shafer's methodology is attached, and the data for his analysis is given in Table F-2. Figure F-1 is a plot of the recovery data, according to Shafer's methods. This Figure includes calculation of T and K for the Chinle shales.

TD = 58'-4" = 58.33'

DW = 31.96

26.37' of water

Pump @ 55

≈ 18 gal

PUMPING DATA

DATA SHEET FOR RECORDING PUMP TEST DATA

County : McKinley Co.

Location: Ciniza Refinery 2/22/85

Observation well no. _____

Pumped well no. OW-24

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	gph Q (gpm)	Remarks
2-20	1515	0			31'-11.5"	0"	Feet		10 gph	STATIC LEVEL w/ PUMP
	1516	1			33-0	12.5	1.04			LARGE INITIAL DRAW DOWN FILL DISCH HOSE
	1517	2			33-1	13.5	1.13			Setting pump rate
	1518	3			33-4	16.5	1.38			
	1519	4			33-8¾	20.75	1.73			
	1520	5			33-11½	24.0	2.0'			
	1521	6			34-2	26.5	2.22			
	1522	7			34-2½	27.0	2.25			
1 min	1523	8			34-3	27.5	2.27			
	1524	9			34-4	28.5	2.37			
	1525	10			34-5	29.5	2.46			
	1527	12			34-6¾	30.75	2.56			
	1529	14			34-9	33.5	2.79			
	1531	16			35-0	36.5"	3.04			
2 min	1533	18			35-2½	39.75	3.23			
	1535	20			35-4½	41.0	3.42			
	1540	25			35-10½	47.0	3.92			
	1545	30			36-3	51.5	4.28			
	1550	35			36-2½	51.0	4.25			
	1555	40			36-8	56.5	4.71		10 gpm	CLEARED PUMP Valve
5 min	1600	45			37-2¼	62.75	5.23			
	1605	50			36-10½	81.0	5.08			clear pump valve
	1610	55			NR	70.75				
	1615	60			37-10¼	82.75	5.90			Pumped 10 gal
10 min	1625	70			38-½	85.0	6.08			

PUMPING DATA

DATA SHEET FOR RECORDING PUMP TEST DATA

County: _____ Observation well no. MW-24

Location: Cimiga Refinery Pumped well no. MW-24

Average Q 10 gpm r = — ft. r^2 = —

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment As	s' (adjusted)	Q gpm	Remarks
2-20	1635	80			39-3½	~~80.0~~ 78	6.33		10	
	1645	90			38-7	~~91.5~~ 79.5	6.79			Lift pump to 50'
	1655	100			37-6½	69.0	5.75			clear pump, ready pretime
	1705	110			36-11½	~~94.0~~ 84.0	7.00			
2 hours	1715	120			39-2½		7.27			Pumped 20 gal
	1730	135			38-11		6.97			
15 min	1745	150			39-2½		7.25			
	1800	165			39-0½		7.08			
3 h	1815	180			39-2		7.21			Pumped 30 gal
	1830	195			39-5		7.46			
	1845	210			39-5		7.46			
	1900	225			39-2		7.21			
4 h	1915	240			38-11½		7.00			Pumped 40 gal
	1930	255			39-0		7.04		10	
	1932	257			39-4		7.38		20	INCREASE PUMP RATE TO 30 GPM
	1934	259			39-10		7.87			PUMP SLIPPED APPROX 1 FOOT - REPLACED TO APPROX SAME LEVEL
2 min	1936	261			40-3½		8.33			
	1938	263			40-3½		8.33			
	1940	265			40-1½		8.17			PUMPING RATE TELL-OFF SLIGHTLY
	1945	270			40-9		8.79			
	1950	275			41-9½		9.83			
5 min	1955	280			42-0		10.04			
	~~2000~~	285			41-8		9.72			
	2005	290			42-6½		9.75			
	2010	295			43-4		11.27			Silt in Pump?
15 min 5 h	2015	300			43-2½		11.25			Adj pump valve pumped 10 gal
	2030	315			45-10½		11.92			

RECOVERY DATA

DATA SHEET FOR RECORDING PUMP TEST DATA

County: ____________________ Observation well no. ________

Location: Cimix Refinery Pumped well no. [illegible]-24

Average Q __________ gpm r = __________ ft. r^2 = __________

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
1/22	20:32		0		43-11½	144"	12.0'	0	20 gph	
	2034		2		42-7-		10.63'	1.37		
	2036		4		41-8¾		9.69	2.31		
2 min	2038		6		40-10¼		8.86	3.14		
	2040		8		40-2		8.21	3.79		
	2042		10		39-6¼		7.56	4.44		
	2047		15		38-0¾		6.11	5.89		
	2052		20		37-1½		5.17	6.83		
	2057		25		36'4-		4.38	7.62		
	2102		30		35-8½		3.75	8.25		
	2107		35		35-2¼		3.27	8.73		
	2112		40		34-9¾		2.86	9.14		
5 min	2117		45		34-5¾		2.52	9.48		
	2122		50		34-2¾		2.27	9.73		
	2127		55		34-0½		2.07	9.93		
	2132		60		33-10½		1.92	10.08		
	2142		70		33-7½		1.66	10.34		
10 min	2152		80		33-5¾		1.51	10.49		
	2202		90		33-4½		1.42	10.58		
	2212		100		33-3¼		1.32	10.68		
	2222		110							
	2232		120							
15 min	2247		135							
	2302		150							
	2317		165							

TABLE F-2

DATA FOR SHAFER'S METHOD

Time Since Pumping Started (min)	Drawdown (feet) (s)	Feet of Casing Filled (ft)	Time To Fill (min)	Q (gpm)	S/Q (ft/gpm)
317	12.0	0	0	---	-----
319	10.63	1.37	2	.45	23.8
321	9.69	.94	2	.31	31.6
323	8.86	.83	2	.27	32.7
325	8.21	.65	2	.21	38.7
327	7.56	.65	2	.21	35.6
332	6.11	1.45	5	.19	32.3
337	5.17	.94	5	.13	42.1
342	4.38	.79	5	.10	42.5
347	3.75	.63	5	.08	45.6
352	3.27	.48	5	.06	52.2
357	2.86	.41	5	.05	53.4
362	2.52	.34	5	.04	56.8
367	2.27	.25	5	.03	69.5
372	2.07	.20	5	.026	79.3
377	1.92	.15	5	.019	98.0
387	1.66	.26	10	.017	97.8
397	1.51	.15	10	.009	154
407	1.42	.15	10	.009	145
417	1.32	.10	10	.006	202

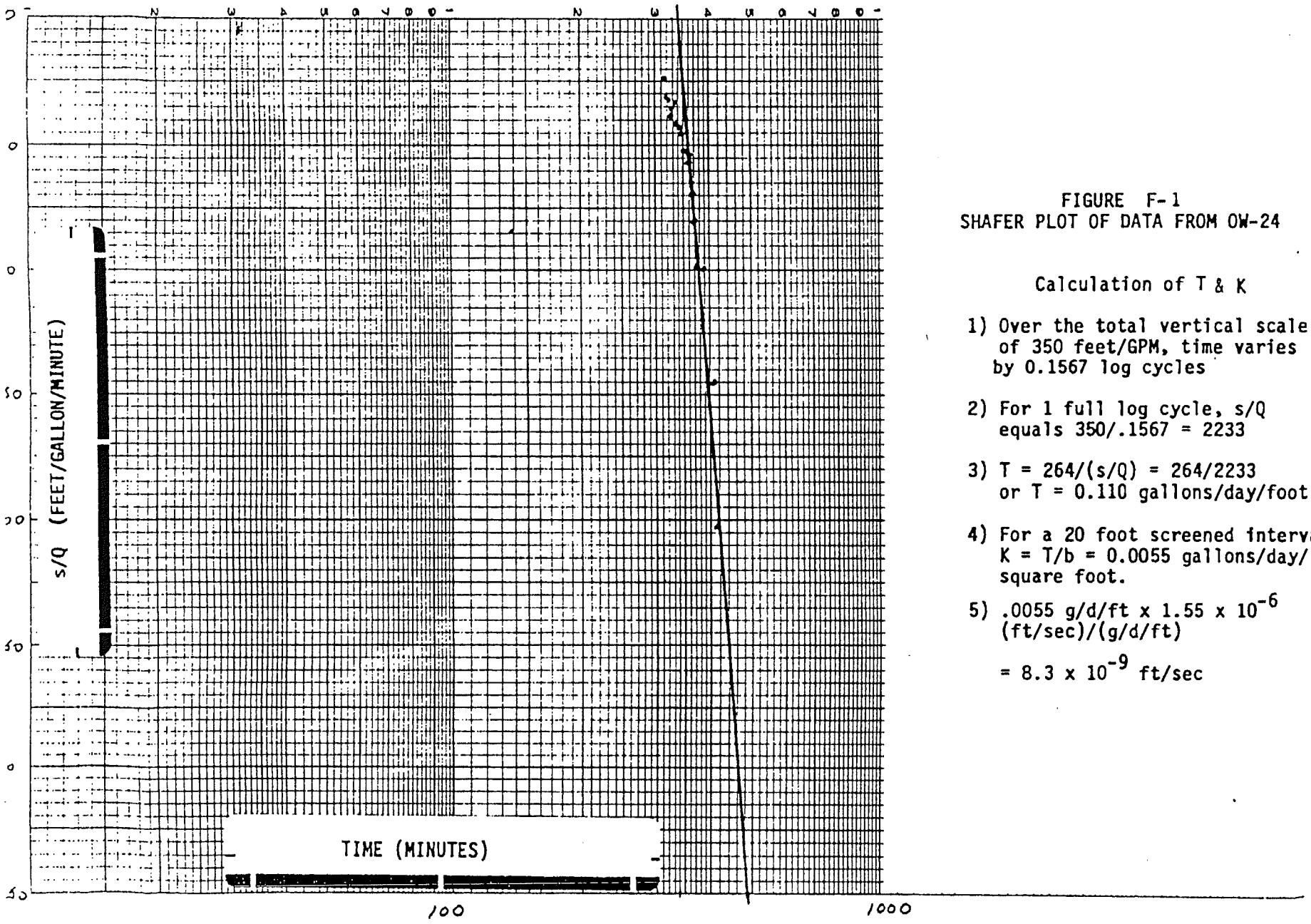


FIGURE F-1
SHAFER PLOT OF DATA FROM OW-24

Calculation of T & K

1) Over the total vertical scale of 350 feet/GPM, time varies by 0.1567 log cycles

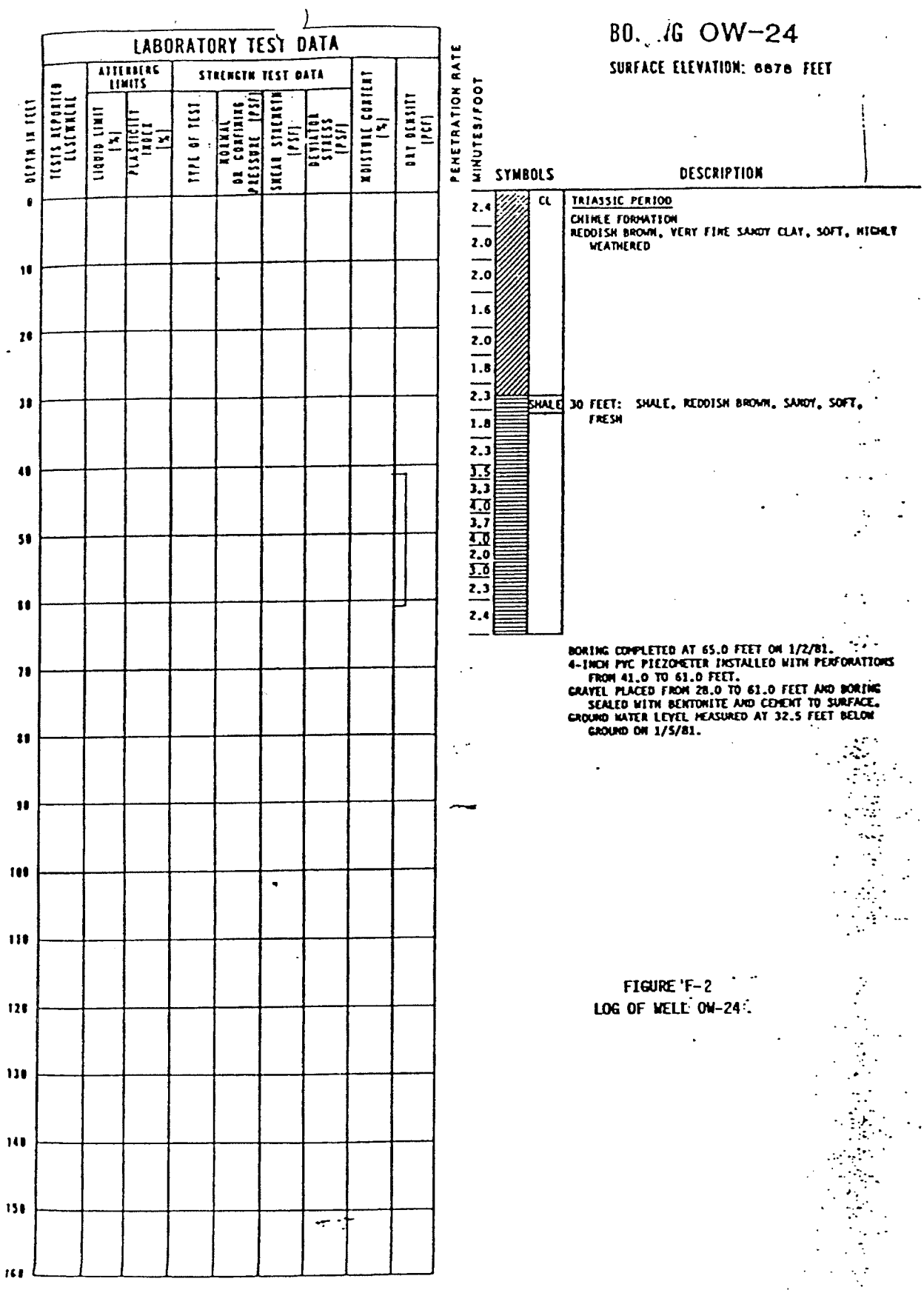
2) For 1 full log cycle, s/Q equals 350/.1567 = 2233

3) T = 264/(s/Q) = 264/2233
or T = 0.110 gallons/day/foot

4) For a 20 foot screened interval K = T/b = 0.0055 gallons/day/square foot.

5) .0055 g/d/ft x 1.55×10^{-6} (ft/sec)/(g/d/ft)

$= 8.3 \times 10^{-9}$ ft/sec



BO. .G OW-24

SURFACE ELEVATION: 6678 FEET

DESCRIPTION

TRIASSIC PERIOD

CHINLE FORMATION

REDDISH BROWN, VERY FINE SANDY CLAY, SOFT, HIGHLY WEATHERED

30 FEET: SHALE, REDDISH BROWN, SANDY, SOFT, FRESH

BORING COMPLETED AT 65.0 FEET ON 1/2/81.
4-INCH PVC PIEZOMETER INSTALLED WITH PERFORATIONS FROM 41.0 TO 61.0 FEET.
GRAVEL PLACED FROM 28.0 TO 61.0 FEET AND BORING SEALED WITH BENTONITE AND CEMENT TO SURFACE.
GROUND WATER LEVEL MEASURED AT 32.5 FEET BELOW GROUND ON 1/5/81.

FIGURE F-2
LOG OF WELL OW-24

LOG OF BORINGS

DAMES & MOORE

Pumping Test Analyses for Low Yield Formations

by David C. Shafer

Occasionally it is necessary to determine aquifer characteristics of very low yielding formations—those with transmissivities less than 500 gallons per day per foot. Though interest in these aquifers is certainly not because of their productive capability, it may be desirable to determine groundwater flow characteristics even in these low yield formations in order to determine such things as regional groundwater flow patterns, effect of dewatering or migration of pollution plumes near point sources of contamination.

Different Approach

Conventional pumping test analysis using the standard time drawdown graph often does not work effectively in low T (transmissivity) formations for two reasons. First, the pumped well's low specific capacity (gallons per minute per foot of drawdown) may cause the pump to break suction during the test and it may be impractical to throttle back the pumping rate sufficiently to prevent this. Second, even if a constant pumping rate can be maintained without breaking suction, most of the data obtained will probably reflect casing storage effects rather than true aquifer parameters (see "Casing Storage Can Affect Pumping Test Data," Jan-Feb. 1978, Johnson Drillers Journal). Thus a different approach is required.

The best method for analyzing these formations is to pump a substantial portion of the casing empty, then shut the pump off and measure water levels as they recover. In ordinary pumping tests these measurements correspond to the non-pumping portion of the test. However, in the low T formations this "recovery period" is actually the "pumping period!"

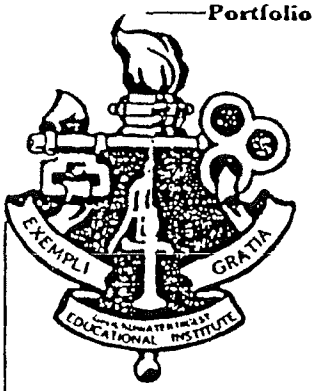
After pump shut-off, the casing slowly begins filling with water. This water comes from the aquifer and actually represents the water pumped during this so called "pumping period." The pumping rate is determined by measuring the volume of

William F. Achuff
Director

Pumping rate = 10 gpm
Pumping period = 15 minutes
Drawdown at pump shut off = 90 ft
Casing — 6" I.D.
Drop pipe — 1¼" I.D.

Time in minutes since pumping started (t)	Drawdown in feet (s)	Number of feet of casing filled	Time in minutes required to fill	Volume filled divided by time required in gallons per minute (Q)	s/Q in feet per gallon per minute
15 (pump shut off)	90				
17	85.66	4.34	2	3.04	28.2
20	79.7	5.96	3	2.78	28.6
30	64.2	15.5	10	2.17	29.5
40	51.9	12.3	10	1.72	30.2
60	35.6	13.3	20	1.14	31.1
80	24.6	11.0	20	.77	31.8

Table 1



casing filled in a given length of time.

During the test, careful measurements are made of time since pumping began (t) along with drawdown (s) at each of these times. Then a calculation is made to determine Q for each time t and finally the ratio s/Q is computed for each measured drawdown value. The ratio is simply the reciprocal of the specific capacity.

A graph is then constructed showing t versus the ratio s/Q plotted as usual on semi-logarithmic graph paper with t on the log scale. A straight line of best fit is drawn through the data points and T is calculated as follows:

$$T = \frac{264}{\Delta(s/Q)}$$

where $\Delta(s/Q)$ is the change in s/Q over one log cycle of graph paper.

This graph has the unique advantage that it will accurately reflect aquifer transmissivity independent of casing storage effects. In addition it will be sensitive to nearby recharge and/or negative boundaries and will reveal these conditions like any ordinary time drawdown graph.

To see how this technique works it is best to work an example. Table 1 shows data obtained from a 6-inch well pumped at 10 gpm for 15 minutes. Drawdown after 15 minutes of pumping measured 90 feet.

The next data point was recorded two minutes following pump shut-off or 17 minutes since pumping started. At this time the pumping water level was 85.66 feet, indicating that 4.34 feet of casing had filled during the two minute interval.

The annulus between the 6-inch casing and 1¼" drop pipe holds 1.4 gallons per foot so that the volume of casing filled is 1.4 times 4.34, or 6.08 gallons in two minutes. Thus,

$$Q = 6.08 \text{ gallons}/2 \text{ minutes} = 3.04 \text{ gpm}$$

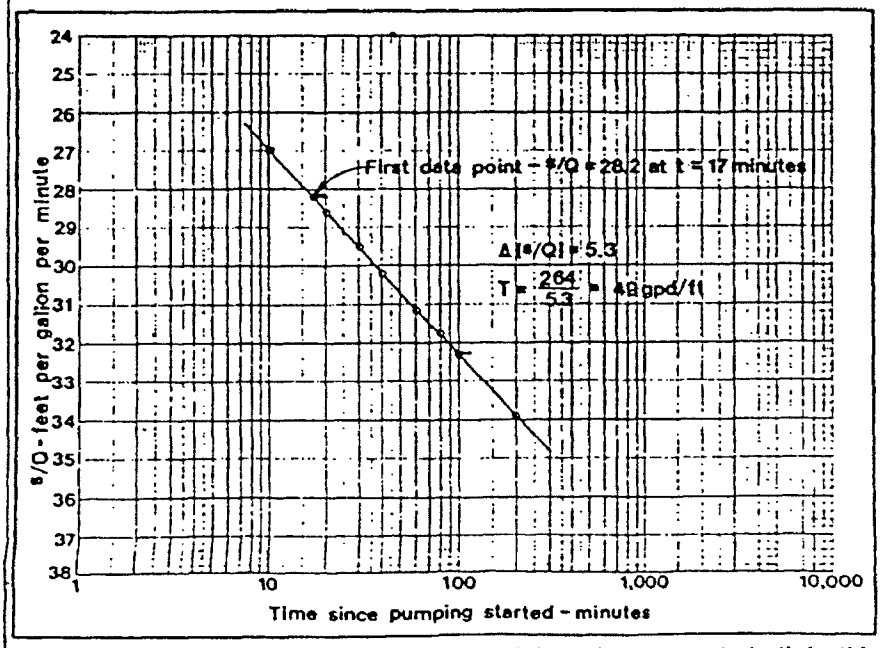
finally,

$$s/Q = 85.66 \text{ ft}/3.04 \text{ gpm} = 28.2 \text{ ft/gpm}$$

which is plotted at a time of 17 minutes on the graph shown here.

This analysis is repeated for each drawdown measurement. The resultant calculated s/Q values are shown in the table and plotted in the figure. The formation T value from the graph is

$$T = \frac{264}{\Delta(s/Q)} = 264/5.3 = 49 \text{ gpd/ft}$$



In low transmissivity situations, readings are taken after pump shut-off. In this method, s/Q is the reciprocal of the specific capacity and t is time, measured after shut-off as water begins to enter the casing.

Conventional Analysis

Examination of the hydraulic characteristics of this well (not included here) shows that if a conventional time drawdown graph had been used, casing storage effects would have lasted for approximately twelve hours. This means that data recorded in the first twelve hours of pumping would have been useless and longer pumping than this would have been required to obtain any usable data at all. However, data collected after twelve hours of pumping probably would be more influenced by boundary conditions than by aquifer transmissivity. Thus, in practice, it actually might have been impossible to determine the T value using conventional analysis techniques regardless of the length of the test. The value of the method described above becomes very clear; it may be the only way to determine T values in certain low yielding aquifers.

In order to maximize the accuracy of this method, it is best to unload (empty) the casing as rapidly as possible. Thus it is actually better to use a high capacity pump than a low capacity pump in analyzing extremely low-yielding wells!

Another good idea is to unload the casing with compressed air since this can typically be done in one minute or less.

Recorded Data Must Be Accurate

An additional important consideration is that all data recorded for this type of analysis must be absolutely accurate. Small errors in the recorded values of time and/or drawdown can result in large errors in the calculated values of s/Q. For best results, drawdown should be recorded to the nearest hundredth of a foot and timed to the nearest second or two.

JOHN W. SHOMAKER
CONSULTING GEOLOGIST
3236 CANDELARIA, N.E.
ALBUQUERQUE, NEW MEXICO 87107

(505) 884-2897

RECEIVED SEP 24 1984

September 20, 1984

Carl D. Shook, Plant Manager
Giant Refining Company, Ciniza Refinery
Route 3, Box 7
Gallup, New Mexico 87301

Re: results of permeability tests, July 2 and 3, 1984

Dear Carl:

Copies of the field notes, calculations, and data plots for the two permeability tests are attached. The tests are summarized as follows:

Well OW-4 The well is completed principally in the clay and shale sequence which overlies the uppermost aquifer; a small thickness of sandstone which may be part of the uppermost aquifer was also penetrated. Total depth when drilled was 102.0 ft. Perforations are from 62.0 ft to 102 ft. The well is located near the center of the land-treatment area. A slug test was performed on July 3, 1984, following the method described by S. W. Lohman (1972, Ground-Water Hydraulics, U. S. Geol. Survey Prof. Paper 708, p. 27-29), which indicates the permeability of the section open to the well to be about 4×10^{-7} cm/sec.

Well MW-1 This well is one of the monitoring wells on the boundary of the land-treatment area, and is completed in the uppermost aquifer. It was drilled to 120 ft, and is screened in the interval 87 to 120 ft; the casing is sealed above 89 ft so as to isolate the uppermost aquifer. The slug test performed on July 3, 1984 indicated a permeability of about 1.2×10^{-4} cm/sec.

Information as to the construction of the wells is taken from Dames and Moore (March, 1981; Ground water and soils investigation, Ciniza Refinery near Gallup, New Mexico, and November, 1981, Groundwater monitoring plan, Ciniza Refinery near Gallup, New Mexico).

Please let me know if there are questions.

Sincerely,

John W. Shomaker
Consulting Geologist

cc: Tom Andrews, Delta H Engineering w/encl

well: [illegible] OW-4
date: 7-3-84

casing size: nominal 4½" ID 4.0 csg. mat'l. PVC
water levels measured from top 4½ OD PVC casing, S side, which is 1.7 ± above ground level.
volume of slug:

OD, ft $\left(\text{OD} \times \frac{1}{2}\right)^2 \times \pi \times$	length, ft	=
0.27	0.10	0.006 ft^3
0.30	0.04	0.003
0.243	4.84	0.224
0.27	0.26	0.015
0.243	4.81	0.223
0.27	0.26	0.015
0.18	0.03	0.001
0.11	0.25	0.002
		/

Note- obstruction in casing at 33. won't pass 0.27 OD.

sum 0.489 = V, ft^3 = 3.66 gal.

r_c = internal radius of casing above perfs: 0.165 ft

r_s: radius of screen or open hole: ______ ft

initial water level 26.15 ft below MP, time 07:51

$$H_o = \frac{V}{\pi r_c^2} = \frac{0.489}{\pi (0.165)^2} = 5.72 \text{ ft}$$

clock time	t, sec.	water level	H	H/H_o	remarks
08:20:54	0				slug released top slug: 23.2' MP
21:25 ?	31 ?	20.75	5.40	0.944	
22:28	94	20.76	5.39	0.942	
23:14	140	20.80	5.35	0.935	
23:51	177	20.81	5.34	0.934	
24:42	228	20.83	5.32	0.930	
25:42	288	20.87	5.28	0.923	
27:06	372	20.90	5.25	0.918	
28:14	440	20.92	5.23	0.914	
29:43	529	20.95	5.20	0.909	
30:55	601	20.97	5.18	0.906	
32:46	712	21.00	5.15	0.900	
35:16	862	21.04	5.11	0.893	
38:38	1064	21.10	5.05	0.883	
43:30	1356	21.19	4.96	0.867	
46:52	1558	21.21	4.94	0.864	raised slug 0.4 ft.
49:26	1712	21.25	4.90	0.857	
52:54	1920	21.30	4.85	0.848	

t_0 = 08:20:54

0:00 = 2:46

clock time	t, sec.	level	H	H/H₀	remarks
~~08:54:13~~		~~21.34~~			
08:56:50	2096	21.35	4.80	0.839	
09:00:16	2362	21.39	4.76	0.832	
:05:00	2646	21.45	4.70	0.822	
09:55	2941	21.50	4.65	0.813	
17:46	3412	21.60	4.55	0.795	
28:25	4051	21.71	4.44	0.776	m-scope trouble
46:00	5106	21.89	4.26	0.745	
10:02:23	6089	22.05	4.10	0.717	
14:00	6786	22.15	4.00	0.699	
10:24:26	7412	22.25	3.90	0.687	stopped test; slug almost uncovered

late data matches: $\alpha = 10^{-1}$ curve, $Tt/r_c^2 = 1$ at $t = 50{,}000$ sec.

$T = \frac{1.0\, r_c^2}{t} = \frac{(1.0)(0.165)^2}{50{,}000} = 5.4 \times 10^{-7}$ ft²/sec

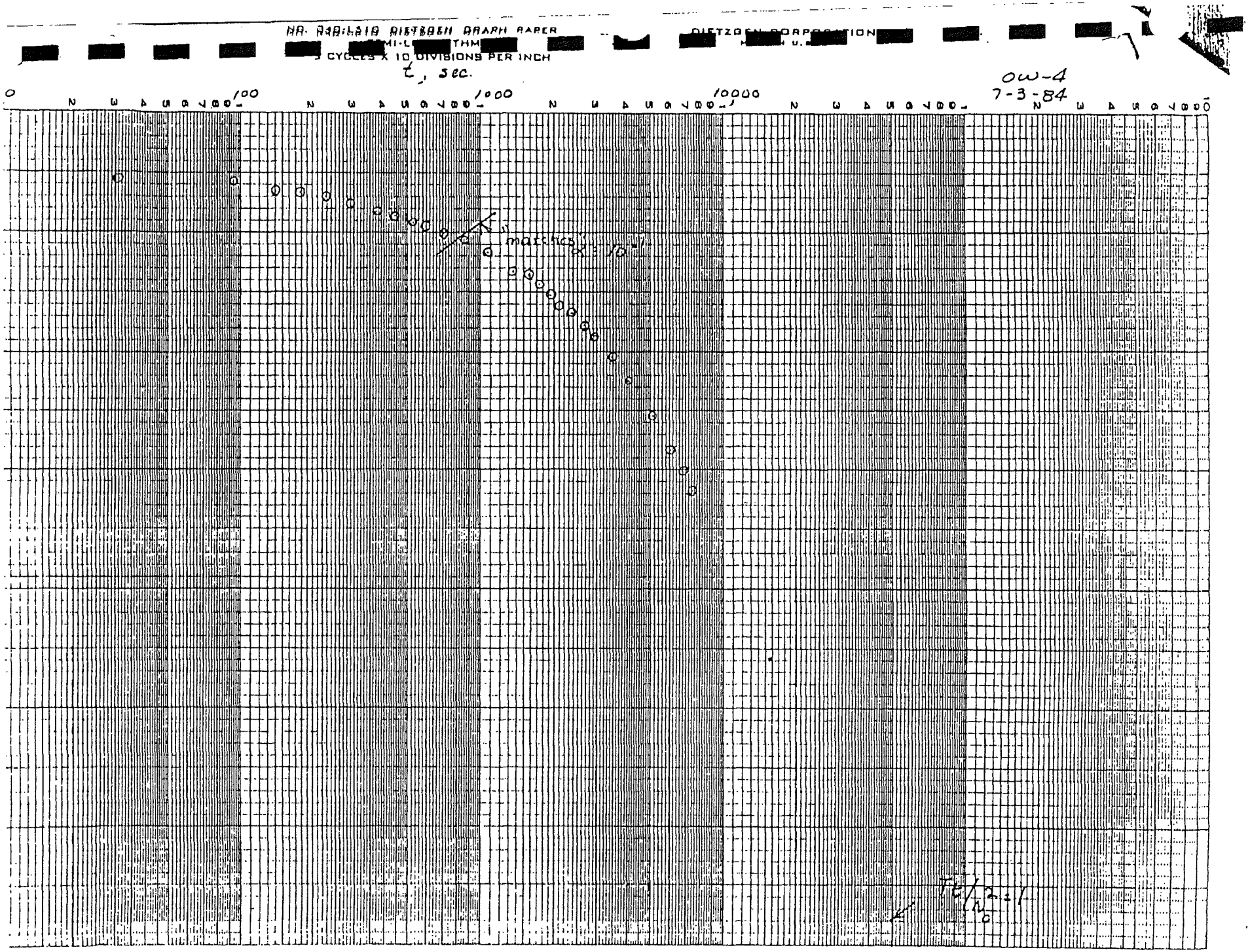
$= 0.05$ ft²/day $= 0.35$ gpd/ft

$K_h = \frac{0.05 \text{ ft}^2/\text{day}}{40 \text{ ft screen}} = 0.001$ ft/day

0.001 ft/day $\times 30.5$ cm/ft $\times \frac{1}{60 \times 1440}$ sec/day $= 4 \times 10^{-7}$ cm/sec

$S = \frac{r_c^2}{r_s^2}\alpha \approx \frac{0.027}{0.080} = 10^{-1} = 0.03$ ∴ water-table storage

67% "hole!"


t, sec.
100
1000
10000
OW-4
7-3-84
matches

date: 7-2-84

casing size: nominal 5 1/2" OD, ID 5.1" csg. matl. PVC
water levels measured from top PVC casing, SW side
which is 1.37 ft above ground level, (concrete slab)
volume of slug:

2.05
.68
1.37

cap OD, ft $\left(\frac{0.37}{0.39} \times \frac{1}{2}\right)^2 \times \pi \times$ length, ft		=	ft^3
	0.10	=	0.011
	0.05		0.006
	4.81		0.411
	0.28		0.032
	0.04		0.003
	0.04		0.006
	0.03		0.002
	0.03		0.001
	0.25		0.002
sum	0.474	= V, ft^3	= 3.55 gal

r_c = internal radius of casing above perfs: 0.211 ft

r_s = radius of screen or open hole: _____ ft

initial water level 5.72 ft below mp, time 13:32

$$H_o = \frac{V}{\pi r_c^2} = \frac{0.474}{\pi (0.211)^2} = 3.389 \text{ ft}$$

clock time	t, sec.	water level	H	H/H_o	remarks
13:48:00	0				slug released
13:48:20	20	2.30 ft	3.42	1.009	??
49:00	60	2.36	3.36	0.991	
49:26	86	2.42	3.30	0.974	
49:52	112	2.44	3.28	0.968	
50:32	152	2.50	3.22	0.950	
51:05	185	2.56	3.16	0.932	
51:42	222	2.60	3.12	0.921	
52:19	259	2.65	3.07	0.906	
52:55	295	2.70	3.02	0.891	
53:33	333	2.74	2.98	0.879	
54:26	386	2.80	2.92	0.862	
55:30	450	2.86	2.86	0.844	
57:05	545	2.91	2.75	0.811	
59:12	672	3.10	2.62	0.773	
14:01:05	785	3.20	2.52	0.744	
02:24	868	3.28	2.44	0.720	
03:52	952	3.36	2.36	0.696	

clock time	t, sec.	level	H	H/H₀	remarks
14:05:38	1058	3.45	2.27	0.670	
07:22	1167	3.54	2.18	0.643	
09:16	1276	3.62	2.10	0.620	
11:01	1381	3.69	2.03	0.599	
13:17	1517	3.79	1.93	0.569	
15:59	1679	3.89	1.83	0.540	
18:14	1814	3.97	1.75	0.516	
20:40	1960	4.07	1.65	0.487	
23:15	2115	4.15	1.57	0.463	
25:44	2264	4.22	1.50	0.443	
28:45	2445	4.31	1.41	0.416	
33:09	2709	4.43	1.29	0.381	
36:51	2931	4.52	1.20	0.354	
41:56	3236	4.64	1.08	0.319	
46:19	3499	4.71	1.01	0.298	
50:03	3723	4.78	0.94	0.277	
57:39	4179	4.90	0.82	0.242	
15:05:36	4356	5.01	0.71	0.210	
14:12	5172	5.12	0.60	0.177	
21:12	5592	5.18	0.54	0.159	
33:01	6301	5.28	0.44	0.130	
44:35	6995	5.36	0.36	0.106	
53:43	7543	5.40	0.32	0.094	
16:08:22	8422	5.46	0.26	0.077	
26:59	9539	5.52	0.20	0.059	
47:10	10,750.	5.56	0.16	0.047	
17:00:20	11,540	5.58	0.14	0.041	

late data matches: $\alpha = 10^{-5}$ curve, $Tt/r_c^2 = 1$ at $t = 830$ sec.

$T = \frac{1.0\, r_c^2}{t} = \frac{(1.0)(0.21)^2}{830} = 5.36 \times 10^{-5}$ ft²/sec

$= 4.63$ ft²/day = 35 gpd/ft

$K_h = \frac{4.63 \text{ ft}^2/\text{day}}{13.3 \text{ ft screened}} = 0.35$ ft/day

$0.35 \text{ ft/day} \times 30.5 \text{ cm/ft} \times \frac{1}{60 \times 1440 \text{ sec/day}} = 1.2 \times 10^{-4} \frac{\text{cm}}{\text{sec}}$

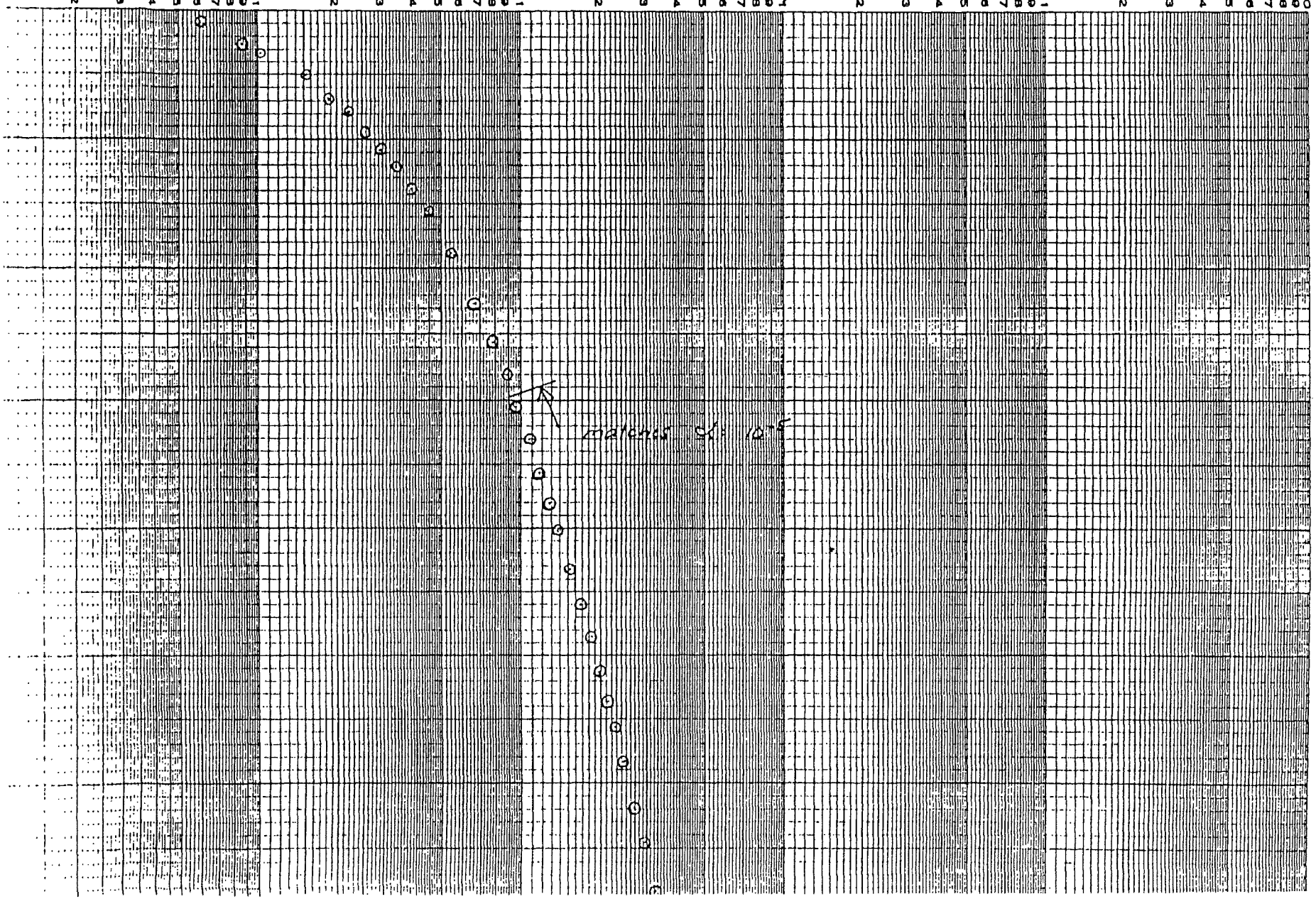
NO. 340-L510 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
5 CYCLES X 10 DIVISIONS PER INCH

DIETZGEN CORPORATION
MADE IN U.S.A.

t, sec.

MW-1
7-2-84

100 1000 10000



RCRA Part A and Part B
Post-Closure Permit Application
Land Treatment Unit
May 2000

APPENDIX C

Land Treatment Unit Historical Information and Data

LAND TREATMENT UNIT HISTORICAL INFORMATION AND DATA

1.0 LAND TREATMENT HISTORY

> Historical LTU information and data extracted from existing permit applications, operating permits, operating records, and other source documents are provided as Appendix C. The inclusion of this appendix does not imply that historical information and data have been verified.

In August 1980, Ciniza Refinery (Ciniza) notified the U.S. Environmental Protection Agency (EPA) that it was a generator and operator of a hazardous waste management facility. In November 1980, Ciniza submitted a Part A permit application as an "existing facility" (defined at 40 *Code of Federal Regulations* §260.10). This granted Ciniza interim status for their Land Treatment Unit (LTU) operations. In response to notice from the Regional Administrator, Ciniza submitted a Part B permit application in December 1983. Based on changing guidance, Ciniza submitted a land treatment demonstration plan (LTD) and an application for a two-phase LTD permit in April 1985. On February 9, 1987, Ciniza was issued a Short-term LTD Permit (NMD000333211-1) to conduct a hazardous waste land LTD. The LTD was conducted to identify the land treatment capabilities for refinery waste generated by Ciniza. The LTD defined waste management parameters (e.g., rate-limiting constituent, application-limiting constituent, capacity-limiting constituent, and unit life of the LTU). This was accomplished by identifying the Principal Hazardous Constituents (PHCs) present in refinery waste streams and measuring their degradation, transformation, and immobilization in the treatment zone of the LTU. From the results of the LTD and a modified Part B permit application, Ciniza was issued a Hazardous Waste Facility Permit (NMD 000333211-2) on November 4, 1988. Ciniza has not applied hazardous wastes to the LTU since November 8, 1990.

1.1 Land Treatment Program [20 NMAC 4.1, Subpart IX, §270.20(b)]

Ciniza's Hazardous Waste Facility Permit established operational requirements for the LTU. These requirements inchinclude procedural and engineering controls necessary to ensure that hazardous constituents are fully treated within the LTU without uncontrolled release to the environment.

The LTU consists of a treatment zone of soil extending 5 ft deep from the original soil surface. This depth is shallow enough to ensure that the treatment zone is more than 3 ft above the seasonal high water table. The zone of incorporation (ZOI) within the treatment zone is the volume of soil to which the waste was directly applied.

The ZOI for the Ciniza LTU is the top 12 in. of the treatment zone. The LTU was designed and constructed to prevent both washout of any hazardous waste and to prevent inundation of and discharge from the permitted unit through the use of a continuous dike which surrounds the LTU at an elevation of 3 ft above the natural grade.

The ZOI was tilled during permitted operations to encourage aerobic microbial activity and improve chemical reaction rates. During active treatment soil nutrients were applied, as necessary, to optimize carbon:nitrogen: phosphorous (C:N:P) ratios. Applications of Ciniza wastes to the LTU were limited to ensure that treatment processes were not overwhelmed or poisoned. Performance indicators (e.g., soil moisture, pH, total organic carbon) were monitored in the ZOI to ensure that treatment was proceeding.

1.2 Treatment Zone Description [20 NMAC 4.1, Subpart IX, §270.20(b)(2) and §270.20(b)(5)]
The LTU consists of three 480-by-240-ft sections, each of which contain 2.6 acres (1.0 hectares) of available treatment surface. Each section is delineated by a continuous dike to prevent site runon and runoff. The treatment zone extends 5-ft deep from the top of the soil within the diked section. The top 12 in. of the treatment zone is the ZOI. The ZOI is tilled when active to encourage aerobic degradation of organics and to maintain moisture content of the soil. This leaves 4 ft of the treatment zone undisturbed.

The soil within the treatment zone is silty clay containing closely-spaced root systems in the uppermost 3 to 4 ft. Field infiltration rates (the rate at which water penetrates into the soil surface) averages 1.0×10^{-3} cm/sec or 3.6 cm/hr. Soil permeability as determined by laboratory measurements averages 1.9×10^{-5} cm/sec or 6.8×10^{-2} cm/hr for three locations at the 6- to 12-in. depth. Field infiltration rate allows prediction of runoff and erosion; permeability (hydraulic conductivity) allows estimation of vertical water movement rates in the soil. The treatment zone soils have a saturated hydraulic conductivity rating of "moderately low" by the U.S. Department of Agriculture Class (Giant Refining Company Part B Permit Application 1984). The low permeability of the treatment zone soil assists in retarding the vertical movement of hazardous constituents through the treatment zone.

The silty clay soil has a high cation exchange capacity (CEC). The CEC is the total amount of exchangeable cations that the soil has to exchange with cations in the soil solution. The exchangeable cations in the LTU are the heavy metals present in the Ciniza wastes. The high CEC results in high sorption of heavy metals in the LTU soils, assuming other factors (such as soil pH) are favorable.

RECENT SOIL PERMEABILITY TESTS
FIREWATER POND CONSTRUCTION PROJECT

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

Rigid Wall Hydraulic Conductivity
Falling Head

ATTN: James Romero
Giant Refining Company
Route 3, Box 7
Gallup, NM 87301

Project: Ciniza Fire Water Lagoon — File No.: 05-100
Soil Type: Silty Clay — Date: October 13, 2005 — Lab No.: 47872
Sampled From: Boring 05-100-1(2.5'-3.0') — Performed By: GG

TEST SPECIMEN CONDITIONS AT BEGINING OF TEST:

Wet Unit Weight: 120.8 pcf
Dry Unit Weight: 109.0 pcf
% Moisture: 10.8
% Compaction: n/a
% Compaction Requested: n/a

PROCTOR INFORMATION:

Maximum Dry Density: n/a pcf
Optimum Moisture Content: n/a %

Coefficient of Permeability, k_{20}: 1.1×10^{-7} cm/sec. avg

Remarks: Avg of three: 1.1×10^{-7}, 1.1×10^{-7}, 1.1×10^{-7}

C:\bill\Projects\2005\05100cinizafirewb1\[Permeability.xls]Report
Reviewed By: Reviewed By: Certified By:

05-100
SWMU NO. 1
AL2
AL1
LAB #
DEPTH
0.0-5.0

...SW Corner of Proposed ...Lagoon
...Elevation: -98.2@TD,-27@1 hr
...Add.: 05-100-1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 05-100
Site: Giant-Cliniza

Elevation: EXISTING
Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS
	0.0-5.0				Clay, Very Silty, Sandy, Very Fine, Dark Red, Wet, Firm.				
47872				2.5	[2.5-3.0 hydraulic conductivity sample]				
	5.0-10.0			5.0	Same As Above, Wet, Soft				
				7.5					
	10.0-15.0			10.0	Same As Above				
				12.5					
	15.0-16.0				Same As Above				
	16.0-17.5				Sand, Very Fine, Very Clayey, Very Silty, Weak Water Bearing, Moderately Dense, Dark Red/Brown				
	17.5-21.5				Clay, Dark Red, Wet, Soft				
				20.0					

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY WHK

C:\toll\Projects\2005\05100cliniza\new\[Boring 1.xls]Sheet1

Bore Point: SW Corner of Proposed Fire Water Lagoon
Water Elevation:
Boring No.: 05-100-1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #
Site:
Elevation: EXISTING
Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR, ETC.)	%M	LL	PI	CLASS
	21.5-22.1				**Clay**, Sandy, Dark Brown, Wet, Stiff				
	22.1-23.5				**Clay**, Hard, Red/Brown (Brighter than Above), Wet/Moist				
	23.5-25.1				**Pertrified Forest Formation** **Mudstone/Claystone**, Weathered, Some Grey/Green Reduction Spots, Generally Red/				
				25.0	Brown, Fissile to Crumbly, Damp/Moist				
	25.0-30.0				**Mudstone**, As Above, Few Reduction Spots, Damp/Dry				
				30.0					
	30.0-35.0				**Same As Above** dry				
				35.0					
	35.0-40.0				**Same As Above** dry				
				40.0					
	40.0-45.0				**Same As Above**, Brighter Red @ 44.5'-45.0', dry				
	41.5				siltstone/mudstone, dry, very dense, bright red brown				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: WHK

Bore Point: SW Corner of Proposed
Fire Water Lagoon
Water Elevation:
Boring No.: 05-100-1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #
Site:

Elevation: EXIST
Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR ETC.)	%M	LL	PI	CLASS
	21.5-22.1				Clay, Sandy, Dark Brown, Wet, Stiff				
	22.1-23.5				Clay, Hard, Red/Brown (Brighter than Above), Wet/Moist				
	23.5-25.1			25.0	Pertrified Forest Formation Mudstone/Claystone, Weathered, Some Grey/Green Reduction Spots, Generally Red/ Brown, Fissile to Crumbly, Damp/Moist				
	25.0-30.0				Mudstone, As Above, Few Reduction Spots, Damp/Dry				
	30.0-35.0			30.0	Same As Above dry				
	35.0-40.0			35.0	Same As Above dry				
	40.0-45.0			40.0	Same As Above, Brighter Red @ 44.5-45.0', dry				
	41.5				siltstone/mudstone, dry, very dense,bright red brown				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER

LOGGED BY: WHK

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7874

File #: 05-100
Site: Giant-Cruza
Elevation: EXISTING
Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR ETC.)	%M	LL	PI	CLASS.
	45.0-50.0			45.0	Mudstone/Siltstone, Bright Red/Brown, Dry Very Dense				
	50.0-55.0			50.0	Same As Above				
	55.0-60.0			55.0	Same As Above				
	60.0-65.0			60.0	Same As Above				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: WHK

C:\bill\Projects\2005\05100cruzafirewtr\[Boring 1.xls]Sheet1

Sheet: 4 OF 5
Bore Point: SW Corner of Proposed
Fire Water Lagoon
Water Elevation:
Boring No.: 05-100-1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

Elevation: Existing
Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR, ETC.)	%M	LL	PI	CLASS
				65.0					
	65.0-66.2				Same As Above				
	66.2-67.4				Sandstone, Fine, Red/Brown, Hard, Fissile Grey/Green Orbicular Reduction Spots Abundant, Dry				
	67.4-78.0				Sandstone/Siltstone Interbeds, Some Mudstone, Dark Red/Brown, Hard, Dry				
				70.0					
				75.0					
	78.0-79.1				Mudstone, Fissile, Dry, Red/Brown, Some Grey/Green Reduction Spots				
	79.1-97.7			80.0	Sandstone, Fine, Red/Brown, Fissile, Hard Feldspathic, Bedded 6" to 1.0', White Mottled Upper Sonsela Member				
				85.0					

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER

LOGGED BY: WHK

C:\bill\Projects\2005\05100cinizafirewtr\[Boring 1.xls]Sheet1C

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 05-100
Site: Giant Cinica

Elevation: EXISTING
Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR, ETC.)	%M	LL	PI	CLASS
					Upper Sonsela Member Continued (dry)				
				90.0					
				95.0					
	97.7-98.2				Mudstone, Hard, Dry, Green/Grey-White				
	98.2-101.6			100.0	Sandstone, Fine to Medium, Quartz Grains, Water Bearing, Hard, (Sonsela Member, Petrified Forest Formation, Chinle Group)				
	101.6				TD				
				105.0	Boring continuopusly sampled using 5' split barreled intrusion sampler. Boring closed using 10' of 3/8" TR-30 Pel Plug capped with 50' of 6% bentonite cement slurry and backfilled to the ground surface with cuttings.				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: WHK

C:\bill\Projects\2005\05100cinzafirewtr\[Boring 1.xls]Sheet1D

Appendix B
Field Methods

Field Methods

Pursuant to the Investigation Work Plan for SWMU No. 10, an investigation of soils and groundwater was conducted to determine and evaluate the presence, nature, extent, fate, and transport of contaminants. To accomplish this objective, soil borings and temporary monitoring wells were installed at the Sludge Pits. The field methods are described below and individual discussions are presented for the following activities:

- Drilling procedures;
- Soil screening;
- Decontamination procedures;
- Monitoring well development;
- Fluid level measurements;
- Purging of temporary monitoring wells/groundwater sample collection;
- Sample collection and handling procedures;
- Vadose zone vapor sampling;
- Equipment calibration; and
- Management of investigation derived waste.

Drilling Procedures

The soil borings were drilled using the hollow-stem auger (HSA) method or a hand auger. Soil samples were collected continuously and logged by a qualified geologist in accordance with the Unified Soil Classification System (USCS) nomenclature. As shown on the boring logs, the data recorded included the lithologic interval, symbol, percent recovery, field screening results, and a sample description of the cuttings and core samples.

Soil Screening

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

Visual screening included examining the soil samples for evidence of staining caused by petroleum-related compounds or other substances that may have caused staining of soils such as elemental sulfur or cyanide compounds. Headspace vapor screening was conducted and involved placing a soil sample in a plastic sealable bag allowing space for ambient air. The bag was sealed, labeled and then shaken gently to expose the soil to the air trapped in the container. The sealed bag was allowed to rest for a minimum of 5 minutes while the vapors equilibrated. Vapors present within the sample bag's headspace were then measured by inserting the probe of a MiniRae 3000 portable volatile organic constituent (VOC) monitor in a small opening in the bag. The maximum value and the ambient air temperature were recorded on the field boring log for each sample. Field screening results and any conditions that were considered to be capable of influencing the results of the field screening were recorded on the field logs.

Decontamination Procedures

The drilling equipment (e.g., hollow-stem augers) was decontaminated between each borehole using a high pressure potable water wash. The sampling equipment coming in direct contact with the samples (e.g., hand augers and split-spoon samplers) were decontaminated using a brush, as necessary, to remove larger particulate matter followed by a rinse with potable water, wash with non-phosphate detergent, rinse with potable water, and double rinse with deionized water.

Fluid Level Measurements

The depth to separate phase hydrocarbon, if present, and groundwater was measured prior to purging the wells of potentially stagnant groundwater. A Geotech Interface Probe was used to measure fluid levels to 0.01 foot.

Temporary Monitoring Well Development/Purging

Using a new bailer attached to the end of the clean rope, approximately three volumes of groundwater were removed from the temporary wells. The groundwater and sediment removed from the wells were transported to the bundle cleaning pad in sealed 5-gallon buckets. Bailing ceased after a minimum of three well volumes were removed from the wells.

The purge volumes are calculated as follows:

Volume (gallons) = water column thickness (ft) x 3.14 x radius of well casing^2 (ft) x 7.48 (gals/ft).
The calculated purge volumes and actual volumes removed from each well are presented below.

Well (date)	Water Column Thickness (ft)	Calculated Purge Volume (gallons) – 3 well volumes	Actual Purge Volume (gallons)
SWMU 10-1	6.89	3.51	5.0
SWMU 10-3	3.2	1.63	2.0
SWMU 10-5	9.57	NA (1)	NA (1)
SWMU 10-11	10.22	5.22	5.25
SWMU 10-12	11.18	5.7	5.75
SWMU 10-14	8.5	4.35	5.0
SWMU 10-15	12.46	6.36	6.5
SWMU 10-16	2.78	NA (2)	NA (2)

NA – not applicable
1 – Well SWMU 10-5 was not purged of three well volumes due to very slow recovery rate.
2 – Well SWMU 10-16 was not purged of three well volumes due to very low volume of water in well combined with slow recovery rate.

Field measurements of groundwater stabilization parameters included pH, specific conductance, dissolved oxygen concentrations, oxidation-reduction potential, and temperature and the readings are presented in Table 4. A disposable bailer was used to remove groundwater from the well during the purging procedures.

Sample Collection and Handling Procedures

Soil samples were collected using split-spoon samplers or directly from the auger bucket for borings completed with a hand auger. The selected portion of the sample interval was placed in pre-cleaned, laboratory-prepared sample containers for laboratory chemical analysis. Three soil samples were collected for VOC analysis in the following manner:

- Two sample aliquots were collected using a syringe for low-level VOC analysis pursuant to EPA method 5035. For these "Terracore" kits, 4- 5 grams (4cc) of soil was injected into each vial using the syringe. The syringes were disposed after soil collection.
- Two sample aliquots were collected using a syringe for preservation with methanol. For the methanol preserved kits, 10 grams (10 cc) of soil was injected into each methanol vial using the syringe. The syringes were disposed after soil collection.
- The third sample aliquot was placed in an 8-ounce glass jar, which was filled to the top to minimize any head space.

An additional fourth soil sample was collected in an 8-ounce glass jar for metals analyses.

Groundwater samples were collected using disposable bailers and clean rope. The water was immediately poured directly into clean laboratory supplied sample containers with the exception of

samples collected for dissolved metals analyses. Samples specified for dissolved metals analyses were filtered in the field using a disposable 0.45 micron filter. A new filter and syringe were used for each sample. All samples were immediately placed into an ice chest with ice. The samples were maintained in the custody of the sampler until the chain-of-custody form was completed and the ice chest was sealed for delivery to the laboratory.

Equipment Calibration

Soil vapor screening was conducted using a MiniRae 3000 portable VOC monitor. The instrument was calibrated at the beginning of each work day to a concentration of 100 ppm isobutylene.

The instruments used to measure groundwater stabilization parameters included an YSI Professional Series Data Logger and YSI Quatro Sonde. The calibration solutions used at the beginning of each day are as follows:

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

Management of Investigation Derived Waste

The drilling rig and drilling equipment were decontaminated on the bundle cleaning pad. The water is diverted to the Refinery's wastewater treatment system up-stream of the API Separator. The decontamination water generated from sampling equipment was collected in buckets and disposed at the bundle cleaning pad at the end of each day of sampling. All development/purge water was collected in five gallon buckets and disposed at the bundle cleaning pad.

Soil cuttings were placed into open top 55-gallon drums and were sealed when not in use. Each drum of soils was labeled and temporarily stored in a concrete curbed area pending waste characterization and disposal.

Appendix C

Boring Logs

DiSorbo
Environmental Consulting Firm

Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Cohagan
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 20'
Ground Water	: 6' BGL
Start Date	: 04/28/2015
Finish Date	: 04/28/2015

WELL NO. SWMU 10-1

(Sheet 1 of 1)

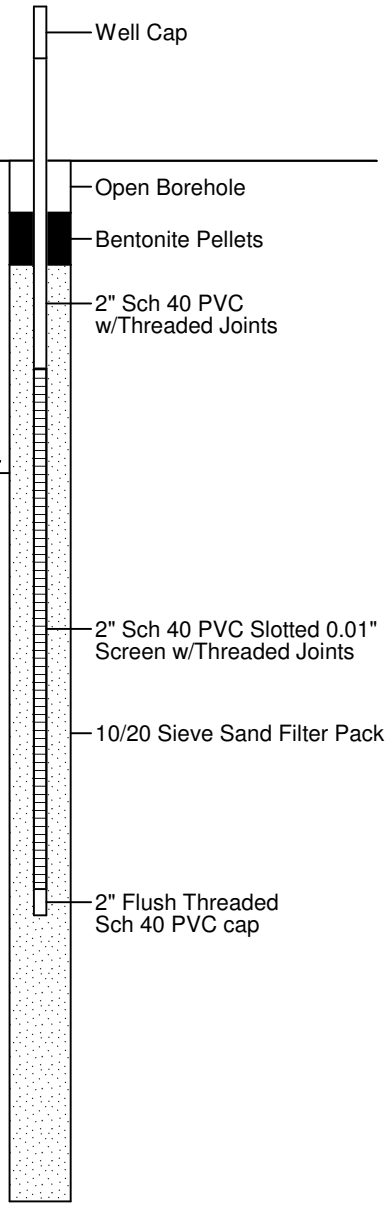
Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.429'
E	: W 108° 25.817'

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0							SILTY CLAY, low, firm, damp, reddish brown, no odor,
1	14.8			CL	100		
2							SILTY CLAY, SIMILAR TO ABOVE (STA), no odor,
3	25.7			CL	50		
4							SANDY CLAY, low, soft, damp to moist, reddish brown, no odor,
5	30.9			CL	80		
6		▼					SANDY CLAY, STA, very moist in sand seams, no odor,
7	26.6			CL	90		
8							CLAY, high, firm, damp, reddish brown, no odor,
9	20.7			CH	80		
10							CLAY, STA, stiff, no odor,
11	17.4			CH	90		
12							CLAY, STA, water in sampling tube and on rods; clay is damp,
13	9.2			CH	90		
14							CLAYSTONE/MUDSTONE, low, very stiff, hard, light reddish brown, dry, no odor,
15	11.3			CLST/ MDST	50		
16							CLAYSTONE, STA, no odor,
17	5.3			CLST	60		
18							CLAYSTONE, STA, no odor.
19	3.6			CLST	90		
20							
21							

Saturation
▼ Saturation

Completion Results

SWMU 10-1 (Temporary)



1010 Travis Street
Houston, Texas 77002
713-955-1230

DiSorbo Consulting, LLC

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

12-15-2015 C:\Users\cholmes\Documents\M-Tech\samples\WEST15005\SWMU 10\SWMU 10-1.bor

DiSorbo
Environmental Consulting Firm

Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Aguirre
Drilling Rig	: NA
Drilling Method	: 3" Hand Auger
Sampling Method	: Auger Bucket
Comments	:
Total Depth	: 4'
Ground Water	: Not Encountered
Start Date	: 05/04/2015
Finish Date	: 05/04/2015

WELL NO. SWMU 10-2

(Sheet 1 of 1)

Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.422
E	: W 108° 25.818'

Saturation
▼ Saturation

Completion Results

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
1	10.5			CL	100		SILTY CLAY, low to moderate, stiff, damp, brown, gravelly, no odor,
3	8.0			CH	100		CLAY, moderate to high, very stiff, damp, reddish brown, no odor.

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Environmental Consulting Firm

Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Cohagan
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 20'
Ground Water	: 8' BGL
Start Date	: 04/28/2015
Finish Date	: 04/28/2015

WELL NO. SWMU 10-3

(Sheet 1 of 1)

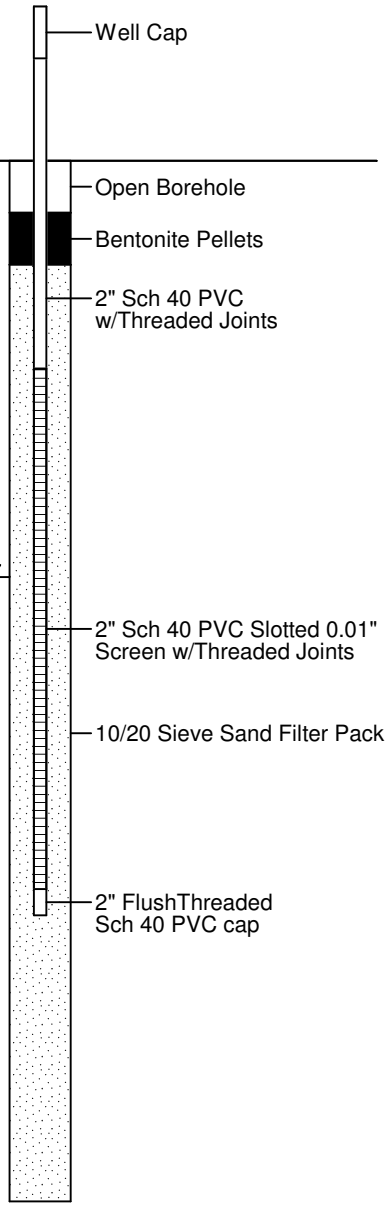
Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.427'
E	: W 108° 25.828'

Saturation
▼ Saturation

Depth (ft.)	PID (ppm)	USCS	Recovery (%)	DESCRIPTION
0–1	12.9	CL	100	SILTY CLAY, low, firm, damp, brown, no odor,
1–3	24.2	CL	50	SILTY CLAY, SIMILAR TO ABOVE (STA), slightly moist at base, no odor,
3–5	16.7	CL	70	SILTY CLAY, STA, trace sand in seams, no odor,
5–7	18.9	CL	60	SILTY CLAY, STA, soft, no odor,
7–9	17.6	CL	80	SANDY CLAY, low, soft, damp to very moist in sand seams, brown, no odor,
9–11	13.7	CL	90	SANDY CLAY, STA, no odor,
11–12		CL	90	SILTY CLAY, moderate, firm, damp, brown, no odor,
12–13	11.2	CH	90	CLAY, high, firm, damp, brown/reddish brown, no odor,
13–15	7.6	CLST/ MDST	60	CLAYSTONE/MUDSTONE, low, very stiff, hard, light reddish brown, dry, no odor,
15–17	7.2	CLST/ MDST	50	CLAYSTONE/MUDSTONE, STA,
17–19	2.5	CLST/ MDST	90	CLAYSTONE/MUDSTONE, STA.

Completion Results

SWMU 10-3 (Temporary)



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Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Cohagan
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 20'
Ground Water	: Not Encountered
Start Date	: 04/29/2015
Finish Date	: 04/29/2015

WELL NO. SWMU 10-4

(Sheet 1 of 1)

Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.441'
E	: W 108° 25.831'

Saturation
▼ Saturation

Completion Results

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0–1	40.5			CL	90		SILTY CLAY, low, very stiff, damp, brown, no odor,
2–3	335			CL	90		SILTY CLAY, low, firm to soft, damp, dark brown, becomes sandy at base with black staining, odor,
4–5	36.8			CL	90		SILTY SANDY CLAY, low, firm to soft, damp, reddish brown, faint odor,
6–7	42.7			CL	60		SILTY SANDY CLAY, SIMILAR TO ABOVE (STA), faint odor,
8–9	37.8			CH	100		CLAY, high, stiff, damp, reddish brown, sandy at base, faint odor,
10–11	25.6			CL	80		SANDY CLAY, low, soft, damp, very fine sand in seams, reddish brown, no odor,
12–13	31.1			CL	80		SILTY CLAY, low, firm, damp, reddish brown, trace sand, no odor,
14–15	32.9			CL	60		SILTY CLAY, low, firm, damp to dry, crumbly, dense at base, reddish brown trace grey, no odor,
16–17	14.1			CLST	70		CLAYSTONE, very stiff, dry, light reddish brown, no odor,
18–19	3.8			CLST	60		CLAYSTONE, SIMILAR TO ABOVE (STA).

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Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Cohagan
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 24'
Ground Water	: Not Encountered
Start Date	: 04/29/2015
Finish Date	: 04/29/2015

WELL NO. SWMU 10-5

(Sheet 1 of 1)

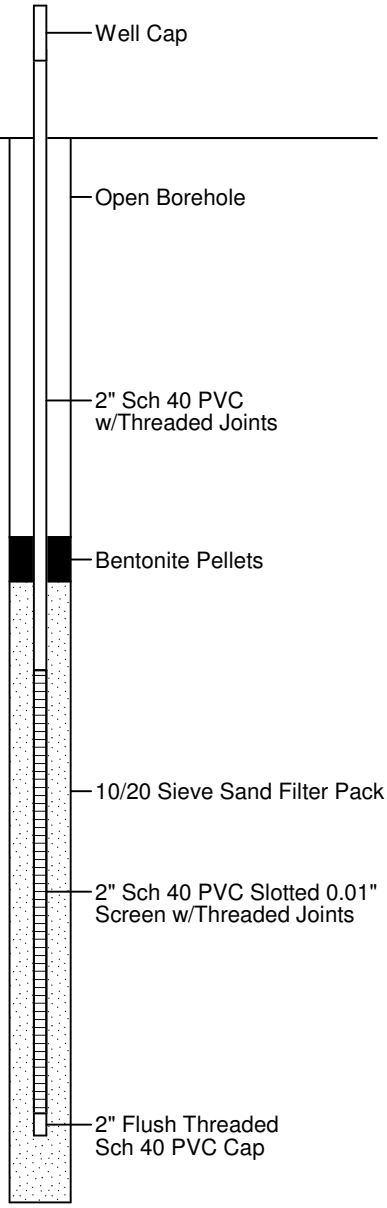
Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.432'
E	: W 108° 25.837'

Saturation
▼ Saturation

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0							
1	108			CL	90		SILTY CLAY, low, firm, damp, brown, black staining at base, odor,
3	61			CL	60		CLAY, low, very soft, damp, wood debris, light greyish green, sticky, odor,
5	445			CL	90		CLAY, SIMILAR TO ABOVE (STA), brownish green,odor,
7	330			CL	50		CLAY, STA, odor,
9	30.6			CL	90		CLAY, low, very soft, damp, light greyish green, sticky, odor,
11	26.3			CL	90		CLAY, STA, moist, odor,
13	3.5			CL	90		CLAY, STA, moist, reddish brown clay at 13.75-14' mixed with greyish green clay, odor,
15	75.2			CL	40		CLAY, STA, greyish green and reddish brown clay, odor,
17	9.4			CL	90		CLAY, STA,
19	26.8			CL	90		CLAY, STA, greyish green clay only,
21	16.5			CL	40		CLAY, STA, CLAYSTONE at base,
23	10.7			CLST	70		CLAYSTONE, very stiff, dry, light reddish brown with grey seams.

Completion Results

SWMU 10-5 (Temporary)



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Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Aguirre
Drilling Rig	: NA
Drilling Method	: 3" Hand Auger
Sampling Method	: Auger Bucket
Comments	:
Total Depth	: 12'
Ground Water	: Not Encountered
Start Date	: 05/04/2015
Finish Date	: 05/04/2015

WELL NO. SWMU 10-6

Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.422'
E	: W 108° 25.834'

Saturation
▼ Saturation

Completion Results

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0							SILTY CLAY, low to moderate, firm, damp, reddish brown, no odor,
1	2.7			CL	100		
2							SILTY CLAY, SIMILAR TO ABOVE (STA), no odor,
3	4.3			CL	100		
4							SILTY CLAY, STA, no odor,
5	4.7			CL	100		
6							SILTY CLAY, STA, no odor,
7	2.9			CL	100		
8							CLAY, high, very stiff, damp, reddish brown, no odor,
9	3.2			CH	100		
10							CLAY, low, stiff, dry, light reddish brown, refusal, no odor.
11	4.1			CL	100		
12							
13							

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Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Aguirre
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 20'
Ground Water	: Not Encountered
Start Date	: 05/01/2015
Finish Date	: 05/01/2015

WELL NO. SWMU 10-7

(Sheet 1 of 1)

Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.412'
E	: W 108° 25.833'

Saturation
▼ Saturation

Completion Results

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0–1	6.2			CL	90		SILTY CLAY, low, firm, damp, brown, no odor,
2–3	9.5			CL	90		SILTY CLAY, SIMILAR TO ABOVE (STA), trace black staining at base, no odor,
4–5	10.6			CH	90		CLAY, high, stiff to firm, damp, reddish brown, no odor,
6–7	9.7			CH	50		CLAY, STA, no odor,
8–9	9.1			CLST	60		CLAYSTONE, very stiff, dry, light reddish brown, no odor,
10–11	4.2			CLST	60		CLAYSTONE, STA, no odor,
12–13	8.1			CLST	60		CLAYSTONE, STA, no odor,
14–15	8.9			CLST	60		CLAYSTONE, STA, no odor,
16–17	8.2			CLST	50		CLAYSTONE, STA, no odor,
18–19	2.7			CLST	90		CLAYSTONE, STA, no odor.

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Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Cohagan
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 20' BGL
Ground Water	: Not Encountered
Start Date	: 04/30/2015
Finish Date	: 04/30/2015

WELL NO. SWMU 10-8

(Sheet 1 of 1)

Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.427'
E	: W 108° 25.846'

Saturation
▼ Saturation

Completion Results

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0–1	12.9			CL	50		SILTY CLAY, low, firm, damp, brown, no odor,
2–3	1489			CL	60		SILTY SANDY CLAY, SIMILAR TO ABOVE (STA), sandy, hydrocarbon (hc) odor and staining at base,
4–5	400			CL	60		SILTY SANDY CLAY, STA, odor,
6–7	-				-		No Recovery,
8–9	22.9			CLST/ MDST	80		CLAYSTONE/MUDSTONE, very stiff, dry, light reddish brown and grey, no odor,
10–11	22.8			CLST	60		CLAYSTONE, STA, no odor,
12–13	24.6			CLST	60		CLAYSTONE, STA, no odor,
14–15	12.1			CLST	60		CLAYSTONE, STA, no odor,
16–17	10.2			CLST	70		CLAYSTONE, STA, no odor,
18–19	5.7			CLST	90		CLAYSTONE, STA, no odor.

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Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Aguirre
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 20'
Ground Water	: Not Encountered
Start Date	: 04/30/2015
Finish Date	: 04/30/2015

WELL NO. SWMU 10-9

(Sheet 1 of 1)

Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.428'
E	: W 108° 25.855'

Saturation
▼ Saturation

Completion Results

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0–1	18			CL	80		SILTY CLAY, low, firm, dry to damp, brown, no odor,
2–3	19.1			CL	60		SILTY CLAY, SIMILAR TO ABOVE (STA), damp, no odor,
4–5	380			CL	100		SANDY CLAY, low, soft, damp, dark reddish brown with black staining, claystone at base, hydrocarbon (hc) odor,
6–7	27			CLST	50		CLAYSTONE, very stiff, damp to dry, light reddish brown, odor,
8–9	28.9			CLST	60		CLAYSTONE, STA, trace grey, no odor,
10–11	10.7			CLST	70		CLAYSTONE, STA, no odor,
12–13	4			CLST	60		CLAYSTONE, STA, no odor,
14–15	8.9			CLST	60		CLAYSTONE, STA, no odor,
16–17	6.4			CLST	50		CLAYSTONE, STA, no odor,
18–19	6.2			CLST	80		CLAYSTONE, STA, no odor.

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Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Aguirre
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 20'
Ground Water	: Not Encountered
Start Date	: 04/30/2015
Finish Date	: 04/30/2015

WELL NO. SWMU 10-10

(Sheet 1 of 1)

Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.431'
E	: W 108° 25.864'

Saturation
▼ Saturation

Completion Results

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0–1	11.9			SC	90		CLAYEY SAND, compact to loose, dry to damp, brown, faint odor at base,
2–3	18.4			SC	90		CLAYEY SAND, SIMILAR TO ABOVE (STA), odor,
4–5	1685			SC	80		CLAYEY SAND, compact, damp, brown with black staining, hydrocarbon (hc) odor,
6–7	1514			CL	60		SANDY CLAY, low, soft, damp to moist, black, hc odor,
8–9	686			CL	90		SANDY CLAY, STA, black and dark reddish brown, hc odor,
10–11	655			CL	90		SILTY CLAY, STA, claystone at base, hc odor and hc stain,
12–13	75			CLST	40		CLAYSTONE, very stiff/dense, light reddish brown and grey, dry, faint odor,
14–15	18			CLST	50		CLAYSTONE, STA, no odor,
16–17	16.8			CLST	60		CLAYSTONE, STA, no odor,
18–19	8.5			CLST	90		CLAYSTONE, STA, no odor.

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Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Aguirre
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 20' BGL
Ground Water	: 4' BGL
Start Date	: 05/12/2015
Finish Date	: 05/12/2015

WELL NO. SWMU 10-11

(Sheet 1 of 1)

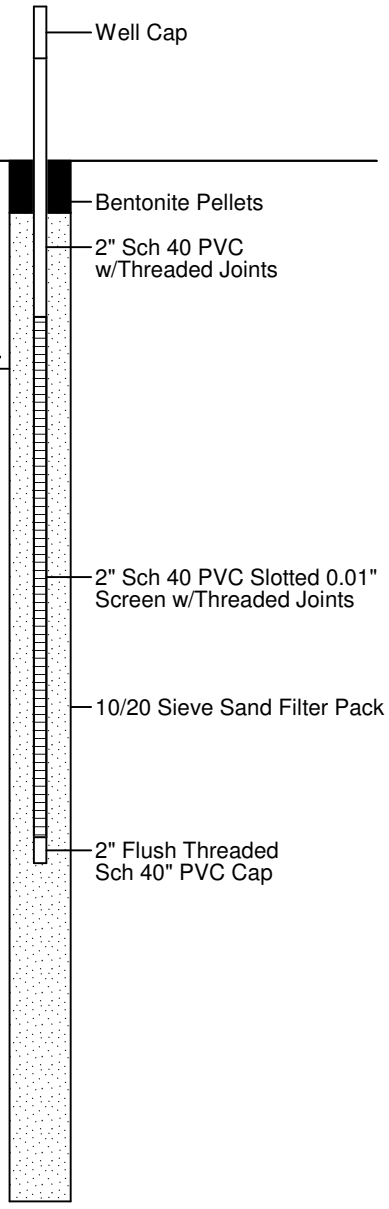
Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.434'
E	: W 108° 25.873'

Saturation
▼ Saturation

Depth (ft.)	PID (ppm)	Lithology	USCS	Recovery (%)	DESCRIPTION
0					
1	13.1		CL	80	SILTY CLAY, low, firm, damp, brown, no odor,
2					
3	4.0		CL	10	SILTY CLAY, SIMILAR TO ABOVE (STA),
4					
5	524		SC	50	CLAYEY SAND, fine, compact, moist to saturated, black, odor,
6					
7	133		SC	60	CLAYEY SAND, STA, saturated,
8					
9	570		SC	80	CLAYEY SAND, STA, dark brown, black sludge lens at 9.75', saturated, odor,
10					
11	8.5		SC	70	CLAYEY SAND, STA, moist to saturated, odor,
12					
13	69.2		SC/CL	70	CLAYEY SAND/SANDY CLAY, low, soft, damp to very moist, brown, odor,
14					
15	20.6		CL	40	SANDY CLAY, low, firm, damp, reddish brown, gravel at base, faint odor,
16			CL	60	SANDY GRAVELLY CLAY, stiff, damp, reddish brown, no odor,
17	7.2		CLST	60	CLAYSTONE, very stiff, damp to dry, reddish purple, no odor,
18					
19	13.4		CLST	60	CLAYSTONE, STA, no odor.
20					
21					

Completion Results

SMWU 10-11 (Temporary)



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Environmental Consulting Firm

Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Aguirre
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 22'
Ground Water	: 4'
Start Date	: 05/12/2015
Finish Date	: 05/12/2015

WELL NO. SWMU 10-12

(Sheet 1 of 1)

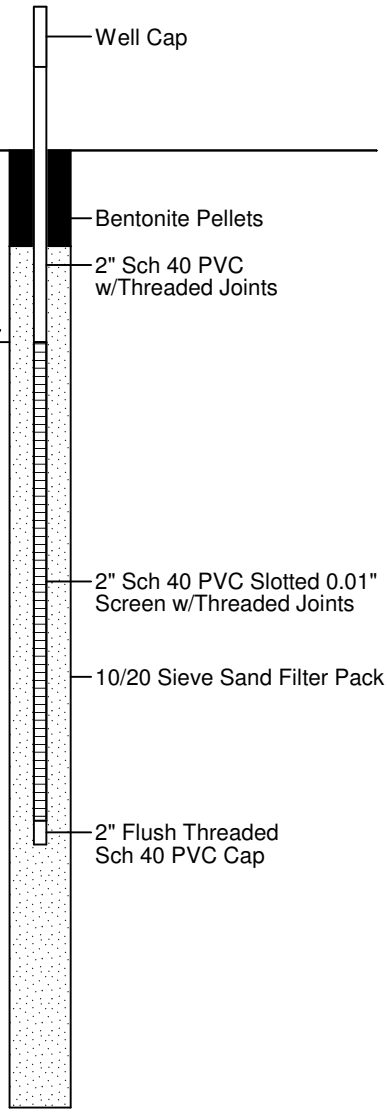
Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.435'
E	: W 108° 25.883'

Saturation
▼ Saturation

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0							SILTY CLAY, low, firm, damp, brown, no odor,
1	3.0			CL	90		
2							SILTY CLAY, SIMILAR TO ABOVE (STA),
3	5.4			CL	5		
4		▼					
5	6.0			CL	90		SILTY CLAY, STA, trace sand, very moist, no odor,
6							SILTY CLAY, STA, damp, occassional black staining, hard black rock asphalt at top, 20 mm,
7	4.5			CL	90		
8							SILTY CLAY, low, soft, damp to moist in sand, occasional gravel, brown, no odor,
9	6.1			CL	70		
10	6.9			CL	70		SILTY CLAY, STA,
11	6.1			SC	70		CLAYEY SAND, fine, compact, saturated, brown, no odor,
12							SILTY SAND, fine, loose, gravelly at 12.5' to 12.75' BGL, saturated, brown, no odor,
13	4.9			SM	90		
14							SILTY SAND, STA,
15	2.9			SM	90		
16							SANDY CLAY, low, firm, damp, brown, no odor,
17	1.8			CL	60		
18							GRAVELLY CLAY, STA, 10 mm gravel, no odor,
19	1.2			CL	60		
20							CLAYSTONE, very stiff, damp to dry, reddish purple, grey and dark reddish brown, no odor.
21	1.5			CLST	80		
22							
23							

Completion Results

SMWU 10-12 (Temporary)



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Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Aguirre
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 20' BGL
Ground Water	: Not Encountered
Start Date	: 05/13/2015
Finish Date	: 05/13/2015

WELL NO. SWMU 10-13

(Sheet 1 of 1)

Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.437'
E	: W 108° 25.860'

Saturation
▼ Saturation

Completion Results

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0							
1	4.4			CL	90		SILTY CLAY, low, firm, damp to dry, brown, no odor,
3	5.6			CL	80		SILTY CLAY, SIMILAR TO ABOVE (STA), very stiff, calcareous, no odor,
5	775			CL	50		SILTY CLAY, STA,
7	1055			CH	90		CLAY, high, firm, damp, dark brown, black staining, odor,
8	721			CH	70		GRAVELLY CLAY, STA with 10 mm gravel, trace sand, damp, dark brown, odor,
9				CLST	70		CLAYSTONE, very stiff, dry, reddish purple, faint odor,
11	11			CLST	50		CLAYSTONE, STA, brownish purple and grey, no odor,
13	10.3			CLST	50		CLAYSTONE, STA, reddish brown and grey, no odor,
15	10.4			CLST	70		CLAYSTONE, STA, no odor,
17	12.4			CLST	10		CLAYSTONE, STA, no odor,
19	14.1			CLST	80		CLAYSTONE, STA, no odor.

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Austin, Texas 78759
512-693-4190

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Environmental Consulting Firm

Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Aguirre
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 23' BGL
Ground Water	: 2' BGL
Start Date	: 05/12/2015
Finish Date	: 05/12/2015

WELL NO. SWMU 10-14

(Sheet 1 of 1)

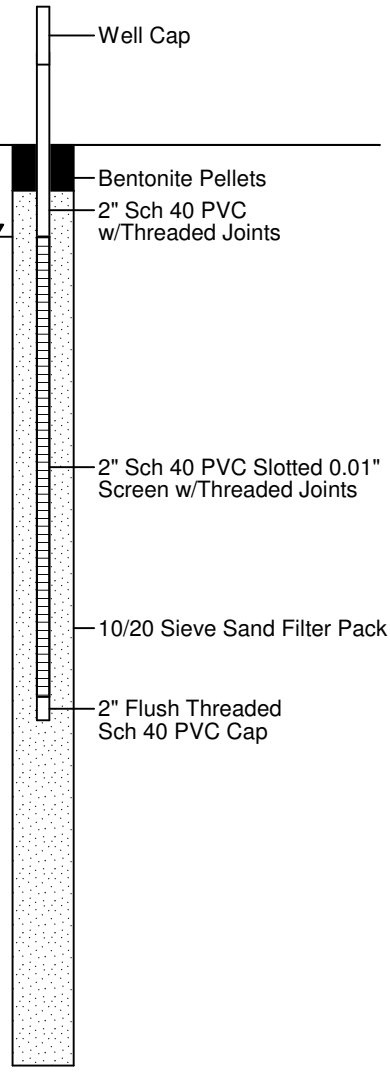
Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.424'
E	: W 108° 25.867'

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
1	3.2	▼		CL	60		SILTY CLAY, low, firm, dry to damp, brown, no odor,
2		▼					No Recovery - Water on Spoon
3					-		
4							
5	10.1			GC	10		CLAYEY GRAVEL, loose, saturated, light tan, faint odor,
6				CH	50		CLAY, high, stiff, damp, dark brown, odor,
7	900			SC	50		CLAYEY SAND, fine, compact, saturated, dark brown, odor,
8							
9	23.7			CL	60		SANDY CLAY, low, very soft, damp to moist, brown, odor,
10							
11	15.9			SW	80		CLAYEY GRAVELLY SAND, fine to coarse, saturated, brown, no odor,
12							
13	22.4			SW	80		CLAYEY GRAVELLY SAND, SIMILAR TO ABOVE (STA), saturated, no odor,
14							
15	16.9			SW	70		CLAYEY GRAVELLY SAND, STA, saturated, increase in clay at base, decrease in moisture, no odor,
16							
17	7.9			CL	20		GRAVELLY CLAY, low, very stiff, damp, 10 mm gravel, reddish brown and grey, no odor,
18	5.2			CL	50		GRAVELLY CLAY, STA, no odor,
19				CLST	50		CLAYSTONE, very stiff, dry, reddish brown and grey, no odor,
20	6.1			CLST	20		CLAYSTONE, STA, no odor,
21							
22	1.8			CLST	50		CLAYSTONE, STA, no odor.
23							
24							

Saturation
▼ Saturation

Completion Results

SMWU 10-14 (Temporary)



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713-955-1230

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Austin, Texas 78759
512-693-4190

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Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Aguirre
Drilling Rig	: CME75
Drilling Method	: 7.25" Hollow-Stem Auger
Sampling Method	: 2" Diameter Split Spoon
Comments	: 2' Long
Total Depth	: 20' BGL
Ground Water	: 7' BGL
Start Date	: 05/13/2015
Finish Date	: 05/13/2015

WELL NO. SWMU 10-15

(Sheet 1 of 1)

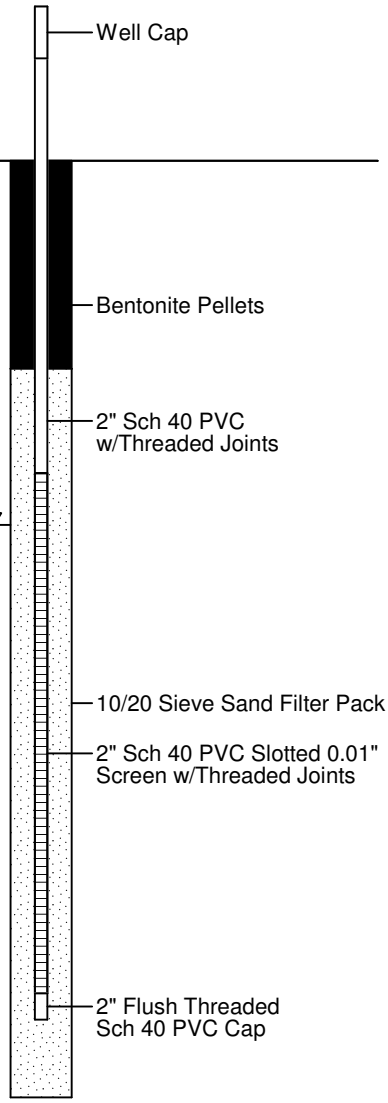
Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.446'
E	: W 108° 25.287'

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0				CL	90		SILTY CLAY, low, firm, dry to damp, brown, no odor,
1	11.4			CH	90		CLAY, high, soft, damp, sandy at base, brown, no odor,
2							
3	11.1			CL	90		SANDY CLAY, low to moderate, soft, damp, yellow brown to brown with black staining at 3.5' BGL, faint odor,
4				CL	90		SANDY CLAY, SIMILAR TO ABOVE (STA), faint odor,
5	13.9			CH	90		CLAY, high, soft, damp, brown, faint odor,
6				CL	90		SANDY CLAY, low, soft, damp, brown, no odor,
7	12.4	▼		CL	90		SANDY CLAY, STA, saturated sand seam at 7' , 3" thick, no odor,
8							
9	12.3			SC	90		CLAYEY SAND, loose, fine grain to small gravel, saturated, brown, no odor,
10				CH	90		CLAY, high, stiff, damp, brown, no odor,
11	10.7			CL	90		SILTY CLAY, moderate, firm, damp, brown, no odor,
12				CL	90		SANDY CLAY, STA, fine grain sand, moist to very moist at 11.75', no odor,
13	8.9			CL	90		SANDY CLAY, STA, saturated, brown, no odor.
14				SC	90		SILTY CLAY, low, firm, damp, brown, no odor,
15	8.4			CL	70		CLAYEY SAND, fine, loose, saturated, brown, no odor,
16				CL	90		SANDY CLAY, low, firm, damp, brown, no odor,
17	8.3						CLAY, low, stiff, damp, brown, no odor,
18				CLST	90		CLAYSTONE, very stiff, dry, reddish brown, no odor,
19	7.1			CLST	70		CLAYSTONE, STA, no odor.
20							
21							

Saturation
▼ Saturation

Completion Results

SWMU 10-15 (Temporary)



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1010 Travis Street
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713-955-1230

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

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Environmental Consulting Firm

Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Aguirre
Drilling Rig	: NA
Drilling Method	: Hand Auger
Sampling Method	: Auger Bucket
Comments	:
Total Depth	: 9'
Ground Water	: 5.5'
Start Date	: 05/13/2015
Finish Date	: 05/13/2015

WELL NO. SWMU 10-16

(Sheet 1 of 1)

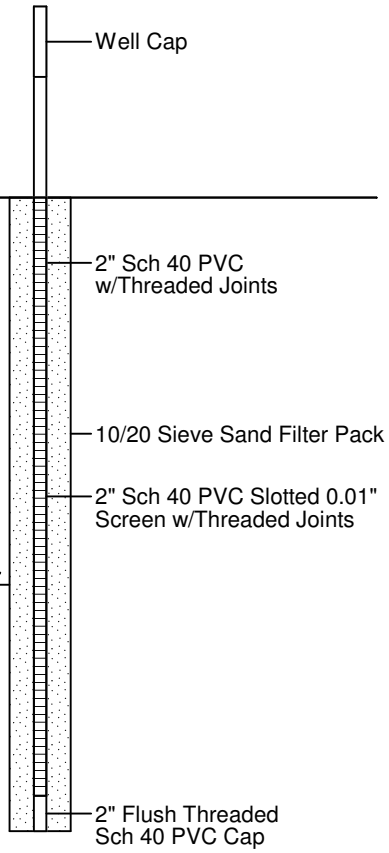
Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.417'
E	: W 108° 25.881'

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
1	10.4	▼		CL	100		SILTY CLAY, low, firm, damp, brown, no odor,
2							
3	4.9			CL	100		SILTY CLAY, SIMILAR TO ABOVE (STA),
4							
5	4.4			CL	100		SILTY CLAY, STA,
				CL	100		SANDY CLAY, low, firm to soft, damp to moist to saturated at 5.5', brown, no odor,
6	8.4			SC	100		CLAYEY SAND, fine, loose, saturated, brown, no odor,
7	0.5			SC	100		CLAYEY SAND, STA, saturated,
8	6.8			CH	100		CLAY, high, stiff, damp, brown, no odor.

Saturation
▼ Saturation

Completion Results

SWMU 10-16 (Temporary)



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Austin, Texas 78759
512-693-4190

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Western Refining SW, Inc.
Gallup Refinery - SWMU 10
Job No. WEST15005

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc / Aguirre
Drilling Rig	: NA
Drilling Method	: Hand Auger
Sampling Method	: Auger Bucket
Comments	:
Total Depth	: 8'
Ground Water	: Not Encountered
Start Date	: 05/13/2015
Finish Date	: 05/13/2015

WELL NO. SWMU 10-17

(Sheet 1 of 1)

Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N 35° 29.437'
E	: W 108° 25.858'

Saturation
▼ Saturation

Completion Results

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
1	3.8			CL	100		SILTY CLAY, low, stiff, damp, brown, no odor,
3	4.1			CL	100		SILTY CLAY, SIMILAR TO ABOVE (STA), sandy at base,
5	292			SC	100		CLAYEY SAND, fine, compact, damp, faint odor,
7	1667			SC	100		CLAYEY SAND, STA, moist at base, odor.

1010 Travis Street
Houston, Texas 77002
713-955-1230

DiSorbo Consulting, LLC

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

Appendix D
Analytical Data Reports

Appendix E

Quality Assurance/Quality Control Review

1.0 DATA VALIDATION INTRODUCTION

This summary presents data verification results for soil and groundwater samples collected from soil boring and monitoring wells installed at SWMU10 at the Gallup Refinery. The data review was performed in accordance with Provision IV.J.3.b (Review of Field and Laboratory QA/QC Data) of the RCRA Permit issued by NMED in October 2013, USEPA Functional Guidelines for Organic and Inorganic Data Review, and quality assurance and control parameters set by the project laboratory Hall Environmental Analysis Laboratory, Inc.

A total of 48 soil samples and 8 groundwater samples (excluding QA samples) were collected from April 28, 2015 through May 14, 2015 in accordance with the SWMU10 Investigation Work Plan (Western Refining Southwest, Inc., 2014). Soil and groundwater samples were submitted to Hall Environmental Analysis Laboratory for the following parameters in accordance with the approved Work Plan:

- volatile organic compounds (VOCs) by USEPA Method 8260B;
- semi-volatile organic compounds (SVOCs) by USEPA Method 8270;
- Gasoline, diesel, and motor oil range organics by SW-846 Method 8015B;
- Total recoverable and dissolved metals (Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, nickel, selenium, silver, vanadium, and zinc) by SW846 Method 6010/6020;
- Chromium VI by SW-846 method 3060A;
- Tetraethyl lead by SW-846 method 3546;
- Cyanide by SW-846 method 9012; and
- Mercury by EPA Method 7470.

The groundwater samples were analyzed for water quality parameters including, nitrate, nitrite, total dissolved solids, sulfate, chloride, bicarbonate, carbonate, and total alkalinity.

Additionally, 20 quality assurance samples consisting of trip blanks, field blanks, equipment rinsate blanks, and field duplicates were collected and analyzed as part of the investigation activities. Table A-1 presents a summary of the field sample identifications, laboratory sample identifications, and sample collection dates.

2.0 QUALITY CONTROL PARAMETERS REVIEWED

Sample results were subject to a Level II data review that includes an evaluation of the following quality control (QC) parameters:

- Chain-of-Custody;
- Sample Preservation and Temperature Upon Laboratory Receipt
- Holding Times;
- Blank Contamination (method blanks, trip blanks, field blanks, and equipment rinsate blanks);
- Surrogate Recovery (for organic parameters);
- Laboratory Control Sample (LCS) Recovery and Relative Percent Difference (RPD);
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recovery and RPD;
- Duplicates (field duplicate, laboratory duplicate); and
- Other Applicable QC Parameters.

The data qualifiers used to qualify the analytical results associated with QC parameters outside of the established data quality objectives are defined below:

J+	The analyte was positively identified; however, the result should be considered an estimated value with a potential high bias.
J-	The analyte was positively identified; however, the result should be considered an estimated value with a potential low bias.
UJ	The reporting limit for a constituent that was not detected is considered an estimated value.
R	Quality control indicates that the data is not usable.

Results qualified as "J+", "J-", or "UJ" are of acceptable data quality and may be used quantitatively to fulfill the objectives of the analytical program, per EPA guidelines.

Results for the performance monitoring events that required qualification based on the data verification are summarized in Table A-2.

2.1 CHAIN-OF-CUSTODY

The chain-of-custody documentation associated with project samples was found to be complete. Chain-of-custodies included sample identifications, date and time of collection, requested parameters, and relinquished/received signatures.

2.2 SAMPLE PRESERVATION AND TEMPERATURE UPON LABORATORY RECEIPT

Samples collected were received preserved and intact by Hall Environmental Laboratories, Inc. Samples were received by the laboratory at a temperature of 6.0 degrees Celsius or lower. Data qualification on lower temperature samples was not required. The hexavalent chromium field sample SWMU 10-12-GW was received at a pH of 7.5 rather than the range of 8 to 10 units. The field sample was not qualified.

2.3 HOLDING TIMES

All samples were extracted and analyzed within method-specified holding time limits with the exception of the following:

- Lab Report 1505618 - Sample SWMU 10 EB06 was extracted 2 days after the 7 day holding time. This affected only the Method 8270C semi volatile analyses and only one sample. Since results may be biased low, the sample non-detect results were qualified "UJ".

See Table A-2 for qualified data.

2.4 BLANK CONTAMINATION

2.4.1 Method Blank

Method blanks were analyzed at the appropriate frequency. Target compounds were not detected in the method blanks, with the exception of the following:

- 1,2,4-Trimethylbenzene, acetone, 2-butanone (MEK), chloromethane, and 1,1-dichloroethane were detected in the blank for batch 19008. Acetone, 2-butanone, chloromethane, and 1,1-dichloroethane were not detected in the associated samples and qualification was not required. 1,2,4-Trimethylbenzene was detected at concentrations greater than 5x blank in associated samples; and qualification of the field samples was not necessary.
- Zinc was detected in the method blank for batch 19025. Zinc was detected at similar concentrations in associated sample SWMU 10-3-GW; and the field sample was qualified with a" J+".
- Toluene and 2-butanone were detected in the blank for batch 19032. Toluene was detected in 2 associated samples and 2-butanone was detected in 10 associated samples at similar concentrations; and the field samples were qualified with a" J+".

- Lead, iron and zinc were detected in the method blank for batch for 19080. Lead, iron and zinc were detected in associated samples at concentrations greater than 5x the concentrations in the blank; and qualification of field samples was not necessary;
- Lead and iron were detected in the method blank for batch 19081. Lead and iron were detected in associated samples. The concentration for lead in one sample SWMU 10-8 (18-20') was less than 5x the concentration in the blank and this sample was qualified "J+". The results for remaining associated samples were greater than 5x the blank and qualification was not necessary.
- Cadmium and iron were detected in the method blank for batch 19082. Cadmium was not detected in associated samples. Iron was detected in associated samples but the concentrations were greater than 5x the blank and qualification of field samples was not necessary.
- 2-Butanone and toluene were detected in the method blank for batch 19107. 2-Butanone was detected in six associated samples at similar concentrations; and the field samples were qualified "J+". Toluene was detected in associated samples at concentrations greater than 5x the blank and qualification of the field samples was not necessary.
- 2-Butanone was detected in the blank for batch 19243. 2-Butanone was detected in three associated samples SWMU 10-16 (2-4'), SWMU 10-16 (4.5-5') and SWMU 10-16 (8-9") at similar concentrations; and the field samples were qualified "J+".
- Iron and silver were detected in the method blank for batch 19259. Silver was not detected in associated samples. Iron was detected in associated samples but the concentrations were greater than 5x the blank; and field samples were not qualified.
- Iron was detected in the blank for batch 19279. Iron was detected in associated samples but the concentrations were greater than 5x the blank and field samples were not qualified.
- Iron was detected in the blank for batch 19280. Iron was detected in associated samples but the concentrations were greater than 5x the blank and field samples were not qualified.
- Iron was detected in the blank for batch 19333. Iron was detected in associated samples but the concentrations were greater than 5x the blank and field samples were not qualified.
- Mercury was detected in the blank for batch 19401. Mercury was also detected in the equipment blank EB06 and in an associated sample SWMU 10-11-GW at similar concentrations. The field samples were qualified "J+".

- Beryllium was detected in the method blank for batch R26030. Beryllium was detected in three associated samples SWMU 10-1-GW, SWMU 10-3-GW and SWMU 10-5-GW at similar concentrations. The field samples were qualified "J+".
- 2-Butanone, chloroethane, and chloromethane were detected in the method blank for batch R26144. 2-Butanone, chloroethane, and chloromethane were not detected in associated samples and qualification of field samples is not necessary.
- 1,2,4- Trimethylbenzene, 2-butanone, and toluene were detected in the method blank for batch R25982. 1,2,4- Trimethylbenzene was detected in associated samples SWMU 10-1 (2-4') and SWMU 10-8 (4-6') at a similar concentration and the field samples were flagged "J+". 2-Butanone was not detected and toluene was detected in associated samples but concentrations were 5x the blank; and qualification of field samples is not necessary.
- 1,2,4-Trimethylbenzene, 1,2-dichloroethane, bromomethane., and chloroethane were detected in the blank for batch R26221. 1,2,4-Trimethylbenzene was detected in associated samples but concentrations were 5x the blank; and bromomethane, chloroethane, and 1,2-Dichloroethane were not detected in associated samples. Qualification of field samples was not necessary.
- Silver was detected in the method blank for analytical batch R25881. Silver was not detected in the associated sample and qualification was not required.
- Bromomethane and 1,2,4-trimethylbenzene were detected in the method blank for batch R26209; Bromomethane was detected in associated samples SWMU 10-11 (8-10"), SWMU 10-13 (6-8') and SWMU 10-14 (6-8') at similar concentrations; and field samples were flagged "J+". 1,2,4-Trimethylbenzene was detected in associated samples but concentrations were 5x the blank; and qualification of field samples was not necessary.
- Barium was detected in the blank for batch R26242. Barium was detected in associated samples but concentrations were 5x the blank; and qualification of field samples is not necessary.
- Silver was detected in the blank for batch R26291. Silver was not detected in associated samples; and qualification of field samples was not necessary.
- 1,2,4-Trimethylbenzene, 1,2-dichlorethane, and vinyl chloride were detected in the blank for batch R26332. 1,2,4-Trimethylbenzene was detected in associated samples SWMU 10-12-GW, SWMU 10-14-GW, SWMU 10-16-GW and two Trip Blanks at similar concentrations; and field samples were flagged "J+". 1,2-Dichlorethane and vinyl chloride were detected in associated sample SWMU 10-16-GW at similar concentrations and field samples were flagged "J+".

See Table A-2 for qualified data.

2.4.2 Trip Blank

Trip blanks were analyzed at the appropriate frequency as specified in the Permit. Target compounds were not detected in the trip blanks with the following exceptions:

Lab Report 1505698

- The VOCs ethylbenzene (0.11-J ug/L), naphthalene (0.31-J ug/L), 1-methylnaphthalene (0.71-J ug/L), 2-methylnaphthalene (1.1-J ug/L), 1,2,4-trimethylbenzene (0.29-J ug/L), and xylenes (0.041-J ug/L) were detected in TRIP Blank Sample No. 1501698-002a. The analytes were detected in the groundwater sample 1505698-001a associated with this trip blank at concentrations more than 5x the concentration detected in the blank. Sample results were not qualified; and

Lab Report 1505700

- The VOCs toluene (0.14-J ug/L) and 1,2,4-trimethylbenzene (0.18-J ug/L) were detected in TRIP Blank Sample No. 1505700-002a. Toluene was not detected and 1,2,4-trimethybenzene was detected in the groundwater sample 1505700-001a (SWMU 10-12-GW) associated with this trip blank. The detected concentration of 1,2,4-trimethylbenzene (0.66 ug/L) was less than 5 times the concentration in the trip blank and may be biased high. The 1,2,4-trimethylbenzene result for the field sample was flagged "J+".

See Table A-2 for qualified data.

2.4.3 Field Blanks/Equipment Rinsate Blank

Field and equipment rinsate blanks were collected as specified in the SWMU10 Investigation Work Plan and the Permit.

2.4.4 Common Laboratory Contaminants

Per USEPA guidelines, common laboratory contaminants for VOC analysis are acetone, 2-butanone (MEK), cyclohexane, chloromethane, and methylene chloride. Common laboratory contaminants for SVOC analysis include phthalates. Data qualification was required for MEK in sample batches 19032, 19107 and 19243 where the laboratory contaminant was detected in the blank. Data qualification was not required for other samples and laboratory contaminants since there was no detection in blanks or field analytical results were not detected or were detected at concentrations greater than 10 times the blank concentration in field samples. See Table A-2 for qualified data.

2.4.5 Methanol Blanks

Methanol Blanks provided by the laboratory were analyzed for VOCs. There were no analytes detected in the methanol blanks above the respective laboratory reporting limits.

2.5 SURROGATE RECOVERY

Surrogate recoveries for the organic and inorganic analyses were performed at the required frequency and were within laboratory acceptance limits, with the following exceptions:

Lab Report 1504C86

- Surrogate recovery for nitrobenzene-d6 was high and above the acceptance limit for field sample SWMU 10 EB01. The surrogate recovery for five of the six surrogates included in Method 8270C were within limits. Since only one surrogate was outside limits, the associated field sample results for semi-volatile organic compounds were not qualified.

Lab Report 1505002

- Surrogate recovery for nitrobenzene-d6 was high and above the acceptance limit for field sample SWMU 10 EB02. The surrogate recovery for five of the six surrogates included in Method 8270C were within limits. Since only one surrogate was outside limits, the associated field sample results for semi-volatile organic compounds were not qualified.

Lab Report 1505003

- Surrogate recovery for di-n-octyl phthalate (DNOP) was below the acceptance limit for field samples SWMU 10-5 (0-2') and SWMU 10-5 (4-6'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8015 diesel range organics (DRO) or matrix effects; therefore data qualification was not required.
- Surrogate recoveries for Method 8270C were below the lower acceptance limits for field sample SWMU 10-5 (0-2'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8270C or matrix effects; therefore data qualification was not required.

Lab Report 1505004

- Surrogate recovery for DNOP was below the lower acceptance limit for field sample SWMU 10-4 (2-4'). Low surrogate was related to required sample dilution for analytical analysis by Method 8015 DRO or matrix effects; therefore data qualification was not required.
- Surrogate recoveries for Method 8270C were below the lower acceptance limits for field sample SWMU 10 DUP01. Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8270C or matrix effects; therefore data qualification was not required.

Lab Report 1505005

- Surrogate recovery for bromofluorobenzene (BFB) was high and above the upper acceptance limit for field sample SWMU 10-3-GW. The associated field sample results for Method 8015 gasoline range organics (GRO) are qualified J+ due to a potential high bias.

Lab Report 1505057

- Surrogate recovery for DNOP was below the lower acceptance limit for field sample SWMU 10-8 (2-4'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8015 DRO or matrix effects; therefore data qualification was not required.
- Surrogate recoveries for Method 8270C were below the lower acceptance limits for field samples SWMU 10-9 (4-6') and SWMU 10-8 (2-4'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8270C or matrix effects; therefore data qualification was not required.

Lab Report 1505058

- Surrogate recovery for DNOP was below the lower acceptance limit for field sample SWMU 10-10 (4-6'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8015 DRO or matrix effects; therefore data qualification was not required.
- Surrogate recoveries for Method 8270C were below the lower acceptance limits for field sample SWMU 10-10 (4-6'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8270C or matrix effects; therefore data qualification was not required.

Lab Report 1505218

- Surrogate recovery for BFB was high and above the upper acceptance limit for field sample SWMU 10-5-GW. The associated field sample results for Method 8015 GRO are qualified J+ due to a potential high bias. Non-detect results are not qualified.
- Surrogate recoveries for 2-fluorophenol and 2,4,6-tribromophenol were below the acceptance limit for field sample SWMU 10-5-GW. The surrogate recovery for three of the six surrogates included in Method 8270C were within limits. Since only two of six surrogates were outside limits, the associated field sample results for semi-volatile organic compounds were not qualified.

Lab Report 1505570

- Surrogate recovery for DNOP was below the lower acceptance limit for field samples SWMU 10-14 (6-8') and SWMU 10-11 (4-6'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8015 DRO or matrix interference; therefore data qualification was not qualified.
- Surrogate recovery for DNOP was high and above the upper acceptance limit for field sample SWMU 10-11 (8-10'). The associated field sample results for Method 8015 GRO are qualified J+ due to a potential high bias. Non-detect results are not qualified.
- Surrogate recoveries for Method 8270C were below the lower acceptance limits for field samples SWMU 10-9 (4-6') and SWMU 10-8 (2-4'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8270C or matrix effects; therefore data qualification was not required.

Lab Report 15056174

- Surrogate recovery for DNOP was below the lower acceptance limit for field samples SWMU 10-13 (6-8'), SWMU 10-17 (6-8'), and SWMU 10 DUP04. Low surrogate recovery was due to required sample dilution for analytical analysis by Method 8015 DRO or matrix effects; therefore data qualification was not qualified.
- Surrogate recoveries for Method 8270C were below the lower acceptance limits for field samples SWMU 10-17 (6-8') and SWMU DUP04. Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8270C or matrix effects; therefore data qualification was not required.

Lab Report 1505709

- Surrogate recovery for nitrobenzene d-5 was high and above the upper acceptance limit for field sample SWMU 10 DUP01GW. The surrogate recovery for five of the six surrogates included in Method 8270C were within limits. Since only one of six surrogates was outside limits, the associated field sample results for semi-volatile organic compounds were not qualified.
- Surrogate recovery for dibromofluorobenzene was high and above the acceptance limit for field sample SWMU10 DUP01GW. The surrogate recovery for four of the five surrogates included in Method 8260 were within limits. Since only one of five surrogates was outside limits, the associated field sample results for volatile organic compounds were not qualified.

See Table A-2 for qualified data.

2.6 LCS RECOVERY AND RELATIVE PERCENT DIFFERENCE

Laboratory control samples (LCS0/LCS duplicates were performed at the required frequency and were evaluated based on the following criteria:

- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate, but the analyte was not detected in the associated batch, then data qualification was not required.
- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate and the analyte was detected in the associated batch, then the analyte results were qualified "J+" to account for a potential high bias.
- If the analyte recovery was below acceptance limits for LCS or LCS duplicate then the analyte results in the associated analytical batch were qualified ("UJ" for non-detects and "J-" for detected results) to account for a potential low bias.

LCS/LCSD percent recoveries and relative percent differences (RPDs) were within acceptance limits and no qualification was required.

2.7 MS/MSD RECOVERY AND RELATIVE PERCENT DIFFERENCE

Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples were performed at the required frequency and were evaluated by the following criteria:

- If the MS or MSD recovery for an analyte was above acceptance limits but the analyte was not detected in the associated analytical batch, then data qualification was not required.
- If the MS or MSD recovery for an analyte was above acceptance limits and the analyte was detected in the associated analytical batch, then analyte results were qualified "J+" to account for a potential high bias.
- Low MS/MSD recoveries for organic or inorganic parameters result in sample qualification of the associated analytical batch with a "J-".
- Results were not qualified based on non-project specific MS/MSD (i.e., batch QC) recoveries.

MS/MSD percent recoveries and RPDs were within acceptance limits except for the following:

Lab Report 1505003

- The MS/MSD recoveries for benzene and toluene for Method 8260B Batch 19032 were below the lower acceptance limits for field sample SWMU 10-5 (22-24). Low recovery was related to dilution or matrix interference. Since results may be biased low, detected results in the batch are qualified "J-"and non-detect results are qualified "UJ".

Lab Report 1505057

- The MS recovery of 127% and the MSD recovery of 172% for mercury was above the acceptance limit of 125% for Method 7471 batch 19445 and field sample SWMU 10-9 (2-4'). Since results may be biased high, the detected results are qualified "J+".

Lab Report 1505218

- The MS/MSD recovery of 166% for BFB is above the upper limit of 120% for Method 8015 GRO batch R26016 in field sample SWMU 10-5-GW. The associated field sample results for Method 8015 GRO are qualified J+ due to a potential high bias. Non-detect samples were not qualified.
- The MS/MSD recoveries were low and the relative percent difference (RPD) were outside the acceptance limits for several chemicals and surrogates for Method 8270C batch 19150 performed for field sample SWMU 10-5-GW. Low recovery was related to dilution or matrix interference. Since results may be biased low, the associated semi-volatile results were qualified "J-" if detected or "UJ" if non-detect.

Lab Report 1505570

- The MS/MSD recoveries for all compounds and surrogates for Method 8270C batch 19270 were within limits for field sample SWMU 10-14 (4-6'). The RPD of 30.4 for N-nitroso-n-propyl amine was above the limit of 27.5. Since the RPDs for other compounds were within limits, and the N-nitroso-n-propyl amine RPD was only slightly out of specifications, the field data were not qualified.
- The MS recovery of 33.2% and the MSD recovery of 33.3% for antimony was below the lower limit of 75% for Method 6010 batch 19259 and field sample SWMU 10-14 (6-8'). Low recovery was related to dilution or matrix interference. The associated field sample results for antimony are qualified "UJ" due to a potential low bias.
- The MS recovery for lead was within limits and MSD recovery of 74.4 for lead was below the acceptance limit of 75% for Method 6010 batch 19259 and field sample SWMU 10-14 (6-8'). Since MSD recovery was only slightly low, the associated field sample results were not qualified.

Lab Report 1505698

- MS recoveries for benzene (16.4%), toluene (13.4%), chlorobenzene (11.7%), 1,1-dichloroethylene (6.58%), and trichloroethylene (9.98%) were below the lower acceptance limit of 30% for Method 8260 batch R26322 and field sample SWMU 10-11-GW. The RPDs for these compounds were outside acceptance limits. Low recovery was related to dilution or matrix interference. The field sample results for volatile organics are qualified "J-"and non-detect results are qualified "UJ" due to a potential low bias.

See Table A-2 for qualified data.

2.8 DUPLICATES

2.8.1 Field Duplicates

Field duplicates were collected at a rate as stated in the approved SWMU10 Investigation Work Plan. The RPDs between the field duplicate and its associated sample were calculated and are presented in Table A-3. The field duplicates were evaluated by the following criteria:

- If an analyte was detected at a concentration greater than five times the method reporting limit, the RPD should be less than 35 percent for soil and 25 percent for ground water samples.
- If an analyte was detected at a concentration that is less than five times the method reporting limit, then the difference between the sample and the field duplicate should not exceed the method reporting limit.
- Duplicate RPDs are calculated by dividing the difference of the concentrations by the average of the concentrations.

Field duplicate RPDs were within acceptance limits except for the following soil sample:

- GRO and DRO for field sample SWMU 10-9 (4-6);
- 1,2,4-Trimethylbenzene, 1,3,5-trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, hexachlorobutadiene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, and xylene(s) for field sample SWMU10-9 (4-6').

See Table 3A for a field duplicate summary.

3.0 COMPLETENESS SUMMARY

The following equation was used to calculate the technical completeness:

$$\% \text{ Technical Completeness} = \left(\frac{\text{Number of usable results}}{\text{Number of reported results}}\right) \times 100$$

The technical completeness attained for SWMU10 RCRA Investigation activities was 100 percent. The completeness results are provided in Table A-4. The analytical results for the required analytes per the approved SWMU10 Work Plan were considered usable for the intended purposes and the project DQOs have been met.

Table A-1
Sample Identification
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Lab ID	Date Collected	Sample Type
SWMU 10 EB01	1504c86-001a	4/28/2015	EB
SWMU 10-1 (2-4')	1504c87-001a	4/28/2015	N
SWMU 10-1 (4-6')	1504c87-002a	4/28/2015	N
SWMU 10-1 (18-20')	1504c87-003a	4/28/2015	N
SWMU 10-3 (2-4')	1504c87-004a	4/28/2015	N
SWMU 10-3 (6-8')	1504c87-005a	4/28/2015	N
SWMU 10-3 (18-20')	1504c87-006a	4/28/2015	N
SWMU 10-1-GW	1505001-001a	4/28/2015	GW
Trip Blank	1505001-002a	4/28/2015	TB
SWMU 10 EB02	1505002-001a	4/29/2015	EB
SWMU 10-5 (0-2')	1505003-001a	4/29/2015	N
SWMU 10-5 (2-4')	1505003-002a	4/29/2015	N
SWMU 10-5 (4-6')	1505003-003a	4/29/2015	N
SWMU 10-5 (14-16')	1505003-004a	4/29/2015	N
SWMU 10-5 (22-24')	1505003-005A	4/29/2015	N
SWMU 10-4 (0-2')	1505004-001A	4/29/2015	N
SWMU 10-4 (2-4')	1505004-002a	4/29/2015	N
SWMU 10-4 (6-8')	1505004-003A	4/29/2015	N
SWMU 10-4 (18-20')	1505004-004A	4/29/2015	N
SWMU 10 DUP01	1505004-005A	4/29/2015	FD
SWMU 10-3-GW	1505005-001a	4/29/2015	GW
Trip Blank	1505005-002a	4/29/2015	TB
SWMU 10 EB04	1505047-001a	5/1/2015	EB
SWMU 10 EB03	1505048-001a	4/30/2015	EB
SWMU 10-9 (2-4')	1505057-001A	4/30/2015	N
SWMU 10-9 (4-6')	1505057-002a	4/30/2015	N
SWMU 10-9 (18-20')	1505057-003A	4/30/2015	N
SWMU 10-9DUP02	1505057-004a	4/30/2015	FD
SWMU 10-8 (2-4')	1505057-005a	4/30/2015	N
SWMU 10-8 (4-6')	1505057-006a	4/30/2015	N
SWMU 10-8 (18-20')	1505057-007A	4/30/2015	N
SWMU 10-10 (2-4')	1505058-001A	4/30/2015	N
SWMU 10-10 (4-6')	1505058-002a	4/30/2015	N
SWMU 10-10 (18-20')	1505058-003A	4/30/2015	N
SWMU 10-7 (2-4')	1505059-001A	5/1/2015	N
SWMU 10-7 (4-6')	1505059-002A	5/1/2015	N
SWMU 10-7 (18-20')	1505059-003A	5/1/2015	N
SWMU 10-5-GW	1505218-001a	5/4/2015	GW
TRIP BLANK	1505218-002a	5/4/2015	TB
SWMU 10 EB05	1505222-001a	5/4/2015	EB
TRIP BLANK	1505222-002a	5/4/2015	TB
SWMU 10-6 (2-4')	1505223-001A	5/4/2015	N
SWMU 10-6 (10-12')	1505223-002A	5/4/2015	N
SWMU 10-2 (0-2')	1505223-003A	5/4/2015	N
SWMU 10-2 (2-4')	1505223-004A	5/4/2015	N
SWMU 10 DUP03	1505223-005A	5/4/2015	FD
MEOH BLANK	1505223-006	5/4/2015	FB
SWMU 10-14 (6-8')	1505570-001a	5/12/2015	N
SWMU 10-14 (21-23')	1505570-002a	5/12/2015	N
SWMU 10-11 (4-6')	1505570-003a	5/12/2015	N
SWMU 10-11 (8-10')	1505570-004a	5/12/2015	N
SWMU 10-11 (18-20')	1505570-005A	5/12/2015	N
SWMU 10-12 (6-8')	1505617-001a	5/12/2015	N
SWMU 10-12 (20-22')	1505617-002a	5/12/2015	N
SWMU 10-13 (2-4')	1505617-003a	5/13/2015	N
SWMU 10-13 (6-8')	1505617-004a	5/13/2015	N
SWMU 10-13 (18-20')	1505617-005a	5/13/2015	N
SWMU 10-15 (2-4')	1505617-006a	5/13/2015	N
SWMU 10-15 (4-6')	1505617-007a	5/13/2015	N

Table A-1
Sample Identification
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Lab ID	Date Collected	Sample Type
SWMU 10-15 (18-20')	1505617-008a	5/13/2015	N
SWMU 10-17 (6-8')	1505617-009a	5/13/2015	N
SWMU 10 DUP04	1505617-010a	5/13/2015	FD
MEOH BLANK	1505617-011	5/13/2015	FB
SWMU 10 EB06	1505618-001a	5/12/2015	EB
SWMU 10-11-GW	1505698-001a	5/14/2015	GW
Trip Blank	1505698-002a	5/14/2015	TB
SWMU 10-12-GW	1505700-001a	5/14/2015	GW
Trip Blank	1505700-002a	5/14/2015	TB
SWMU 10-14-GW	1505701-001a	5/14/2015	GW
Trip Blank	1505701-002a	5/14/2015	TB
SWMU 10-16 (2-4')	1505705-001a	5/13/2015	N
SWMU 10-16 (4-5.5')	1505705-002a	5/13/2015	N
SWMU 10-16 (8-9')	1505705-003a	5/13/2015	N
SWMU 10-15-GW	1505708-001a	5/14/2015	GW
TRIP BLANK	1505708-002a	5/14/2015	TB
SWMU 10 DUP01GW	1505709-001a	5/14/2015	FD
TRIP BLANK	1505709-002a	5/14/2015	TB
SWMU 10-16-GW	1505710-001a	5/14/2015	GW

Notes:

N = Normal field sample
FD = Field duplicate
FB = Field Blank
TB = Trip Blank
EB = Equipment Blank
GW = Groundwater

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 DUP01	4/29/2015	1,3,5-Trimethylbenzene	0.000422	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Methylene chloride	0.00051	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	sec-Butylbenzene	0.000534	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Ethylbenzene	0.000638	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	2-Hexanone	0.000653	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2,4-Trimethylbenzene	0.000972	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Benzene	0.00104	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Xylenes, Total	0.00171	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Toluene	0.00232	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Acetone	0.0166	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Barium	380	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP01	4/29/2015	2-Butanone	0.00253	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 DUP01	4/29/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01GW	5/14/2015	Benzene	0.4	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	2-Butanone	2.9	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Acetone	16	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Methyl tert-butyl ether (MTBE)	150	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 DUP01GW	5/14/2015	1,2,4-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 DUP01GW	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP04	5/13/2015	Fluorene	3.2	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	Phenanthrene	6	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	Naphthalene	8.8	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	2,4-Dimethylphenol	18	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	Phenol	26	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	1-Methylnaphthalene	28	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	2-Methylphenol	29	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	2-Methylnaphthalene	45	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	3+4-Methylphenol	60	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 EB05	5/4/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,4,5-Trichlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,4,6-Trichlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,4-Dichlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,4-Dimethylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,4-Dinitrophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,6-Dinitrotoluene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2-Chloronaphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2-Chlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2-Methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2-Nitrophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	3,3´-Dichlorobenzidine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	3+4-Methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	3-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 EB05	5/4/2015	4,6-Dinitro-2-methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	4-Bromophenyl phenyl ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	4-Chloro-3-methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	4-Chloroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	4-Chlorophenyl phenyl ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	4-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	4-Nitrophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Acenaphthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Acenaphthylene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Aniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Anthracene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Azobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benz(a)anthracene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benzo(a)pyrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benzo(b)fluoranthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benzo(g,h,i)perylene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benzo(k)fluoranthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benzoic acid	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benzyl alcohol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Bis(2-chloroethoxy)methane	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Bis(2-chloroethyl)ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Bis(2-chloroisopropyl)ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Bis(2-ethylhexyl)phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Butyl benzyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Carbazole	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Chrysene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Dibenz(a,h)anthracene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Dibenzofuran	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Diethyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Dimethyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Di-n-butyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Di-n-octyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Fluoranthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Fluorene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Hexachlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Hexachlorocyclopentadiene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Hexachloroethane	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Indeno(1,2,3-cd)pyrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Isophorone	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 EB05	5/4/2015	Naphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Nitrobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	N-Nitrosodi-n-propylamine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	N-Nitrosodiphenylamine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Phenanthrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Phenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Pyrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Pyridine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,4-Dinitrotoluene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	N-Nitrosodimethylamine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Pentachlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB06	5/12/2015	Mercury	0.00015	mg/l	Water	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10 EB06	5/12/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,4,5-Trichlorophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,4,6-Trichlorophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,4-Dichlorophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,4-Dimethylphenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,4-Dinitrophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,4-Dinitrotoluene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,6-Dinitrotoluene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2-Chloronaphthalene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2-Chlorophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2-Methylphenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2-Nitrophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	3,3´-Dichlorobenzidine	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	3+4-Methylphenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	3-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4,6-Dinitro-2-methylphenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4-Bromophenyl phenyl ether	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4-Chloro-3-methylphenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4-Chloroaniline	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4-Chlorophenyl phenyl ether	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4-Nitrophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time

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Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 EB06	5/12/2015	Acenaphthene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Acenaphthylene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Aniline	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Anthracene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Azobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benz(a)anthracene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benzo(a)pyrene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benzo(b)fluoranthene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benzo(g,h,i)perylene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benzo(k)fluoranthene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benzoic acid	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benzyl alcohol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Bis(2-chloroethoxy)methane	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Bis(2-chloroethyl)ether	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Bis(2-chloroisopropyl)ether	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Bis(2-ethylhexyl)phthalate	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Butyl benzyl phthalate	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Carbazole	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Chrysene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Dibenz(a,h)anthracene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Dibenzofuran	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Diethyl phthalate	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Dimethyl phthalate	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Di-n-butyl phthalate	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Di-n-octyl phthalate	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Fluoranthene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Fluorene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Hexachlorobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Hexachlorocyclopentadiene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Hexachloroethane	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Indeno(1,2,3-cd)pyrene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Isophorone	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Naphthalene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Nitrobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	N-Nitrosodimethylamine	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	N-Nitrosodi-n-propylamine	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	N-Nitrosodiphenylamine	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Pentachlorophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Phenanthrene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time

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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 EB06	5/12/2015	Phenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Pyrene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Pyridine	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10-1 (18-20')	4/28/2015	Methylene chloride	0.000566	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	sec-Butylbenzene	0.000715	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,3,5-Trimethylbenzene	0.000993	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2,4-Trimethylbenzene	0.00162	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Ethylbenzene	0.00192	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Acetone	0.00324	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Xylenes, Total	0.00647	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Toluene	0.00836	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Benzene	0.0146	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	2-Butanone	0.00156	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-1 (18-20')	4/28/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,3,5-Trimethylbenzene	0.000993	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (2-4')	4/28/2015	1,2,4-Trimethylbenzene	0.0061	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-1 (4-6')	4/28/2015	1,3,5-Trimethylbenzene	0.000318	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	sec-Butylbenzene	0.000593	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2,4-Trimethylbenzene	0.000619	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Methylene chloride	0.000619	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Naphthalene	0.000877	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Benzene	0.00211	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Toluene	0.00253	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Methyl tert-butyl ether (MTBE)	0.00669	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Acetone	0.00926	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Ethylbenzene	0.0318	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch

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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-1 (4-6')	4/28/2015	Xylenes, Total	0.197	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	2-Butanone	0.00257	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-1 (4-6')	4/28/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	n-Propylbenzene	0.000372	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	sec-Butylbenzene	0.000688	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Naphthalene	0.000725	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,3,5-Trimethylbenzene	0.00151	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2,4-Trimethylbenzene	0.00238	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Ethylbenzene	0.00241	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Acetone	0.00422	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Toluene	0.0104	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Benzene	0.018	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	2-Butanone	0.00159	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-10 (18-20')	4/30/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Methylene chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	2-Hexanone	0.000582	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-10 (2-4')	4/30/2015	Acetone	0.00792	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Toluene	0.000255	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	2-Butanone	0.00161	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Methylene chloride	0.00051	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2,4-Trimethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,3,5-Trimethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Benzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-10 (2-4')	4/30/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Ethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	sec-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Xylenes, Total	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (4-6')	4/30/2015	Fluorene	2.2	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-10 (4-6')	4/30/2015	Phenanthrene	4.1	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-10 (4-6')	4/30/2015	Naphthalene	5.9	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-10 (4-6')	4/30/2015	1-Methylnaphthalene	17	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-10 (4-6')	4/30/2015	2-Methylnaphthalene	25	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-11 (4-6')	5/12/2015	Mercury	0.05	mg/kg	Soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-11 (8-10')	5/12/2015	Bromomethane	0.026	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-11 (8-10')	5/12/2015	Mercury	0.014	mg/kg	Soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-11-GW	5/14/2015	1,1-Dichloroethane	0.93	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	sec-Butylbenzene	2.2	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Benzene	2.5	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	4-Isopropyltoluene	2.7	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	n-Butylbenzene	3.4	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Toluene	6	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Isopropylbenzene	8.5	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-11-GW	5/14/2015	Acetone	8.8	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	n-Propylbenzene	11	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,3,5-Trimethylbenzene	22	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Ethylbenzene	40	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Naphthalene	45	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2,4-Trimethylbenzene	64	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1-Methylnaphthalene	70	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	2-Methylnaphthalene	98	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Xylenes, Total	230	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Mercury	0.00075	mg/l	Water	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-11-GW	5/14/2015	Methyl tert-butyl ether (MTBE)	14	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-11-GW	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Benzene	0.47	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Naphthalene	0.52	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	2-Methylnaphthalene	1.5	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Acetone	3.4	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Methyl tert-butyl ether (MTBE)	13	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2,4-Trimethylbenzene	0.66	ug/l	Water	J+/J+/J-	Qualified high bias since detected in method blank & trip blank and field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-12-GW	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-12-GW	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-13 (6-8')	5/13/2015	Bromomethane	0.023	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-14 (21-23')	5/12/2015	Mercury	0.0032	mg/kg	Soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-14 (6-8')	5/12/2015	Bromomethane	0.023	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-14 (6-8')	5/12/2015	Mercury	0.0046	mg/kg	Soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-14 (6-8')	5/12/2015	Antimony	ND	mg/kg	Soil	UJ	Qualfied low since Method 6010 MS/SMSD recovery low
SWMU 10-14-GW	5/14/2015	Toluene	0.3	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Benzene	0.47	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Acetone	2.7	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Methyl tert-butyl ether (MTBE)	16	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2,4-Trimethylbenzene	0.44	ug/l	Water	J+/J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-14-GW	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Benzene	0.51	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	2-Butanone	2.9	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Acetone	9.7	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Methyl tert-butyl ether (MTBE)	150	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-15-GW	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2,4-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-15-GW	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16 (2-4')	5/13/2015	2-Butanone	0.00304	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-16 (4-5.5')	5/13/2015	2-Butanone	0.00146	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-16 (8-9')	5/13/2015	2-Butanone	0.00173	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-16-GW	5/14/2015	Benzene	0.24	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Xylenes, Total	0.35	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	cis-1,2-DCE	0.39	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1-Dichloroethene	0.73	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Trichloroethene (TCE)	0.77	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Acetone	1.6	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1-Dichloroethane	3.1	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Methyl tert-butyl ether (MTBE)	19	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2,4-Trimethylbenzene	0.18	ug/l	Water	J+/J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2-Dichloroethane (EDC)	0.47	ug/l	Water	J+/J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Vinyl chloride	0.47	ug/l	Water	J+/J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

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Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-16-GW	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-16-GW	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-17 (6-8')	5/13/2015	Fluorene	7.1	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	Phenanthrene	15	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	Naphthalene	24	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	Phenol	52	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	2-Methylphenol	56	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	1-Methylnaphthalene	76	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	3+4-Methylphenol	100	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	2-Methylnaphthalene	130	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-1-GW	4/29/2015	Beryllium	0.00052	mg/l	Water	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-2 (0-2')	5/4/2015	2-Butanone	0.0038	mg/kg	Unknown	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-2 (2-4')	5/4/2015	2-Butanone	0.00283	mg/kg	Unknown	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-3 (18-20')	4/28/2015	2-Hexanone	0.000748	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Methylene chloride	0.00077	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	sec-Butylbenzene	0.000781	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,3,5-Trimethylbenzene	0.00123	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Acetone	0.00158	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2,4-Trimethylbenzene	0.00184	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Ethylbenzene	0.00231	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Xylenes, Total	0.00707	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Toluene	0.01	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Benzene	0.0141	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	2-Butanone	0.00151	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

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Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-3 (18-20')	4/28/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-3 (18-20')	4/28/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Ethylbenzene	0.000313	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Methylene chloride	0.000387	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	2-Hexanone	0.000656	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Benzene	0.000872	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Xylenes, Total	0.00108	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Toluene	0.00116	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Acetone	0.0201	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	2-Butanone	0.00273	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2,4-Trimethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,3,5-Trimethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-3 (2-4')	4/28/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	sec-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,3,5-Trimethylbenzene	0.000351	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Methylene chloride	0.000547	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	sec-Butylbenzene	0.000555	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2,4-Trimethylbenzene	0.000564	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	2-Hexanone	0.000588	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Ethylbenzene	0.0008	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Xylenes, Total	0.00181	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Toluene	0.00301	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Benzene	0.00319	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Acetone	0.00534	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-3 (6-8')	4/28/2015	2-Butanone	0.00136	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-3 (6-8')	4/28/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3-GW	4/29/2015	Gasoline Range Organics (GRO)	0.033	mg/l	Water	J+	Qualified high bias due to surrogate recovery
SWMU 10-3-GW	4/29/2015	Beryllium	0.0004	mg/l	Water	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-3-GW	4/29/2015	Zinc	0.023	mg/l	Water	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-4 (0-2')	4/29/2015	1,3,5-Trimethylbenzene	0.000347	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Methylene chloride	0.000606	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	sec-Butylbenzene	0.000645	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Ethylbenzene	0.000703	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2,4-Trimethylbenzene	0.00077	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	2-Hexanone	0.000886	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Benzene	0.00118	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Xylenes, Total	0.00182	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Toluene	0.00263	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Acetone	0.0237	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	2-Butanone	0.00407	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-4 (0-2')	4/29/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-4 (0-2')	4/29/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Isopropylbenzene	0.000482	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	n-Propylbenzene	0.00051	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Methylene chloride	0.000612	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	sec-Butylbenzene	0.000714	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Naphthalene	0.000742	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Acetone	0.0018	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,3,5-Trimethylbenzene	0.00184	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2,4-Trimethylbenzene	0.00277	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Ethylbenzene	0.00291	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Xylenes, Total	0.00975	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Toluene	0.0127	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Benzene	0.0204	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	2-Butanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-4 (18-20')	4/29/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (6-8')	4/29/2015	2-Butanone	0.00153	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-5 (22-24')	4/29/2015	n-Propylbenzene	0.000469	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Methylene chloride	0.000565	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	sec-Butylbenzene	0.000766	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Naphthalene	0.000785	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1-Methylnaphthalene	0.000843	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	2-Methylnaphthalene	0.000852	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,3,5-Trimethylbenzene	0.00179	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Acetone	0.00186	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Ethylbenzene	0.00258	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2,4-Trimethylbenzene	0.00263	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Xylenes, Total	0.00849	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-5 (22-24')	4/29/2015	Toluene	0.0112	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Benzene	0.0179	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-5 (22-24')	4/29/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	2-Butanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5-GW	5/4/2015	Gasoline Range Organics (GRO)	0.21	mg/l	Water	J+/J+	Qualified high bias due to surrogate recovery and Method GRO MS/MSD
SWMU 10-5-GW	5/4/2015	Beryllium	0.00042	mg/l	Water	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-5-GW	5/4/2015	Bis(2-chloroethyl)ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	N-Nitrosodimethylamine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Pentachlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,4,5-Trichlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,4,6-Trichlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,4-Dichlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,4-Dimethylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,4-Dinitrophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,6-Dinitrotoluene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2-Chloronaphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2-Chlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2-Methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2-Nitrophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	3,3´-Dichlorobenzidine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	3+4-Methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	3-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4,6-Dinitro-2-methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch

Table A-2
Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-5-GW	5/4/2015	4-Bromophenyl phenyl ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4-Chloro-3-methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4-Chloroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4-Chlorophenyl phenyl ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4-Nitrophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Acenaphthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Acenaphthylene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Aniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Anthracene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Azobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benz(a)anthracene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benzo(a)pyrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benzo(b)fluoranthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benzo(g,h,i)perylene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benzo(k)fluoranthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benzoic acid	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benzyl alcohol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Bis(2-chloroethoxy)methane	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Bis(2-chloroisopropyl)ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Bis(2-ethylhexyl)phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Butyl benzyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Carbazole	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Chrysene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Dibenz(a,h)anthracene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Dibenzofuran	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Diethyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Dimethyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Di-n-butyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Di-n-octyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Fluoranthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Fluorene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Hexachlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Hexachlorocyclopentadiene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Hexachloroethane	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Indeno(1,2,3-cd)pyrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Isophorone	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Naphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Nitrobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-5-GW	5/4/2015	N-Nitrosodi-n-propylamine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	N-Nitrosodiphenylamine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Phenanthrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Phenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Pyrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Pyridine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,4-Dinitrotoluene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-6 (2-4')	5/4/2015	2-Butanone	0.00176	mg/kg	Unknown	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-7 (2-4')	5/1/2015	2-Butanone	0.00273	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-7 (4-6')	5/1/2015	2-Butanone	0.00175	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-8 (18-20')	4/30/2015	n-Propylbenzene	0.000428	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Isopropylbenzene	0.000447	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	sec-Butylbenzene	0.000714	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Naphthalene	0.000809	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,3,5-Trimethylbenzene	0.00159	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2,4-Trimethylbenzene	0.00236	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Ethylbenzene	0.00285	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Acetone	0.00466	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Xylenes, Total	0.00872	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Toluene	0.0122	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Benzene	0.0178	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Lead	0.27	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-8 (18-20')	4/30/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-8 (18-20')	4/30/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	2-Butanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Methylene chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (2-4')	4/30/2015	Fluorene	8.1	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-8 (2-4')	4/30/2015	Naphthalene	18	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-8 (2-4')	4/30/2015	1-Methylnaphthalene	68	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-8 (2-4')	4/30/2015	2-Methylnaphthalene	89	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery

Table A-2
Qualified Data
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Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-8 (4-6')	4/30/2015	1,2,4-Trimethylbenzene	0.021	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-9 (18-20')	4/30/2015	sec-Butylbenzene	0.000849	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Naphthalene	0.000873	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,3,5-Trimethylbenzene	0.00151	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2,4-Trimethylbenzene	0.00229	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Ethylbenzene	0.00242	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Acetone	0.00359	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Xylenes, Total	0.00807	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Toluene	0.0115	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Benzene	0.0159	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	2-Butanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-9 (18-20')	4/30/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Methylene chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Methylene chloride	0.000438	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Benzene	0.000788	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Acetone	0.0184	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Bis(2-ethylhexyl)phthalate	1.5	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-9 (2-4')	4/30/2015	Mercury	0.07	mg/kg	Soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-9 (2-4')	4/30/2015	Toluene	0.000797	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	2-Butanone	0.00234	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-9 (2-4')	4/30/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2,4-Trimethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,3,5-Trimethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Ethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-9 (2-4')	4/30/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	sec-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Xylenes, Total	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (4-6')	4/30/2015	2-Methylnaphthalene	1	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-9 (4-6')	4/30/2015	1-Methylnaphthalene	1.1	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
Trip Blank	5/14/2015	Ethylbenzene	0.11	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Naphthalene	0.31	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Xylenes, Total	0.41	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1-Methylnaphthalene	0.71	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Methylnaphthalene	1.1	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Toluene	0.14	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,4-Trimethylbenzene	0.29	ug/l	Water	J+/J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
Trip Blank	5/14/2015	1,2,4-Trimethylbenzene	0.18	ug/l	Water	J+/J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
Trip Blank	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
Trip Blank	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Acetone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Benzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Methyl tert-butyl ether (MTBE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
Trip Blank	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Acetone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Benzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
Trip Blank	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Methyl tert-butyl ether (MTBE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,4-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
Trip Blank	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Acetone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Benzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Methyl tert-butyl ether (MTBE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
Trip Blank	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,4-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
TRIP BLANK	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Acetone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Benzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Methyl tert-butyl ether (MTBE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
TRIP BLANK	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,4-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Acetone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Benzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
TRIP BLANK	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Methyl tert-butyl ether (MTBE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Notes:

UJ = Estimated reporihg concentration
J- = Low bias
J+ = High bias

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-14 (0-2') Sample Result	SWMU 10 DUP01 Duplicate Result	RPD (%)
TPH (mg/kg-dry):	Gasoline Range Organics (GRO)	0.849320979 U	0.858017826 U	NC
	Diesel Range Organics (DRO)	160	150	1.6
	Motor Oil Range Organics (MRO)	330	310	1.6
VOCs (ug/kg-dry)	1,3,5-Trimethylbenzene	0.000347 J	0.000422 J	4.9
	Methylene chloride	0.000606 J	0.00051 J	4.3
	sec-Butylbenzene	0.000645 J	0.000534 J	4.7
	Ethylbenzene	0.000703 J	0.000638 J	2.4
	1,2,4-Trimethylbenzene	0.00077 J	0.000972 J	5.8
	2-Hexanone	0.000886 J	0.000653 J	7.6
	Benzene	0.00118 J	0.00104 J	3.2
	Xylenes, Total	0.00182 J	0.00171	1.6
	Toluene	0.00263	0.00232	3.1
	Acetone	0.0237	0.0166	8.8
	2-Butanone	0.00407 J	0.00253 J	11.7
	1,1,1,2-Tetrachloroethane	0.00031 U	0.00026 U	NC
	1,1,1-Trichloroethane	0.00027 U	0.00023 U	NC
	1,1,2,2-Tetrachloroethane	0.00042 U	0.00035 U	NC
	1,1,2-Trichloroethane	0.00193 U	0.00159 U	NC
	1,1-Dichloroethane	0.00045 U	0.00037 U	NC
	1,1-Dichloroethene	0.00032 U	0.00027 U	NC
	1,1-Dichloropropene	0.00035 U	0.00029 U	NC
	1,2,3-Trichlorobenzene	0.00070 U	0.00058 U	NC
	1,2,3-Trichloropropane	0.00068 U	0.00056 U	NC
	1,2,4-Trichlorobenzene	0.00072 U	0.00060 U	NC
	1,2-Dibromo-3-chloropropane	0.00057 U	0.00047 U	NC
	1,2-Dibromoethane (EDB)	0.00023 U	0.00019 U	NC
	1,2-Dichlorobenzene	0.00043 U	0.00035 U	NC
	1,2-Dichloroethane (EDC)	0.00052 U	0.00043 U	NC
	1,2-Dichloropropane	0.00041 U	0.00034 U	NC
	1,3-Dichlorobenzene	0.00033 U	0.00027 U	NC
	1,3-Dichloropropane	0.00030 U	0.00025 U	NC
	1,4-Dichlorobenzene	0.00030 U	0.00025 U	NC
	1-Methylnaphthalene	0.00076 U	0.00063 U	NC
	2,2-Dichloropropane	0.00033 U	0.00028 U	NC
	2-Chlorotoluene	0.00038 U	0.00031 U	NC
	2-Methylnaphthalene	0.00075 U	0.00062 U	NC
	4-Chlorotoluene	0.00037 U	0.00031 U	NC
	4-Isopropyltoluene	0.00075 U	0.00062 U	NC
	4-Methyl-2-pentanone	0.00081 U	0.00067 U	NC
	Bromobenzene	0.00054 U	0.00044 U	NC
	Bromodichloromethane	0.00026 U	0.00022 U	NC
	Bromoform	0.00050 U	0.00041 U	NC
	Bromomethane	0.00114 U	0.00094 U	NC
	Carbon disulfide	0.00087 U	0.00072 U	NC
	Carbon tetrachloride	0.00035 U	0.00029 U	NC
	Chlorobenzene	0.00020 U	0.00016 U	NC
	Chloroethane	0.00193 U	0.00159 U	NC
	Chloroform	0.00040 U	0.00033 U	NC
	Chloromethane	0.00023 U	0.00019 U	NC
	cis-1,2-DCE	0.00051 U	0.00042 U	NC
	cis-1,3-Dichloropropene	0.00193 U	0.00159 U	NC
	Dibromochloromethane	0.00022 U	0.00018 U	NC
	Dibromomethane	0.00109 U	0.00090 U	NC
	Dichlorodifluoromethane	0.00079 U	0.00065 U	NC
	Hexachlorobutadiene	0.00039 U	0.00032 U	NC
	Isopropylbenzene	0.00045 U	0.00037 U	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-14 (0-2') Sample Result	SWMU 10 DUP01 Duplicate Result	RPD (%)
	Methyl tert-butyl ether (MTBE)	0.00081 U	0.00067 U	NC
	Naphthalene	0.00063 U	0.00052 U	NC
	n-Butylbenzene	0.00079 U	0.00065 U	NC
	n-Propylbenzene	0.00036 U	0.00030 U	NC
	Styrene	0.00032 U	0.00026 U	NC
	tert-Butylbenzene	0.00030 U	0.00024 U	NC
	Tetrachloroethene (PCE)	0.00038 U	0.00032 U	NC
	trans-1,2-DCE	0.00031 U	0.00026 U	NC
	trans-1,3-Dichloropropene	0.00025 U	0.00021 U	NC
	Trichloroethene (TCE)	0.00038 U	0.00032 U	NC
	Trichlorofluoromethane	0.00039 U	0.00032 U	NC
	Vinyl chloride	0.00022 U	0.00018 U	NC
SVOCs (mg/kg-dry):	1,2,4-Trichlorobenzene	0.11459 U	2.81548 U	NC
	1,2-Dichlorobenzene	0.10707 U	2.63077 U	NC
	1,3-Dichlorobenzene	0.09942 U	2.44287 U	NC
	1,4-Dichlorobenzene	0.11708 U	2.87684 U	NC
	1-Methylnaphthalene	0.10376 U	2.54942 U	NC
	2,4,5-Trichlorophenol	0.13045 U	3.20523 U	NC
	2,4,6-Trichlorophenol	0.12941 U	3.17980 U	NC
	2,4-Dichlorophenol	0.11194 U	2.75040 U	NC
	2,4-Dimethylphenol	0.08799 U	2.16194 U	NC
	2,4-Dinitrophenol	0.04651 U	1.14282 U	NC
	2,4-Dinitrotoluene	0.10014 U	2.46060 U	NC
	2,6-Dinitrotoluene	0.12442 U	3.05723 U	NC
	2-Chloronaphthalene	0.11993 U	2.94674 U	NC
	2-Chlorophenol	0.10446 U	2.56672 U	NC
	2-Methylnaphthalene	0.10244 U	2.51697 U	NC
	2-Methylphenol	0.11222 U	2.75733 U	NC
	2-Nitroaniline	0.12737 U	3.12964 U	NC
	2-Nitrophenol	0.10061 U	2.47207 U	NC
	3,3´-Dichlorobenzidine	0.08619 U	2.11789 U	NC
	3+4-Methylphenol	0.11601 U	2.85059 U	NC
	3-Nitroaniline	0.10785 U	2.64997 U	NC
	4,6-Dinitro-2-methylphenol	0.06086 U	1.49551 U	NC
	4-Bromophenyl phenyl ether	0.11876 U	2.91810 U	NC
	4-Chloro-3-methylphenol	0.11145 U	2.73851 U	NC
	4-Chloroaniline	0.10352 U	2.54359 U	NC
	4-Chlorophenyl phenyl ether	0.16668 U	4.09557 U	NC
	4-Nitroaniline	0.10054 U	2.47040 U	NC
	4-Nitrophenol	0.09644 U	2.36972 U	NC
	Acenaphthene	0.13640 U	3.35154 U	NC
	Acenaphthylene	0.11339 U	2.78620 U	NC
	Aniline	0.09743 U	2.39403 U	NC
	Anthracene	0.09508 U	2.33627 U	NC
	Azobenzene	0.12548 U	3.08325 U	NC
	Benz(a)anthracene	0.08798 U	2.16169 U	NC
	Benzo(a)pyrene	0.12562 U	3.08667 U	NC
	Benzo(b)fluoranthene	0.10629 U	2.61175 U	NC
	Benzo(g,h,i)perylene	0.12738 U	3.12986 U	NC
	Benzo(k)fluoranthene	0.12650 U	3.10822 U	NC
	Benzoic acid	0.06378 U	1.56717 U	NC
	Benzyl alcohol	0.09943 U	2.44304 U	NC
	Bis(2-chloroethoxy)methane	0.10684 U	2.62506 U	NC
	Bis(2-chloroethyl)ether	0.11060 U	2.71765 U	NC
	Bis(2-chloroisopropyl)ether	0.08552 U	2.10120 U	NC
	Bis(2-ethylhexyl)phthalate	0.12576 U	3.09000 U	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-14 (0-2') Sample Result	SWMU 10 DUP01 Duplicate Result	RPD (%)
	Butyl benzyl phthalate	0.13665 U	3.35771 U	NC
	Carbazole	0.10425 U	2.56160 U	NC
	Chrysene	0.11240 U	2.76177 U	NC
	Dibenz(a,h)anthracene	0.12127 U	2.97976 U	NC
	Dibenzofuran	0.11971 U	2.94148 U	NC
	Diethyl phthalate	0.12704 U	3.12139 U	NC
	Dimethyl phthalate	0.10302 U	2.53119 U	NC
	Di-n-butyl phthalate	0.12659 U	3.11051 U	NC
	Di-n-octyl phthalate	0.12461 U	3.06182 U	NC
	Fluoranthene	0.13583 U	3.33755 U	NC
	Fluorene	0.15239 U	3.74428 U	NC
	Hexachlorobenzene	0.10565 U	2.59588 U	NC
	Hexachlorobutadiene	0.11074 U	2.72107 U	NC
	Hexachlorocyclopentadiene	0.07764 U	1.90769 U	NC
	Hexachloroethane	0.09964 U	2.44821 U	NC
	Indeno(1,2,3-cd)pyrene	0.12721 U	3.12562 U	NC
	Isophorone	0.11934 U	2.93240 U	NC
	Naphthalene	0.10651 U	2.61700 U	NC
	Nitrobenzene	0.11525 U	2.83176 U	NC
	N-Nitrosodi-n-propylamine	0.11603 U	2.85088 U	NC
	N-Nitrosodiphenylamine	0.10022 U	2.46238 U	NC
	Pentachlorophenol	0.06989 U	1.71719 U	NC
	Phenanthrene	0.11710 U	2.87735 U	NC
	Phenol	0.10032 U	2.46489 U	NC
	Pyrene	0.14447 U	3.54968 U	NC
	Pyridine	0.09406 U	2.31115 U	NC
Metals (mg/kg-dry):	Antimony	1.51 U	1.45 U	NC
	Arsenic	1.4 J	2.7 J	15.9
	Barium	460	380	4.8
	Beryllium	0.71	0.59	4.6
	Cadmium	0.03 U	0.03 U	NC
	Chromium	14	16	3.3
	Cobalt	3.8	3.4	2.8
	Cyanide	0.28 U	0.28 U	NC
	Hexavalent Chromium	2.26 U	2.26 U	NC
	Iron	10000	9100	2.4
	Lead	3.8	3.6	1.4
	Manganese	440	490	2.7
	Mercury	0.034 J	0.035 J	0.7
	Nickel	6.5	5.6	3.7
	Selenium	1.76 U	1.69 U	NC
	Silver	0.03 U	0.03 U	NC
	Vanadium	17	21	5.3
	Zinc	29	24	4.7

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram

Table 3A
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-9 (4-6') Sample Result	SWMU 10-9 DUP02 Duplicate Result	RPD (%)
TPH (mg/kg-dry):	Gasoline Range Organics (GRO)	12 J	69	**35.2**
	Diesel Range Organics (DRO)	300	530	13.9
	Motor Oil Range Organics (MRO)	120	170	8.6
VOCs (ug/kg-dry)	1,1,1,2-Tetrachloroethane	0.01186 U	0.02684 U	NC
	1,1,1-Trichloroethane	0.02196 U	0.04971 U	NC
	1,1,2,2-Tetrachloroethane	0.01752 U	0.03967 U	NC
	1,1,2-Trichloroethane	0.01738 U	0.03933 U	NC
	1,1-Dichloroethane	0.05784 U	0.13093 U	NC
	1,1-Dichloroethene	0.00995 U	0.02253 U	NC
	1,1-Dichloropropene	0.02153 U	0.04874 U	NC
	1,2,3-Trichlorobenzene	0.03086 U	0.06986 U	NC
	1,2,3-Trichloropropane	0.02426 U	0.05491 U	NC
	1,2,4-Trichlorobenzene	0.02668 U	0.06040 U	NC
	1,2,4-Trimethylbenzene	0.42	2.8	**37.0**
	1,2-Dibromo-3-chloropropane	0.02484 U	0.05622 U	NC
	1,2-Dibromoethane (EDB)	0.01152 U	0.02607 U	NC
	1,2-Dichlorobenzene	0.00872 U	0.01974 U	NC
	1,2-Dichloroethane (EDC)	0.05784 U	0.13093 U	NC
	1,2-Dichloropropane	0.00808 U	0.01830 U	NC
	1,3,5-Trimethylbenzene	0.12 J	0.82	**37.2**
	1,3-Dichlorobenzene	0.01703 U	0.03854 U	NC
	1,3-Dichloropropane	0.01991 U	0.04508 U	NC
	1,4-Dichlorobenzene	0.01801 U	0.04077 U	NC
	1-Methylnaphthalene	1.1	9.3	**39.4**
	2,2-Dichloropropane	0.02105 U	0.04765 U	NC
	2-Butanone	0.09296 U	0.21044 U	NC
	2-Chlorotoluene	0.01634 U	0.03699 U	NC
	2-Hexanone	0.03556 U	0.08050 U	NC
	2-Methylnaphthalene	1.5	13	**39.7**
	4-Chlorotoluene	0.01093 U	0.02475 U	NC
	4-Isopropyltoluene	0.01028 U	0.21 J	NC
	4-Methyl-2-pentanone	0.02509 U	0.05679 U	NC
	Acetone	0.10782 U	0.24407 U	NC
	Benzene	0.02144 U	0.04854 U	NC
	Bromobenzene	0.01073 U	0.02430 U	NC
	Bromodichloromethane	0.01183 U	0.02677 U	NC
	Bromoform	0.01162 U	0.02632 U	NC
	Bromomethane	0.02791 U	0.06318 U	NC
	Carbon disulfide	0.10405 U	0.23554 U	NC
	Carbon tetrachloride	0.01408 U	0.03188 U	NC
	Chlorobenzene	0.01113 U	0.02519 U	NC
	Chloroethane	0.11192 U	0.25337 U	NC
	Chloroform	0.01507 U	0.03412 U	NC
	Chloromethane	0.01674 U	0.03789 U	NC
	cis-1,2-DCE	0.01829 U	0.04141 U	NC
	cis-1,3-Dichloropropene	0.01003 U	0.02271 U	NC
	Dibromochloromethane	0.01084 U	0.02454 U	NC
	Dibromomethane	0.01522 U	0.03446 U	NC
	Dichlorodifluoromethane	0.03637 U	0.08232 U	NC
	Ethylbenzene	0.04 J	0.34	**39.5**
	Hexachlorobutadiene	0.02008 U	0.04545 U	NC
	Isopropylbenzene	0.016 J	0.16 J	**40.9**
	Methyl tert-butyl ether (MTBE)	0.02045 U	0.04629 U	NC
	Methylene chloride	0.05784 U	0.13093 U	NC
	Naphthalene	0.32	2.5	**38.7**
	n-Butylbenzene	0.065 J	0.4 J	**36.0**

Table 3A
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-9 (4-6') Sample Result	SWMU 10-9 DUP02 Duplicate Result	RPD (%)
	n-Propylbenzene	0.052 J	0.34	**36.7**
	sec-Butylbenzene	0.021 J	0.17 J	**39.0**
	Styrene	0.02654 U	0.06008 U	NC
	tert-Butylbenzene	0.01656 U	0.03749 U	NC
	Tetrachloroethene (PCE)	0.01253 U	0.02836 U	NC
	Toluene	0.01721 U	0.03895 U	NC
	trans-1,2-DCE	0.00940 U	0.02127 U	NC
	trans-1,3-Dichloropropene	0.02603 U	0.05893 U	NC
	Trichloroethene (TCE)	0.01408 U	0.03188 U	NC
	Trichlorofluoromethane	0.04364 U	0.09880 U	NC
	Vinyl chloride	0.05784 U	0.13093 U	NC
	Xylenes, Total	0.26 J	1.9	**38.0**
SVOCs (mg/kg-dry):	1,2,4-Trichlorobenzene	1.01696 U	0.12038 U	NC
	1,2-Dichlorobenzene	0.95024 U	0.11248 U	NC
	1,3-Dichlorobenzene	0.88237 U	0.10445 U	NC
	1,4-Dichlorobenzene	1.03912 U	0.12300 U	NC
	1-Methylnaphthalene	1.1 J	0.7	11.1
	2,4,5-Trichlorophenol	1.15774 U	0.13704 U	NC
	2,4,6-Trichlorophenol	1.14855 U	0.13595 U	NC
	2,4-Dichlorophenol	0.99345 U	0.11760 U	NC
	2,4-Dimethylphenol	0.78090 U	0.09244 U	NC
	2,4-Dinitrophenol	0.41279 U	0.04886 U	NC
	2,4-Dinitrotoluene	0.88877 U	0.10520 U	NC
	2,6-Dinitrotoluene	1.10428 U	0.13071 U	NC
	2-Chloronaphthalene	1.06437 U	0.12599 U	NC
	2-Chlorophenol	0.92710 U	0.10974 U	NC
	2-Methylnaphthalene	1 J	0.89	2.9
	2-Methylphenol	0.99595 U	0.11789 U	NC
	2-Nitroaniline	1.13043 U	0.13381 U	NC
	2-Nitrophenol	0.89292 U	0.10569 U	NC
	3,3´-Dichlorobenzidine	0.76499 U	0.09055 U	NC
	3+4-Methylphenol	1.02964 U	0.12188 U	NC
	3-Nitroaniline	0.95717 U	0.11330 U	NC
	4,6-Dinitro-2-methylphenol	0.54018 U	0.06394 U	NC
	4-Bromophenyl phenyl ether	1.05402 U	0.12477 U	NC
	4-Chloro-3-methylphenol	0.98915 U	0.11709 U	NC
	4-Chloroaniline	0.91875 U	0.10875 U	NC
	4-Chlorophenyl phenyl ether	1.47933 U	0.17511 U	NC
	4-Nitroaniline	0.89231 U	0.10562 U	NC
	4-Nitrophenol	0.85595 U	0.10132 U	NC
	Acenaphthene	1.21058 U	0.14330 U	NC
	Acenaphthylene	1.00638 U	0.11913 U	NC
	Aniline	0.86473 U	0.10236 U	NC
	Anthracene	0.84386 U	0.09989 U	NC
	Azobenzene	1.11368 U	0.13183 U	NC
	Benz(a)anthracene	0.78081 U	0.09242 U	NC
	Benzo(a)pyrene	1.11491 U	0.13197 U	NC
	Benzo(b)fluoranthene	0.94337 U	0.11167 U	NC
	Benzo(g,h,i)perylene	1.13051 U	0.13382 U	NC
	Benzo(k)fluoranthene	1.12270 U	0.13289 U	NC
	Benzoic acid	0.56607 U	0.06701 U	NC
	Benzyl alcohol	0.88243 U	0.10445 U	NC
	Bis(2-chloroethoxy)methane	0.94818 U	0.11224 U	NC
	Bis(2-chloroethyl)ether	0.98162 U	0.11619 U	NC
	Bis(2-chloroisopropyl)ether	0.75896 U	0.08984 U	NC
	Bis(2-ethylhexyl)phthalate	1.11611 U	0.13212 U	NC

Table 3A
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-9 (4-6') Sample Result	SWMU 10-9 DUP02 Duplicate Result	RPD (%)
	Butyl benzyl phthalate	1.21281 U	0.14356 U	NC
	Carbazole	0.92525 U	0.10952 U	NC
	Chrysene	0.99756 U	0.11808 U	NC
	Dibenz(a,h)anthracene	1.07629 U	0.12740 U	NC
	Dibenzofuran	1.06247 U	0.12577 U	NC
	Diethyl phthalate	1.12745 U	0.13346 U	NC
	Dimethyl phthalate	0.91427 U	0.10822 U	NC
	Di-n-butyl phthalate	1.12352 U	0.13299 U	NC
	Di-n-octyl phthalate	1.10594 U	0.13091 U	NC
	Fluoranthene	1.20553 U	0.14270 U	NC
	Fluorene	1.35244 U	0.16009 U	NC
	Hexachlorobenzene	0.93764 U	0.11099 U	NC
	Hexachlorobutadiene	0.98286 U	0.11634 U	NC
	Hexachlorocyclopentadiene	0.68906 U	0.08156 U	NC
	Hexachloroethane	0.88430 U	0.10467 U	NC
	Indeno(1,2,3-cd)pyrene	1.12898 U	0.13364 U	NC
	Isophorone	1.05919 U	0.12538 U	NC
	Naphthalene	0.94527 U	0.33	NC
	Nitrobenzene	1.02284 U	0.12107 U	NC
	N-Nitrosodi-n-propylamine	1.02975 U	0.12189 U	NC
	N-Nitrosodiphenylamine	0.88942 U	0.10528 U	NC
	Pentachlorophenol	0.62025 U	0.07342 U	NC
	Phenanthrene	1.03930 U	0.12302 U	NC
	Phenol	0.89032 U	0.10539 U	NC
	Pyrene	1.28215 U	0.15177 U	NC
	Pyridine	0.83479 U	0.09881 U	NC
Metals (mg/kg-dry):	Antimony	1.56 U	1.54 U	NC
	Arsenic	1.1 J	1.3 J	4.2
	Barium	250	190	6.8
	Beryllium	0.94	0.9	1.1
	Cadmium	0.033002519 U	0.03 U	NC
	Chromium	14	8.5	12.2
	Cobalt	5.3	4.1	6.4
	Cyanide	0.300287306 U	0.30 U	NC
	Hexavalent Chromium	2.40229845 U	2.37 U	NC
	Iron	16000	13000	5.2
	Lead	3.2	3.3	0.8
	Manganese	290	170	13.0
	Mercury	0.0086 J	0.0043 J	16.7
	Nickel	10	7.4	7.5
	Selenium	1.820599379 U	1.80 U	NC
	Silver	0.035376801 U	0.03 U	NC
	Vanadium	19	19	0.0
	Zinc	32	49	10.5

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram
bold value = Field Duplicate RPD Outlier

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-6 (10-12') Sample Result	SWMU 10 DUP03 Field Duplicate	RPD (%)
TPH (mg/kg-dry):	Gasoline Range Organics (GRO)	1.22 U	1.16 U	NC
	Diesel Range Organics (DRO)	5.32 U	5.44 U	NC
	Motor Oil Range Organics (MRO)	48.08 U	49.16 U	NC
VOCs (ug/kg-dry)	1,1,1,2-Tetrachloroethane	0.000407 U	0.000378 U	NC
	1,1,1-Trichloroethane	0.000356 U	0.000331 U	NC
	1,1,2,2-Tetrachloroethane	0.000550 U	0.000511 U	NC
	1,1,2-Trichloroethane	0.002501 U	0.002325 U	NC
	1,1-Dichloroethane	0.000584 U	0.000543 U	NC
	1,1-Dichloroethene	0.000417 U	0.000388 U	NC
	1,1-Dichloropropene	0.000458 U	0.000426 U	NC
	1,2,3-Trichlorobenzene	0.000915 U	0.000851 U	NC
	1,2,3-Trichloropropane	0.000878 U	0.000816 U	NC
	1,2,4-Trichlorobenzene	0.000937 U	0.000871 U	NC
	1,2,4-Trimethylbenzene	0.00363	0.00292	5.4
	1,2-Dibromo-3-chloropropane	0.000735 U	0.000683 U	NC
	1,2-Dibromoethane (EDB)	0.000299 U	0.000278 U	NC
	1,2-Dichlorobenzene	0.000555 U	0.000516 U	NC
	1,2-Dichloroethane (EDC)	0.000670 U	0.000623 U	NC
	1,2-Dichloropropane	0.000534 U	0.000497 U	NC
	1,3,5-Trimethylbenzene	0.0022 J	0.00172 J	6.1
	1,3-Dichlorobenzene	0.000424 U	0.000394 U	NC
	1,3-Dichloropropane	0.000390 U	0.000362 U	NC
	1,4-Dichlorobenzene	0.000393 U	0.000365 U	NC
	1-Methylnaphthalene	0.000982 U	0.000913 U	NC
	2,2-Dichloropropane	0.000434 U	0.000404 U	NC
	2-Butanone	0.000801 U	0.000745 U	NC
	2-Chlorotoluene	0.000488 U	0.000454 U	NC
	2-Hexanone	0.000520 U	0.000484 U	NC
	2-Methylnaphthalene	0.000977 U	0.000909 U	NC
	4-Chlorotoluene	0.000482 U	0.000448 U	NC
	4-Isopropyltoluene	0.000971 U	0.000902 U	NC
	4-Methyl-2-pentanone	0.001056 U	0.000982 U	NC
	Acetone	0.00589 J	0.00256 J	19.7
	Benzene	0.0226	0.0206	2.3
	Bromobenzene	0.000696 U	0.000647 U	NC
	Bromodichloromethane	0.000338 U	0.000314 U	NC
	Bromoform	0.000648 U	0.000603 U	NC
	Bromomethane	0.001479 U	0.001375 U	NC
	Carbon disulfide	0.001132 U	0.001052 U	NC
	Carbon tetrachloride	0.000453 U	0.000421 U	NC
	Chlorobenzene	0.000254 U	0.000236 U	NC
	Chloroethane	0.002501 U	0.002325 U	NC
	Chloroform	0.000515 U	0.000479 U	NC
	Chloromethane	0.000295 U	0.000274 U	NC
	cis-1,2-DCE	0.000661 U	0.000615 U	NC
	cis-1,3-Dichloropropene	0.002501 U	0.002325 U	NC
	Dibromochloromethane	0.000281 U	0.000261 U	NC
	Dibromomethane	0.001419 U	0.001320 U	NC
	Dichlorodifluoromethane	0.001021 U	0.000949 U	NC
	Ethylbenzene	0.0035	0.00328	1.6
	Hexachlorobutadiene	0.000505 U	0.000469 U	NC
	Isopropylbenzene	0.000580 U	0.000539 U	NC
	Methyl tert-butyl ether (MTBE)	0.001049 U	0.000975 U	NC
	Methylene chloride	0.000618 U	0.000721 J	NC
	Naphthalene	0.00103 J	0.000837 J	5.2
	n-Butylbenzene	0.001027 U	0.000955 U	NC
	n-Propylbenzene	0.000638 J	0.000477 J	7.2

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-6 (10-12') Sample Result	SWMU 10 DUP03 Field Duplicate	RPD (%)
	sec-Butylbenzene	0.000925 J	0.000849 J	2.1
	Styrene	0.000414 U	0.000385 U	NC
	tert-Butylbenzene	0.000383 U	0.000356 U	NC
	Tetrachloroethene (PCE)	0.000496 U	0.000461 U	NC
	Toluene	0.0146	0.0139	1.2
	trans-1,2-DCE	0.000404 U	0.000376 U	NC
	trans-1,3-Dichloropropene	0.000327 U	0.000304 U	NC
	Trichloroethene (TCE)	0.000497 U	0.000462 U	NC
	Trichlorofluoromethane	0.000505 U	0.000470 U	NC
	Vinyl chloride	0.000286 U	0.000266 U	NC
	Xylenes, Total	0.0116	0.00984	4.1
SVOCs (mg/kg-dry):	1,2,4-Trichlorobenzene	0.120870 U	0.112566 U	NC
	1,2-Dichlorobenzene	0.112940 U	0.105182 U	NC
	1,3-Dichlorobenzene	0.104874 U	0.097669 U	NC
	1,4-Dichlorobenzene	0.123504 U	0.115020 U	NC
	1-Methylnaphthalene	0.109448 U	0.101929 U	NC
	2,4,5-Trichlorophenol	0.137603 U	0.128149 U	NC
	2,4,6-Trichlorophenol	0.136511 U	0.127132 U	NC
	2,4-Dichlorophenol	0.118076 U	0.109965 U	NC
	2,4-Dimethylphenol	0.092814 U	0.086437 U	NC
	2,4-Dinitrophenol	0.049062 U	0.045692 U	NC
	2,4-Dinitrotoluene	0.105635 U	0.098378 U	NC
	2,6-Dinitrotoluene	0.131249 U	0.122232 U	NC
	2-Chloronaphthalene	0.126505 U	0.117815 U	NC
	2-Chlorophenol	0.110191 U	0.102621 U	NC
	2-Methylnaphthalene	0.108055 U	0.100632 U	NC
	2-Methylphenol	0.118374 U	0.110242 U	NC
	2-Nitroaniline	0.134357 U	0.125127 U	NC
	2-Nitrophenol	0.106127 U	0.098836 U	NC
	3,3´-Dichlorobenzidine	0.090922 U	0.084676 U	NC
	3+4-Methylphenol	0.122378 U	0.113970 U	NC
	3-Nitroaniline	0.113765 U	0.105949 U	NC
	4,6-Dinitro-2-methylphenol	0.064203 U	0.059792 U	NC
	4-Bromophenyl phenyl ether	0.125276 U	0.116669 U	NC
	4-Chloro-3-methylphenol	0.117566 U	0.109489 U	NC
	4-Chloroaniline	0.109198 U	0.101696 U	NC
	4-Chlorophenyl phenyl ether	0.175825 U	0.163746 U	NC
	4-Nitroaniline	0.106056 U	0.098770 U	NC
	4-Nitrophenol	0.101733 U	0.094744 U	NC
	Acenaphthene	0.143884 U	0.133999 U	NC
	Acenaphthylene	0.119613 U	0.111396 U	NC
	Aniline	0.102777 U	0.095717 U	NC
	Anthracene	0.100297 U	0.093407 U	NC
	Azobenzene	0.132366 U	0.123272 U	NC
	Benz(a)anthracene	0.092803 U	0.086427 U	NC
	Benzo(a)pyrene	0.132513 U	0.123409 U	NC
	Benzo(b)fluoranthene	0.112124 U	0.104421 U	NC
	Benzo(g,h,i)perylene	0.134367 U	0.125136 U	NC
	Benzo(k)fluoranthene	0.133438 U	0.124271 U	NC
	Benzoic acid	0.067280 U	0.062658 U	NC
	Benzyl alcohol	0.104881 U	0.097676 U	NC
	Bis(2-chloroethoxy)methane	0.112695 U	0.104953 U	NC
	Bis(2-chloroethyl)ether	0.116670 U	0.108655 U	NC
	Bis(2-chloroisopropyl)ether	0.090206 U	0.084009 U	NC
	Bis(2-ethylhexyl)phthalate	0.132656 U	0.123542 U	NC
	Butyl benzyl phthalate	0.144149 U	0.134246 U	NC
	Carbazole	0.109971 U	0.102416 U	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-6 (10-12') Sample Result	SWMU 10 DUP03 Field Duplicate	RPD (%)
	Chrysene	0.118564 U	0.110419 U	NC
	Dibenz(a,h)anthracene	0.127923 U	0.119135 U	NC
	Dibenzofuran	0.126280 U	0.117604 U	NC
	Diethyl phthalate	0.134003 U	0.124797 U	NC
	Dimethyl phthalate	0.108666 U	0.101200 U	NC
	Di-n-butyl phthalate	0.133536 U	0.124362 U	NC
	Di-n-octyl phthalate	0.131446 U	0.122416 U	NC
	Fluoranthene	0.143283 U	0.133440 U	NC
	Fluorene	0.160744 U	0.149701 U	NC
	Hexachlorobenzene	0.111443 U	0.103787 U	NC
	Hexachlorobutadiene	0.116817 U	0.108792 U	NC
	Hexachlorocyclopentadiene	0.081898 U	0.076272 U	NC
	Hexachloroethane	0.105103 U	0.097883 U	NC
	Indeno(1,2,3-cd)pyrene	0.134185 U	0.124967 U	NC
	Isophorone	0.125890 U	0.117241 U	NC
	Naphthalene	0.112350 U	0.104631 U	NC
	Nitrobenzene	0.121569 U	0.113217 U	NC
	N-Nitrosodi-n-propylamine	0.122390 U	0.113982 U	NC
	N-Nitrosodiphenylamine	0.105712 U	0.098449 U	NC
	Pentachlorophenol	0.073720 U	0.068656 U	NC
	Phenanthrene	0.123526 U	0.115040 U	NC
	Phenol	0.105819 U	0.098549 U	NC
	Pyrene	0.152390 U	0.141921 U	NC
	Pyridine	0.099219 U	0.092403 U	NC
Metals (mg/kg-dry):	Antimony	1.9 J	1.9 J	0.0
	Arsenic	2.1 J	2.2 J	1.2
	Barium	550	450	5.0
	Beryllium	1	0.95	1.3
	Cadmium	0.033 U	0.03 U	NC
	Chromium	14	13	1.9
	Cobalt	8	7	3.3
	Cyanide	0.296 U	0.28 U	NC
	Hexavalent Chromium	2.368 U	260	NC
	Iron	20000	20000	0.0
	Lead	1.6	1.4	3.3
	Manganese	760	730	1.0
	Mercury	0.0035 U	0.0031 U	NC
	Nickel	16	13	5.2
	Selenium	1.821 U	1.69 U	NC
	Silver	0.035 U	0.03 U	NC
	Vanadium	14	17	4.8
	Zinc	23	21	2.3

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram
bold value = Field Duplicate RPD Outlier

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 14-3 (0.5-2.0') Sample Result	SWMU 14-3 DUP01 Field Duplicate	RPD (%)
TPH (mg/kg-dry):	Gasoline Range Organics (GRO)	1300	1100	4.2
	Diesel Range Organics (DRO)	7800	3000	22.2
	Motor Oil Range Organics (MRO)	ND U	ND U	NC
VOCs (ug/kg-dry)	1,1,1,2-Tetrachloroethane	ND U	ND U	NC
	1,1,1-Trichloroethane	ND U	ND U	NC
	1,1,2,2-Tetrachloroethane	ND U	ND U	NC
	1,1,2-Trichloroethane	ND U	ND U	NC
	1,1-Dichloroethane	ND U	ND U	NC
	1,1-Dichloroethene	ND U	ND U	NC
	1,1-Dichloropropene	ND U	ND U	NC
	1,2,3-Trichlorobenzene	ND U	ND U	NC
	1,2,3-Trichloropropane	ND U	ND U	NC
	1,2,4-Trichlorobenzene	ND U	ND U	NC
	1,2,4-Trimethylbenzene	27	17	11.4
	1,2-Dibromo-3-chloropropane	ND U	ND U	NC
	1,2-Dibromoethane (EDB)	ND U	ND U	NC
	1,2-Dichlorobenzene	ND U	ND U	NC
	1,2-Dichloroethane (EDC)	ND U	ND U	NC
	1,2-Dichloropropane	ND U	ND U	NC
	1,3,5-Trimethylbenzene	10	6.2	11.7
	1,3-Dichlorobenzene	ND U	ND U	NC
	1,3-Dichloropropane	ND U	ND U	NC
	1,4-Dichlorobenzene	ND U	ND U	NC
	1-Methylnaphthalene	48	31	10.8
	2,2-Dichloropropane	ND U	ND U	NC
	2-Butanone	ND U	ND U	NC
	2-Chlorotoluene	ND U	ND U	NC
	2-Hexanone	ND U	ND U	NC
	2-Methylnaphthalene	87	60	9.2
	4-Chlorotoluene	ND U	ND U	NC
	4-Isopropyltoluene	1.6	1.1	9.3
	4-Methyl-2-pentanone	ND U	ND U	NC
	Acetone	ND U	ND U	NC
	Benzene	1.9	1.2	11.3
	Bromobenzene	ND U	ND U	NC
	Bromodichloromethane	ND U	ND U	NC
	Bromoform	ND U	ND U	NC
	Bromomethane	ND U	ND U	NC
	Carbon disulfide	ND U	ND U	NC
	Carbon tetrachloride	ND U	ND U	NC
	Chlorobenzene	ND U	ND U	NC
	Chloroethane	ND U	ND U	NC
	Chloroform	ND U	ND U	NC
	Chloromethane	ND U	ND U	NC
	cis-1,2-DCE	ND U	ND U	NC
	cis-1,3-Dichloropropene	ND U	ND U	NC
	Dibromochloromethane	ND U	ND U	NC
	Dibromomethane	ND U	ND U	NC
	Dichlorodifluoromethane	ND U	ND U	NC
	Ethylbenzene	11	8.3	7.0
	Hexachlorobutadiene	ND U	ND U	NC
	Isopropylbenzene	3.1	2.3	7.4
	Methyl tert-butyl ether (MTBE)	ND U	ND U	NC
	Methylene chloride	ND U	ND U	NC
	Naphthalene	20	13	10.6
	n-Butylbenzene	2.8	1.9 J	9.6
	n-Propylbenzene	5.2	3.3	11.2

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 14-3 (0.5-2.0') Sample Result	SWMU 14-3 DUP01 Field Duplicate	RPD (%)
	sec-Butylbenzene	1.8	1	14.3
	Styrene	ND U	ND U	NC
	tert-Butylbenzene	ND U	ND U	NC
	Tetrachloroethene (PCE)	ND U	ND U	NC
	Toluene	34	23	9.6
	trans-1,2-DCE	ND U	ND U	NC
	trans-1,3-Dichloropropene	ND U	ND U	NC
	Trichloroethene (TCE)	ND U	ND U	NC
	Trichlorofluoromethane	ND U	ND U	NC
	Vinyl chloride	ND U	ND U	NC
	Xylenes, Total	86	65	7.0
SVOCs (mg/kg-dry):	1,2,4-Trichlorobenzene	ND U	ND U	NC
	1,2-Dichlorobenzene	ND U	ND U	NC
	1,3-Dichlorobenzene	ND U	ND U	NC
	1,4-Dichlorobenzene	ND U	ND U	NC
	1-Methylnaphthalene	76	28	23.1
	2,4,5-Trichlorophenol	ND U	ND U	NC
	2,4,6-Trichlorophenol	ND U	ND U	NC
	2,4-Dichlorophenol	ND U	ND U	NC
	2,4-Dimethylphenol	36	18	16.7
	2,4-Dinitrophenol	ND U	ND U	NC
	2,4-Dinitrotoluene	ND U	ND U	NC
	2,6-Dinitrotoluene	ND U	ND U	NC
	2-Chloronaphthalene	ND U	ND U	NC
	2-Chlorophenol	ND U	ND U	NC
	2-Methylnaphthalene	130	45	24.3
	2-Methylphenol	56	29	15.9
	2-Nitroaniline	ND U	ND U	NC
	2-Nitrophenol	ND U	ND U	NC
	3,3´-Dichlorobenzidine	ND U	ND U	NC
	3+4-Methylphenol	100	60	12.5
	3-Nitroaniline	ND U	ND U	NC
	4,6-Dinitro-2-methylphenol	ND U	ND U	NC
	4-Bromophenyl phenyl ether	ND U	ND U	NC
	4-Chloro-3-methylphenol	ND U	ND U	NC
	4-Chloroaniline	ND U	ND U	NC
	4-Chlorophenyl phenyl ether	ND U	ND U	NC
	4-Nitroaniline	ND U	ND U	NC
	4-Nitrophenol	ND U	ND U	NC
	Acenaphthene	ND U	ND U	NC
	Acenaphthylene	ND U	ND U	NC
	Aniline	ND U	ND U	NC
	Anthracene	ND U	ND U	NC
	Azobenzene	ND U	ND U	NC
	Benz(a)anthracene	ND U	ND U	NC
	Benzo(a)pyrene	ND U	ND U	NC
	Benzo(b)fluoranthene	ND U	ND U	NC
	Benzo(g,h,i)perylene	ND U	ND U	NC
	Benzo(k)fluoranthene	ND U	ND U	NC
	Benzoic acid	ND U	ND U	NC
	Benzyl alcohol	ND U	ND U	NC
	Bis(2-chloroethoxy)methane	ND U	ND U	NC
	Bis(2-chloroethyl)ether	ND U	ND U	NC
	Bis(2-chloroisopropyl)ether	ND U	ND U	NC
	Bis(2-ethylhexyl)phthalate	ND U	ND U	NC
	Butyl benzyl phthalate	ND U	ND U	NC
	Carbazole	ND U	ND U	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 14-3 (0.5-2.0') Sample Result	SWMU 14-3 DUP01 Field Duplicate	RPD (%)
	Chrysene	ND U	ND U	NC
	Dibenz(a,h)anthracene	ND U	ND U	NC
	Dibenzofuran	ND U	ND U	NC
	Diethyl phthalate	ND U	ND U	NC
	Dimethyl phthalate	ND U	ND U	NC
	Di-n-butyl phthalate	ND U	ND U	NC
	Di-n-octyl phthalate	ND U	ND U	NC
	Fluoranthene	ND U	ND U	NC
	Fluorene	7.1	3.2	18.9
	Hexachlorobenzene	ND U	ND U	NC
	Hexachlorobutadiene	ND U	ND U	NC
	Hexachlorocyclopentadiene	ND U	ND U	NC
	Hexachloroethane	ND U	ND U	NC
	Indeno(1,2,3-cd)pyrene	ND U	ND U	NC
	Isophorone	ND U	ND U	NC
	Naphthalene	24	8.8	23.2
	Nitrobenzene	ND U	ND U	NC
	N-Nitrosodi-n-propylamine	ND U	ND U	NC
	N-Nitrosodiphenylamine	ND U	ND U	NC
	Pentachlorophenol	ND U	ND U	NC
	Phenanthrene	15	6	21.4
	Phenol	52	26	16.7
	Pyrene	ND U	ND U	NC
	Pyridine	ND U	ND U	NC
Metals (mg/kg-dry):	Antimony	ND U	ND U	NC
	Arsenic	1.5 J	1.1 J	7.7
	Barium	200	160	5.6
	Beryllium	1	1.1	2.4
	Cadmium	ND U	ND U	NC
	Chromium	11	11	0.0
	Cobalt	5.3	5.4	0.5
	Cyanide	ND U	ND U	NC
	Hexavalent Chromium	ND U	ND U	NC
	Iron	16000	16000	0.0
	Lead	4.4	5.3	4.6
	Manganese	210	200	1.2
	Mercury	ND U	ND U	NC
	Nickel	9.6	9.5	0.3
	Selenium	ND U	ND U	NC
	Silver	ND U	ND U	NC
	Vanadium	19	19	0.0
	Zinc	17	17	0.0

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram
bold value = Field Duplicate RPD Outlier

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-15-GW Sample Result	SWMU 10 DUP01GW Field Duplicate	RPD (%)
TPH (mg/l):	Gasoline Range Organics (GRO)	0.78	0.73	1.7
	Diesel Range Organics (DRO)	1	1.1	2.4
	Motor Oil Range Organics (MRO)	5 U	5 U	NC
VOCs (ug/l)	1,1,1,2-Tetrachloroethane	0.22094 U	0.11047 U	NC
	1,1,1-Trichloroethane	0.15544 U	0.07772 U	NC
	1,1,2,2-Tetrachloroethane	0.35915 U	0.17957 U	NC
	1,1,2-Trichloroethane	0.15763 U	0.07881 U	NC
	1,1-Dichloroethane	0.8 U	0.4 U	NC
	1,1-Dichloroethene	0.19865 U	0.09932 U	NC
	1,1-Dichloropropene	0.23043 U	0.11521 U	NC
	1,2,3-Trichlorobenzene	0.53278 U	0.26639 U	NC
	1,2,3-Trichloropropane	0.31673 U	0.15836 U	NC
	1,2,4-Trichlorobenzene	0.56547 U	0.28273 U	NC
	1,2,4-Trimethylbenzene	0.31893 U	0.15946 U	NC
	1,2-Dibromo-3-chloropropane	0.27209 U	0.13604 U	NC
	1,2-Dibromoethane (EDB)	0.26750 U	0.13375 U	NC
	1,2-Dichlorobenzene	0.23661 U	0.11831 U	NC
	1,2-Dichloroethane (EDC)	0.35297 U	0.17648 U	NC
	1,2-Dichloropropane	0.30239 U	0.15119 U	NC
	1,3,5-Trimethylbenzene	0.24576 U	0.12288 U	NC
	1,3-Dichlorobenzene	0.18698 U	0.09349 U	NC
	1,3-Dichloropropane	0.34440 U	0.17220 U	NC
	1,4-Dichlorobenzene	0.33168 U	0.16584 U	NC
	1-Methylnaphthalene	1.07678 U	0.53839 U	NC
	2,2-Dichloropropane	0.30330 U	0.15165 U	NC
	Benzene	0.51 J	0.4 J	6.0
	2-Butanone	2.9 J	2.9 J	0.0
	2-Chlorotoluene	0.15813 U	0.07906 U	NC
	2-Hexanone	0.95322 U	0.47661 U	NC
	2-Methylnaphthalene	1.18893 U	0.59446 U	NC
	4-Chlorotoluene	0.29868 U	0.14934 U	NC
	4-Isopropyltoluene	0.37722 U	0.18861 U	NC
	4-Methyl-2-pentanone	0.51323 U	0.25661 U	NC
	Acetone	9.7 J	16	12.3
	Bromobenzene	0.21555 U	0.10777 U	NC
	Bromodichloromethane	0.17935 U	0.08968 U	NC
	Bromoform	0.32470 U	0.16235 U	NC
	Bromomethane	2.32245 U	1.16123 U	NC
	Carbon disulfide	1.34646 U	0.67323 U	NC
	Carbon Tetrachloride	0.15607 U	0.07803 U	NC
	Chlorobenzene	0.18680 U	0.09340 U	NC
	Chloroethane	0.20937 U	0.10468 U	NC
	Chloroform	0.42972 U	0.21486 U	NC
	Chloromethane	0.34737 U	0.17368 U	NC
	cis-1,2-DCE	0.16120 U	0.08060 U	NC
	cis-1,3-Dichloropropene	0.26617 U	0.13308 U	NC
	Dibromochloromethane	0.19361 U	0.09681 U	NC
	Dibromomethane	0.46872 U	0.23436 U	NC
	Dichlorodifluoromethane	1.38481 U	0.69241 U	NC
	Ethylbenzene	0.20214 U	0.10107 U	NC
	Hexachlorobutadiene	0.50280 U	0.25140 U	NC
	Isopropylbenzene	0.30395 U	0.15197 U	NC
	Methyl tert-butyl ether (MTBE)	150	150	0.0
	Methylene Chloride	0.72072 U	0.36036 U	NC
	Naphthalene	0.43587 U	0.21793 U	NC
	n-Butylbenzene	0.49093 U	0.24546 U	NC
	n-Propylbenzene	0.32634 U	0.16317 U	NC
	sec-Butylbenzene	0.45720 U	0.22860 U	NC
	Styrene	0.21131 U	0.10566 U	NC
	tert-Butylbenzene	0.25893 U	0.12947 U	NC
	Tetrachloroethene (PCE)	0.32095 U	0.16047 U	NC
	Toluene	0.21693 U	0.10847 U	NC
	trans-1,2-DCE	0.18810 U	0.09405 U	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-15-GW Sample Result		SWMU 10 DUP01GW Field Duplicate		RPD (%)
	trans-1,3-Dichloropropene	0.22617	U	0.11309	U	NC
	Trichloroethene (TCE)	0.32669	U	0.16334	U	NC
	Trichlorofluoromethane	0.25403	U	0.12701	U	NC
	Vinyl chloride	0.25082	U	0.12541	U	NC
	Xylenes, Total	0.56497	U	0.28248	U	NC
SVOCs (mg/kg-dry):	1,2,4-Trichlorobenzene	1.99336	U	1.99336	U	NC
	1,2-Dichlorobenzene	1.89877	U	1.89877	U	NC
	1,3-Dichlorobenzene	1.69038	U	1.69038	U	NC
	1,4-Dichlorobenzene	1.23419	U	1.23419	U	NC
	1-Methylnaphthalene	1.80147	U	1.80147	U	NC
	2,4,5-Trichlorophenol	1.61671	U	1.61671	U	NC
	2,4,6-Trichlorophenol	1.25834	U	1.25834	U	NC
	2,4-Dichlorophenol	1.39496	U	1.39496	U	NC
	2,4-Dimethylphenol	1.85381	U	1.85381	U	NC
	2,4-Dinitrophenol	1.06974	U	1.06974	U	NC
	2,4-Dinitrotoluene	1.43393	U	1.43393	U	NC
	2,6-Dinitrotoluene	1.49035	U	1.49035	U	NC
	2-Chloronaphthalene	1.71573	U	1.71573	U	NC
	2-Chlorophenol	1.20402	U	1.20402	U	NC
	2-Methylnaphthalene	2.24599	U	2.24599	U	NC
	2-Methylphenol	1.24572	U	1.24572	U	NC
	2-Nitroaniline	1.79467	U	1.79467	U	NC
	2-Nitrophenol	1.23136	U	1.23136	U	NC
	3,3´-Dichlorobenzidine	2.60844	U	2.60844	U	NC
	3+4-Methylphenol	1.47532	U	1.47532	U	NC
	3-Nitroaniline	1.47977	U	1.47977	U	NC
	4,6-Dinitro-2-methylphenol	1.36786	U	1.36786	U	NC
	4-Bromophenyl phenyl ether	1.40872	U	1.40872	U	NC
	4-Chloro-3-methylphenol	1.35070	U	1.35070	U	NC
	4-Chloroaniline	1.87394	U	1.87394	U	NC
	4-Chlorophenyl phenyl ether	2.01318	U	2.01318	U	NC
	4-Nitroaniline	1.24171	U	1.24171	U	NC
	4-Nitrophenol	1.40498	U	1.40498	U	NC
	Acenaphthene	1.88470	U	1.88470	U	NC
	Acenaphthylene	1.86589	U	1.86589	U	NC
	Aniline	1.54599	U	1.54599	U	NC
	Anthracene	1.60486	U	1.60486	U	NC
	Azobenzene	2.00531	U	2.00531	U	NC
	Benz(a)anthracene	2.50627	U	2.50627	U	NC
	Benzo(a)pyrene	2.72398	U	2.72398	U	NC
	Benzo(b)fluoranthene	2.40284	U	2.40284	U	NC
	Benzo(g,h,i)perylene	3.12517	U	3.12517	U	NC
	Benzo(k)fluoranthene	2.51488	U	2.51488	U	NC
	Benzoic acid	1.02557	U	1.02557	U	NC
	Benzyl alcohol	1.17187	U	1.17187	U	NC
	Bis(2-chloroethoxy)methane	1.80486	U	1.80486	U	NC
	Bis(2-chloroethyl)ether	1.77363	U	1.77363	U	NC
	Bis(2-chloroisopropyl)ether	2.05946	U	2.05946	U	NC
	Bis(2-ethylhexyl)phthalate	3.32558	U	3.32558	U	NC
	Butyl benzyl phthalate	2.37012	U	2.37012	U	NC
	Carbazole	1.49023	U	1.49023	U	NC
	Chrysene	2.15442	U	2.15442	U	NC
	Dibenz(a,h)anthracene	3.26832	U	3.26832	U	NC
	Dibenzofuran	1.90194	U	1.90194	U	NC
	Diethyl phthalate	1.67338	U	1.67338	U	NC
	Dimethyl phthalate	1.99487	U	1.99487	U	NC
	Di-n-butyl phthalate	2.10312	U	2.10312	U	NC
	Di-n-octyl phthalate	1.93926	U	1.93926	U	NC
	Fluoranthene	1.47557	U	1.47557	U	NC
	Fluorene	1.67191	U	1.67191	U	NC
	Hexachlorobenzene	2.02231	U	2.02231	U	NC
	Hexachlorobutadiene	1.94908	U	1.94908	U	NC
	Hexachlorocyclopentadiene	1.47091	U	1.47091	U	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-15-GW Sample Result		SWMU 10 DUP01GW Field Duplicate		RPD (%)
	Hexachloroethane	1.61223	U	1.61223	U	NC
	Indeno(1,2,3-cd)pyrene	2.45952	U	2.45952	U	NC
	Isophorone	1.95246	U	1.95246	U	NC
	Naphthalene	1.83350	U	1.83350	U	NC
	Nitrobenzene	1.49388	U	1.49388	U	NC
	N-Nitrosodimethylamine	1.41684	U	1.41684	U	NC
	N-Nitrosodi-n-propylamine	2.03650	U	2.03650	U	NC
	N-Nitrosodiphenylamine	2.46700	U	2.46700	U	NC
	Pentachlorophenol	1.13741	U	1.13741	U	NC
	Phenanthrene	1.99666	U	1.99666	U	NC
	Phenol	1.08528	U	1.08528	U	NC
	Pyrene	2.31812	U	2.31812	U	NC
	Pyridine	1.67388	U	1.67388	U	NC
Water Quality (mg/l)	Chloride	2300		2400		1.1
	Fluoride	0.55		0.55		0.0
	Sulfate	440		470		1.6
Dissolved Metals (mg/l):	Antimony (d)	0.001429741	U	0.001	U	NC
	Arsenic (d)	0.011	J	0.011	J	0.0
	Barium (d)	0.22		0.22		0.0
	Beryllium (d)	0.000312692	U	0.00033	J	NC
	Cadmium (d)	0.000966229	U	0.001	U	NC
	Chromium (d)	0.0094		0.0094		0.0
	Cobalt (d)	0.023		0.023		0.0
	Iron (d)	0.61		2.2		28.3
	Lead (d)	0.0026	J	0.0039	J	10.0
	Manganese (d)	2.4		2.5		1.0
	Nickel (d)	0.65		0.66		0.4
	Selenium (d)	0.02		0.023		3.5
	Silver (d)	0.00121688	U	0.001	U	NC
	Vanadium (d)	0.0057	J	0.0076	J	7.1
	Zinc	0.15		0.036		**30.6**
Total Metals (mg/l):	Antimony	0.00215761	U	0.002	U	NC
	Arsenic	0.012		0.012		0.0
	Barium	0.37		0.31		4.4
	Beryllium	0.0015	J	0.0014	J	1.7
	Cadmium	0.000966229	U	0.001	U	NC
	Chromium	0.0062		0.0059	J	1.2
	Chromium, Hexavalent	0.0005	U	0.00061		NC
	Cobalt	0.025		0.025		0.0
	Cyanide	0.055		0.051		1.9
	Iron	9.4		7.4		6.0
	Lead	0.014		0.012		3.8
	Manganese	2.9		3		0.8
	Mercury	0.0000589	U	0.0000589	U	NC
	Nickel	0.64		0.65		0.4
	Selenium	0.019		0.022		3.7
	Silver	0.002112456	U	0.002	U	NC
	Vanadium	0.019	J	0.017	J	2.8

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/l = micrograms per liter
mg/l = milligrams per liter
bold value = Field Duplicate RPD Outlier

Table A-4
Completeness Summary - Soil
Group 9 Investigation Report
Western Refining Southwest, Inc. - Bloomfield Refinery

	Parameter	Total Number of Results	Number of Usable Results	Percent Technical Compliance
TPH :	Diesel Range Organics (DRO)	67	67	100
	Motor Oil Range Organics (MRO)	67	67	100
	Gasoline Range Organics (GRO)	67	67	100
VOCs:	All VOC Analytes	76	76	100
SVOCs:	All SVOC Analytes	67	67	100
Metals (total):	Antimony	67	67	100
	Arsenic	67	67	100
	Barium	67	67	100
	Beryllium	67	67	100
	Cadmium	67	67	100
	Chromium	67	67	100
	Cobalt	67	67	100
	Cyanide	67	67	100
	Hexavalent Chromium	67	67	100
	Iron	67	67	100
	Lead	67	67	100
	Manganese	67	67	100
	Mercury	67	67	100
	Nickel	67	67	100
	Selenium	67	67	100
	Silver	67	67	100
	Vanadium	67	67	100
	Zinc	67	67	100
Metals (mg/l dissolved):	Antimony	15	15	100
	Arsenic	15	15	100
	Barium	15	15	100
	Beryllium	15	15	100
	Cadmium	15	15	100
	Chromium	15	15	100
	Cobalt	15	15	100
	Iron	15	15	100
	Lead	15	15	100
	Manganese	15	15	100
	Nickel	15	15	100
	Selenium	15	15	100
	Silver	15	15	100
	Vanadium	15	15	100
	Zinc	15	15	100
Water Quality (mg/l)	Chloride	15	15	100
	Fluoride	15	15	100
	Sulfate	15	15	100

Notes:
Number of samples used in completeness calculations includes soil samples, groundwater samples, soil and groundwater field duplicates, equipment rinsate, and field blanks.
Percent Technial Compliance = (Number of usable results / Number of reported results) * 100

Appendix F
Historical Analyses

TABLE 2

Ciniza Refinery Metals Results for Wastewater samples
Taken During July and August,1980.

Metal	New Well Raw Water 7/23/80 0830 hrs.	Pond 3 Inlet /Softener Waste 8/11/80 1000 hrs.	Cooling Water Tower Blowdown 7/23/80 0830 hrs.	API Separator Overflow 7/17/80 1330 hrs.	API Sepatrator Overflow 7/19/80 1300 hrs.	API Separator Overflow 7/23/80 0830 hrs.
Arsenic	0.003	0.031	0.013	0.004	0.005	0.015
Barium	0.014	0.068	0.022	0.22	0.094	0.105
Cadmium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	<0.001	0.026	13.	0.91	0.64	1.2
Lead	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Selenium	<0.001	0.097	0.025	0.015	0.018	0.024
Silver	<0.001	0.002	0.010	0.006	0.012	0.005

Controls for Environmental Pollution, Inc.
P.O. BOX 5351 • Santa Fe, New Mexico 87502
IN STATE 505/982-9841
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REPORT OF ANALYSIS

LAB # 84-03-404

LE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	mg/liter	
Seperator Sludge	03/13/84	Silver	<0.01	
		Arsenic	<0.01	
		Barium	0.4	
		Cadmium	<0.001	
		Chromium	0.036	
		Chromium, Hexavalent	<0.01	
		Chromium	10	(ug/gram)
		Mercury	<0.0004	
		Oil and Grease	26,000	(ug/gram)
		Lead	<0.001	
		Lead	340	(ug/gram)
		pH	9.30	(units)
		Selenium	<0.01	
		Total Organic Carbon	>400,000	