

Certified Mail # 7014 1820 0001 7489 1843

November 16, 2015

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: RCRA PERMIT - SUPPLEMENTAL INFORMATION  
WESTERN REFINING SOUTHWEST INC., GALLUP REFINERY  
EPA ID # NMD000333211  
HWB-WRG-13-001

Dear Mr. Kieling:

Western Refining Southwest, Inc. ("Western") is providing supplemental information about Areas of Concern (AOCs) in the RCRA Permit dated October 31, 2013. The New Mexico Environmental Department ("NMED") requested information for the following units: AOC 17, AOC 19, AOC 20, AOC 21, AOC 22, AOC 24, AOC 25, AOC 26, AOC 27, AOC 28, AOC 30, AOC 31, AOC 32, AOC 33, and AOC 34. This submittal consists of maps and supplemental information organized on an AOC basis.

If there are any questions, please contact Mr. Ed Riege at (505) 722-0217. Please note that, in submitting this request, Western makes no admissions and reserves all applicable rights and defenses.

We look forward to your response.

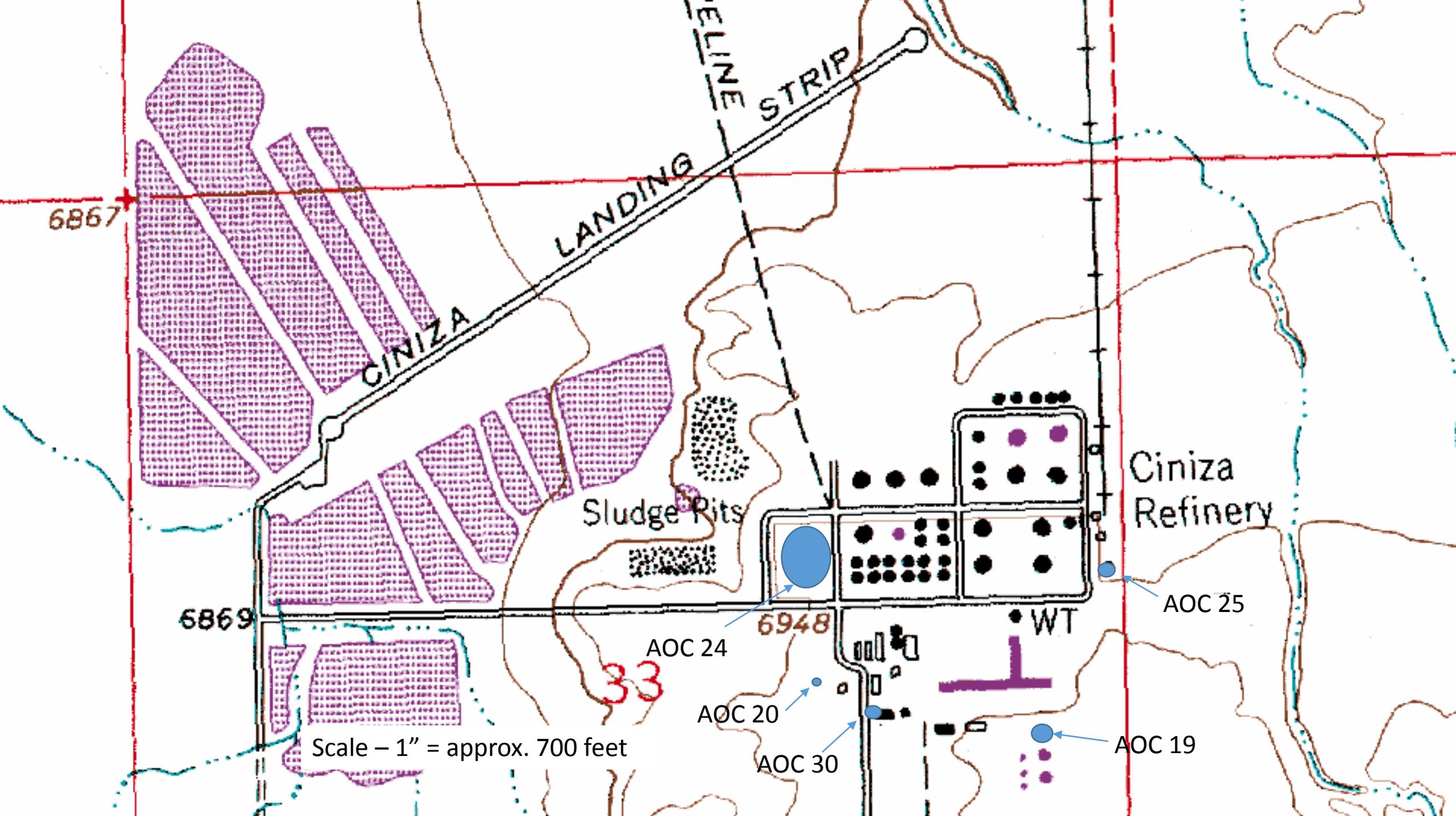
Sincerely,

A handwritten signature in black ink that reads 'William Carl McClain'.

Mr. Billy McClain  
VP and Refinery Manager  
Western Refining Southwest, Inc. – Gallup Refinery

cc K. Roberts, NMED  
D. Cobrain NMED HWB  
N. Dhawan, NMED HWB  
K. Van Horn, NMED HWB  
A. Allen, Western El Paso

# Maps



6867

CINIZA

LANDING

BASELINE STRIP

Sludge Pits

Ciniza Refinery

6869

6948

AOC 24

AOC 25

33

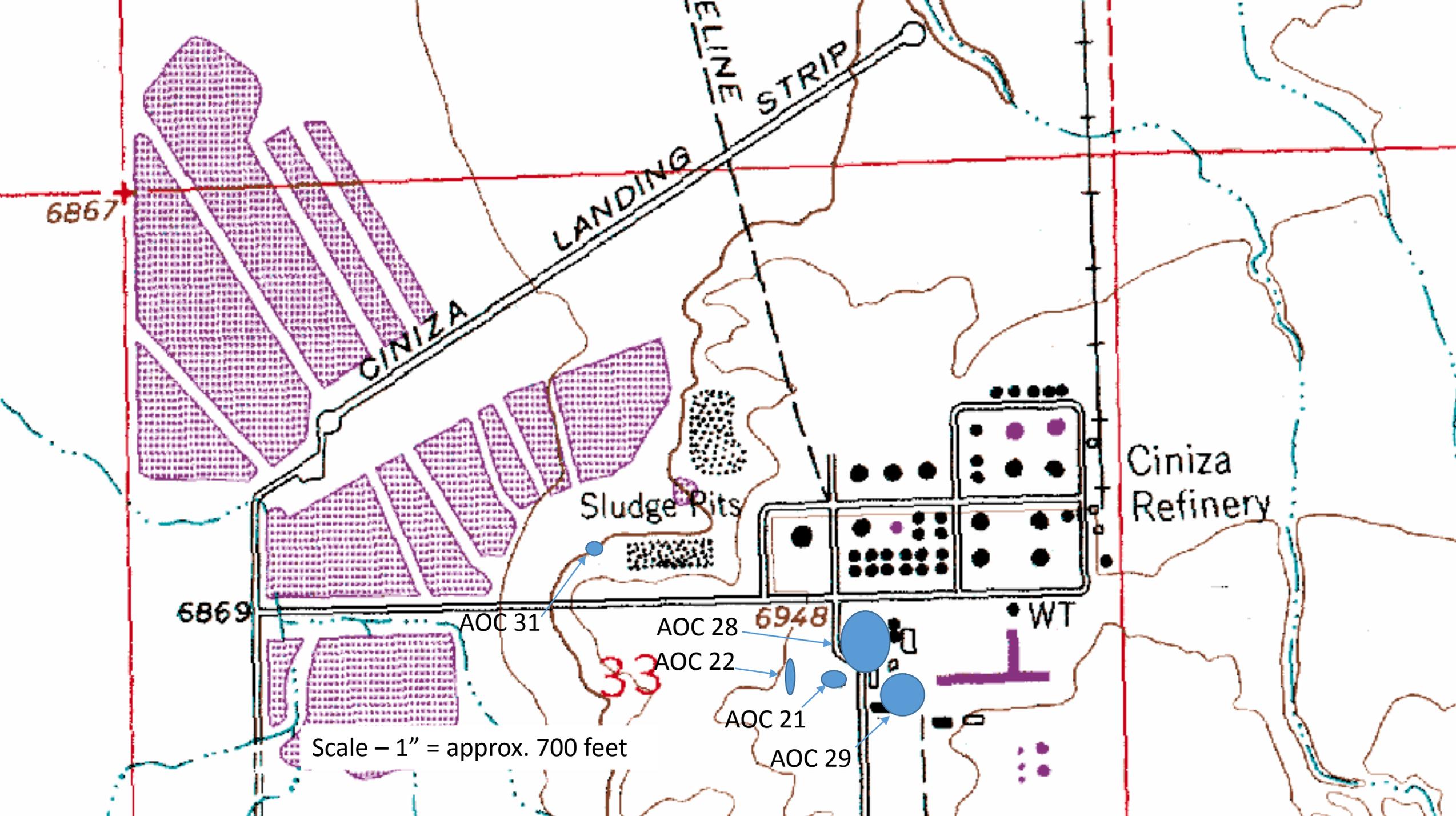
AOC 20

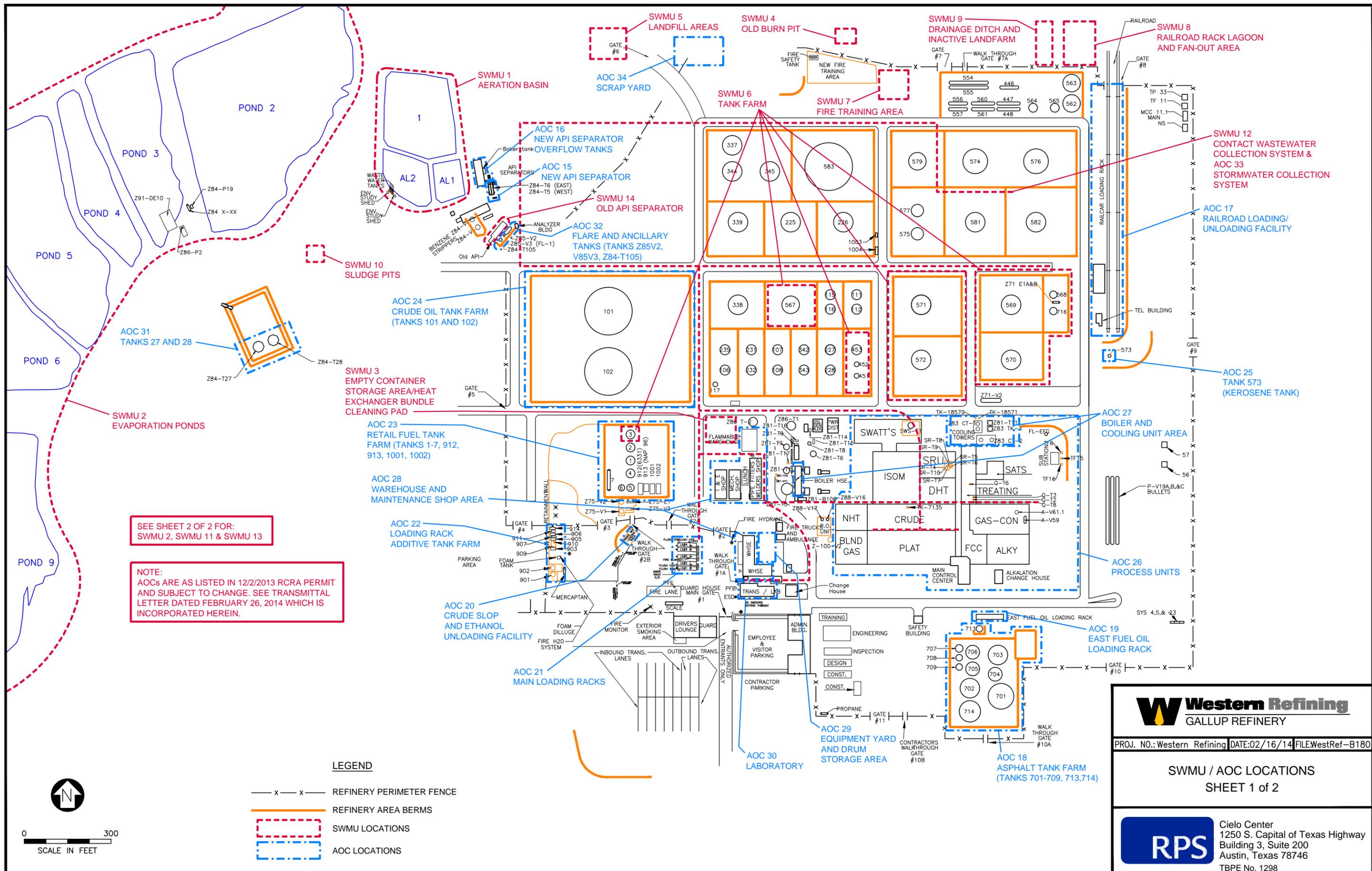
WT

Scale - 1" = approx. 700 feet

AOC 30

AOC 19





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

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

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

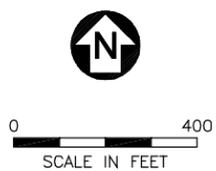
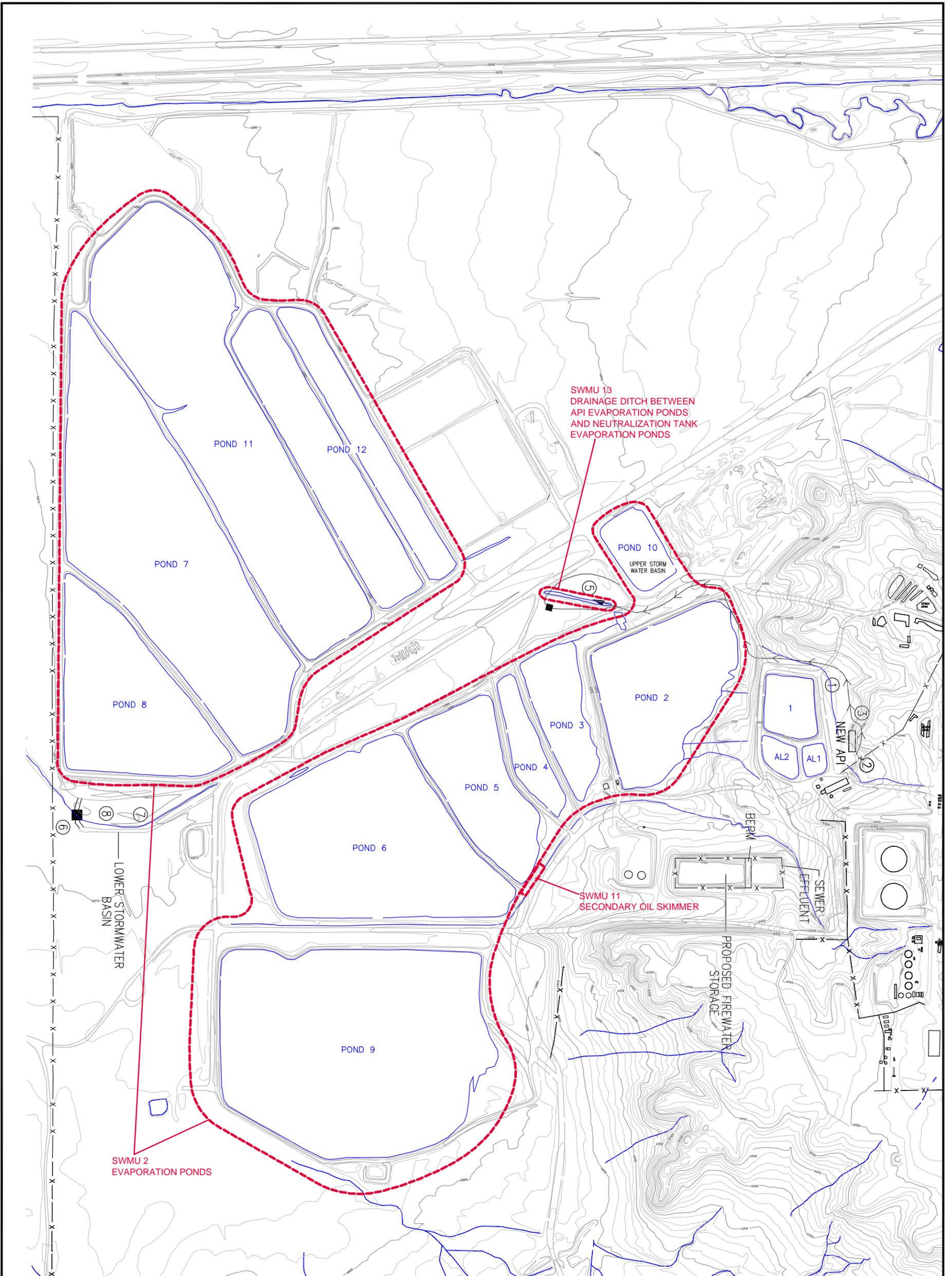
0 300  
SCALE IN FEET



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

**SWMU / AOC LOCATIONS**  
SHEET 1 of 2

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



**LEGEND**  
 SWMU LOCATIONS

**Western Refining**  
 GALLUP REFINERY

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

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

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

# **AOC 17 – Railroad Loading/Unloading Facility**

## AOC 17 – Railroad Loading/Unloading Facility

The Railroad Loading/Unloading Facility, which has been identified by NMED as Area of Concern #17, is located on the northeast corner of the refinery. No recent investigations have been conducted along the facility; however, nearby SWMU No. 8 Railroad Rack Lagoon was recently investigated and remediated.

NMED requested information in the format below.

3.

a. Any data or reports already provided to OCD;  
No data or reports have been identified that were provided to OCD and not to NMED.

b. Any data not provided to OCD, but correlated to the OCD reports;  
No such data has been identified.

c. Site history;  
The Railroad Loading/Unloading Facility was constructed when the refinery was built in the 1950s and has remained in continuous use since. A drain system collects any storm water and/or spills on the rail loading area and it was historically directed to the SWMU 8 area. The system was redesigned to flow to a sump. Any significant accumulation of free product in the sump was recovered with a vacuum truck for direct transport to the slop oil tank for recycling. Wastewater was pumped from the sump to the wastewater collection system.

### Process Knowledge - Sumps and Vacuum Trucks

Sumps are an industry and regulatory recognized liquids collection apparatus. Vacuum trucks are an industry and regulatory recognized means for liquids transfer. The purpose of sumps and vacuum trucks is to properly manage liquids, including recycling hydrocarbons.

d. Location map  
See attached maps.

e. Previous sampling locations (including depths and a description of field methods); and  
There are no recent sampling locations identified.

f. Analytical suites/types.  
NA

AOC 17 – Railroad Loading Facility

- Western to review records of cleanup for SWMU 8 to determine status of pipeline and manhole that did feed lagoon.
  - **The entire pipeline was removed and any impacted soils along the pipeline were removed as part of the SWMU No. 8 remediation. The manhole was abandoned in-place by filling it with concrete. During the removal of the pipeline that connected to the manhole, the soil beneath the pipeline and adjacent to the manhole was removed. If there had been a release from the manhole, then it should have been visibly obvious during the removal of the connecting pipeline.**
- Description of current wastewater management system, what is it made of?
  - **The stormwater that falls on the loading rack drains to a large in-ground concrete lift station. The lift station is approximate 8 feet wide, 8 feet long and 18 feet deep. If a significant volume of separate phase product accumulates on the water, then it is removed with a vacuum truck that transports the product to the slop oil rack. The stormwater is pumped directly to the wastewater sewer system that drains to the API Separator.**

# **AOC 19 – East Fuel Oil Loading Rack**

## AOC 19 – East Fuel Oil Loading Rack

The East Fuel Oil Loading Rack, which has been identified by NMED as Area of Concern #19, was located near the southeast corner of the process area.

This AOC was previously discussed with NMED and in support of those discussions the information normally required for a Release Assessment Report pursuant to Permit Section IV.H.1.a was prepared and submitted to NMED prior to meeting on October 6, 2014. This information and additional information requested by NMED is attached.

NMED requested information in the format below.

3.

- a. Any data or reports already provided to OCD;  
No data or reports have been identified that were provided to OCD and not to NMED.
- b. Any data not provided to OCD, but correlated to the OCD reports;  
No such data has been identified.
- c. Site history;

The former East Fuel Oil Loading Rack began operation sometime before 1997. During a site inspection in October 2006, possible soil impacts were noted and subsequently soil samples were collected in November 2006. At that time, the loading operations were conducted without an impervious containment system. In 2007, Western removed impacted soils and installed a concrete containment.

This containment remained in-place until 2011, when it was removed to facilitate construction of the new ESP/COB unit. The excavation for the ESP/COB unit resulted in the removal of a large volume of soil, which included the entire area where the East Fuel Oil Loading Rack was located. Analyses of soils at the bottom of the large construction excavation indicate that soils with concentrations above NMED residential soil screening levels for total petroleum hydrocarbons have been removed.

Additional site history is in the previously submitted in the Release Assessment Report format (attached).

### Process Knowledge - Sumps and Vacuum Trucks

Sumps are an industry and regulatory recognized liquids collection apparatus. Vacuum trucks are an industry and regulatory recognized means for liquids transfer. The purpose of sumps and vacuum trucks is to properly manage liquids.

- d. Location map  
See attached maps.
- e. Previous sampling locations (including depths and a description of field methods); and  
The requested information is attached.
- f. Analytical suites/types.  
The requested information is attached.

## AOC 19 – East Fuel Oil Loading Rack

- (1) location of unit(s) on a topographic map of appropriate scale, as required under 40 CFR § 270.14(b)(19);

*See attached topo maps for location of AOC 19*

- (2) designation of type and function of unit(s);  
*Petroleum products (fuel oil) were loaded onto trucks at this location prior to removal of this facility.*
- (3) dimensions, capacities and structural description of unit(s) (supply any available plans/drawings);  
*The East Fuel Oil Loading Rack covered an area approximately 60 feet by 90 feet.*
- (4) dates that the unit(s) was operated;  
*The fuel oil loading rack was operated from prior to 1997 to 2011.*
- (5) all available site history information;

*The refinery began operation in the late 1950s and the refinery property covers an area of approximately 810 acres. The refinery location and the regional vicinity is characterized as high desert plain comprised primarily of public lands used for grazing by cattle and sheep.*

*The Gallup Refinery is a crude oil refinery currently owned and operated by Western Refining Southwest, Inc. ("Western"), formerly known as Giant Industries Arizona, Inc. and formerly doing business as Giant Refining Company Ciniza Refinery, an Arizona corporation. The Gallup Refinery generally processes crude oil from the Four Corners area transported to the facility by pipeline or tanker truck. Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, alkylation, isomerization, sulfur recovery, merox treater, and hydrotreating.*

*Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.*

- (6) specifications of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on hazardous waste or hazardous constituents in the wastes;  
*No wastes were managed at the AOC. Petroleum products were loaded onto trucks.*
- (7) all available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (to include ground water data, soil analyses, air, and surface water data).

*In response the March 19, 2007 release, the rack area was covered with a concrete pad and curbing. To support construction of a new ElectroStatic Precipitator / CO Boiler (ESP/COB) unit, all loading rack components and any contaminated soil were removed and disposed properly in 2011 (see demo drawings). The excavation measured 82 feet by 315 feet and extended to a depth of approximately 7.5 to 11.5 feet (see photographs).*

*Confirmation soil samples that were collected from the bottom of the excavation, which*

*was completed to support new construction in this area, and the waste characterization samples for the soils that were removed and disposed off-site. Confirmation soil samples were collected from the bottom of the excavation and the laboratory reports are included (see lab report #1201046). Waste characterization samples are also included (see lab report #1108278).*

These lab reports were previously submitted to NMED in late 2014.

#### Response to NMED Request for Additional Information

- Note that Western should have contacted NMED when soil contamination was found – this is the discovery of a new SWMU or AOC. NMED would have required at least an Accelerated Corrective Action Work Plan and Report for documentation. In the future, Western shall contact NMED when contaminated soil is discovered.

*Western Response: This area was initially identified during a site inspection conducted by NMOCD on October 11, 2006, which occurred in response to a fire in the nearby Alky Unit that occurred on October 5, 2006. NMED was included in related correspondence with NMOCD pertaining to this area of stained soils identified during the site inspection. The construction activity conducted in 2011 and 2012 occurred in the same area and there was not a new discovery of an environmental impact in 2011.*

- Describe how soil samples were collected.

*The soil samples were discrete samples collected from the floor of the excavation using decontaminated stainless steel spoons.*

- Was the excavation as large and deep to determine the limits of the soil contamination in the vicinity of the new unit?

*Western Response: The size of the excavation was determined by the requirements of the construction project.*

- What is the groundwater level in this area?

*Western Response: The depth to groundwater is estimated to be 25 to 35 feet below ground surface.*

- Soil samples were taken from piles and roll-off bins for waste characterization. “Roll-Off Box A 20-001 near Pond 5” laboratory results for DRO are 7800 mg/kg (with a DF of 100) and the sample collected from “Truck Rack Spot #5 Excavation hol” had DRO at 7900 mg/kg (with a DF of 100). These results are above NMEDs soil screening levels for DRO.

*Western Response: No response required.*

- The samples collect were primarily for waste characterization (TCLP) meant for waste disposal, not for cleanup. Concentrations detected by TCLP analysis for solid materials are always lower than total metals results. NMED uses results of total metals to make risk based decisions, rather than TCLP.

*Western Response: Western notes that the soil samples collected from the bottom of the construction excavation (i.e., A-Fuel Oil Exca through L-Fuel Oil Exca) were analyzed for total petroleum hydrocarbons (gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO)) and these results were reported as total*

concentrations, not TCLP results. These results are summarized below and all reported concentrations are less than the NMED residential screening levels.

Sample ID	Date	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)
A-Fuel Oil Exca	12/29/2011	<4.8	<9.6	<46
B-Fuel Oil Exca	12/29/2011	<5.0	140	<50
C-Fuel Oil Exca	12/29/2011	<4.8	840	<1,000
D-Fuel Oil Exca	12/29/2011	<5.0	55	<49
E-Fuel Oil Exca	12/29/2011	<5.0	100	<49
F-Fuel Oil Exca	12/29/2011	<4.7	260	<490
G-Fuel Oil Exca	12/29/2011	<4.8	<10	<51
H-Fuel Oil Exca	12/29/2011	<4.8	<9.8	<49
I-Fuel Oil Exca	12/29/2011	<4.8	<9.9	<49
J-Fuel Oil Exca	12/29/2011	<4.9	<10	<50
K-Fuel Oil Exca	12/29/2011	<4.8	69	67
L-Fuel Oil Exca	12/29/2011	<5.0	30	140
NMED Screening Levels (mg/kg)		Not applicable	1,000*	1,000*

\* - assumes residential exposure and oil from unknown source

- The MSD in the laboratory QA Report had no recovery from spiked samples, which calls into question the soil sample results; did the laboratory narrative provide any additional information as to why the spiked samples did not show any detection?

*Western Response: Western could not identify any MSD results that showed no recovery. There are two non-detect surrogate recoveries (NDOP = 0% for C-Fuel Oil Exca and F-Fuel Oil Exca), which are the result of dilution of these specific samples. This does not indicate a problem with the analyses or the results. Both samples did report concentrations for DRO and the laboratory batch QC sample results (method blanks, laboratory control samples, matrix spike, and matrix spike duplicates indicate the results are reliable. One MSD for DRO was slightly below the acceptable range (56.1% vs. 57.2%); however, the MS and LCS both were within range. The MS and MSD recoveries for the NDOP surrogate were slightly above the acceptable range in a different QC batch (MS = 164% vs. 131% and MSD = 168% vs. 131%). The analytical results are reliable and show that GRO was not detected and DRO and MRO are both below the residential screening levels.*

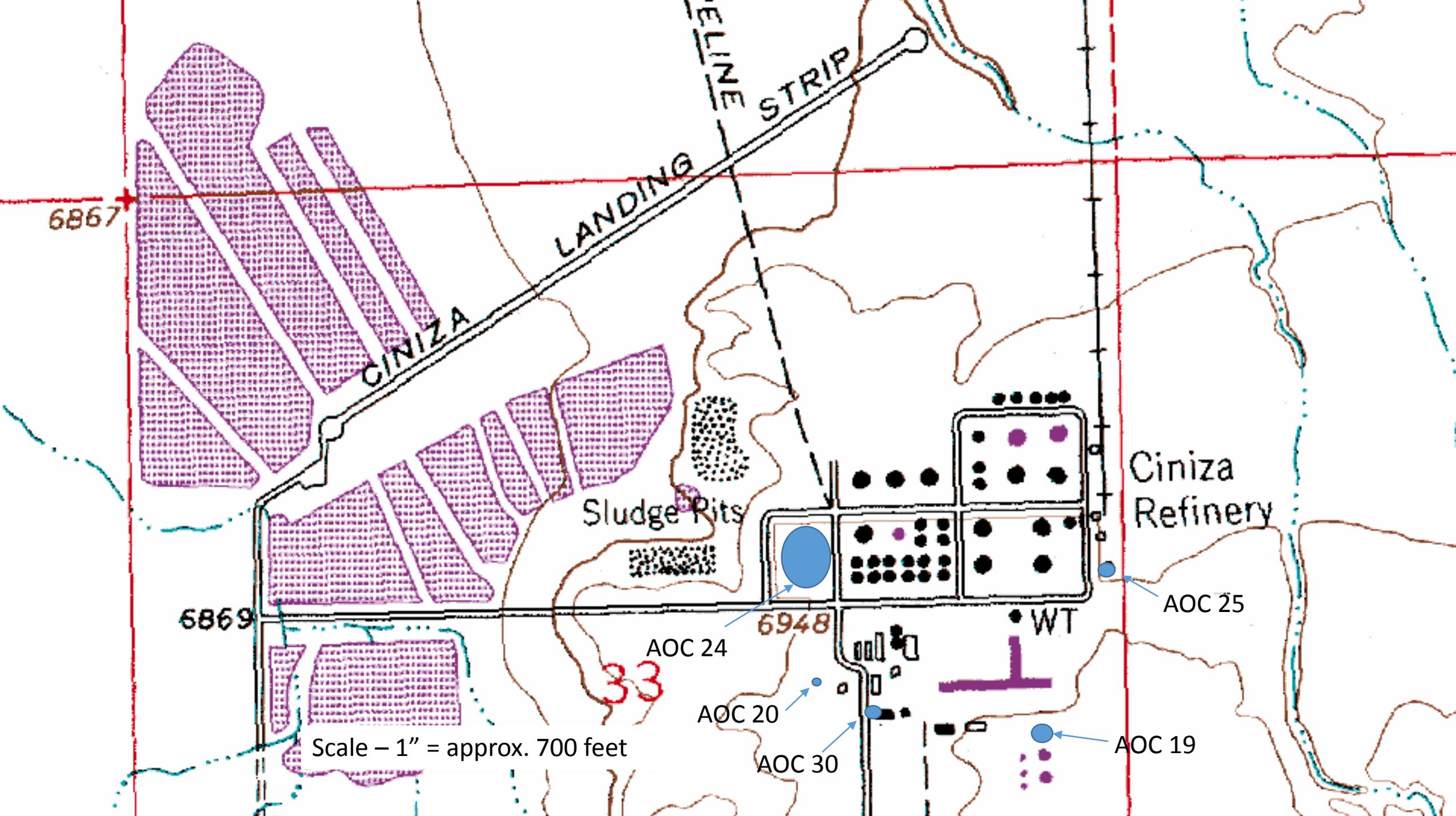
- Has the site been used for anything prior to its use as the East Fuel Loading Rack?

*Western Response: Based on available aerial photos, fuel oil loading operations have been conducted at this location as far back as 1997. Site personnel indicate the area may have previously used to load asphalt. The nature of asphalt (semi-solid at normal temperature and pressure) makes it very unlikely that any significant impacts to the environment would have occurred if the area was previously used to load asphalt.*

## SUMMARY

*The former East Fuel Oil Loading rack began operation sometime before 1997. During a site inspection in October 2006, possible soil impacts were noted and subsequently soil samples were collected in November 2006. At that time, the loading operations were conducted without an impervious containment system. In 2007,*

*Western installed a concrete pad with berms to contain any potential spills that may occur during loading operations (see attached photo). This concrete pad remained in-place until 2011, when it was removed to facilitate construction of the new ESP/COB unit. The excavation for the ESP/COB unit resulted in the removal of a large volume of soil, which included the entire area where the East Fuel Oil Loading Rack was located. Analyses of soils at the bottom of the large construction excavation indicate that soils with concentrations above NMED residential soil screening levels for total petroleum hydrocarbons have been removed.*



6867

CINIZA

LANDING

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Sludge Pits

Ciniza Refinery

6869

AOC 24

6948

AOC 25

33

AOC 20

WT

Scale - 1" = approx. 700 feet

AOC 30

AOC 19



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

January 24, 2012

Thurman B. Larsen  
Western Refining Southwest, Gallup  
Rt. 3 Box 7  
Gallup, NM 87301  
TEL: (505) 722-3833  
FAX (505) 722-0210

RE: Fuel Oil Storage Loading Area Terminal Excavation

OrderNo.: 1201046

Dear Thurman B. Larsen:

Hall Environmental Analysis Laboratory received 12 sample(s) on 1/3/2012 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative. Analytical results designated with a "J" qualifier are estimated and represent a detection above the Method Detection Limit (MDL) and less than the Reporting Limit (PQL). These analytes are not reviewed nor narrated as to whether they are laboratory artifacts.

Quality control data is within laboratory defined or method specified acceptance limits except if noted.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

## Analytical Report

Lab Order 1201046

Date Reported: 1/24/2012

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: A-Fuell Oil Exca

Project: Fuel Oil Storage Loading Area Terminal

Collection Date: 12/29/2011 8:30:00 AM

Lab ID: 1201046-001

Matrix: SOIL

Received Date: 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JMP
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	1/6/2012 1:27:47 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/6/2012 1:27:47 PM
Surr: DNOP	82.6	77.4-131		%REC	1	1/6/2012 1:27:47 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/5/2012 4:35:02 PM
Surr: BFB	99.9	69.7-121		%REC	1	1/5/2012 4:35:02 PM
<b>MERCURY, TCLP</b>						Analyst: JLF
Mercury	ND	0.020		mg/L	1	1/10/2012 4:10:36 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: ELS
Arsenic	ND	5.0		mg/L	1	1/9/2012 11:35:52 AM
Cadmium	ND	1.0		mg/L	1	1/9/2012 11:35:52 AM
Chromium	ND	5.0		mg/L	1	1/9/2012 11:35:52 AM
Lead	ND	5.0		mg/L	1	1/9/2012 11:35:52 AM
Selenium	ND	1.0		mg/L	1	1/9/2012 11:35:52 AM
Silver	ND	5.0		mg/L	1	1/9/2012 11:35:52 AM
Barium	ND	100		mg/L	5	1/9/2012 12:11:57 PM
<b>EPA METHOD 8270C TCLP</b>						Analyst: JDC
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/12/2012 10:46:07 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/12/2012 10:46:07 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 10:46:07 PM
Hexachloroethane	ND	3.0		mg/L	1	1/12/2012 10:46:07 PM
Nitrobenzene	ND	2.0		mg/L	1	1/12/2012 10:46:07 PM
Pentachlorophenol	ND	100		mg/L	1	1/12/2012 10:46:07 PM
Pyridine	ND	5.0		mg/L	1	1/12/2012 10:46:07 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/12/2012 10:46:07 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/12/2012 10:46:07 PM
Cresols, Total	ND	200		mg/L	1	1/12/2012 10:46:07 PM
2-Methylphenol	ND	200		mg/L	1	1/12/2012 10:46:07 PM
3+4-Methylphenol	ND	200		mg/L	1	1/12/2012 10:46:07 PM
Phenol	ND	200		mg/L	1	1/12/2012 10:46:07 PM
Surr: 2,4,6-Tribromophenol	47.2	18.2-136		%REC	1	1/12/2012 10:46:07 PM
Surr: 2-Fluorobiphenyl	58.6	40.5-108		%REC	1	1/12/2012 10:46:07 PM
Surr: 2-Fluorophenol	31.6	23-101		%REC	1	1/12/2012 10:46:07 PM
Surr: 4-Terphenyl-d14	61.6	40.9-112		%REC	1	1/12/2012 10:46:07 PM
Surr: Nitrobenzene-d5	67.9	41-115		%REC	1	1/12/2012 10:46:07 PM
Surr: Phenol-d5	25.5	23.4-73.6		%REC	1	1/12/2012 10:46:07 PM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	1/11/2012 8:25:19 PM
2-Butanone	ND	10		mg/L	1	1/11/2012 8:25:19 PM

**Qualifiers:** \*X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** A-Fuell Oil Exca**Project:** Fuel Oil Storage Loading Area Terminal**Collection Date:** 12/29/2011 8:30:00 AM**Lab ID:** 1201046-001**Matrix:** SOIL**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Carbon Tetrachloride	ND	0.50		mg/L	1	1/11/2012 8:25:19 PM
Chlorobenzene	ND	100		mg/L	1	1/11/2012 8:25:19 PM
Chloroform	ND	6.0		mg/L	1	1/11/2012 8:25:19 PM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/11/2012 8:25:19 PM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/11/2012 8:25:19 PM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/11/2012 8:25:19 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/11/2012 8:25:19 PM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/11/2012 8:25:19 PM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/11/2012 8:25:19 PM
Vinyl chloride	ND	0.20		mg/L	1	1/11/2012 8:25:19 PM
Surr: 1,2-Dichloroethane-d4	96.6	69.9-130		%REC	1	1/11/2012 8:25:19 PM
Surr: 4-Bromofluorobenzene	103	71.2-123		%REC	1	1/11/2012 8:25:19 PM
Surr: Dibromofluoromethane	95.2	73.9-134		%REC	1	1/11/2012 8:25:19 PM
Surr: Toluene-d8	98.6	81.9-122		%REC	1	1/11/2012 8:25:19 PM

**Qualifiers:** \*/X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: B-Fuel Oil Exca

Project: Fuel Oil Storage Loading Area Terminal

Collection Date: 12/29/2011 8:35:00 AM

Lab ID: 1201046-002

Matrix: SOIL

Received Date: 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JMP
Diesel Range Organics (DRO)	140	10		mg/Kg	1	1/9/2012 12:36:21 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/9/2012 12:36:21 AM
Surr: DNOP	91.5	77.4-131		%REC	1	1/9/2012 12:36:21 AM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/6/2012 10:52:50 PM
Surr: BFB	95.3	69.7-121		%REC	1	1/6/2012 10:52:50 PM
<b>MERCURY, TCLP</b>						Analyst: JLF
Mercury	ND	0.020		mg/L	1	1/10/2012 4:12:23 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: ELS
Arsenic	ND	5.0		mg/L	1	1/9/2012 11:38:15 AM
Cadmium	ND	1.0		mg/L	1	1/9/2012 11:38:15 AM
Chromium	ND	5.0		mg/L	1	1/9/2012 11:38:15 AM
Lead	ND	5.0		mg/L	1	1/9/2012 11:38:15 AM
Selenium	ND	1.0		mg/L	1	1/9/2012 11:38:15 AM
Silver	ND	5.0		mg/L	1	1/9/2012 11:38:15 AM
Barium	ND	100		mg/L	5	1/9/2012 12:14:15 PM
<b>EPA METHOD 8270C TCLP</b>						Analyst: JDC
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/13/2012 8:57:13 AM
Hexachlorobenzene	ND	0.13		mg/L	1	1/13/2012 8:57:13 AM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/13/2012 8:57:13 AM
Hexachloroethane	ND	3.0		mg/L	1	1/13/2012 8:57:13 AM
Nitrobenzene	ND	2.0		mg/L	1	1/13/2012 8:57:13 AM
Pentachlorophenol	ND	100		mg/L	1	1/13/2012 8:57:13 AM
Pyridine	ND	5.0		mg/L	1	1/13/2012 8:57:13 AM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/13/2012 8:57:13 AM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/13/2012 8:57:13 AM
Cresols, Total	ND	200		mg/L	1	1/13/2012 8:57:13 AM
2-Methylphenol	ND	200		mg/L	1	1/13/2012 8:57:13 AM
3+4-Methylphenol	ND	200		mg/L	1	1/13/2012 8:57:13 AM
Phenol	ND	200		mg/L	1	1/13/2012 8:57:13 AM
Surr: 2,4,6-Tribromophenol	56.0	18.2-136		%REC	1	1/13/2012 8:57:13 AM
Surr: 2-Fluorobiphenyl	54.3	40.5-108		%REC	1	1/13/2012 8:57:13 AM
Surr: 2-Fluorophenol	30.3	23-101		%REC	1	1/13/2012 8:57:13 AM
Surr: 4-Terphenyl-d14	58.9	40.9-112		%REC	1	1/13/2012 8:57:13 AM
Surr: Nitrobenzene-d5	60.3	41-115		%REC	1	1/13/2012 8:57:13 AM
Surr: Phenol-d5	25.8	23.4-73.6		%REC	1	1/13/2012 8:57:13 AM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	1/11/2012 11:20:14 PM
2-Butanone	ND	10		mg/L	1	1/11/2012 11:20:14 PM

**Qualifiers:** \*X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** B-Fuel Oil Exca**Project:** Fuel Oil Storage Loading Area Terminal**Collection Date:** 12/29/2011 8:35:00 AM**Lab ID:** 1201046-002**Matrix:** SOIL**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Carbon Tetrachloride	ND	0.50		mg/L	1	1/11/2012 11:20:14 PM
Chlorobenzene	ND	100		mg/L	1	1/11/2012 11:20:14 PM
Chloroform	ND	6.0		mg/L	1	1/11/2012 11:20:14 PM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/11/2012 11:20:14 PM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/11/2012 11:20:14 PM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/11/2012 11:20:14 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/11/2012 11:20:14 PM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/11/2012 11:20:14 PM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/11/2012 11:20:14 PM
Vinyl chloride	ND	0.20		mg/L	1	1/11/2012 11:20:14 PM
Surr: 1,2-Dichloroethane-d4	96.8	69.9-130		%REC	1	1/11/2012 11:20:14 PM
Surr: 4-Bromofluorobenzene	105	71.2-123		%REC	1	1/11/2012 11:20:14 PM
Surr: Dibromofluoromethane	92.3	73.9-134		%REC	1	1/11/2012 11:20:14 PM
Surr: Toluene-d8	101	81.9-122		%REC	1	1/11/2012 11:20:14 PM

**Qualifiers:** \*/X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Analytical Report**

Lab Order 1201046

Date Reported: 1/24/2012

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** C-Fuel Oil Exca**Project:** Fuel Oil Storage Loading Area Terminal**Collection Date:** 12/29/2011 8:40:00 AM**Lab ID:** 1201046-003**Matrix:** SOIL**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JMP
Diesel Range Organics (DRO)	840	200		mg/Kg	20	1/6/2012 10:04:35 PM
Motor Oil Range Organics (MRO)	ND	1,000		mg/Kg	20	1/6/2012 10:04:35 PM
Surr: DNOP	0	77.4-131	S	%REC	20	1/6/2012 10:04:35 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/6/2012 11:21:41 PM
Surr: BFB	99.7	69.7-121		%REC	1	1/6/2012 11:21:41 PM
<b>MERCURY, TCLP</b>						Analyst: JLF
Mercury	ND	0.020		mg/L	1	1/10/2012 4:14:09 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: ELS
Arsenic	ND	5.0		mg/L	1	1/9/2012 11:40:29 AM
Cadmium	ND	1.0		mg/L	1	1/9/2012 11:40:29 AM
Chromium	ND	5.0		mg/L	1	1/9/2012 11:40:29 AM
Lead	ND	5.0		mg/L	1	1/9/2012 11:40:29 AM
Selenium	ND	1.0		mg/L	1	1/9/2012 11:40:29 AM
Silver	ND	5.0		mg/L	1	1/9/2012 11:40:29 AM
Barium	ND	100		mg/L	5	1/9/2012 12:16:29 PM
<b>EPA METHOD 8270C TCLP</b>						Analyst: JDC
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/12/2012 5:55:12 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/12/2012 5:55:12 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 5:55:12 PM
Hexachloroethane	ND	3.0		mg/L	1	1/12/2012 5:55:12 PM
Nitrobenzene	ND	2.0		mg/L	1	1/12/2012 5:55:12 PM
Pentachlorophenol	ND	100		mg/L	1	1/12/2012 5:55:12 PM
Pyridine	ND	5.0		mg/L	1	1/12/2012 5:55:12 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/12/2012 5:55:12 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/12/2012 5:55:12 PM
Cresols, Total	ND	200		mg/L	1	1/12/2012 5:55:12 PM
2-Methylphenol	ND	200		mg/L	1	1/12/2012 5:55:12 PM
3+4-Methylphenol	ND	200		mg/L	1	1/12/2012 5:55:12 PM
Phenol	ND	200		mg/L	1	1/12/2012 5:55:12 PM
Surr: 2,4,6-Tribromophenol	51.0	18.2-136		%REC	1	1/12/2012 5:55:12 PM
Surr: 2-Fluorobiphenyl	43.4	40.5-108		%REC	1	1/12/2012 5:55:12 PM
Surr: 2-Fluorophenol	39.4	23-101		%REC	1	1/12/2012 5:55:12 PM
Surr: 4-Terphenyl-d14	61.0	40.9-112		%REC	1	1/12/2012 5:55:12 PM
Surr: Nitrobenzene-d5	53.9	41-115		%REC	1	1/12/2012 5:55:12 PM
Surr: Phenol-d5	28.3	23.4-73.6		%REC	1	1/12/2012 5:55:12 PM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	1/11/2012 11:49:21 PM
2-Butanone	ND	10		mg/L	1	1/11/2012 11:49:21 PM

**Qualifiers:** \*X Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** C-Fuel Oil Exca**Project:** Fuel Oil Storage Loading Area Terminal**Collection Date:** 12/29/2011 8:40:00 AM**Lab ID:** 1201046-003**Matrix:** SOIL**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Carbon Tetrachloride	ND	0.50		mg/L	1	1/11/2012 11:49:21 PM
Chlorobenzene	ND	100		mg/L	1	1/11/2012 11:49:21 PM
Chloroform	ND	6.0		mg/L	1	1/11/2012 11:49:21 PM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/11/2012 11:49:21 PM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/11/2012 11:49:21 PM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/11/2012 11:49:21 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/11/2012 11:49:21 PM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/11/2012 11:49:21 PM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/11/2012 11:49:21 PM
Vinyl chloride	ND	0.20		mg/L	1	1/11/2012 11:49:21 PM
Surr: 1,2-Dichloroethane-d4	97.7	69.9-130		%REC	1	1/11/2012 11:49:21 PM
Surr: 4-Bromofluorobenzene	97.6	71.2-123		%REC	1	1/11/2012 11:49:21 PM
Surr: Dibromofluoromethane	90.9	73.9-134		%REC	1	1/11/2012 11:49:21 PM
Surr: Toluene-d8	99.4	81.9-122		%REC	1	1/11/2012 11:49:21 PM

**Qualifiers:** \*/X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Analytical Report**

Lab Order 1201046

Date Reported: 1/24/2012

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Gallup

**Client Sample ID:** D-Fuel Oil Exca

**Project:** Fuel Oil Storage Loading Area Terminal

**Collection Date:** 12/29/2011 8:45:00 AM

**Lab ID:** 1201046-004

**Matrix:** SOIL

**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: <b>JMP</b>
Diesel Range Organics (DRO)	55	9.8		mg/Kg	1	1/6/2012 2:02:11 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/6/2012 2:02:11 PM
Surr: DNOP	85.5	77.4-131		%REC	1	1/6/2012 2:02:11 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/5/2012 6:59:07 PM
Surr: BFB	102	69.7-121		%REC	1	1/5/2012 6:59:07 PM
<b>MERCURY, TCLP</b>						Analyst: <b>JLF</b>
Mercury	ND	0.020		mg/L	1	1/10/2012 4:15:57 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: <b>ELS</b>
Arsenic	ND	5.0		mg/L	1	1/9/2012 11:42:42 AM
Cadmium	ND	1.0		mg/L	1	1/9/2012 11:42:42 AM
Chromium	ND	5.0		mg/L	1	1/9/2012 11:42:42 AM
Lead	ND	5.0		mg/L	1	1/9/2012 11:42:42 AM
Selenium	ND	1.0		mg/L	1	1/9/2012 11:42:42 AM
Silver	ND	5.0		mg/L	1	1/9/2012 11:42:42 AM
Barium	ND	100		mg/L	5	1/9/2012 12:18:35 PM
<b>EPA METHOD 8270C TCLP</b>						Analyst: <b>JDC</b>
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/13/2012 9:26:29 AM
Hexachlorobenzene	ND	0.13		mg/L	1	1/13/2012 9:26:29 AM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/13/2012 9:26:29 AM
Hexachloroethane	ND	3.0		mg/L	1	1/13/2012 9:26:29 AM
Nitrobenzene	ND	2.0		mg/L	1	1/13/2012 9:26:29 AM
Pentachlorophenol	ND	100		mg/L	1	1/13/2012 9:26:29 AM
Pyridine	ND	5.0		mg/L	1	1/13/2012 9:26:29 AM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/13/2012 9:26:29 AM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/13/2012 9:26:29 AM
Cresols, Total	ND	200		mg/L	1	1/13/2012 9:26:29 AM
2-Methylphenol	ND	200		mg/L	1	1/13/2012 9:26:29 AM
3+4-Methylphenol	ND	200		mg/L	1	1/13/2012 9:26:29 AM
Phenol	ND	200		mg/L	1	1/13/2012 9:26:29 AM
Surr: 2,4,6-Tribromophenol	62.8	18.2-136		%REC	1	1/13/2012 9:26:29 AM
Surr: 2-Fluorobiphenyl	49.1	40.5-108		%REC	1	1/13/2012 9:26:29 AM
Surr: 2-Fluorophenol	36.6	23-101		%REC	1	1/13/2012 9:26:29 AM
Surr: 4-Terphenyl-d14	77.5	40.9-112		%REC	1	1/13/2012 9:26:29 AM
Surr: Nitrobenzene-d5	50.5	41-115		%REC	1	1/13/2012 9:26:29 AM
Surr: Phenol-d5	29.8	23.4-73.6		%REC	1	1/13/2012 9:26:29 AM
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Benzene	ND	0.50		mg/L	1	1/12/2012 12:18:29 AM
2-Butanone	ND	10		mg/L	1	1/12/2012 12:18:29 AM

**Qualifiers:** \* / X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal  
**Lab ID:** 1201046-004

**Client Sample ID:** D-Fuel Oil Exca  
**Collection Date:** 12/29/2011 8:45:00 AM  
**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Carbon Tetrachloride	ND	0.50		mg/L	1	1/12/2012 12:18:29 AM
Chlorobenzene	ND	100		mg/L	1	1/12/2012 12:18:29 AM
Chloroform	ND	6.0		mg/L	1	1/12/2012 12:18:29 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/12/2012 12:18:29 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/12/2012 12:18:29 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/12/2012 12:18:29 AM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 12:18:29 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/12/2012 12:18:29 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/12/2012 12:18:29 AM
Vinyl chloride	ND	0.20		mg/L	1	1/12/2012 12:18:29 AM
Surr: 1,2-Dichloroethane-d4	95.4	69.9-130		%REC	1	1/12/2012 12:18:29 AM
Surr: 4-Bromofluorobenzene	103	71.2-123		%REC	1	1/12/2012 12:18:29 AM
Surr: Dibromofluoromethane	93.6	73.9-134		%REC	1	1/12/2012 12:18:29 AM
Surr: Toluene-d8	101	81.9-122		%REC	1	1/12/2012 12:18:29 AM

**Qualifiers:** \*/X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Analytical Report**

Lab Order 1201046

Date Reported: 1/24/2012

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** E-Fuel Oil Exca**Project:** Fuel Oil Storage Loading Area Terminal**Collection Date:** 12/29/2011 8:50:00 AM**Lab ID:** 1201046-005**Matrix:** SOIL**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JMP
Diesel Range Organics (DRO)	100	9.8		mg/Kg	1	1/6/2012 3:12:09 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/6/2012 3:12:09 PM
Surr: DNOP	90.6	77.4-131		%REC	1	1/6/2012 3:12:09 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/5/2012 7:27:57 PM
Surr: BFB	97.2	69.7-121		%REC	1	1/5/2012 7:27:57 PM
<b>MERCURY, TCLP</b>						Analyst: JLF
Mercury	ND	0.020		mg/L	1	1/10/2012 4:17:44 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: ELS
Arsenic	ND	5.0		mg/L	1	1/9/2012 11:45:00 AM
Cadmium	ND	1.0		mg/L	1	1/9/2012 11:45:00 AM
Chromium	ND	5.0		mg/L	1	1/9/2012 11:45:00 AM
Lead	ND	5.0		mg/L	1	1/9/2012 11:45:00 AM
Selenium	ND	1.0		mg/L	1	1/9/2012 11:45:00 AM
Silver	ND	5.0		mg/L	1	1/9/2012 11:45:00 AM
Barium	ND	100		mg/L	5	1/11/2012 8:30:22 AM
<b>EPA METHOD 8270C TCLP</b>						Analyst: JDC
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/12/2012 6:53:23 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/12/2012 6:53:23 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 6:53:23 PM
Hexachloroethane	ND	3.0		mg/L	1	1/12/2012 6:53:23 PM
Nitrobenzene	ND	2.0		mg/L	1	1/12/2012 6:53:23 PM
Pentachlorophenol	ND	100		mg/L	1	1/12/2012 6:53:23 PM
Pyridine	ND	5.0		mg/L	1	1/12/2012 6:53:23 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/12/2012 6:53:23 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/12/2012 6:53:23 PM
Cresols, Total	ND	200		mg/L	1	1/12/2012 6:53:23 PM
2-Methylphenol	ND	200		mg/L	1	1/12/2012 6:53:23 PM
3+4-Methylphenol	ND	200		mg/L	1	1/12/2012 6:53:23 PM
Phenol	ND	200		mg/L	1	1/12/2012 6:53:23 PM
Surr: 2,4,6-Tribromophenol	53.2	18.2-136		%REC	1	1/12/2012 6:53:23 PM
Surr: 2-Fluorobiphenyl	53.0	40.5-108		%REC	1	1/12/2012 6:53:23 PM
Surr: 2-Fluorophenol	42.9	23-101		%REC	1	1/12/2012 6:53:23 PM
Surr: 4-Terphenyl-d14	67.1	40.9-112		%REC	1	1/12/2012 6:53:23 PM
Surr: Nitrobenzene-d5	64.4	41-115		%REC	1	1/12/2012 6:53:23 PM
Surr: Phenol-d5	26.9	23.4-73.6		%REC	1	1/12/2012 6:53:23 PM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	1/12/2012 12:47:33 AM
2-Butanone	ND	10		mg/L	1	1/12/2012 12:47:33 AM

**Qualifiers:** \*X Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** E-Fuel Oil Exca**Project:** Fuel Oil Storage Loading Area Terminal**Collection Date:** 12/29/2011 8:50:00 AM**Lab ID:** 1201046-005**Matrix:** SOIL**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Carbon Tetrachloride	ND	0.50		mg/L	1	1/12/2012 12:47:33 AM
Chlorobenzene	ND	100		mg/L	1	1/12/2012 12:47:33 AM
Chloroform	ND	6.0		mg/L	1	1/12/2012 12:47:33 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/12/2012 12:47:33 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/12/2012 12:47:33 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/12/2012 12:47:33 AM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 12:47:33 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/12/2012 12:47:33 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/12/2012 12:47:33 AM
Vinyl chloride	ND	0.20		mg/L	1	1/12/2012 12:47:33 AM
Surr: 1,2-Dichloroethane-d4	94.6	69.9-130		%REC	1	1/12/2012 12:47:33 AM
Surr: 4-Bromofluorobenzene	100	71.2-123		%REC	1	1/12/2012 12:47:33 AM
Surr: Dibromofluoromethane	94.4	73.9-134		%REC	1	1/12/2012 12:47:33 AM
Surr: Toluene-d8	98.6	81.9-122		%REC	1	1/12/2012 12:47:33 AM

**Qualifiers:** \*X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Analytical Report**

Lab Order 1201046

Date Reported: 1/24/2012

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Gallup

**Client Sample ID:** F-Fuel Oil Exca

**Project:** Fuel Oil Storage Loading Area Terminal

**Collection Date:** 12/29/2011 8:55:00 AM

**Lab ID:** 1201046-006

**Matrix:** SOIL

**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: <b>JMP</b>
Diesel Range Organics (DRO)	260	98		mg/Kg	10	1/9/2012 8:28:26 AM
Motor Oil Range Organics (MRO)	ND	490		mg/Kg	10	1/9/2012 8:28:26 AM
Surr: DNOP	0	77.4-131	S	%REC	10	1/9/2012 8:28:26 AM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/5/2012 7:56:46 PM
Surr: BFB	106	69.7-121		%REC	1	1/5/2012 7:56:46 PM
<b>MERCURY, TCLP</b>						Analyst: <b>JLF</b>
Mercury	ND	0.020		mg/L	1	1/10/2012 4:19:32 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: <b>ELS</b>
Arsenic	ND	5.0		mg/L	1	1/11/2012 8:51:09 AM
Cadmium	ND	1.0		mg/L	1	1/11/2012 8:51:09 AM
Chromium	ND	5.0		mg/L	1	1/11/2012 8:51:09 AM
Lead	ND	5.0		mg/L	1	1/11/2012 8:51:09 AM
Selenium	ND	1.0		mg/L	1	1/11/2012 8:51:09 AM
Silver	ND	5.0		mg/L	1	1/11/2012 8:51:09 AM
Barium	ND	100		mg/L	5	1/11/2012 9:45:55 AM
<b>EPA METHOD 8270C TCLP</b>						Analyst: <b>JDC</b>
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/12/2012 7:22:28 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/12/2012 7:22:28 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 7:22:28 PM
Hexachloroethane	ND	3.0		mg/L	1	1/12/2012 7:22:28 PM
Nitrobenzene	ND	2.0		mg/L	1	1/12/2012 7:22:28 PM
Pentachlorophenol	ND	100		mg/L	1	1/12/2012 7:22:28 PM
Pyridine	ND	5.0		mg/L	1	1/12/2012 7:22:28 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/12/2012 7:22:28 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/12/2012 7:22:28 PM
Cresols, Total	ND	200		mg/L	1	1/12/2012 7:22:28 PM
2-Methylphenol	ND	200		mg/L	1	1/12/2012 7:22:28 PM
3+4-Methylphenol	ND	200		mg/L	1	1/12/2012 7:22:28 PM
Phenol	ND	200		mg/L	1	1/12/2012 7:22:28 PM
Surr: 2,4,6-Tribromophenol	56.9	18.2-136		%REC	1	1/12/2012 7:22:28 PM
Surr: 2-Fluorobiphenyl	56.1	40.5-108		%REC	1	1/12/2012 7:22:28 PM
Surr: 2-Fluorophenol	40.8	23-101		%REC	1	1/12/2012 7:22:28 PM
Surr: 4-Terphenyl-d14	66.1	40.9-112		%REC	1	1/12/2012 7:22:28 PM
Surr: Nitrobenzene-d5	65.5	41-115		%REC	1	1/12/2012 7:22:28 PM
Surr: Phenol-d5	30.1	23.4-73.6		%REC	1	1/12/2012 7:22:28 PM
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Benzene	ND	0.50		mg/L	1	1/12/2012 2:15:12 AM
2-Butanone	ND	10		mg/L	1	1/12/2012 2:15:12 AM

**Qualifiers:** \*X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Analytical Report**

Lab Order 1201046

Date Reported: 1/24/2012

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** F-Fuel Oil Exca**Project:** Fuel Oil Storage Loading Area Terminal**Collection Date:** 12/29/2011 8:55:00 AM**Lab ID:** 1201046-006**Matrix:** SOIL**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Carbon Tetrachloride	ND	0.50		mg/L	1	1/12/2012 2:15:12 AM
Chlorobenzene	ND	100		mg/L	1	1/12/2012 2:15:12 AM
Chloroform	ND	6.0		mg/L	1	1/12/2012 2:15:12 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/12/2012 2:15:12 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/12/2012 2:15:12 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/12/2012 2:15:12 AM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 2:15:12 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/12/2012 2:15:12 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/12/2012 2:15:12 AM
Vinyl chloride	ND	0.20		mg/L	1	1/12/2012 2:15:12 AM
Surr: 1,2-Dichloroethane-d4	95.8	69.9-130		%REC	1	1/12/2012 2:15:12 AM
Surr: 4-Bromofluorobenzene	96.6	71.2-123		%REC	1	1/12/2012 2:15:12 AM
Surr: Dibromofluoromethane	88.3	73.9-134		%REC	1	1/12/2012 2:15:12 AM
Surr: Toluene-d8	100	81.9-122		%REC	1	1/12/2012 2:15:12 AM

**Qualifiers:** \*X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

Analytical Report

Lab Order 1201046

Date Reported: 1/24/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: G-Fuel Oil Exca

Project: Fuel Oil Storage Loading Area Terminal

Collection Date: 12/29/2011 9:00:00 AM

Lab ID: 1201046-007

Matrix: SOIL

Received Date: 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JMP
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/8/2012 3:32:16 PM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	1/8/2012 3:32:16 PM
Surr: DNOP	83.5	77.4-131		%REC	1	1/8/2012 3:32:16 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/5/2012 8:25:39 PM
Surr: BFB	94.3	69.7-121		%REC	1	1/5/2012 8:25:39 PM
<b>MERCURY, TCLP</b>						Analyst: JLF
Mercury	ND	0.020		mg/L	1	1/10/2012 4:28:22 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: ELS
Arsenic	ND	5.0		mg/L	1	1/11/2012 8:59:33 AM
Cadmium	ND	1.0		mg/L	1	1/11/2012 8:59:33 AM
Chromium	ND	5.0		mg/L	1	1/11/2012 8:59:33 AM
Lead	ND	5.0		mg/L	1	1/11/2012 8:59:33 AM
Selenium	ND	1.0		mg/L	1	1/11/2012 8:59:33 AM
Silver	ND	5.0		mg/L	1	1/11/2012 8:59:33 AM
Barium	ND	100		mg/L	5	1/11/2012 9:48:03 AM
<b>EPA METHOD 8270C TCLP</b>						Analyst: JDC
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/12/2012 7:51:24 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/12/2012 7:51:24 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 7:51:24 PM
Hexachloroethane	ND	3.0		mg/L	1	1/12/2012 7:51:24 PM
Nitrobenzene	ND	2.0		mg/L	1	1/12/2012 7:51:24 PM
Pentachlorophenol	ND	100		mg/L	1	1/12/2012 7:51:24 PM
Pyridine	ND	5.0		mg/L	1	1/12/2012 7:51:24 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/12/2012 7:51:24 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/12/2012 7:51:24 PM
Cresols, Total	ND	200		mg/L	1	1/12/2012 7:51:24 PM
2-Methylphenol	ND	200		mg/L	1	1/12/2012 7:51:24 PM
3+4-Methylphenol	ND	200		mg/L	1	1/12/2012 7:51:24 PM
Phenol	ND	200		mg/L	1	1/12/2012 7:51:24 PM
Surr: 2,4,6-Tribromophenol	57.1	18.2-136		%REC	1	1/12/2012 7:51:24 PM
Surr: 2-Fluorobiphenyl	56.4	40.5-108		%REC	1	1/12/2012 7:51:24 PM
Surr: 2-Fluorophenol	29.1	23-101		%REC	1	1/12/2012 7:51:24 PM
Surr: 4-Terphenyl-d14	57.5	40.9-112		%REC	1	1/12/2012 7:51:24 PM
Surr: Nitrobenzene-d5	63.4	41-115		%REC	1	1/12/2012 7:51:24 PM
Surr: Phenol-d5	24.3	23.4-73.6		%REC	1	1/12/2012 7:51:24 PM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	1/12/2012 3:42:31 AM
2-Butanone	ND	10		mg/L	1	1/12/2012 3:42:31 AM

Qualifiers: \* / X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** G-Fuel Oil Exca**Project:** Fuel Oil Storage Loading Area Terminal**Collection Date:** 12/29/2011 9:00:00 AM**Lab ID:** 1201046-007**Matrix:** SOIL**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Carbon Tetrachloride	ND	0.50		mg/L	1	1/12/2012 3:42:31 AM
Chlorobenzene	ND	100		mg/L	1	1/12/2012 3:42:31 AM
Chloroform	ND	6.0		mg/L	1	1/12/2012 3:42:31 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/12/2012 3:42:31 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/12/2012 3:42:31 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/12/2012 3:42:31 AM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 3:42:31 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/12/2012 3:42:31 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/12/2012 3:42:31 AM
Vinyl chloride	ND	0.20		mg/L	1	1/12/2012 3:42:31 AM
Surr: 1,2-Dichloroethane-d4	100	69.9-130		%REC	1	1/12/2012 3:42:31 AM
Surr: 4-Bromofluorobenzene	101	71.2-123		%REC	1	1/12/2012 3:42:31 AM
Surr: Dibromofluoromethane	97.2	73.9-134		%REC	1	1/12/2012 3:42:31 AM
Surr: Toluene-d8	100	81.9-122		%REC	1	1/12/2012 3:42:31 AM

**Qualifiers:** \*X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Analytical Report**

Lab Order 1201046

Date Reported: 1/24/2012

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Gallup

**Client Sample ID:** H-Fuel Oil Exca

**Project:** Fuel Oil Storage Loading Area Terminal

**Collection Date:** 12/29/2011 9:05:00 AM

**Lab ID:** 1201046-008

**Matrix:** SOIL

**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JMP
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	1/8/2012 4:06:40 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/8/2012 4:06:40 PM
Surr: DNOP	82.3	77.4-131		%REC	1	1/8/2012 4:06:40 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/6/2012 1:42:23 AM
Surr: BFB	93.4	69.7-121		%REC	1	1/6/2012 1:42:23 AM
<b>MERCURY, TCLP</b>						Analyst: JLF
Mercury	ND	0.020		mg/L	1	1/13/2012 1:21:34 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: ELS
Arsenic	ND	5.0		mg/L	1	1/11/2012 9:01:51 AM
Cadmium	ND	1.0		mg/L	1	1/11/2012 9:01:51 AM
Chromium	ND	5.0		mg/L	1	1/11/2012 9:01:51 AM
Lead	ND	5.0		mg/L	1	1/11/2012 9:01:51 AM
Selenium	ND	1.0		mg/L	1	1/11/2012 9:01:51 AM
Silver	ND	5.0		mg/L	1	1/11/2012 9:01:51 AM
Barium	ND	100		mg/L	5	1/11/2012 9:51:44 AM
<b>EPA METHOD 8270C TCLP</b>						Analyst: JDC
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/12/2012 8:20:31 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/12/2012 8:20:31 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 8:20:31 PM
Hexachloroethane	ND	3.0		mg/L	1	1/12/2012 8:20:31 PM
Nitrobenzene	ND	2.0		mg/L	1	1/12/2012 8:20:31 PM
Pentachlorophenol	ND	100		mg/L	1	1/12/2012 8:20:31 PM
Pyridine	ND	5.0		mg/L	1	1/12/2012 8:20:31 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/12/2012 8:20:31 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/12/2012 8:20:31 PM
Cresols, Total	ND	200		mg/L	1	1/12/2012 8:20:31 PM
2-Methylphenol	ND	200		mg/L	1	1/12/2012 8:20:31 PM
3+4-Methylphenol	ND	200		mg/L	1	1/12/2012 8:20:31 PM
Phenol	ND	200		mg/L	1	1/12/2012 8:20:31 PM
Surr: 2,4,6-Tribromophenol	49.6	18.2-136		%REC	1	1/12/2012 8:20:31 PM
Surr: 2-Fluorobiphenyl	47.9	40.5-108		%REC	1	1/12/2012 8:20:31 PM
Surr: 2-Fluorophenol	42.1	23-101		%REC	1	1/12/2012 8:20:31 PM
Surr: 4-Terphenyl-d14	59.3	40.9-112		%REC	1	1/12/2012 8:20:31 PM
Surr: Nitrobenzene-d5	58.8	41-115		%REC	1	1/12/2012 8:20:31 PM
Surr: Phenol-d5	30.2	23.4-73.6		%REC	1	1/12/2012 8:20:31 PM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	1/12/2012 4:11:40 AM
2-Butanone	ND	10		mg/L	1	1/12/2012 4:11:40 AM

**Qualifiers:** \* / X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Analytical Report**

Lab Order 1201046

Date Reported: 1/24/2012

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Gallup

**Client Sample ID:** H-Fuel Oil Exca

**Project:** Fuel Oil Storage Loading Area Terminal

**Collection Date:** 12/29/2011 9:05:00 AM

**Lab ID:** 1201046-008

**Matrix:** SOIL

**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Carbon Tetrachloride	ND	0.50		mg/L	1	1/12/2012 4:11:40 AM
Chlorobenzene	ND	100		mg/L	1	1/12/2012 4:11:40 AM
Chloroform	ND	6.0		mg/L	1	1/12/2012 4:11:40 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/12/2012 4:11:40 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/12/2012 4:11:40 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/12/2012 4:11:40 AM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 4:11:40 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/12/2012 4:11:40 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/12/2012 4:11:40 AM
Vinyl chloride	ND	0.20		mg/L	1	1/12/2012 4:11:40 AM
Surr: 1,2-Dichloroethane-d4	94.7	69.9-130		%REC	1	1/12/2012 4:11:40 AM
Surr: 4-Bromofluorobenzene	98.9	71.2-123		%REC	1	1/12/2012 4:11:40 AM
Surr: Dibromofluoromethane	91.7	73.9-134		%REC	1	1/12/2012 4:11:40 AM
Surr: Toluene-d8	101	81.9-122		%REC	1	1/12/2012 4:11:40 AM

**Qualifiers:** \*/X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Analytical Report**

Lab Order 1201046

Date Reported: 1/24/2012

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Gallup

**Client Sample ID:** I-Fuel Oil Exca

**Project:** Fuel Oil Storage Loading Area Terminal

**Collection Date:** 12/29/2011 9:15:00 AM

**Lab ID:** 1201046-009

**Matrix:** SOIL

**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JMP
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/8/2012 4:40:49 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/8/2012 4:40:49 PM
Surr: DNOP	80.8	77.4-131		%REC	1	1/8/2012 4:40:49 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/6/2012 2:11:05 AM
Surr: BFB	94.0	69.7-121		%REC	1	1/6/2012 2:11:05 AM
<b>MERCURY, TCLP</b>						Analyst: JLF
Mercury	ND	0.020		mg/L	1	1/13/2012 1:26:58 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: ELS
Arsenic	ND	5.0		mg/L	1	1/11/2012 9:04:08 AM
Cadmium	ND	1.0		mg/L	1	1/11/2012 9:04:08 AM
Chromium	ND	5.0		mg/L	1	1/11/2012 9:04:08 AM
Lead	ND	5.0		mg/L	1	1/11/2012 9:04:08 AM
Selenium	ND	1.0		mg/L	1	1/11/2012 9:04:08 AM
Silver	ND	5.0		mg/L	1	1/11/2012 9:04:08 AM
Barium	ND	100		mg/L	5	1/11/2012 10:02:26 AM
<b>EPA METHOD 8270C TCLP</b>						Analyst: JDC
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/12/2012 8:49:41 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/12/2012 8:49:41 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 8:49:41 PM
Hexachloroethane	ND	3.0		mg/L	1	1/12/2012 8:49:41 PM
Nitrobenzene	ND	2.0		mg/L	1	1/12/2012 8:49:41 PM
Pentachlorophenol	ND	100		mg/L	1	1/12/2012 8:49:41 PM
Pyridine	ND	5.0		mg/L	1	1/12/2012 8:49:41 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/12/2012 8:49:41 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/12/2012 8:49:41 PM
Cresols, Total	ND	200		mg/L	1	1/12/2012 8:49:41 PM
2-Methylphenol	ND	200		mg/L	1	1/12/2012 8:49:41 PM
3+4-Methylphenol	ND	200		mg/L	1	1/12/2012 8:49:41 PM
Phenol	ND	200		mg/L	1	1/12/2012 8:49:41 PM
Surr: 2,4,6-Tribromophenol	53.2	18.2-136		%REC	1	1/12/2012 8:49:41 PM
Surr: 2-Fluorobiphenyl	54.9	40.5-108		%REC	1	1/12/2012 8:49:41 PM
Surr: 2-Fluorophenol	44.2	23-101		%REC	1	1/12/2012 8:49:41 PM
Surr: 4-Terphenyl-d14	71.4	40.9-112		%REC	1	1/12/2012 8:49:41 PM
Surr: Nitrobenzene-d5	64.6	41-115		%REC	1	1/12/2012 8:49:41 PM
Surr: Phenol-d5	33.7	23.4-73.6		%REC	1	1/12/2012 8:49:41 PM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	1/12/2012 4:40:47 AM
2-Butanone	ND	10		mg/L	1	1/12/2012 4:40:47 AM

**Qualifiers:** \* / X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Gallup

**Client Sample ID:** I-Fuel Oil Exca

**Project:** Fuel Oil Storage Loading Area Terminal

**Collection Date:** 12/29/2011 9:15:00 AM

**Lab ID:** 1201046-009

**Matrix:** SOIL

**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Carbon Tetrachloride	ND	0.50		mg/L	1	1/12/2012 4:40:47 AM
Chlorobenzene	ND	100		mg/L	1	1/12/2012 4:40:47 AM
Chloroform	ND	6.0		mg/L	1	1/12/2012 4:40:47 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/12/2012 4:40:47 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/12/2012 4:40:47 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/12/2012 4:40:47 AM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 4:40:47 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/12/2012 4:40:47 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/12/2012 4:40:47 AM
Vinyl chloride	ND	0.20		mg/L	1	1/12/2012 4:40:47 AM
Surr: 1,2-Dichloroethane-d4	99.7	69.9-130		%REC	1	1/12/2012 4:40:47 AM
Surr: 4-Bromofluorobenzene	97.1	71.2-123		%REC	1	1/12/2012 4:40:47 AM
Surr: Dibromofluoromethane	95.1	73.9-134		%REC	1	1/12/2012 4:40:47 AM
Surr: Toluene-d8	101	81.9-122		%REC	1	1/12/2012 4:40:47 AM

**Qualifiers:** \*X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: J-Fuel Oil Exca

Project: Fuel Oil Storage Loading Area Terminal

Collection Date: 12/29/2011 9:20:00 AM

Lab ID: 1201046-010

Matrix: SOIL

Received Date: 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JMP
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/9/2012 10:11:23 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/9/2012 10:11:23 AM
Surr: DNOP	89.1	77.4-131		%REC	1	1/9/2012 10:11:23 AM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/6/2012 2:39:54 AM
Surr: BFB	94.0	69.7-121		%REC	1	1/6/2012 2:39:54 AM
<b>MERCURY, TCLP</b>						Analyst: JLF
Mercury	ND	0.020		mg/L	1	1/13/2012 1:28:43 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: ELS
Arsenic	ND	5.0		mg/L	1	1/11/2012 9:06:25 AM
Cadmium	ND	1.0		mg/L	1	1/11/2012 9:06:25 AM
Chromium	ND	5.0		mg/L	1	1/11/2012 9:06:25 AM
Lead	ND	5.0		mg/L	1	1/11/2012 9:06:25 AM
Selenium	ND	1.0		mg/L	1	1/11/2012 9:06:25 AM
Silver	ND	5.0		mg/L	1	1/11/2012 9:06:25 AM
Barium	ND	100		mg/L	5	1/11/2012 10:04:47 AM
<b>EPA METHOD 8270C TCLP</b>						Analyst: JDC
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/12/2012 9:18:48 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/12/2012 9:18:48 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 9:18:48 PM
Hexachloroethane	ND	3.0		mg/L	1	1/12/2012 9:18:48 PM
Nitrobenzene	ND	2.0		mg/L	1	1/12/2012 9:18:48 PM
Pentachlorophenol	ND	100		mg/L	1	1/12/2012 9:18:48 PM
Pyridine	ND	5.0		mg/L	1	1/12/2012 9:18:48 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/12/2012 9:18:48 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/12/2012 9:18:48 PM
Cresols, Total	ND	200		mg/L	1	1/12/2012 9:18:48 PM
2-Methylphenol	ND	200		mg/L	1	1/12/2012 9:18:48 PM
3+4-Methylphenol	ND	200		mg/L	1	1/12/2012 9:18:48 PM
Phenol	ND	200		mg/L	1	1/12/2012 9:18:48 PM
Surr: 2,4,6-Tribromophenol	49.3	18.2-136		%REC	1	1/12/2012 9:18:48 PM
Surr: 2-Fluorobiphenyl	47.4	40.5-108		%REC	1	1/12/2012 9:18:48 PM
Surr: 2-Fluorophenol	36.8	23-101		%REC	1	1/12/2012 9:18:48 PM
Surr: 4-Terphenyl-d14	57.8	40.9-112		%REC	1	1/12/2012 9:18:48 PM
Surr: Nitrobenzene-d5	49.1	41-115		%REC	1	1/12/2012 9:18:48 PM
Surr: Phenol-d5	28.7	23.4-73.6		%REC	1	1/12/2012 9:18:48 PM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	1/12/2012 5:09:48 AM
2-Butanone	ND	10		mg/L	1	1/12/2012 5:09:48 AM

**Qualifiers:** \*X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** J-Fuel Oil Exca**Project:** Fuel Oil Storage Loading Area Terminal**Collection Date:** 12/29/2011 9:20:00 AM**Lab ID:** 1201046-010**Matrix:** SOIL**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Carbon Tetrachloride	ND	0.50		mg/L	1	1/12/2012 5:09:48 AM
Chlorobenzene	ND	100		mg/L	1	1/12/2012 5:09:48 AM
Chloroform	ND	6.0		mg/L	1	1/12/2012 5:09:48 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/12/2012 5:09:48 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/12/2012 5:09:48 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/12/2012 5:09:48 AM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 5:09:48 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/12/2012 5:09:48 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/12/2012 5:09:48 AM
Vinyl chloride	ND	0.20		mg/L	1	1/12/2012 5:09:48 AM
Surr: 1,2-Dichloroethane-d4	100	69.9-130		%REC	1	1/12/2012 5:09:48 AM
Surr: 4-Bromofluorobenzene	102	71.2-123		%REC	1	1/12/2012 5:09:48 AM
Surr: Dibromofluoromethane	94.8	73.9-134		%REC	1	1/12/2012 5:09:48 AM
Surr: Toluene-d8	98.2	81.9-122		%REC	1	1/12/2012 5:09:48 AM

**Qualifiers:** \*/X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: K-Fuel Oil Exca

Project: Fuel Oil Storage Loading Area Terminal

Collection Date: 12/29/2011 9:25:00 AM

Lab ID: 1201046-011

Matrix: SOIL

Received Date: 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JMP
Diesel Range Organics (DRO)	69	9.8		mg/Kg	1	1/11/2012 2:33:09 PM
Motor Oil Range Organics (MRO)	67	49		mg/Kg	1	1/11/2012 2:33:09 PM
Surr: DNOP	139	77.4-131	S	%REC	1	1/11/2012 2:33:09 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/6/2012 3:08:40 AM
Surr: BFB	96.5	69.7-121		%REC	1	1/6/2012 3:08:40 AM
<b>MERCURY, TCLP</b>						Analyst: JLF
Mercury	ND	0.020		mg/L	1	1/13/2012 1:30:29 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: ELS
Arsenic	ND	5.0		mg/L	1	1/11/2012 9:08:45 AM
Cadmium	ND	1.0		mg/L	1	1/11/2012 9:08:45 AM
Chromium	ND	5.0		mg/L	1	1/11/2012 9:08:45 AM
Lead	ND	5.0		mg/L	1	1/11/2012 9:08:45 AM
Selenium	ND	1.0		mg/L	1	1/11/2012 9:08:45 AM
Silver	ND	5.0		mg/L	1	1/11/2012 9:08:45 AM
Barium	ND	100		mg/L	5	1/11/2012 10:06:56 AM
<b>EPA METHOD 8270C TCLP</b>						Analyst: JDC
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/12/2012 9:47:54 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/12/2012 9:47:54 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 9:47:54 PM
Hexachloroethane	ND	3.0		mg/L	1	1/12/2012 9:47:54 PM
Nitrobenzene	ND	2.0		mg/L	1	1/12/2012 9:47:54 PM
Pentachlorophenol	ND	100		mg/L	1	1/12/2012 9:47:54 PM
Pyridine	ND	5.0		mg/L	1	1/12/2012 9:47:54 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/12/2012 9:47:54 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/12/2012 9:47:54 PM
Cresols, Total	ND	200		mg/L	1	1/12/2012 9:47:54 PM
2-Methylphenol	ND	200		mg/L	1	1/12/2012 9:47:54 PM
3+4-Methylphenol	ND	200		mg/L	1	1/12/2012 9:47:54 PM
Phenol	ND	200		mg/L	1	1/12/2012 9:47:54 PM
Surr: 2,4,6-Tribromophenol	55.2	18.2-136		%REC	1	1/12/2012 9:47:54 PM
Surr: 2-Fluorobiphenyl	48.7	40.5-108		%REC	1	1/12/2012 9:47:54 PM
Surr: 2-Fluorophenol	37.3	23-101		%REC	1	1/12/2012 9:47:54 PM
Surr: 4-Terphenyl-d14	71.3	40.9-112		%REC	1	1/12/2012 9:47:54 PM
Surr: Nitrobenzene-d5	50.9	41-115		%REC	1	1/12/2012 9:47:54 PM
Surr: Phenol-d5	26.0	23.4-73.6		%REC	1	1/12/2012 9:47:54 PM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	1/12/2012 6:37:06 AM
2-Butanone	ND	10		mg/L	1	1/12/2012 6:37:06 AM

**Qualifiers:** \*/X Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** K-Fuel Oil Exca**Project:** Fuel Oil Storage Loading Area Terminal**Collection Date:** 12/29/2011 9:25:00 AM**Lab ID:** 1201046-011**Matrix:** SOIL**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Carbon Tetrachloride	ND	0.50		mg/L	1	1/12/2012 6:37:06 AM
Chlorobenzene	ND	100		mg/L	1	1/12/2012 6:37:06 AM
Chloroform	ND	6.0		mg/L	1	1/12/2012 6:37:06 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/12/2012 6:37:06 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/12/2012 6:37:06 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/12/2012 6:37:06 AM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 6:37:06 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/12/2012 6:37:06 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/12/2012 6:37:06 AM
Vinyl chloride	ND	0.20		mg/L	1	1/12/2012 6:37:06 AM
Surr: 1,2-Dichloroethane-d4	102	69.9-130		%REC	1	1/12/2012 6:37:06 AM
Surr: 4-Bromofluorobenzene	102	71.2-123		%REC	1	1/12/2012 6:37:06 AM
Surr: Dibromofluoromethane	94.5	73.9-134		%REC	1	1/12/2012 6:37:06 AM
Surr: Toluene-d8	102	81.9-122		%REC	1	1/12/2012 6:37:06 AM

**Qualifiers:** \*X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** L-Fuel Oil Exca**Project:** Fuel Oil Storage Loading Area Terminal**Collection Date:** 12/29/2011 9:30:00 AM**Lab ID:** 1201046-012**Matrix:** SOIL**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: <b>JMP</b>
Diesel Range Organics (DRO)	30	9.9		mg/Kg	1	1/11/2012 4:17:20 PM
Motor Oil Range Organics (MRO)	140	49		mg/Kg	1	1/11/2012 4:17:20 PM
Surr: DNOP	86.9	77.4-131		%REC	1	1/11/2012 4:17:20 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/6/2012 3:37:31 AM
Surr: BFB	93.6	69.7-121		%REC	1	1/6/2012 3:37:31 AM
<b>MERCURY, TCLP</b>						Analyst: <b>JLF</b>
Mercury	ND	0.020		mg/L	1	1/13/2012 1:32:13 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: <b>ELS</b>
Arsenic	ND	5.0		mg/L	1	1/11/2012 9:11:07 AM
Cadmium	ND	1.0		mg/L	1	1/11/2012 9:11:07 AM
Chromium	ND	5.0		mg/L	1	1/11/2012 9:11:07 AM
Lead	ND	5.0		mg/L	1	1/11/2012 9:11:07 AM
Selenium	ND	1.0		mg/L	1	1/11/2012 9:11:07 AM
Silver	ND	5.0		mg/L	1	1/11/2012 9:11:07 AM
Barium	ND	100		mg/L	5	1/11/2012 10:09:06 AM
<b>EPA METHOD 8270C TCLP</b>						Analyst: <b>JDC</b>
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/12/2012 10:17:01 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/12/2012 10:17:01 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 10:17:01 PM
Hexachloroethane	ND	3.0		mg/L	1	1/12/2012 10:17:01 PM
Nitrobenzene	ND	2.0		mg/L	1	1/12/2012 10:17:01 PM
Pentachlorophenol	ND	100		mg/L	1	1/12/2012 10:17:01 PM
Pyridine	ND	5.0		mg/L	1	1/12/2012 10:17:01 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/12/2012 10:17:01 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/12/2012 10:17:01 PM
Cresols, Total	ND	200		mg/L	1	1/12/2012 10:17:01 PM
2-Methylphenol	ND	200		mg/L	1	1/12/2012 10:17:01 PM
3+4-Methylphenol	ND	200		mg/L	1	1/12/2012 10:17:01 PM
Phenol	ND	200		mg/L	1	1/12/2012 10:17:01 PM
Surr: 2,4,6-Tribromophenol	51.6	18.2-136		%REC	1	1/12/2012 10:17:01 PM
Surr: 2-Fluorobiphenyl	51.4	40.5-108		%REC	1	1/12/2012 10:17:01 PM
Surr: 2-Fluorophenol	40.4	23-101		%REC	1	1/12/2012 10:17:01 PM
Surr: 4-Terphenyl-d14	62.4	40.9-112		%REC	1	1/12/2012 10:17:01 PM
Surr: Nitrobenzene-d5	56.6	41-115		%REC	1	1/12/2012 10:17:01 PM
Surr: Phenol-d5	29.3	23.4-73.6		%REC	1	1/12/2012 10:17:01 PM
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Benzene	ND	0.50		mg/L	1	1/12/2012 8:04:25 AM
2-Butanone	ND	10		mg/L	1	1/12/2012 8:04:25 AM

**Qualifiers:** \* / X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** L-Fuel Oil Exca**Project:** Fuel Oil Storage Loading Area Terminal**Collection Date:** 12/29/2011 9:30:00 AM**Lab ID:** 1201046-012**Matrix:** SOIL**Received Date:** 1/3/2012 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Carbon Tetrachloride	ND	0.50		mg/L	1	1/12/2012 8:04:25 AM
Chlorobenzene	ND	100		mg/L	1	1/12/2012 8:04:25 AM
Chloroform	ND	6.0		mg/L	1	1/12/2012 8:04:25 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/12/2012 8:04:25 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/12/2012 8:04:25 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/12/2012 8:04:25 AM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/12/2012 8:04:25 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/12/2012 8:04:25 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/12/2012 8:04:25 AM
Vinyl chloride	ND	0.20		mg/L	1	1/12/2012 8:04:25 AM
Surr: 1,2-Dichloroethane-d4	97.6	69.9-130		%REC	1	1/12/2012 8:04:25 AM
Surr: 4-Bromofluorobenzene	107	71.2-123		%REC	1	1/12/2012 8:04:25 AM
Surr: Dibromofluoromethane	97.3	73.9-134		%REC	1	1/12/2012 8:04:25 AM
Surr: Toluene-d8	101	81.9-122		%REC	1	1/12/2012 8:04:25 AM

**Qualifiers:** \*/X Value exceeds Maximum Contaminant Level.  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com  
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** HALL ENVIRONMENTAL ANALYSIS LAB      **Batch #:** 120105032  
**Address:** 4901 HAWKINS NE SUITE D      **Project Name:** 1201046  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

## Analytical Results Report

**Sample Number** 120105032-001      **Sampling Date** 12/29/2011      **Date/Time Received** 1/5/2012 12:00 PM  
**Client Sample ID** 1201046-001B / A-FUEL OIL EXCA      **Sampling Time** 8:30 AM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	1/19/2012	CRW	SW846 CH7	
Ignitability	Negative			1/6/2012	JWC	EPA 1030	
pH	8.55	ph Units		1/6/2012	KFG	EPA 9045	
Reactive sulfide	ND	mg/kg	15	1/19/2012	JTT	SW846 CH7	
%moisture	2.3	Percent		1/6/2012	KFG	%moisture	

**Sample Number** 120105032-002      **Sampling Date** 12/29/2011      **Date/Time Received** 1/5/2012 12:00 PM  
**Client Sample ID** 1201046-002B / B-FUEL OIL EXCA      **Sampling Time** 8:35 AM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	1/19/2012	CRW	SW846 CH7	
Ignitability	Negative			1/6/2012	JWC	EPA 1030	
pH	8.15	ph Units		1/6/2012	KFG	EPA 9045	
Reactive sulfide	ND	mg/kg	15	1/19/2012	JTT	SW846 CH7	
%moisture	6.2	Percent		1/6/2012	KFG	%moisture	

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
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**Attn:** ANDY FREEMAN

**Batch #:** 120105032  
**Project Name:** 1201046

## Analytical Results Report

**Sample Number** 120105032-003      **Sampling Date** 12/29/2011      **Date/Time Received** 1/5/2012 12:00 PM  
**Client Sample ID** 1201046-003B / C-FUEL OIL EXCA      **Sampling Time** 8:40 AM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	1/19/2012	CRW	SW846 CH7	
Ignitability	Negative			1/6/2012	JWC	EPA 1030	
pH	8.41	ph Units		1/6/2012	KFG	EPA 9045	
Reactive sulfide	ND	mg/kg	15	1/19/2012	JTT	SW846 CH7	
%moisture	9	Percent		1/6/2012	KFG	%moisture	

**Sample Number** 120105032-004      **Sampling Date** 12/29/2011      **Date/Time Received** 1/5/2012 12:00 PM  
**Client Sample ID** 1201046-004B / D-FUEL OIL EXCA      **Sampling Time** 8:45 AM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	1/19/2012	CRW	SW846 CH7	
Ignitability	Negative			1/6/2012	JWC	EPA 1030	
pH	8.42	ph Units		1/6/2012	KFG	EPA 9045	
Reactive sulfide	ND	mg/kg	15	1/19/2012	JTT	SW846 CH7	
%moisture	5.8	Percent		1/6/2012	KFG	%moisture	

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 120105032  
**Project Name:** 1201046

## Analytical Results Report

**Sample Number** 120105032-005      **Sampling Date** 12/29/2011      **Date/Time Received** 1/5/2012 12:00 PM  
**Client Sample ID** 1201046-005B / E-FUEL OIL EXCA      **Sampling Time** 8:50 AM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	1/19/2012	CRW	SW846 CH7	
Ignitability	Negative			1/6/2012	JWC	EPA 1030	
pH	8.22	ph Units		1/6/2012	KFG	EPA 9045	
Reactive sulfide	ND	mg/kg	15	1/19/2012	JTT	SW846 CH7	
%moisture	6.2	Percent		1/6/2012	KFG	%moisture	

**Sample Number** 120105032-006      **Sampling Date** 12/29/2011      **Date/Time Received** 1/5/2012 12:00 PM  
**Client Sample ID** 1201046-006B / F-FUEL OIL EXCA      **Sampling Time** 8:55 AM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	1/19/2012	CRW	SW846 CH7	
Ignitability	Negative			1/6/2012	JWC	EPA 1030	
pH	8.41	ph Units		1/6/2012	KFG	EPA 9045	
Reactive sulfide	ND	mg/kg	15	1/19/2012	JTT	SW846 CH7	
%moisture	3.1	Percent		1/6/2012	KFG	%moisture	

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
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**Attn:** ANDY FREEMAN

**Batch #:** 120105032  
**Project Name:** 1201046

## Analytical Results Report

**Sample Number** 120105032-007      **Sampling Date** 12/29/2011      **Date/Time Received** 1/5/2012 12:00 PM  
**Client Sample ID** 1201046-007B / G-FUEL OIL EXCA      **Sampling Time** 9:00 AM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	1/19/2012	CRW	SW846 CH7	
Ignitability	Negative			1/6/2012	JWC	EPA 1030	
pH	8.25	ph Units		1/6/2012	KFG	EPA 9045	
Reactive sulfide	ND	mg/kg	15	1/19/2012	JTT	SW846 CH7	
%moisture	4	Percent		1/6/2012	KFG	%moisture	

**Sample Number** 120105032-008      **Sampling Date** 12/29/2011      **Date/Time Received** 1/5/2012 12:00 PM  
**Client Sample ID** 1201046-008B / H-FUEL OIL EXCA      **Sampling Time** 9:05 AM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	1/19/2012	CRW	SW846 CH7	
Ignitability	Negative			1/6/2012	JWC	EPA 1030	
pH	8.37	ph Units		1/6/2012	KFG	EPA 9045	
Reactive sulfide	ND	mg/kg	15	1/19/2012	JTT	SW846 CH7	
%moisture	2.3	Percent		1/6/2012	KFG	%moisture	

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 120105032  
**Project Name:** 1201046

## Analytical Results Report

**Sample Number** 120105032-009      **Sampling Date** 12/29/2011      **Date/Time Received** 1/5/2012 12:00 PM  
**Client Sample ID** 1201046-009B / I-FUEL OIL EXCA      **Sampling Time** 9:15 AM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	1/19/2012	CRW	SW846 CH7	
Ignitability	Negative			1/6/2012	JWC	EPA 1030	
pH	8.31	ph Units		1/6/2012	KFG	EPA 9045	
Reactive sulfide	ND	mg/kg	15	1/19/2012	JTT	SW846 CH7	
%moisture	3.7	Percent		1/6/2012	KFG	%moisture	

**Sample Number** 120105032-010      **Sampling Date** 12/29/2011      **Date/Time Received** 1/5/2012 12:00 PM  
**Client Sample ID** 1201046-010B / J-FUEL OIL EXCA      **Sampling Time** 9:20 AM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	1/19/2012	CRW	SW846 CH7	
Ignitability	Negative			1/6/2012	JWC	EPA 1030	
pH	8.53	ph Units		1/6/2012	KFG	EPA 9045	
Reactive sulfide	ND	mg/kg	15	1/19/2012	JTT	SW846 CH7	
%moisture	6	Percent		1/6/2012	KFG	%moisture	

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB      **Batch #:** 120105032  
**Address:** 4901 HAWKINS NE SUITE D      **Project Name:** 1201046  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

## Analytical Results Report

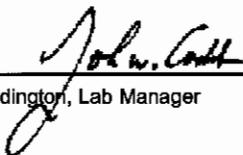
**Sample Number** 120105032-011      **Sampling Date** 12/29/2011      **Date/Time Received** 1/5/2012 12:00 PM  
**Client Sample ID** 1201046-011B / K-FUEL OIL EXCA      **Sampling Time** 9:25 AM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	1/19/2012	CRW	SW846 CH7	
Ignitability	Negative			1/6/2012	JWC	EPA 1030	
pH	8.52	ph Units		1/6/2012	KFG	EPA 9045	
Reactive sulfide	ND	mg/kg	15	1/19/2012	JTT	SW846 CH7	
%moisture	10	Percent		1/6/2012	KFG	%moisture	

**Sample Number** 120105032-012      **Sampling Date** 12/29/2011      **Date/Time Received** 1/5/2012 12:00 PM  
**Client Sample ID** 1201046-012B / L-FUEL OIL EXCA      **Sampling Time** 9:30 AM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	1/19/2012	CRW	SW846 CH7	
Ignitability	Negative			1/6/2012	JWC	EPA 1030	
pH	8.57	ph Units		1/6/2012	KFG	EPA 9045	
Reactive sulfide	ND	mg/kg	15	1/19/2012	JTT	SW846 CH7	
%moisture	8.7	Percent		1/6/2012	KFG	%moisture	

Authorized Signature

  
John Coddington, Lab Manager

MCL EPA's Maximum Contaminant Level  
ND Not Detected  
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.  
The results reported relate only to the samples indicated.  
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C585; MT:Cert0095

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1201046

24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID <b>MB-147</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015B: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>147</b>		RunNo: <b>239</b>							
Prep Date: <b>1/5/2012</b>	Analysis Date: <b>1/6/2012</b>		SeqNo: <b>7492</b>				Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.8		10.00		88.4	77.4	131			

Sample ID <b>LCS-147</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015B: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>147</b>		RunNo: <b>239</b>							
Prep Date: <b>1/5/2012</b>	Analysis Date: <b>1/6/2012</b>		SeqNo: <b>7608</b>				Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	85.3	62.7	139			
Surr: DNOP	5.3		5.000		106	77.4	131			

Sample ID <b>1201041-001AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015B: Diesel Range Organics</b>							
Client ID: <b>BatchQC</b>	Batch ID: <b>147</b>		RunNo: <b>239</b>							
Prep Date: <b>1/5/2012</b>	Analysis Date: <b>1/6/2012</b>		SeqNo: <b>7641</b>				Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	81	9.9	49.31	51.86	59.3	57.2	146			
Surr: DNOP	4.9		4.931		100	77.4	131			

Sample ID <b>1201041-001AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015B: Diesel Range Organics</b>							
Client ID: <b>BatchQC</b>	Batch ID: <b>147</b>		RunNo: <b>239</b>							
Prep Date: <b>1/5/2012</b>	Analysis Date: <b>1/6/2012</b>		SeqNo: <b>7704</b>				Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	79	9.8	48.78	51.86	56.1	57.2	146	2.35	26.7	S
Surr: DNOP	4.5		4.878		91.6	77.4	131	0	0	

Sample ID <b>MB-162</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015B: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>162</b>		RunNo: <b>255</b>							
Prep Date: <b>1/6/2012</b>	Analysis Date: <b>1/8/2012</b>		SeqNo: <b>7852</b>				Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.3		10.00		82.9	77.4	131			

Sample ID <b>LCS-162</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015B: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>162</b>		RunNo: <b>255</b>							
Prep Date: <b>1/6/2012</b>	Analysis Date: <b>1/8/2012</b>		SeqNo: <b>7854</b>				Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

**Qualifiers:**

- \*X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

**QC SUMMARY REPORT**  
**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1201046

24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID	<b>LCS-162</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015B: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>162</b>	RunNo:	<b>255</b>					
Prep Date:	<b>1/6/2012</b>	Analysis Date:	<b>1/8/2012</b>	SeqNo:	<b>7854</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	37	10	50.00	0	73.6	62.7	139			
Surr: DNOP	4.5		5.000		90.5	77.4	131			

Sample ID	<b>MB-189</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015B: Diesel Range Organics</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>189</b>	RunNo:	<b>279</b>					
Prep Date:	<b>1/9/2012</b>	Analysis Date:	<b>1/10/2012</b>	SeqNo:	<b>8701</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.9		10.00		89.3	77.4	131			

Sample ID	<b>LCS-189</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015B: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>189</b>	RunNo:	<b>279</b>					
Prep Date:	<b>1/9/2012</b>	Analysis Date:	<b>1/10/2012</b>	SeqNo:	<b>8765</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	10	50.00	0	75.2	62.7	139			
Surr: DNOP	4.5		5.000		90.3	77.4	131			

Sample ID	<b>1201046-011AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>EPA Method 8015B: Diesel Range Organics</b>					
Client ID:	<b>K-Fuel Oil Exca</b>	Batch ID:	<b>189</b>	RunNo:	<b>279</b>					
Prep Date:	<b>1/9/2012</b>	Analysis Date:	<b>1/11/2012</b>	SeqNo:	<b>9652</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	110	9.7	48.31	69.41	90.7	57.2	146			
Surr: DNOP	7.9		4.831		164	77.4	131			S

Sample ID	<b>1201046-011AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>EPA Method 8015B: Diesel Range Organics</b>					
Client ID:	<b>K-Fuel Oil Exca</b>	Batch ID:	<b>189</b>	RunNo:	<b>279</b>					
Prep Date:	<b>1/9/2012</b>	Analysis Date:	<b>1/11/2012</b>	SeqNo:	<b>9887</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	130	10	49.80	69.41	119	57.2	146	12.6	26.7	
Surr: DNOP	8.4		4.980		168	77.4	131	0	0	S

**Qualifiers:**

- \*X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201046

24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID <b>MB-134</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015B: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>134</b>		RunNo: <b>245</b>							
Prep Date: <b>1/4/2012</b>	Analysis Date: <b>1/5/2012</b>		SeqNo: <b>11177</b>				Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	940		1,000		94.2	69.7	121			

Sample ID <b>LCS-134</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015B: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>134</b>		RunNo: <b>245</b>							
Prep Date: <b>1/4/2012</b>	Analysis Date: <b>1/5/2012</b>		SeqNo: <b>11181</b>				Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	5.0	25.00	0	117	86.4	132			
Surr: BFB	1,000		1,000		101	69.7	121			

Sample ID <b>1201046-001AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015B: Gasoline Range</b>							
Client ID: <b>A-Fuell Oil Exca</b>	Batch ID: <b>134</b>		RunNo: <b>245</b>							
Prep Date: <b>1/4/2012</b>	Analysis Date: <b>1/5/2012</b>		SeqNo: <b>11182</b>				Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	31	4.9	24.39	2.607	115	72.4	149			
Surr: BFB	1,100		975.6		109	69.7	121			

Sample ID <b>1201046-001AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015B: Gasoline Range</b>							
Client ID: <b>A-Fuell Oil Exca</b>	Batch ID: <b>134</b>		RunNo: <b>245</b>							
Prep Date: <b>1/4/2012</b>	Analysis Date: <b>1/6/2012</b>		SeqNo: <b>11183</b>				Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	30	4.8	24.22	2.607	112	72.4	149	3.58	19.2	
Surr: BFB	990		969.0		102	69.7	121	0	0	

**Qualifiers:**

- \*X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1201046

24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID	mb-135	SampType:	MBLK	TestCode:	Volatiles by 8260B/1311					
Client ID:	PBS	Batch ID:	135	RunNo:	332					
Prep Date:	1/4/2012	Analysis Date:	1/11/2012	SeqNo:	10214	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
2-Butanone	ND	10								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	100								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,2-Dichloroethane (EDC)	ND	0.50								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Surr: 1,2-Dichloroethane-d4	0.21		0.2000		104	69.9	130			
Surr: 4-Bromofluorobenzene	0.20		0.2000		102	71.2	123			
Surr: Dibromofluoromethane	0.20		0.2000		99.9	73.9	134			
Surr: Toluene-d8	0.21		0.2000		103	81.9	122			

Sample ID	mb-151	SampType:	MBLK	TestCode:	Volatiles by 8260B/1311					
Client ID:	PBS	Batch ID:	151	RunNo:	332					
Prep Date:	1/5/2012	Analysis Date:	1/12/2012	SeqNo:	10215	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
2-Butanone	ND	10								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	100								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,2-Dichloroethane (EDC)	ND	0.50								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Surr: 1,2-Dichloroethane-d4	0.20		0.2000		102	69.9	130			
Surr: 4-Bromofluorobenzene	0.21		0.2000		105	71.2	123			
Surr: Dibromofluoromethane	0.19		0.2000		93.2	73.9	134			
Surr: Toluene-d8	0.20		0.2000		101	81.9	122			

**Qualifiers:**

- \* / X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1201046

24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID	mb-183	SampType:	MBLK	TestCode:	Volatiles by 8260B/1311						
Client ID:	PBS	Batch ID:	183	RunNo:	332						
Prep Date:	1/9/2012	Analysis Date:	1/12/2012	SeqNo:	10216	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	ND	0.50									
2-Butanone	ND	10									
Carbon Tetrachloride	ND	0.50									
Chlorobenzene	ND	100									
Chloroform	ND	6.0									
1,4-Dichlorobenzene	ND	7.5									
1,2-Dichloroethane (EDC)	ND	0.50									
1,1-Dichloroethene	ND	0.70									
Hexachlorobutadiene	ND	0.50									
Tetrachloroethene (PCE)	ND	0.70									
Trichloroethene (TCE)	ND	0.50									
Vinyl chloride	ND	0.20									
Surr: 1,2-Dichloroethane-d4	0.20		0.2000		97.8	69.9	130				
Surr: 4-Bromofluorobenzene	0.20		0.2000		98.5	71.2	123				
Surr: Dibromofluoromethane	0.19		0.2000		96.7	73.9	134				
Surr: Toluene-d8	0.19		0.2000		97.3	81.9	122				

Sample ID	lcs-135	SampType:	LCS	TestCode:	Volatiles by 8260B/1311						
Client ID:	LCSS	Batch ID:	135	RunNo:	332						
Prep Date:	1/4/2012	Analysis Date:	1/11/2012	SeqNo:	10217	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	0.39	0.010	0.4000	0	97.5	51.1	171				
Chlorobenzene	0.40	0.010	0.4000	0	99.8	36.1	191				
1,1-Dichloroethene	0.44	0.010	0.4000	0	111	49.1	162				
Trichloroethene (TCE)	ND	0.50	0.4000	0	88.5	41.2	166				
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		95.5	69.9	130				
Surr: 4-Bromofluorobenzene	0.21		0.2000		105	71.2	123				
Surr: Dibromofluoromethane	0.18		0.2000		90.2	73.9	134				
Surr: Toluene-d8	0.19		0.2000		96.9	81.9	122				

Sample ID	lcs-151	SampType:	LCS	TestCode:	Volatiles by 8260B/1311						
Client ID:	LCSS	Batch ID:	151	RunNo:	332						
Prep Date:	1/5/2012	Analysis Date:	1/12/2012	SeqNo:	10218	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	0.39	0.010	0.4000	0	98.1	51.1	171				
Chlorobenzene	0.40	0.010	0.4000	0	99.2	36.1	191				
1,1-Dichloroethene	0.44	0.010	0.4000	0	111	49.1	162				
Trichloroethene (TCE)	ND	0.50	0.4000	0	88.5	41.2	166				
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		93.9	69.9	130				
Surr: 4-Bromofluorobenzene	0.20		0.2000		99.6	71.2	123				

**Qualifiers:**

- \*X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

**QC SUMMARY REPORT**  
**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1201046

24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID	ics-151		SampType: LCS	TestCode: Volatiles by 8260B/1311						
Client ID:	LCSS		Batch ID: 151	RunNo: 332						
Prep Date:	1/5/2012		Analysis Date: 1/12/2012	SeqNo: 10218	Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	0.18		0.2000		91.9	73.9	134			
Surr: Toluene-d8	0.20		0.2000		99.4	81.9	122			

Sample ID	ics-183		SampType: LCS	TestCode: Volatiles by 8260B/1311						
Client ID:	LCSS		Batch ID: 183	RunNo: 332						
Prep Date:	1/9/2012		Analysis Date: 1/12/2012	SeqNo: 10219	Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.40	0.010	0.4000	0	99.3	51.1	171			
Chlorobenzene	0.39	0.010	0.4000	0	96.8	36.1	191			
1,1-Dichloroethene	0.44	0.010	0.4000	0	110	49.1	162			
Trichloroethene (TCE)	ND	0.50	0.4000	0	87.7	41.2	166			
Surr: 1,2-Dichloroethane-d4	0.20		0.2000		98.8	69.9	130			
Surr: 4-Bromofluorobenzene	0.20		0.2000		99.3	71.2	123			
Surr: Dibromofluoromethane	0.19		0.2000		94.4	73.9	134			
Surr: Toluene-d8	0.19		0.2000		97.3	81.9	122			

Sample ID	1201046-001AMSD		SampType: MSD	TestCode: Volatiles by 8260B/1311						
Client ID:	A-Fuell Oil Exca		Batch ID: 135	RunNo: 332						
Prep Date:	1/4/2012		Analysis Date: 1/11/2012	SeqNo: 10223	Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.37	0.010	0.4000	0	93.3	51.1	171	8.29	0	
Chlorobenzene	0.41	0.010	0.4000	0.002484	101	36.1	191	3.16	0	
1,1-Dichloroethene	0.43	0.010	0.4000	0	107	49.1	162	4.31	0	
Trichloroethene (TCE)	ND	0.50	0.4000	0	84.3	41.2	166	0	0	
Surr: 1,2-Dichloroethane-d4	0.20		0.2000		97.6	69.9	130	0	0	
Surr: 4-Bromofluorobenzene	0.19		0.2000		93.7	71.2	123	0	0	
Surr: Dibromofluoromethane	0.18		0.2000		90.6	73.9	134	0	0	
Surr: Toluene-d8	0.21		0.2000		106	81.9	122	0	0	

**Qualifiers:**

- \*X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201046

24-Jun-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID	mb-237	SampType:	MBLK	TestCode:	EPA Method 8270C TCLP					
Client ID:	PBS	Batch ID:	237	RunNo:	345					
Prep Date:	1/12/2012	Analysis Date:	1/12/2012	SeqNo:	10521	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
Phenol	ND	200								
Surr: 2,4,6-Tribromophenol	0.14		0.2000		71.5	18.2	136			
Surr: 2-Fluorobiphenyl	0.064		0.1000		64.4	40.5	108			
Surr: 2-Fluorophenol	0.11		0.2000		53.6	23	101			
Surr: 4-Terphenyl-d14	0.074		0.1000		74.3	40.9	112			
Surr: Nitrobenzene-d5	0.071		0.1000		71.5	41	115			
Surr: Phenol-d5	0.077		0.2000		38.6	23.4	73.6			

Sample ID	ics-237	SampType:	LCS	TestCode:	EPA Method 8270C TCLP					
Client ID:	LCSS	Batch ID:	237	RunNo:	345					
Prep Date:	1/12/2012	Analysis Date:	1/12/2012	SeqNo:	10522	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	0.076	0.010	0.1000	0	76.2	18.2	108			
Hexachlorobenzene	0.059	0.010	0.1000	0	58.9	34.2	74.5			
Hexachlorobutadiene	0.057	0.010	0.1000	0	57.0	31.3	88.5			
Hexachloroethane	0.061	0.010	0.1000	0	61.0	31.6	94.6			
Nitrobenzene	0.071	0.010	0.1000	0	70.9	39.7	107			
Pentachlorophenol	0.024	0.010	0.1000	0	23.6	15.9	86.7			
Pyridine	0.049	0.010	0.1000	0	48.5	14.7	73.6			
2,4,5-Trichlorophenol	0.046	0.010	0.1000	0	46.1	18.9	102			
2,4,6-Trichlorophenol	0.040	0.010	0.1000	0	39.8	12.3	103			
Cresols, Total	0.14	0.010	0.3000	0	47.8	25.9	99.2			
2-Methylphenol	0.046	0.010	0.1000	0	46.5	22	81.7			
3+4-Methylphenol	0.097	0.010	0.1000	0	96.8	2.89	157			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		61.4	18.2	136			
Surr: 2-Fluorobiphenyl	0.067		0.1000		67.0	40.5	108			
Surr: 2-Fluorophenol	0.059		0.2000		29.7	23	101			
Surr: 4-Terphenyl-d14	0.079		0.1000		78.6	40.9	112			

**Qualifiers:**

- \*X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201046

24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID	ics-237		SampType: LCS	TestCode: EPA Method 8270C TCLP						
Client ID:	LCSS		Batch ID: 237	RunNo: 345						
Prep Date:	1/12/2012		Analysis Date: 1/12/2012	SeqNo: 10522	Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.074		0.1000		73.6	41	115			
Surr: Phenol-d5	0.053		0.2000		26.7	23.4	73.6			

Sample ID	1201046-001Ams		SampType: MS	TestCode: EPA Method 8270C TCLP						
Client ID:	A-Fuell Oil Exca		Batch ID: 237	RunNo: 345						
Prep Date:	1/12/2012		Analysis Date: 1/12/2012	SeqNo: 10535	Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	0.069	0.010	0.1000	0	68.8	9.57	115			
Hexachlorobenzene	0.055	0.010	0.1000	0	54.7	15.9	96.9			
Hexachlorobutadiene	0.050	0.010	0.1000	0	49.8	21.1	97.9			
Hexachloroethane	0.051	0.010	0.1000	0	51.3	18.1	105			
Nitrobenzene	0.063	0.010	0.1000	0	63.1	23.3	123			
Pentachlorophenol	0.034	0.010	0.1000	0	33.6	10	150			
Pyridine	0.038	0.010	0.1000	0	38.2	9.15	86.2			
2,4,5-Trichlorophenol	0.054	0.010	0.1000	0	53.7	8.46	119			
2,4,6-Trichlorophenol	0.047	0.010	0.1000	0	47.0	4.44	115			
Cresols, Total	0.17	0.010	0.3000	0	57.2	8.35	114			
2-Methylphenol	0.053	0.010	0.1000	0	53.4	17.5	78.8			
3+4-Methylphenol	0.12	0.010	0.2000	0	59.0	17.5	78.8			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		69.5	18.2	136			
Surr: 2-Fluorobiphenyl	0.057		0.1000		57.4	40.5	108			
Surr: 2-Fluorophenol	0.087		0.2000		43.6	23	101			
Surr: 4-Terphenyl-d14	0.077		0.1000		76.7	40.9	112			
Surr: Nitrobenzene-d5	0.064		0.1000		63.5	41	115			
Surr: Phenol-d5	0.066		0.2000		32.8	23.4	73.6			

Sample ID	1201046-001Amsd		SampType: MSD	TestCode: EPA Method 8270C TCLP						
Client ID:	A-Fuell Oil Exca		Batch ID: 237	RunNo: 345						
Prep Date:	1/12/2012		Analysis Date: 1/12/2012	SeqNo: 10536	Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	0.079	0.010	0.1000	0	78.9	9.57	115	13.7	20	
Hexachlorobenzene	0.058	0.010	0.1000	0	57.9	15.9	96.9	5.68	20	
Hexachlorobutadiene	0.051	0.010	0.1000	0	51.0	21.1	97.9	2.22	20	
Hexachloroethane	0.055	0.010	0.1000	0	54.6	18.1	105	6.31	20	
Nitrobenzene	0.065	0.010	0.1000	0	64.9	23.3	123	2.84	20	
Pentachlorophenol	0.036	0.010	0.1000	0	36.0	10	150	6.90	20	
Pyridine	0.034	0.010	0.1000	0	34.0	9.15	86.2	11.8	20	
2,4,5-Trichlorophenol	0.056	0.010	0.1000	0	56.4	8.46	119	4.94	20	
2,4,6-Trichlorophenol	0.050	0.010	0.1000	0	50.0	4.44	115	6.27	20	
Cresols, Total	0.18	0.010	0.3000	0	60.0	8.35	114	4.90	20	

**Qualifiers:**

- \* / X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1201046

24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID	1201046-001Amsd	SampType:	MSD	TestCode:	EPA Method 8270C TCLP					
Client ID:	A-Fuell Oil Exca	Batch ID:	237	RunNo:	345					
Prep Date:	1/12/2012	Analysis Date:	1/12/2012	SeqNo:	10536	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.054	0.010	0.1000	0	54.3	17.5	78.8	0	20	
3-4-Methylphenol	0.13	0.010	0.2000	0	62.9	17.5	78.8	0	20	
Surr: 2,4,6-Tribromophenol	0.15		0.2000		73.2	18.2	136	0	0	
Surr: 2-Fluorobiphenyl	0.061		0.1000		60.6	40.5	108	0	0	
Surr: 2-Fluorophenol	0.088		0.2000		44.1	23	101	0	0	
Surr: 4-Terphenyl-d14	0.079		0.1000		78.6	40.9	112	0	0	
Surr: Nitrobenzene-d5	0.066		0.1000		65.8	41	115	0	0	
Surr: Phenol-d5	0.066		0.2000		32.8	23.4	73.6	0	0	

### Qualifiers:

\*X Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201046

24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID	<b>MB-200</b>	SampType:	<b>MBLK</b>	TestCode:	<b>MERCURY, TCLP</b>					
Client ID:	<b>PBW</b>	Batch ID:	<b>200</b>	RunNo:	<b>295</b>					
Prep Date:	<b>1/10/2012</b>	Analysis Date:	<b>1/10/2012</b>	SeqNo:	<b>8955</b>	Units:	<b>ug/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	<b>LCS-200</b>	SampType:	<b>LCS</b>	TestCode:	<b>MERCURY, TCLP</b>					
Client ID:	<b>LCSW</b>	Batch ID:	<b>200</b>	RunNo:	<b>295</b>					
Prep Date:	<b>1/10/2012</b>	Analysis Date:	<b>1/10/2012</b>	SeqNo:	<b>8956</b>	Units:	<b>ug/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	109	80	120			

Sample ID	<b>1201046-006AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>MERCURY, TCLP</b>					
Client ID:	<b>F-Fuel Oil Exca</b>	Batch ID:	<b>200</b>	RunNo:	<b>295</b>					
Prep Date:	<b>1/10/2012</b>	Analysis Date:	<b>1/10/2012</b>	SeqNo:	<b>8963</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	105	75	125			

Sample ID	<b>1201046-008AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>MERCURY, TCLP</b>					
Client ID:	<b>F-Fuel Oil Exca</b>	Batch ID:	<b>200</b>	RunNo:	<b>295</b>					
Prep Date:	<b>1/10/2012</b>	Analysis Date:	<b>1/10/2012</b>	SeqNo:	<b>8964</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	104	75	125	0	20	

Sample ID	<b>MB-256</b>	SampType:	<b>MBLK</b>	TestCode:	<b>MERCURY, TCLP</b>					
Client ID:	<b>PBW</b>	Batch ID:	<b>256</b>	RunNo:	<b>371</b>					
Prep Date:	<b>1/13/2012</b>	Analysis Date:	<b>1/13/2012</b>	SeqNo:	<b>11027</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	<b>LCS-256</b>	SampType:	<b>LCS</b>	TestCode:	<b>MERCURY, TCLP</b>					
Client ID:	<b>LCSW</b>	Batch ID:	<b>256</b>	RunNo:	<b>371</b>					
Prep Date:	<b>1/13/2012</b>	Analysis Date:	<b>1/13/2012</b>	SeqNo:	<b>11028</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	103	80	120			

Sample ID	<b>1201046-008AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>MERCURY, TCLP</b>					
Client ID:	<b>H-Fuel Oil Exca</b>	Batch ID:	<b>256</b>	RunNo:	<b>371</b>					
Prep Date:	<b>1/13/2012</b>	Analysis Date:	<b>1/13/2012</b>	SeqNo:	<b>11030</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.6	75	125			

**Qualifiers:**

- \*X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201046

24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID	1201046-008AMSD	SampType:	MSD	TestCode:	MERCURY, TCLP					
Client ID:	H-Fuel Oil Exca	Batch ID:	256	RunNo:	371					
Prep Date:	1/13/2012	Analysis Date:	1/13/2012	SeqNo:	11031	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.1	75	125	0	20	

**Qualifiers:**

\*X Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201046

24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID	<b>MB-173</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 6010B: TCLP Metals</b>					
Client ID:	<b>PBW</b>	Batch ID:	<b>173</b>	RunNo:	<b>269</b>					
Prep Date:	<b>1/9/2012</b>	Analysis Date:	<b>1/9/2012</b>	SeqNo:	<b>8338</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	<b>LCS-173</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 6010B: TCLP Metals</b>					
Client ID:	<b>LCSW</b>	Batch ID:	<b>173</b>	RunNo:	<b>269</b>					
Prep Date:	<b>1/9/2012</b>	Analysis Date:	<b>1/9/2012</b>	SeqNo:	<b>8339</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	105	80	120			
Barium	ND	100	0.5000	0	92.4	80	120			
Cadmium	ND	1.0	0.5000	0.0005000	97.7	80	120			
Chromium	ND	5.0	0.5000	0.001850	94.4	80	120			
Lead	ND	5.0	0.5000	0	91.7	80	120			
Selenium	ND	1.0	0.5000	0	103	80	120			
Silver	ND	5.0	0.1000	0	98.2	80	120			

Sample ID	<b>1201046-005AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>EPA Method 6010B: TCLP Metals</b>					
Client ID:	<b>E-Fuel Oil Exca</b>	Batch ID:	<b>173</b>	RunNo:	<b>269</b>					
Prep Date:	<b>1/9/2012</b>	Analysis Date:	<b>1/9/2012</b>	SeqNo:	<b>8362</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	95.1	75	125			
Cadmium	ND	1.0	0.5000	0.001150	89.7	75	125			
Chromium	ND	5.0	0.5000	0	84.6	75	125			
Lead	ND	5.0	0.5000	0	78.3	75	125			
Selenium	ND	1.0	0.5000	0	89.0	75	125			
Silver	ND	5.0	0.1000	0	92.2	75	125			

Sample ID	<b>1201046-005AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>EPA Method 6010B: TCLP Metals</b>					
Client ID:	<b>E-Fuel Oil Exca</b>	Batch ID:	<b>173</b>	RunNo:	<b>269</b>					
Prep Date:	<b>1/9/2012</b>	Analysis Date:	<b>1/9/2012</b>	SeqNo:	<b>8363</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	100	75	125	0	20	
Cadmium	ND	1.0	0.5000	0.001150	93.5	75	125	0	20	
Chromium	ND	5.0	0.5000	0	86.8	75	125	0	20	
Lead	ND	5.0	0.5000	0	81.3	75	125	0	20	

**Qualifiers:**

- \*X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1201046

24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID	1201046-005AMSD	SampType:	MSD	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	E-Fuel Oil Exca	Batch ID:	173	RunNo:	269					
Prep Date:	1/9/2012	Analysis Date:	1/9/2012	SeqNo:	8363	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	92.2	75	125	0	20	
Silver	ND	5.0	0.1000	0	94.8	75	125	0	20	

Sample ID	MB-199	SampType:	MBLK	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	PBW	Batch ID:	199	RunNo:	308					
Prep Date:	1/10/2012	Analysis Date:	1/11/2012	SeqNo:	9469	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	LCS-199	SampType:	LCS	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	LCSW	Batch ID:	199	RunNo:	308					
Prep Date:	1/10/2012	Analysis Date:	1/11/2012	SeqNo:	9470	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	115	80	120			
Barium	ND	100	0.5000	0	100	80	120			
Cadmium	ND	1.0	0.5000	0	106	80	120			
Chromium	ND	5.0	0.5000	0.001290	102	80	120			
Lead	ND	5.0	0.5000	0	97.7	80	120			
Selenium	ND	1.0	0.5000	0	111	80	120			
Silver	ND	5.0	0.1000	0	109	80	120			

Sample ID	1201123-002AMS	SampType:	MS	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	BatchQC	Batch ID:	199	RunNo:	308					
Prep Date:	1/10/2012	Analysis Date:	1/11/2012	SeqNo:	9486	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	109	75	125			
Barium	ND	100	0.5000	0.2894	89.5	75	125			
Lead	ND	5.0	0.5000	0.01031	92.5	75	125			
Selenium	ND	1.0	0.5000	0	102	75	125			
Silver	ND	5.0	0.1000	0	99.3	75	125			

### Qualifiers:

\*X Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
RL Reporting Detection Limit

**QC SUMMARY REPORT**  
**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1201046  
 24-Jan-12

**Client:** Western Refining Southwest, Gallup  
**Project:** Fuel Oil Storage Loading Area Terminal Excava

Sample ID	1201123-002AMSD	SampType:	MSD	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	BatchQC	Batch ID:	199	RunNo:	308					
Prep Date:	1/10/2012	Analysis Date:	1/11/2012	SeqNo:	9487	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	113	75	125	0	20	
Barium	ND	100	0.5000	0.2894	94.5	75	125	0	20	
Lead	ND	5.0	0.5000	0.01031	96.8	75	125	0	20	
Selenium	ND	1.0	0.5000	0	109	75	125	0	20	
Silver	ND	5.0	0.1000	0	103	75	125	0	20	

**Qualifiers:**

- \*X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit



Hall Environmental Analysis Laboratory  
 4901 Hawkins NE  
 Albuquerque, NM 87105  
 TEL: 505-345-3975 FAX: 505-345-4101  
 Website: www.hallenvironmental.com

# Sample Receipt Checklist

Client Name Western Refining Gallup

Date and Time Receive 1/3/2012 11:45:00 AM

Work Order Numbe 1201046

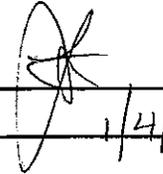
RcptNo: 1

Received by Ashley Gallegos

Checklist Completed By:



Checked by:



Completed Date: 1/3/2012

Checked Date:

1/4/12

Carrier name Client

- Shipping cooler present and in acceptable condition? Yes  No  NA
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No  Not Present
- Are matrices correctly identified on Chain of custody? Yes  No
- Is it clear what analyses were requested? Yes  No
- Custody Seals present on cooler? Yes  No
- Custody Seals intact on sample bottles? Yes  No  NA
- Samples in proper container/bottle? Yes  No
- Were correct preservatives used and noted? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- Were container lables complete (ID, Pres, Date)? Yes  No
- All samples received within holding time? Yes  No
- Was an attempt made to cool the samples? Yes  No
- All samples received at a temp. of > 0° C to 6.0° C? Yes  No
- Response when temperature is outside of range:  
Preservative added to bottles:
- Sample Temp. taken and recorded upon receipt? Yes  No  1.9 °C
- Water - Were bubbles absent in VOC vials? Yes  No  NA
- Water - pH acceptable upon receipt? Yes  No  NA
- Sample Condition? Intact  Broken  Leaking

Number of preserved bottles checked for pH: \_\_\_\_\_

<2 or >12 unless noted

Adjusted? \_\_\_\_\_

Checked by \_\_\_\_\_

Client Contacted?  Yes  No  NA Person Contacted: \_\_\_\_\_ Comments: \_\_\_\_\_

Contact Mode:  Phone:  Fax:  Email:  In Person: \_\_\_\_\_

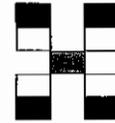
Date Contacted: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Regarding: \_\_\_\_\_

CorrectiveAction: \_\_\_\_\_

# Chain-of-Custody Record

Turn-Around Time:  
 Standard  Rush  
 Project Name: FUEL OIL STORAGE LOADING AREA TERMINAL EXCAVATION  
 Project #:



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Client: WESTERN-REFINING  
 Gallup Refinery  
 Mailing Address: RT 3 Box 7  
 Gallup NM 87301  
 Phone #: 505 722 0258  
 email or Fax#: 505 722 0268  
 QA/QC Package:  
 Standard  Level 4 (Full Validation)  
 Accreditation  
 NELAP  Other \_\_\_\_\_  
 EDD (Type) \_\_\_\_\_

Project Manager:  
 THURMAN LARSEN  
 Sampler: ALVIN DORSEY  
 On Ice:  Yes  No  
 Sample Temperature: 19

### Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA) TCLP	8270 (Semi-VOA) TCLP	RC1	TCLP METALS	Air Bubbles (Y or N)
12-29-11	0830	SOIL	A-Fuel Oil EXCA	8oz-1		1201046			X						X	X	X	X		
12-29-11	0835	SOIL	B-Fuel Oil EXCA	8oz-1					X						X	X	X	X		
12-29-11	0840	SOIL	C-Fuel Oil EXCA	8oz-1					X						X	X	X	X		
12-29-11	0845	SOIL	D-Fuel Oil EXCA	8oz-1					X						X	X	X	X		
12-29-11	0850	SOIL	E-Fuel Oil EXCA	8oz-1					X						X	X	X	X		
12-29-11	0855	SOIL	F-Fuel Oil EXCA	8oz-1					X						X	X	X	X		
12-29-11	0900	SOIL	G-Fuel Oil EXCA	8oz-1					X						X	X	X	X		
12-29-11	0905	SOIL	H-Fuel Oil EXCA	8oz-1					X						X	X	X	X		
12-29-11	0915	SOIL	I-Fuel Oil EXCA	8oz-1					X						X	X	X	X		
12-29-11	0920	SOIL	J-Fuel Oil EXCA	8oz-1					X						X	X	X	X		
12-29-11	0925	SOIL	K-Fuel Oil EXCA	8oz-1					X						X	X	X	X		
12-29-11	0930	SOIL	L-Fuel Oil EXCA	8oz-1					X						X	X	X	X		

Date: 1-3-12 Time: 11:45 Relinquished by: [Signature]  
 Received by: [Signature] Date: 1/3/12 Time: 11:45

Remarks: ROAD →  
 P F D C B A  
 P G H I J  
 K L  
 ALKY CENS (CONTROL ROOM) 2

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

COVER LETTER

Wednesday, August 24, 2011

Thurman B. Larsen  
Western Refining Southwest, Gallup  
Rt. 3 Box 7  
Gallup, NM 87301

TEL: (505) 722-3833

FAX (505) 722-0210

RE: Soil Samples

Order No.: 1108278

Dear Thurman B. Larsen:

Hall Environmental Analysis Laboratory, Inc. received 6 sample(s) on 8/8/2011 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,



Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901

AZ license # AZ0682

# Hall Environmental Analysis Laboratory, Inc.

Date: 24-Aug-11

Analytical Report

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 1108278  
**Project:** Soil Samples  
**Lab ID:** 1108278-01

**Client Sample ID:** 1 Pile-Located E of Alky Unit  
**Collection Date:** 8/3/2011 12:30:00 PM  
**Date Received:** 8/8/2011  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: <b>JB</b>
Diesel Range Organics (DRO)	62	50		mg/Kg	5	8/11/2011 12:19:47 PM
Motor Oil Range Organics (MRO)	360	250		mg/Kg	5	8/11/2011 12:19:47 PM
Surr: DNOP	118	73.4-123		%REC	5	8/11/2011 12:19:47 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/9/2011 5:18:23 PM
Surr: BFB	95.3	75.2-136		%REC	1	8/9/2011 5:18:23 PM
<b>EPA METHOD 7471: MERCURY</b>						Analyst: <b>ELS</b>
Mercury	0.093	0.033		mg/Kg	1	8/9/2011 12:18:48 PM
<b>EPA METHOD 6010B: SOIL METALS</b>						Analyst: <b>ELS</b>
Arsenic	ND	5.0		mg/Kg	2	8/10/2011 10:15:53 AM
Barium	500	2.0		mg/Kg	20	8/11/2011 1:31:23 PM
Cadmium	ND	0.20		mg/Kg	2	8/10/2011 10:15:53 AM
Chromium	17	0.60		mg/Kg	2	8/10/2011 10:15:53 AM
Lead	11	0.50		mg/Kg	2	8/10/2011 10:15:53 AM
Selenium	ND	5.0		mg/Kg	2	8/10/2011 10:15:53 AM
Silver	ND	0.50		mg/Kg	2	8/10/2011 10:15:53 AM
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>MMS</b>
Benzene	ND	0.50		mg/L	1	8/10/2011 5:38:06 PM
2-Butanone	ND	10		mg/L	1	8/10/2011 5:38:06 PM
Carbon Tetrachloride	ND	0.50		mg/L	1	8/10/2011 5:38:06 PM
Chlorobenzene	ND	100		mg/L	1	8/10/2011 5:38:06 PM
Chloroform	ND	6.0		mg/L	1	8/10/2011 5:38:06 PM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	8/10/2011 5:38:06 PM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	8/10/2011 5:38:06 PM
1,1-Dichloroethene	ND	0.70		mg/L	1	8/10/2011 5:38:06 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	8/10/2011 5:38:06 PM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	8/10/2011 5:38:06 PM
Trichloroethene (TCE)	ND	0.50		mg/L	1	8/10/2011 5:38:06 PM
Vinyl chloride	ND	0.20		mg/L	1	8/10/2011 5:38:06 PM
Surr: 1,2-Dichloroethane-d4	104	69.9-130		%REC	1	8/10/2011 5:38:06 PM
Surr: 4-Bromofluorobenzene	101	71.2-123		%REC	1	8/10/2011 5:38:06 PM
Surr: Dibromofluoromethane	106	73.9-134		%REC	1	8/10/2011 5:38:06 PM
Surr: Toluene-d8	103	81.9-122		%REC	1	8/10/2011 5:38:06 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

# Hall Environmental Analysis Laboratory, Inc.

Date: 24-Aug-11

Analytical Report

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 1108278  
**Project:** Soil Samples  
**Lab ID:** 1108278-02

**Client Sample ID:** Pile Cleanup Area N of Runway  
**Collection Date:** 8/3/2011 12:50:00 PM  
**Date Received:** 8/8/2011  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JB
Diesel Range Organics (DRO)	40	10		mg/Kg	1	8/10/2011 11:37:31 PM
Motor Oil Range Organics (MRO)	ND	52		mg/Kg	1	8/10/2011 11:37:31 PM
Surr: DNOP	83.3	73.4-123		%REC	1	8/10/2011 11:37:31 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/9/2011 5:47:18 PM
Surr: BFB	97.8	75.2-136		%REC	1	8/9/2011 5:47:18 PM
<b>EPA METHOD 7471: MERCURY</b>						Analyst: ELS
Mercury	ND	0.033		mg/Kg	1	8/9/2011 12:20:32 PM
<b>EPA METHOD 6010B: SOIL METALS</b>						Analyst: ELS
Arsenic	ND	13		mg/Kg	5	8/11/2011 12:09:37 PM
Barium	950	2.0		mg/Kg	20	8/11/2011 12:11:27 PM
Cadmium	ND	0.50		mg/Kg	5	8/11/2011 12:09:37 PM
Chromium	7.1	1.5		mg/Kg	5	8/11/2011 12:09:37 PM
Lead	3.7	1.3		mg/Kg	5	8/11/2011 12:09:37 PM
Selenium	ND	13		mg/Kg	5	8/11/2011 12:09:37 PM
Silver	ND	1.3		mg/Kg	5	8/11/2011 12:09:37 PM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	8/10/2011 7:03:57 PM
2-Butanone	ND	10		mg/L	1	8/10/2011 7:03:57 PM
Carbon Tetrachloride	ND	0.50		mg/L	1	8/10/2011 7:03:57 PM
Chlorobenzene	ND	100		mg/L	1	8/10/2011 7:03:57 PM
Chloroform	ND	6.0		mg/L	1	8/10/2011 7:03:57 PM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	8/10/2011 7:03:57 PM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	8/10/2011 7:03:57 PM
1,1-Dichloroethene	ND	0.70		mg/L	1	8/10/2011 7:03:57 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	8/10/2011 7:03:57 PM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	8/10/2011 7:03:57 PM
Trichloroethene (TCE)	ND	0.50		mg/L	1	8/10/2011 7:03:57 PM
Vinyl chloride	ND	0.20		mg/L	1	8/10/2011 7:03:57 PM
Surr: 1,2-Dichloroethane-d4	96.7	69.9-130		%REC	1	8/10/2011 7:03:57 PM
Surr: 4-Bromofluorobenzene	98.5	71.2-123		%REC	1	8/10/2011 7:03:57 PM
Surr: Dibromofluoromethane	103	73.9-134		%REC	1	8/10/2011 7:03:57 PM
Surr: Toluene-d8	97.4	81.9-122		%REC	1	8/10/2011 7:03:57 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

# Hall Environmental Analysis Laboratory, Inc.

Date: 24-Aug-11

Analytical Report

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 1108278  
**Project:** Soil Samples  
**Lab ID:** 1108278-03

**Client Sample ID:** Pile Alongside Runway Close to Po  
**Collection Date:** 8/3/2011 1:15:00 PM  
**Date Received:** 8/8/2011  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JB
Diesel Range Organics (DRO)	94	10		mg/Kg	1	8/11/2011 11:10:50 AM
Motor Oil Range Organics (MRO)	130	51		mg/Kg	1	8/11/2011 11:10:50 AM
Surr: DNOP	91.2	73.4-123		%REC	1	8/11/2011 11:10:50 AM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/9/2011 6:16:14 PM
Surr: BFB	95.6	75.2-136		%REC	1	8/9/2011 6:16:14 PM
<b>EPA METHOD 7471: MERCURY</b>						Analyst: ELS
Mercury	0.20	0.033		mg/Kg	1	8/9/2011 12:22:17 PM
<b>EPA METHOD 6010B: SOIL METALS</b>						Analyst: ELS
Arsenic	5.6	2.5		mg/Kg	1	8/10/2011 10:23:13 AM
Barium	760	2.0		mg/Kg	20	8/11/2011 12:13:16 PM
Cadmium	ND	0.10		mg/Kg	1	8/10/2011 10:23:13 AM
Chromium	12	0.30		mg/Kg	1	8/10/2011 10:23:13 AM
Lead	30	0.25		mg/Kg	1	8/10/2011 10:23:13 AM
Selenium	ND	2.5		mg/Kg	1	8/10/2011 10:23:13 AM
Silver	ND	0.25		mg/Kg	1	8/10/2011 10:23:13 AM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	8/10/2011 7:32:32 PM
2-Butanone	ND	10		mg/L	1	8/10/2011 7:32:32 PM
Carbon Tetrachloride	ND	0.50		mg/L	1	8/10/2011 7:32:32 PM
Chlorobenzene	ND	100		mg/L	1	8/10/2011 7:32:32 PM
Chloroform	ND	6.0		mg/L	1	8/10/2011 7:32:32 PM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	8/10/2011 7:32:32 PM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	8/10/2011 7:32:32 PM
1,1-Dichloroethene	ND	0.70		mg/L	1	8/10/2011 7:32:32 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	8/10/2011 7:32:32 PM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	8/10/2011 7:32:32 PM
Trichloroethene (TCE)	ND	0.50		mg/L	1	8/10/2011 7:32:32 PM
Vinyl chloride	ND	0.20		mg/L	1	8/10/2011 7:32:32 PM
Surr: 1,2-Dichloroethane-d4	97.3	69.9-130		%REC	1	8/10/2011 7:32:32 PM
Surr: 4-Bromofluorobenzene	104	71.2-123		%REC	1	8/10/2011 7:32:32 PM
Surr: Dibromofluoromethane	98.9	73.9-134		%REC	1	8/10/2011 7:32:32 PM
Surr: Toluene-d8	98.6	81.9-122		%REC	1	8/10/2011 7:32:32 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

# Hall Environmental Analysis Laboratory, Inc.

Date: 24-Aug-11

Analytical Report

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 1108278  
**Project:** Soil Samples  
**Lab ID:** 1108278-04

**Client Sample ID:** Roll-Off Box A 20-001 near Pond 5  
**Collection Date:** 8/3/2011 1:30:00 PM  
**Date Received:** 8/8/2011  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JB
Diesel Range Organics (DRO)	7800	1000		mg/Kg	100	8/9/2011 8:42:02 PM
Motor Oil Range Organics (MRO)	ND	5000		mg/Kg	100	8/9/2011 8:42:02 PM
Surr: DNOP	0	73.4-123	S	%REC	100	8/9/2011 8:42:02 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	25		mg/Kg	5	8/9/2011 6:45:08 PM
Surr: BFB	94.6	75.2-136		%REC	5	8/9/2011 6:45:08 PM
<b>EPA METHOD 7471: MERCURY</b>						Analyst: ELS
Mercury	1.0	0.17		mg/Kg	5	8/9/2011 12:42:56 PM
<b>EPA METHOD 6010B: SOIL METALS</b>						Analyst: ELS
Arsenic	3.3	2.5		mg/Kg	1	8/10/2011 10:27:58 AM
Barium	570	2.0		mg/Kg	20	8/11/2011 1:33:15 PM
Cadmium	ND	0.10		mg/Kg	1	8/10/2011 10:27:58 AM
Chromium	14	0.30		mg/Kg	1	8/10/2011 10:27:58 AM
Lead	13	0.25		mg/Kg	1	8/10/2011 10:27:58 AM
Selenium	ND	2.5		mg/Kg	1	8/10/2011 10:27:58 AM
Silver	ND	0.25		mg/Kg	1	8/10/2011 10:27:58 AM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	8/10/2011 8:01:04 PM
2-Butanone	ND	10		mg/L	1	8/10/2011 8:01:04 PM
Carbon Tetrachloride	ND	0.50		mg/L	1	8/10/2011 8:01:04 PM
Chlorobenzene	ND	100		mg/L	1	8/10/2011 8:01:04 PM
Chloroform	ND	6.0		mg/L	1	8/10/2011 8:01:04 PM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	8/10/2011 8:01:04 PM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	8/10/2011 8:01:04 PM
1,1-Dichloroethene	ND	0.70		mg/L	1	8/10/2011 8:01:04 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	8/10/2011 8:01:04 PM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	8/10/2011 8:01:04 PM
Trichloroethene (TCE)	ND	0.50		mg/L	1	8/10/2011 8:01:04 PM
Vinyl chloride	ND	0.20		mg/L	1	8/10/2011 8:01:04 PM
Surr: 1,2-Dichloroethane-d4	96.8	69.9-130		%REC	1	8/10/2011 8:01:04 PM
Surr: 4-Bromofluorobenzene	99.6	71.2-123		%REC	1	8/10/2011 8:01:04 PM
Surr: Dibromofluoromethane	102	73.9-134		%REC	1	8/10/2011 8:01:04 PM
Surr: Toluene-d8	99.2	81.9-122		%REC	1	8/10/2011 8:01:04 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

# Hall Environmental Analysis Laboratory, Inc.

Date: 24-Aug-11

Analytical Report

<b>CLIENT:</b> Western Refining Southwest, Gallup	<b>Client Sample ID:</b> Roll-Off Box A 20-079 near Pond 5
<b>Lab Order:</b> 1108278	<b>Collection Date:</b> 8/3/2011 2:00:00 PM
<b>Project:</b> Soil Samples	<b>Date Received:</b> 8/8/2011
<b>Lab ID:</b> 1108278-05	<b>Matrix:</b> SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JB
Diesel Range Organics (DRO)	310	50		mg/Kg	5	8/11/2011 11:45:22 AM
Motor Oil Range Organics (MRO)	400	250		mg/Kg	5	8/11/2011 11:45:22 AM
Surr: DNOP	0	73.4-123	S	%REC	5	8/11/2011 11:45:22 AM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	48		mg/Kg	10	8/9/2011 7:14:03 PM
Surr: BFB	94.3	75.2-136		%REC	10	8/9/2011 7:14:03 PM
<b>EPA METHOD 7471: MERCURY</b>						Analyst: ELS
Mercury	ND	0.033		mg/Kg	1	8/9/2011 12:25:55 PM
<b>EPA METHOD 6010B: SOIL METALS</b>						Analyst: ELS
Arsenic	ND	13		mg/Kg	5	8/11/2011 12:25:54 PM
Barium	380	1.0		mg/Kg	10	8/11/2011 12:27:47 PM
Cadmium	ND	0.50		mg/Kg	5	8/11/2011 12:25:54 PM
Chromium	12	1.5		mg/Kg	5	8/11/2011 12:25:54 PM
Lead	5.3	1.3		mg/Kg	5	8/11/2011 12:25:54 PM
Selenium	ND	13		mg/Kg	5	8/11/2011 12:25:54 PM
Silver	ND	1.3		mg/Kg	5	8/11/2011 12:25:54 PM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	8/10/2011 8:29:29 PM
2-Butanone	ND	10		mg/L	1	8/10/2011 8:29:29 PM
Carbon Tetrachloride	ND	0.50		mg/L	1	8/10/2011 8:29:29 PM
Chlorobenzene	ND	100		mg/L	1	8/10/2011 8:29:29 PM
Chloroform	ND	6.0		mg/L	1	8/10/2011 8:29:29 PM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	8/10/2011 8:29:29 PM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	8/10/2011 8:29:29 PM
1,1-Dichloroethene	ND	0.70		mg/L	1	8/10/2011 8:29:29 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	8/10/2011 8:29:29 PM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	8/10/2011 8:29:29 PM
Trichloroethene (TCE)	ND	0.50		mg/L	1	8/10/2011 8:29:29 PM
Vinyl chloride	ND	0.20		mg/L	1	8/10/2011 8:29:29 PM
Surr: 1,2-Dichloroethane-d4	93.8	69.9-130		%REC	1	8/10/2011 8:29:29 PM
Surr: 4-Bromofluorobenzene	96.1	71.2-123		%REC	1	8/10/2011 8:29:29 PM
Surr: Dibromofluoromethane	95.7	73.9-134		%REC	1	8/10/2011 8:29:29 PM
Surr: Toluene-d8	96.4	81.9-122		%REC	1	8/10/2011 8:29:29 PM

**Qualifiers:**

- |  |  |
|--|--|
| * Value exceeds Maximum Contaminant Level    | B Analyte detected in the associated Method Blank    |
| E Estimated value                            | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | MCL Maximum Contaminant Level                        |
| NC Non-Chlorinated                           | ND Not Detected at the Reporting Limit               |
| PQL Practical Quantitation Limit             | S Spike recovery outside accepted recovery limits    |

# Hall Environmental Analysis Laboratory, Inc.

Date: 24-Aug-11  
Analytical Report

CLIENT: Western Refining Southwest, Gallup      Client Sample ID: Truck Rack Spot #5 Excavation hol  
 Lab Order: 1108278      Collection Date: 8/4/2011 11:15:00 AM  
 Project: Soil Samples      Date Received: 8/8/2011  
 Lab ID: 1108278-06      Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: JB
Diesel Range Organics (DRO)	7900	1000		mg/Kg	100	8/9/2011 9:16:24 PM
Motor Oil Range Organics (MRO)	ND	5100		mg/Kg	100	8/9/2011 9:16:24 PM
Surr: DNOP	0	73.4-123	S	%REC	100	8/9/2011 9:16:24 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	110	48		mg/Kg	10	8/9/2011 7:42:53 PM
Surr: BFB	144	75.2-136	S	%REC	10	8/9/2011 7:42:53 PM
<b>EPA METHOD 7471: MERCURY</b>						Analyst: ELS
Mercury	ND	0.033		mg/Kg	1	8/9/2011 12:27:42 PM
<b>EPA METHOD 6010B: SOIL METALS</b>						Analyst: ELS
Arsenic	ND	5.0		mg/Kg	2	8/10/2011 10:51:02 AM
Barium	510	2.0		mg/Kg	20	8/11/2011 1:35:05 PM
Cadmium	ND	0.20		mg/Kg	2	8/10/2011 10:51:02 AM
Chromium	16	0.60		mg/Kg	2	8/10/2011 10:51:02 AM
Lead	5.5	0.50		mg/Kg	2	8/10/2011 10:51:02 AM
Selenium	ND	5.0		mg/Kg	2	8/10/2011 10:51:02 AM
Silver	ND	0.50		mg/Kg	2	8/10/2011 10:51:02 AM
<b>VOLATILES BY 8260B/1311</b>						Analyst: MMS
Benzene	ND	0.50		mg/L	1	8/10/2011 8:57:52 PM
2-Butanone	ND	10		mg/L	1	8/10/2011 8:57:52 PM
Carbon Tetrachloride	ND	0.50		mg/L	1	8/10/2011 8:57:52 PM
Chlorobenzene	ND	100		mg/L	1	8/10/2011 8:57:52 PM
Chloroform	ND	6.0		mg/L	1	8/10/2011 8:57:52 PM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	8/10/2011 8:57:52 PM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	8/10/2011 8:57:52 PM
1,1-Dichloroethene	ND	0.70		mg/L	1	8/10/2011 8:57:52 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	8/10/2011 8:57:52 PM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	8/10/2011 8:57:52 PM
Trichloroethene (TCE)	ND	0.50		mg/L	1	8/10/2011 8:57:52 PM
Vinyl chloride	ND	0.20		mg/L	1	8/10/2011 8:57:52 PM
Surr: 1,2-Dichloroethane-d4	99.4	69.9-130		%REC	1	8/10/2011 8:57:52 PM
Surr: 4-Bromofluorobenzene	99.7	71.2-123		%REC	1	8/10/2011 8:57:52 PM
Surr: Dibromofluoromethane	100	73.9-134		%REC	1	8/10/2011 8:57:52 PM
Surr: Toluene-d8	99.2	81.9-122		%REC	1	8/10/2011 8:57:52 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com  
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 110809021  
**Project Name:** 1108278

## Analytical Results Report

<b>Sample Number</b>	110809021-001	<b>Sampling Date</b>	8/3/2011	<b>Date/Time Received</b>	8/9/2011 12:30 PM
<b>Client Sample ID</b>	1108278-01C / 1 PILE LOCATED E OF ALKY UNIT			<b>Sampling Time</b>	12:30 PM
<b>Matrix</b>	Soil				
<b>Comments</b>					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	8/12/2011	CRW	SW846 CH7	
Ignitability	Negative			8/10/2011	JWC	EPA 1030	
pH	8.30	ph Units		8/12/2011	CRW	EPA 9045	
Reactive sulfide	ND	mg/kg	10	8/11/2011	JTT	SW846 CH7	
%moisture	10	Percent		8/11/2011	CRW	%moisture	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595  
Certifications held by Anatek Labs WA: EPA:WA00189; CA:Cert2832; ID:WA00189; WA:C585; MT:Cert0095

Friday, August 12, 2011

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com  
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 110809021  
**Project Name:** 1108278

## Analytical Results Report

**Sample Number** 110809021-002      **Sampling Date** 8/3/2011      **Date/Time Received** 8/9/2011 12:30 PM  
**Client Sample ID** 1108278-02C / PILE CLEANUP AREA N OF RUNWAY      **Sampling Time** 12:50 PM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	8/12/2011	CRW	SW846 CH7	
Ignitability	Negative			8/10/2011	JWC	EPA 1030	
pH	7.90	ph Units		8/12/2011	CRW	EPA 9045	
Reactive sulfide	110	mg/kg	10	8/11/2011	JTT	SW846 CH7	
%moisture	9.5	Percent		8/11/2011	CRW	%moisture	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT: CERT0028; NM: ID00013; OR:ID200001-002; WA:C595  
Certifications held by Anatek Labs WA: EPA:WA00169; CA: Cert2632; ID:WA00189; WA:C585; MT: Cert0095

Friday, August 12, 2011

# Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 110809021  
**Project Name:** 1108278

## Analytical Results Report

**Sample Number** 110809021-003      **Sampling Date** 8/3/2011      **Date/Time Received** 8/9/2011 12:30 PM  
**Client Sample ID** 1108278-03C / PILE ALONGSIDE RUNWAY CLOSE TO POND 5      **Sampling Time** 1:15 PM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	8/12/2011	CRW	SW846 CH7	
Ignitability	Negative			8/10/2011	JWC	EPA 1030	
pH	9.34	ph Units		8/12/2011	CRW	EPA 9045	
Reactive sulfide	ND	mg/kg	10	8/11/2011	JTT	SW846 CH7	
%moisture	10	Percent		8/11/2011	CRW	%moisture	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C585; MT:Cert0095

Friday, August 12, 2011

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com  
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 110809021  
**Project Name:** 1108278

## Analytical Results Report

**Sample Number** 110809021-004      **Sampling Date** 8/3/2011      **Date/Time Received** 8/9/2011 12:30 PM  
**Client Sample ID** 1108278-04C / ROLL-OFF BOX A 20-001 NEAR POND 5      **Sampling Time** 1:30 PM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	8/12/2011	CRW	SW846 CH7	
Ignitability	Negative			8/10/2011	JWC	EPA 1030	
pH	8.20	ph Units		8/12/2011	CRW	EPA 9045	
Reactive sulfide	ND	mg/kg	10	8/11/2011	JTT	SW846 CH7	
%moisture	2.5	Percent		8/11/2011	CRW	%moisture	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):EB7893; ID:ID00013; IN:C-ID-01; KY:80142; MT:CERT0028; NM:ID00013; OR:ID200001-002; WA:C595  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C585; MT:Cert0085

Friday, August 12, 2011

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 110809021  
**Project Name:** 1108278

## Analytical Results Report

**Sample Number** 110809021-005      **Sampling Date** 8/3/2011      **Date/Time Received** 8/9/2011 12:30 PM  
**Client Sample ID** 1108278-05C / ROLL-OFF BOX A 20-079 NEAR POND 5      **Sampling Time** 2:00 PM  
**Matrix** Soil  
**Comments**

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	8/12/2011	CRW	SW846 CH7	
Ignitability	Negative			8/10/2011	JWC	EPA 1030	
pH	8.18	ph Units		8/12/2011	CRW	EPA 9045	
Reactive sulfide	ND	mg/kg	10	8/11/2011	JTT	SW846 CH7	
%moisture	6.6	Percent		8/11/2011	CRW	%moisture	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM:ID00013; OR:ID200001-002; WA:C595  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2832; ID:WA00169; WA:C595; MT:Cert0085

Friday, August 12, 2011

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com  
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

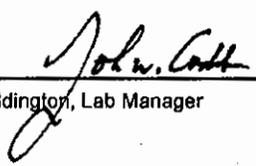
**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 110809021  
**Project Name:** 1108278

## Analytical Results Report

<b>Sample Number</b>	110809021-006	<b>Sampling Date</b>	8/4/2011	<b>Date/Time Received</b>	8/9/2011 12:30 PM		
<b>Client Sample ID</b>	1108278-06C / TRUCK RACK SPOT #5 EXCAVATION HOLE #4			<b>Sampling Time</b>	11:15 AM		
<b>Matrix</b>	Soil						
<b>Comments</b>							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	10	8/12/2011	CRW	SW846 CH7	
Ignitability	Negative			8/10/2011	JWC	EPA 1030	
pH	7.85	ph Units		8/12/2011	CRW	EPA 9045	
Reactive sulfide	ND	mg/kg	10	8/11/2011	JTT	SW846 CH7	
%moisture	7.9	Percent		8/11/2011	CRW	%moisture	

Authorized Signature

  
John Coddington, Lab Manager

MCL EPA's Maximum Contaminant Level  
ND Not Detected  
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.  
The results reported relate only to the samples indicated.  
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E67893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM:ID00013; OR:ID200001-002; WA:C595  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C585; MT:Cert0095

Friday, August 12, 2011

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: Soil Samples

Work Order: 1108278

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
<b>Method: EPA Method 8015B: Diesel Range Organics</b>											
Sample ID: MB-27944		MBLK									
Diesel Range Organics (DRO)	ND	mg/Kg	10								
Motor Oil Range Organics (MRO)	ND	mg/Kg	50								
Sample ID: LCS-27944		LCS									
Diesel Range Organics (DRO)	39.94	mg/Kg	10	50	0	79.9	66.7	119			
Sample ID: LCSD-27944		LCSD									
Diesel Range Organics (DRO)	44.48	mg/Kg	10	50	0	89.0	66.7	119	10.8	18.9	
<b>Method: EPA Method 8015B: Gasoline Range</b>											
Sample ID: 1108278-01A MSD		MSD									
Gasoline Range Organics (GRO)	31.34	mg/Kg	4.8	24.04	2.029	122	72.4	149	3.39	19.2	
Sample ID: MB-27948		MBLK									
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0								
Sample ID: LCS-27948		LCS									
Gasoline Range Organics (GRO)	29.38	mg/Kg	5.0	25	0	118	86.4	132			
Sample ID: 1108278-01A MS		MS									
Gasoline Range Organics (GRO)	32.42	mg/Kg	5.0	24.75	2.029	123	72.4	149			

## Qualifiers:

E Estimated value  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 H Holding times for preparation or analysis exceeded  
 NC Non-Chlorinated  
 R RPD outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup

Project: Soil Samples

Work Order: 1108278

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
<b>Method: Volatiles by 8260B/1311</b>											
<b>Sample ID: 1108278-01a msd</b>		<i>MSD</i>					<b>Batch ID: 27950</b>	<b>Analysis Date:</b>	<b>8/10/2011 6:35:22 PM</b>		
Benzene	0.4225	mg/L	0.010	0.4	0	106	51.1	171	1.63	0	
Chlorobenzene	0.4044	mg/L	0.010	0.4	0.0035	100	36.1	191	1.18	0	
1,1-Dichloroethene	0.4372	mg/L	0.010	0.4	0	109	49.1	162	0.433	0	
Trichloroethene (TCE)	0.3998	mg/L	0.010	0.4	0	99.9	41.2	166	0.454	0	
<b>Sample ID: mb-27950</b>		<i>MBLK</i>					<b>Batch ID: 27950</b>	<b>Analysis Date:</b>	<b>8/10/2011 4:40:35 PM</b>		
Benzene	ND	mg/L	0.50								
2-Butanone	ND	mg/L	10								
Carbon Tetrachloride	ND	mg/L	0.50								
Chlorobenzene	ND	mg/L	100								
Chloroform	ND	mg/L	6.0								
1,4-Dichlorobenzene	ND	mg/L	7.5								
1,2-Dichloroethane (EDC)	ND	mg/L	0.50								
1,1-Dichloroethene	ND	mg/L	0.70								
Hexachlorobutadiene	ND	mg/L	0.50								
Tetrachloroethene (PCE)	ND	mg/L	0.70								
Trichloroethene (TCE)	ND	mg/L	0.50								
Vinyl chloride	ND	mg/L	0.20								
<b>Sample ID: lcs-27950</b>		<i>LCS</i>					<b>Batch ID: 27950</b>	<b>Analysis Date:</b>	<b>8/10/2011 5:09:22 PM</b>		
Benzene	0.4266	mg/L	0.010	0.4	0	107	51.1	171			
Chlorobenzene	0.3953	mg/L	0.010	0.4	0.0029	98.1	36.1	191			
1,1-Dichloroethene	0.4395	mg/L	0.010	0.4	0	110	49.1	162			
Trichloroethene (TCE)	0.3979	mg/L	0.010	0.4	0	99.5	41.2	166			
<b>Sample ID: 1108278-01a ms</b>		<i>MS</i>					<b>Batch ID: 27950</b>	<b>Analysis Date:</b>	<b>8/10/2011 6:06:47 PM</b>		
Benzene	0.4294	mg/L	0.010	0.4	0	107	51.1	171			
Chlorobenzene	0.3997	mg/L	0.010	0.4	0.0035	99.0	36.1	191			
1,1-Dichloroethene	0.4391	mg/L	0.010	0.4	0	110	49.1	162			
Trichloroethene (TCE)	0.3980	mg/L	0.010	0.4	0	99.5	41.2	166			

Method: EPA Method 7471: Mercury

Sample ID: MB-27955

*MBLK*

Batch ID: 27955

Analysis Date:

8/9/2011 11:12:08 AM

Mercury ND mg/Kg 0.033

Sample ID: LCS-27955

*LCS*

Batch ID: 27955

Analysis Date:

8/9/2011 11:13:54 AM

Mercury 0.1663 mg/Kg 0.033 0.167 0.0017 98.8 80 120

## Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	NC	Non-Chlorinated
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits

**QA/QC SUMMARY REPORT**

**Client:** Western Refining Southwest, Gallup  
**Project:** Soil Samples

**Work Order:** 1108278

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
<b>Method: EPA Method 6010B: Soil Metals</b>											
<b>Sample ID: MB-27961</b>		<b>MBLK</b>									
				<b>Batch ID:</b>	<b>27961</b>	<b>Analysis Date:</b>	<b>8/10/2011 8:05:02 AM</b>				
Arsenic	ND	mg/Kg	2.5								
Cadmium	ND	mg/Kg	0.10								
Chromium	ND	mg/Kg	0.30								
Lead	ND	mg/Kg	0.25								
Selenium	ND	mg/Kg	2.5								
Silver	ND	mg/Kg	0.25								
<b>Sample ID: MB-27961</b>		<b>MBLK</b>									
				<b>Batch ID:</b>	<b>27961</b>	<b>Analysis Date:</b>	<b>8/11/2011 11:31:37 AM</b>				
Barium	ND	mg/Kg	0.10								
<b>Sample ID: LCS-27961</b>		<b>LCS</b>									
				<b>Batch ID:</b>	<b>27961</b>	<b>Analysis Date:</b>	<b>8/10/2011 8:07:38 AM</b>				
Arsenic	27.37	mg/Kg	2.5	25	0	109	80	120			
Cadmium	26.26	mg/Kg	0.10	25	0	105	80	120			
Chromium	26.62	mg/Kg	0.30	25	0	106	80	120			
Lead	25.89	mg/Kg	0.25	25	0	104	80	120			
Selenium	24.81	mg/Kg	2.5	25	0	99.2	80	120			
Silver	5.197	mg/Kg	0.25	5	0	104	80	120			
<b>Sample ID: LCS-27961</b>		<b>LCS</b>									
				<b>Batch ID:</b>	<b>27961</b>	<b>Analysis Date:</b>	<b>8/11/2011 11:33:54 AM</b>				
Barium	25.38	mg/Kg	0.10	25	0	102	80	120			

**Qualifiers:**

- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WESTERN REFINING GALLU

Date Received:

8/8/2011

Work Order Number 1108278

Received by: AT

Checklist completed by:

Signature *[Handwritten Signature]*

Sample ID labels checked by:

Initials *MG*

Date *08/08/11*

Matrix:

Carrier name: Client drop-off

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present  Not Shipped
- Custody seals intact on sample bottles? Yes  No  N/A
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Water - VOA vials have zero headspace? Yes  No VOA vials submitted  Yes  No
- Water - Preservation labels on bottle and cap match? Yes  No  N/A
- Water - pH acceptable upon receipt? Yes  No  N/A
- Container/Temp Blank temperature? **3.8°** <6° C Acceptable  
If given sufficient time to cool.

Number of preserved bottles checked for pH: \_\_\_\_\_  
<2 >12 unless noted below.

COMMENTS:

Client contacted \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding: \_\_\_\_\_

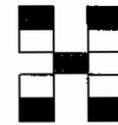
Comments: \_\_\_\_\_

Corrective Action \_\_\_\_\_

# Chain-of-Custody Record

Client: WESTERN REFINING  
Gallup Refinery  
 Mailing Address: RT 3 Box 7  
Gallup NM 87301  
 Phone #: 505 722 3833  
 email or Fax#: 505 722 0210  
 QA/QC Package:  
 Standard  Level 4 (Full Validation)  
 Accreditation  
 NELAP  Other \_\_\_\_\_  
 EDD (Type) \_\_\_\_\_

Turn-Around Time:  
 Standard  Rush  
 Project Name: SOIL SAMPLES  
 Project #: Sample Piles (Page 2 of 2)  
 Project Manager: Thurman Larsen  
 Sampler: ALVIN/JANICE  
 On Ice:  Yes  No  
 Sample temperature: 38



**HALL ENVIRONMENTAL ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	VOC's	TCIP Volatiles	Air Bubbles (Y or N)
8-3-11	1:30	SOIL	Roll-off Box A20-001 Near Pond 5	802-3	---	-4			X				X					X	X	
8-3-11	2:00	SOIL	Roll-off Box A20-079 Near Pond 5	802-3	---	-5			X				X					X	X	
8-4-11	11:15	SOIL	Truck Rack SPOT # 5 EXCAVATION hole # 4	802-3	---	-6			X				X					X	X	

Date: 8/11 Time: 12:45 Relinquished by: [Signature]  
 Date: \_\_\_\_\_ Time: \_\_\_\_\_ Relinquished by: \_\_\_\_\_

Received by: [Signature] Date: 8/11 Time: 1245  
 Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

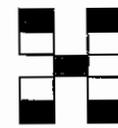
Remarks: Pond 5  
Roll-off A20-001  
Roll-off A20-079  
Hole 4  
Spot 5  
Truck  
Spot 5

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

# Chain-of-Custody Record

Client: **WESTERN REFINING**  
**Gallup Refinery**  
 Mailing Address: **RT 3 Box 7**  
**Gallup NM 87301**  
 Phone #: **505 722 3833**  
 email or Fax#: **505 722 0210**  
 QA/QC Package:  
 Standard  Level 4 (Full Validation)  
 Accreditation  
 NELAP  Other \_\_\_\_\_  
 EDD (Type) \_\_\_\_\_

Turn-Around Time:  
 Standard  Rush  
 Project Name: **SOIL SAMPLES**  
 Project #: **Sample Piles (Page 1 of 2)**  
 Project Manager: **THURMAN LARSEN**  
 Sampler: **ALVIN / JANICE**  
 On Ice:  Yes  No  
 Sample Temperature: **58**



**HALL ENVIRONMENTAL ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	XRCI	TCIP Volatiles	Air Bubbles (Y or N)
8-3-11	12:30	SOIL	(1 pile - LOCATED EAST OF ALKY UNIT)	8oz-3	---	1108278			X				X					X	X	
8-3-11	12:50	SOIL	(Pile Cleanup Area NORTH OF RUNWAY)	8oz-3	---	-2			X				X					X	X	
8-3-11	1:15	SOIL	(Pile ALONGSIDE Runway Close To Pond 5)	8oz-3	---	-3			X				X					X	X	

Date: **8/08/11** Time: **12:45** Relinquished by: **Janice**  
 Date: \_\_\_\_\_ Time: \_\_\_\_\_ Relinquished by: \_\_\_\_\_

Received by: **[Signature]** Date: **08/08/11** Time: **12:45**  
 Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Remarks: **ALKY** **[Diagram]** **[Diagram]** **[Diagram]** **[Diagram]**

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

AOC 19 – East Fuel Oil Loading Rack

- Western to find cleanup documentation from 2007 removal action
  - **Interviews with refinery personnel familiar with the project to install the new loading rack in 2007-2008 reported the initial excavation was completed to a depth of approximately 2 feet. The exact dimensions of the initial excavation are unknown but the subsequent excavation in 2011 for construction of the new ESP unit covered all of the original area and beyond.**
  - **Several chemical analytical reports were located for sampling of soils at the former loading rack and are attached. The initial samples were collected on 11/7/2006 and appear to be associated with a site inspection conducted by NMOCD. The second sample was collected on 11/1/2007 and is a waste characterization sample apparently of the excavated soils. The third sample was collected on 2/14/2008 and although there is no detailed information it appears to be a confirmation sample (see attached analyses).**

Giant Ciniza Refinery  
Fire Inspection Follow-up of 10/05/06 Alkyl Unit Fire  
October 10, 2006



Truck load-out release area spill area scheduled to be cleaned next week



Looking northward at storm water ditch area where firewater and diluted HF acid flowed to berm area at NE region of process area.



Looking S. from NE corner of process area where firewater and diluted HF acid flowed northward to pond in berm area at NE region of process area.



Looking south back toward SE area of process unit where overflow drained through storm water culvert to pond in berm area at NE region of process area.



Looking northward from SE corner of process area in direction where firewater and diluted HF acid flowed north toward culvert and eventually to pond in berm area at NE region of process area.





COVER LETTER

Friday, December 01, 2006

Cheryl Johnson  
Giant Refining Co  
Rt. 3 Box 7  
Gallup, NM 87301

TEL: (505) 722-3833  
FAX (505) 722-0210

RE: Misc. Soil Samples

Order No.: 0611097

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory, Inc. received 6 sample(s) on 11/8/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman, Business Manager  
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425  
AZ license # AZ0682  
ORELAP Lab # NM100001



CLIENT:	Giant Refining Co	Client Sample ID:	Fuel Oil Rack
Lab Order:	0611097	Collection Date:	11/7/2006 3:15:00 PM
Project:	Misc. Soil Samples	Date Received:	11/8/2006
Lab ID:	0611097-01	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 7471: MERCURY</b>						
Mercury	0.17	0.033		mg/Kg	1	11/30/2006
						Analyst: IC
<b>EPA METHOD 6010B: SOIL METALS</b>						
Arsenic	ND	2.5		mg/Kg	1	11/17/2006 1:29:55 PM
Barium	720	2.0		mg/Kg	20	11/17/2006 2:08:26 PM
Cadmium	ND	0.10		mg/Kg	1	11/17/2006 1:29:55 PM
Chromium	5.0	0.30		mg/Kg	1	11/17/2006 1:29:55 PM
Lead	1.4	0.25		mg/Kg	1	11/17/2006 1:29:55 PM
Selenium	ND	2.5		mg/Kg	1	11/17/2006 1:29:55 PM
Silver	ND	0.25		mg/Kg	1	11/17/2006 1:29:55 PM
						Analyst: CMS
<b>EPA METHOD 8260B: VOLATILES</b>						
Benzene	ND	2.5		mg/Kg	50	11/10/2006
Toluene	47	2.5		mg/Kg	50	11/10/2006
Ethylbenzene	18	2.5		mg/Kg	50	11/10/2006
Methyl tert-butyl ether (MTBE)	ND	2.5		mg/Kg	50	11/10/2006
1,2,4-Trimethylbenzene	120	2.5		mg/Kg	50	11/10/2006
1,3,5-Trimethylbenzene	46	2.5		mg/Kg	50	11/10/2006
1,2-Dichloroethane (EDC)	ND	2.5		mg/Kg	50	11/10/2006
1,2-Dibromoethane (EDB)	ND	2.5		mg/Kg	50	11/10/2006
Naphthalene	120	5.0		mg/Kg	50	11/10/2006
1-Methylnaphthalene	140	10		mg/Kg	50	11/10/2006
2-Methylnaphthalene	270	20		mg/Kg	100	11/13/2006
Acetone	ND	38		mg/Kg	50	11/10/2006
Bromobenzene	ND	2.5		mg/Kg	50	11/10/2006
Bromochloromethane	ND	2.5		mg/Kg	50	11/10/2006
Bromodichloromethane	ND	2.5		mg/Kg	50	11/10/2006
Bromoform	ND	2.5		mg/Kg	50	11/10/2006
Bromomethane	ND	5.0		mg/Kg	50	11/10/2006
2-Butanone	ND	25		mg/Kg	50	11/10/2006
Carbon disulfide	ND	25		mg/Kg	50	11/10/2006
Carbon tetrachloride	ND	5.0		mg/Kg	50	11/10/2006
Chlorobenzene	ND	2.5		mg/Kg	50	11/10/2006
Chloroethane	ND	5.0		mg/Kg	50	11/10/2006
Chloroform	ND	2.5		mg/Kg	50	11/10/2006
Chloromethane	ND	2.5		mg/Kg	50	11/10/2006
2-Chlorotoluene	ND	2.5		mg/Kg	50	11/10/2006
4-Chlorotoluene	ND	2.5		mg/Kg	50	11/10/2006
cis-1,2-DCE	ND	2.5		mg/Kg	50	11/10/2006

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT: Giant Refining Co  
 Lab Order: 0611097  
 Project: Misc. Soil Samples  
 Lab ID: 0611097-01

Client Sample ID: Fuel Oil Rack  
 Collection Date: 11/7/2006 3:15:00 PM  
 Date Received: 11/8/2006  
 Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: LMM
cis-1,3-Dichloropropene	ND	2.5		mg/Kg	50	11/10/2006
1,2-Dibromo-3-chloropropane	ND	5.0		mg/Kg	50	11/10/2006
Dibromochloromethane	ND	2.5		mg/Kg	50	11/10/2006
Dibromomethane	ND	5.0		mg/Kg	50	11/10/2006
1,2-Dichlorobenzene	ND	2.5		mg/Kg	50	11/10/2006
1,3-Dichlorobenzene	ND	2.5		mg/Kg	50	11/10/2006
1,4-Dichlorobenzene	ND	2.5		mg/Kg	50	11/10/2006
Dichlorodifluoromethane	ND	2.5		mg/Kg	50	11/10/2006
1,1-Dichloroethane	ND	5.0		mg/Kg	50	11/10/2006
1,1-Dichloroethene	ND	2.5		mg/Kg	50	11/10/2006
1,2-Dichloropropane	ND	2.5		mg/Kg	50	11/10/2006
1,3-Dichloropropane	ND	2.5		mg/Kg	50	11/10/2006
2,2-Dichloropropane	ND	5.0		mg/Kg	50	11/10/2006
1,1-Dichloropropene	ND	2.5		mg/Kg	50	11/10/2006
Hexachlorobutadiene	ND	5.0		mg/Kg	50	11/10/2006
2-Hexanone	ND	25		mg/Kg	50	11/10/2006
Isopropylbenzene	4.7	2.5		mg/Kg	50	11/10/2006
4-Isopropyltoluene	7.2	2.5		mg/Kg	50	11/10/2006
4-Methyl-2-pentanone	ND	25		mg/Kg	50	11/10/2006
Methylene chloride	ND	7.5		mg/Kg	50	11/10/2006
n-Butylbenzene	31	2.5		mg/Kg	50	11/10/2006
n-Propylbenzene	9.7	2.5		mg/Kg	50	11/10/2006
sec-Butylbenzene	2.9	2.5		mg/Kg	50	11/10/2006
Styrene	ND	2.5		mg/Kg	50	11/10/2006
tert-Butylbenzene	ND	2.5		mg/Kg	50	11/10/2006
1,1,1,2-Tetrachloroethane	ND	2.5		mg/Kg	50	11/10/2006
1,1,2,2-Tetrachloroethane	ND	2.5		mg/Kg	50	11/10/2006
Tetrachloroethene (PCE)	ND	2.5		mg/Kg	50	11/10/2006
trans-1,2-DCE	ND	2.5		mg/Kg	50	11/10/2006
trans-1,3-Dichloropropene	ND	2.5		mg/Kg	50	11/10/2006
1,2,3-Trichlorobenzene	ND	5.0		mg/Kg	50	11/10/2006
1,2,4-Trichlorobenzene	ND	2.5		mg/Kg	50	11/10/2006
1,1,1-Trichloroethane	ND	2.5		mg/Kg	50	11/10/2006
1,1,2-Trichloroethane	ND	2.5		mg/Kg	50	11/10/2006
Trichloroethene (TCE)	ND	2.5		mg/Kg	50	11/10/2006
Trichlorofluoromethane	ND	2.5		mg/Kg	50	11/10/2006
1,2,3-Trichloropropane	ND	5.0		mg/Kg	50	11/10/2006
Vinyl chloride	ND	2.5		mg/Kg	50	11/10/2006
Xylenes, Total	170	5.0		mg/Kg	50	11/10/2006
Surr: 1,2-Dichloroethane-d4	91.4	62-127		%REC	50	11/10/2006

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT:	Giant Refining Co	Client Sample ID:	Fuel Oil Rack
Lab Order:	0611097	Collection Date:	11/7/2006 3:15:00 PM
Project:	Misc. Soil Samples	Date Received:	11/8/2006
Lab ID:	0611097-01	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: LMM
Surr: 4-Bromofluorobenzene	113	75.2-127	%REC		50	11/10/2006
Surr: Dibromofluoromethane	91.8	68.1-120	%REC		50	11/10/2006
Surr: Toluene-d8	87.9	74-119	%REC		50	11/10/2006

- |             |   |  |
|-------------|---|--|
| Qualifiers: | * Value exceeds Maximum Contaminant Level         | B Analyte detected in the associated Method Blank    |
|             | E Value above quantitation range                  | H Holding times for preparation or analysis exceeded |
|             | J Analyte detected below quantitation limits      | MCL Maximum Contaminant Level                        |
|             | ND Not Detected at the Reporting Limit            | RL Reporting Limit                                   |
|             | S Spike recovery outside accepted recovery limits |  |

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT: Giant Refining Co Client Sample ID: Gas Con  
 Lab Order: 0611097 Collection Date: 11/7/2006 3:12:00 PM  
 Project: Misc. Soil Samples Date Received: 11/8/2006  
 Lab ID: 0611097-02 Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 7471: MERCURY</b>						Analyst: IC
Mercury	1.0	0.16		mg/Kg	5	11/30/2006
<b>EPA METHOD 6010B: SOIL METALS</b>						Analyst: CMS
Arsenic	6.4	2.5		mg/Kg	1	11/17/2006 1:33:28 PM
Barium	430	1.0		mg/Kg	10	11/17/2006 2:10:59 PM
Cadmium	ND	0.10		mg/Kg	1	11/17/2006 1:33:28 PM
Chromium	41	0.30		mg/Kg	1	11/17/2006 1:33:28 PM
Lead	11	0.25		mg/Kg	1	11/17/2006 1:33:28 PM
Selenium	ND	2.5		mg/Kg	1	11/17/2006 1:33:28 PM
Silver	ND	0.25		mg/Kg	1	11/17/2006 1:33:28 PM
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: LMM
Benzene	ND	0.050		mg/Kg	1	11/13/2006
Toluene	ND	0.050		mg/Kg	1	11/13/2006
Ethylbenzene	ND	0.050		mg/Kg	1	11/13/2006
Methyl tert-butyl ether (MTBE)	ND	0.050		mg/Kg	1	11/13/2006
1,2,4-Trimethylbenzene	ND	0.050		mg/Kg	1	11/13/2006
1,3,5-Trimethylbenzene	ND	0.050		mg/Kg	1	11/13/2006
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	11/13/2006
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	11/13/2006
Naphthalene	ND	0.10		mg/Kg	1	11/13/2006
1-Methylnaphthalene	0.25	0.20		mg/Kg	1	11/13/2006
2-Methylnaphthalene	0.23	0.20		mg/Kg	1	11/13/2006
Acetone	ND	0.75		mg/Kg	1	11/13/2006
Bromobenzene	ND	0.050		mg/Kg	1	11/13/2006
Bromochloromethane	ND	0.050		mg/Kg	1	11/13/2006
Bromodichloromethane	ND	0.050		mg/Kg	1	11/13/2006
Bromoform	ND	0.050		mg/Kg	1	11/13/2006
Bromomethane	ND	0.10		mg/Kg	1	11/13/2006
2-Butanone	ND	0.50		mg/Kg	1	11/13/2006
Carbon disulfide	ND	0.50		mg/Kg	1	11/13/2006
Carbon tetrachloride	ND	0.10		mg/Kg	1	11/13/2006
Chlorobenzene	ND	0.050		mg/Kg	1	11/13/2006
Chloroethane	ND	0.10		mg/Kg	1	11/13/2006
Chloroform	ND	0.050		mg/Kg	1	11/13/2006
Chloromethane	ND	0.050		mg/Kg	1	11/13/2006
2-Chlorotoluene	ND	0.050		mg/Kg	1	11/13/2006
4-Chlorotoluene	ND	0.050		mg/Kg	1	11/13/2006
cis-1,2-DCE	ND	0.050		mg/Kg	1	11/13/2006

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

CLIENT:	Giant Refining Co	Client Sample ID:	Gas Con
Lab Order:	0611097	Collection Date:	11/7/2006 3:12:00 PM
Project:	Misc. Soil Samples	Date Received:	11/8/2006
Lab ID:	0611097-02	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: LMM
cis-1,3-Dichloropropene	ND	0.050		mg/Kg	1	11/13/2006
1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg	1	11/13/2006
Dibromochloromethane	ND	0.050		mg/Kg	1	11/13/2006
Dibromomethane	ND	0.10		mg/Kg	1	11/13/2006
1,2-Dichlorobenzene	ND	0.050		mg/Kg	1	11/13/2006
1,3-Dichlorobenzene	ND	0.050		mg/Kg	1	11/13/2006
1,4-Dichlorobenzene	ND	0.050		mg/Kg	1	11/13/2006
Dichlorodifluoromethane	ND	0.050		mg/Kg	1	11/13/2006
1,1-Dichloroethane	ND	0.10		mg/Kg	1	11/13/2006
1,1-Dichloroethene	ND	0.050		mg/Kg	1	11/13/2006
1,2-Dichloropropane	ND	0.050		mg/Kg	1	11/13/2006
1,3-Dichloropropane	ND	0.050		mg/Kg	1	11/13/2006
2,2-Dichloropropane	ND	0.10		mg/Kg	1	11/13/2006
1,1-Dichloropropene	ND	0.050		mg/Kg	1	11/13/2006
Hexachlorobutadiene	ND	0.10		mg/Kg	1	11/13/2006
2-Hexanone	ND	0.50		mg/Kg	1	11/13/2006
Isopropylbenzene	ND	0.050		mg/Kg	1	11/13/2006
4-Isopropyltoluene	ND	0.050		mg/Kg	1	11/13/2006
4-Methyl-2-pentanone	ND	0.50		mg/Kg	1	11/13/2006
Methylene chloride	ND	0.15		mg/Kg	1	11/13/2006
n-Butylbenzene	ND	0.050		mg/Kg	1	11/13/2006
n-Propylbenzene	ND	0.050		mg/Kg	1	11/13/2006
sec-Butylbenzene	ND	0.050		mg/Kg	1	11/13/2006
Styrene	ND	0.050		mg/Kg	1	11/13/2006
tert-Butylbenzene	ND	0.050		mg/Kg	1	11/13/2006
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg	1	11/13/2006
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	11/13/2006
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	11/13/2006
trans-1,2-DCE	ND	0.050		mg/Kg	1	11/13/2006
trans-1,3-Dichloropropene	ND	0.050		mg/Kg	1	11/13/2006
1,2,3-Trichlorobenzene	ND	0.10		mg/Kg	1	11/13/2006
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg	1	11/13/2006
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	11/13/2006
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	11/13/2006
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	11/13/2006
Trichlorofluoromethane	ND	0.050		mg/Kg	1	11/13/2006
1,2,3-Trichloropropane	ND	0.10		mg/Kg	1	11/13/2006
Vinyl chloride	ND	0.050		mg/Kg	1	11/13/2006
Xylenes, Total	ND	0.10		mg/Kg	1	11/13/2006
Surr: 1,2-Dichloroethane-d4	76.4	62-127		%REC	1	11/13/2006

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT:	Giant Refining Co	Client Sample ID:	Gas Con
Lab Order:	0611097	Collection Date:	11/7/2006 3:12:00 PM
Project:	Misc. Soil Samples	Date Received:	11/8/2006
Lab ID:	0611097-02	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: LMM
Surr: 4-Bromofluorobenzene	94.2	75.2-127		%REC	1	11/13/2006
Surr: Dibromofluoromethane	76.3	68.1-120		%REC	1	11/13/2006
Surr: Toluene-d8	95.9	74-119		%REC	1	11/13/2006

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT:	Giant Refining Co	Client Sample ID:	Sour Nap. Soil
Lab Order:	0611097	Collection Date:	11/7/2006 3:20:00 PM
Project:	Misc. Soil Samples	Date Received:	11/8/2006
Lab ID:	0611097-03	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 7471: MERCURY</b>						
Mercury	1.3	0.16		mg/Kg	5	11/30/2006
<b>EPA METHOD 6010B: SOIL METALS</b>						
Arsenic	ND	2.5		mg/Kg	1	11/17/2006 1:36:02 PM
Barium	520	2.0		mg/Kg	20	11/17/2006 2:33:27 PM
Cadmium	ND	0.10		mg/Kg	1	11/17/2006 1:36:02 PM
Chromium	12	0.30		mg/Kg	1	11/17/2006 1:36:02 PM
Lead	5.3	0.25		mg/Kg	1	11/17/2006 1:36:02 PM
Selenium	ND	2.5		mg/Kg	1	11/17/2006 1:36:02 PM
Silver	ND	0.25		mg/Kg	1	11/17/2006 1:36:02 PM
<b>EPA METHOD 8260B: VOLATILES</b>						
Benzene	ND	0.050		mg/Kg	1	11/10/2006
Toluene	ND	0.050		mg/Kg	1	11/10/2006
Ethylbenzene	ND	0.050		mg/Kg	1	11/10/2006
Methyl tert-butyl ether (MTBE)	ND	0.050		mg/Kg	1	11/10/2006
1,2,4-Trimethylbenzene	ND	0.050		mg/Kg	1	11/10/2006
1,3,5-Trimethylbenzene	ND	0.050		mg/Kg	1	11/10/2006
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	11/10/2006
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	11/10/2006
Naphthalene	ND	0.10		mg/Kg	1	11/10/2006
1-Methylnaphthalene	ND	0.20		mg/Kg	1	11/10/2006
2-Methylnaphthalene	ND	0.20		mg/Kg	1	11/10/2006
Acetone	ND	0.75		mg/Kg	1	11/10/2006
Bromobenzene	ND	0.050		mg/Kg	1	11/10/2006
Bromochloromethane	ND	0.050		mg/Kg	1	11/10/2006
Bromodichloromethane	ND	0.050		mg/Kg	1	11/10/2006
Bromoform	ND	0.050		mg/Kg	1	11/10/2006
Bromomethane	ND	0.10		mg/Kg	1	11/10/2006
2-Butanone	ND	0.50		mg/Kg	1	11/10/2006
Carbon disulfide	ND	0.50		mg/Kg	1	11/10/2006
Carbon tetrachloride	ND	0.10		mg/Kg	1	11/10/2006
Chlorobenzene	ND	0.050		mg/Kg	1	11/10/2006
Chloroethane	ND	0.10		mg/Kg	1	11/10/2006
Chloroform	ND	0.050		mg/Kg	1	11/10/2006
Chloromethane	ND	0.050		mg/Kg	1	11/10/2006
2-Chlorotoluene	ND	0.050		mg/Kg	1	11/10/2006
4-Chlorotoluene	ND	0.050		mg/Kg	1	11/10/2006
cis-1,2-DCE	ND	0.050		mg/Kg	1	11/10/2006

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT: Giant Refining Co Client Sample ID: Sour Nap. Soil  
 Lab Order: 0611097 Collection Date: 11/7/2006 3:20:00 PM  
 Project: Misc. Soil Samples Date Received: 11/8/2006  
 Lab ID: 0611097-03 Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: LMM
cis-1,3-Dichloropropene	ND	0.050		mg/Kg	1	11/10/2006
1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg	1	11/10/2006
Dibromochloromethane	ND	0.050		mg/Kg	1	11/10/2006
Dibromomethane	ND	0.10		mg/Kg	1	11/10/2006
1,2-Dichlorobenzene	ND	0.050		mg/Kg	1	11/10/2006
1,3-Dichlorobenzene	ND	0.050		mg/Kg	1	11/10/2006
1,4-Dichlorobenzene	ND	0.050		mg/Kg	1	11/10/2006
Dichlorodifluoromethane	ND	0.050		mg/Kg	1	11/10/2006
1,1-Dichloroethane	ND	0.10		mg/Kg	1	11/10/2006
1,1-Dichloroethene	ND	0.050		mg/Kg	1	11/10/2006
1,2-Dichloropropane	ND	0.050		mg/Kg	1	11/10/2006
1,3-Dichloropropane	ND	0.050		mg/Kg	1	11/10/2006
2,2-Dichloropropane	ND	0.10		mg/Kg	1	11/10/2006
1,1-Dichloropropene	ND	0.050		mg/Kg	1	11/10/2006
Hexachlorobutadiene	ND	0.10		mg/Kg	1	11/10/2006
2-Hexanone	ND	0.50		mg/Kg	1	11/10/2006
Isopropylbenzene	ND	0.050		mg/Kg	1	11/10/2006
4-Isopropyltoluene	ND	0.050		mg/Kg	1	11/10/2006
4-Methyl-2-pentanone	ND	0.50		mg/Kg	1	11/10/2006
Methylene chloride	ND	0.15		mg/Kg	1	11/10/2006
n-Butylbenzene	ND	0.050		mg/Kg	1	11/10/2006
n-Propylbenzene	ND	0.050		mg/Kg	1	11/10/2006
sec-Butylbenzene	ND	0.050		mg/Kg	1	11/10/2006
Styrene	ND	0.050		mg/Kg	1	11/10/2006
tert-Butylbenzene	ND	0.050		mg/Kg	1	11/10/2006
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg	1	11/10/2006
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	11/10/2006
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	11/10/2006
trans-1,2-DCE	ND	0.050		mg/Kg	1	11/10/2006
trans-1,3-Dichloropropene	ND	0.050		mg/Kg	1	11/10/2006
1,2,3-Trichlorobenzene	ND	0.10		mg/Kg	1	11/10/2006
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg	1	11/10/2006
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	11/10/2006
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	11/10/2006
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	11/10/2006
Trichlorofluoromethane	ND	0.050		mg/Kg	1	11/10/2006
1,2,3-Trichloropropane	ND	0.10		mg/Kg	1	11/10/2006
Vinyl chloride	ND	0.050		mg/Kg	1	11/10/2006
Xylenes, Total	ND	0.10		mg/Kg	1	11/10/2006
Surr: 1,2-Dichloroethane-d4	74.3	62-127		%REC	1	11/10/2006

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 01-Dec-06

<b>CLIENT:</b> Giant Refining Co	<b>Client Sample ID:</b> Sour Nap. Soil
<b>Lab Order:</b> 0611097	<b>Collection Date:</b> 11/7/2006 3:20:00 PM
<b>Project:</b> Misc. Soil Samples	<b>Date Received:</b> 11/8/2006
<b>Lab ID:</b> 0611097-03	<b>Matrix:</b> SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: LMM
Surr: 4-Bromofluorobenzene	86.2	75.2-127		%REC	1	11/10/2006
Surr: Dibromofluoromethane	73.5	68.1-120		%REC	1	11/10/2006
Surr: Toluene-d8	95.3	74-119		%REC	1	11/10/2006

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT:	Giant Refining Co	Client Sample ID:	#4 Oily soil
Lab Order:	0611097	Collection Date:	11/7/2006 3:35:00 PM
Project:	Misc. Soil Samples	Date Received:	11/8/2006
Lab ID:	0611097-04	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 7471: MERCURY</b>						Analyst: IC
Mercury	ND	0.033		mg/Kg	1	11/30/2006
<b>EPA METHOD 6010B: SOIL METALS</b>						Analyst: CMS
Arsenic	ND	2.5		mg/Kg	1	11/17/2006 1:38:36 PM
Barium	410	1.0		mg/Kg	10	11/17/2006 2:16:02 PM
Cadmium	0.37	0.10		mg/Kg	1	11/17/2006 1:38:36 PM
Chromium	5.6	0.30		mg/Kg	1	11/17/2006 1:38:36 PM
Lead	7.0	0.25		mg/Kg	1	11/17/2006 1:38:36 PM
Selenium	ND	2.5		mg/Kg	1	11/17/2006 1:38:36 PM
Silver	ND	0.25		mg/Kg	1	11/17/2006 1:38:36 PM
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: LMM
Benzene	ND	0.50		mg/Kg	10	11/13/2006
Toluene	ND	0.50		mg/Kg	10	11/13/2006
Ethylbenzene	ND	0.50		mg/Kg	10	11/13/2006
Methyl tert-butyl ether (MTBE)	ND	0.50		mg/Kg	10	11/13/2006
1,2,4-Trimethylbenzene	ND	0.50		mg/Kg	10	11/13/2006
1,3,5-Trimethylbenzene	1.3	0.50		mg/Kg	10	11/13/2006
1,2-Dichloroethane (EDC)	ND	0.50		mg/Kg	10	11/13/2006
1,2-Dibromoethane (EDB)	ND	0.50		mg/Kg	10	11/13/2006
Naphthalene	ND	1.0		mg/Kg	10	11/13/2006
1-Methylnaphthalene	ND	2.0		mg/Kg	10	11/13/2006
2-Methylnaphthalene	ND	2.0		mg/Kg	10	11/13/2006
Acetone	ND	7.5		mg/Kg	10	11/13/2006
Bromobenzene	ND	0.50		mg/Kg	10	11/13/2006
Bromochloromethane	ND	0.50		mg/Kg	10	11/13/2006
Bromodichloromethane	ND	0.50		mg/Kg	10	11/13/2006
Bromoform	ND	0.50		mg/Kg	10	11/13/2006
Bromomethane	ND	1.0		mg/Kg	10	11/13/2006
2-Butanone	ND	5.0		mg/Kg	10	11/13/2006
Carbon disulfide	ND	5.0		mg/Kg	10	11/13/2006
Carbon tetrachloride	ND	1.0		mg/Kg	10	11/13/2006
Chlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
Chloroethane	ND	1.0		mg/Kg	10	11/13/2006
Chloroform	ND	0.50		mg/Kg	10	11/13/2006
Chloromethane	ND	0.50		mg/Kg	10	11/13/2006
2-Chlorotoluene	ND	0.50		mg/Kg	10	11/13/2006
4-Chlorotoluene	ND	0.50		mg/Kg	10	11/13/2006
cis-1,2-DCE	ND	0.50		mg/Kg	10	11/13/2006

Qualifiers: \* Value exceeds Maximum Contaminant Level      B Analyte detected in the associated Method Blank  
 E Value above quantitation range      H Holding times for preparation or analysis exceeded  
 J Analyte detected below quantitation limits      MCL Maximum Contaminant Level  
 ND Not Detected at the Reporting Limit      RL Reporting Limit  
 S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT: Giant Refining Co Client Sample ID: #4 Oily soil  
 Lab Order: 0611097 Collection Date: 11/7/2006 3:35:00 PM  
 Project: Misc. Soil Samples Date Received: 11/8/2006  
 Lab ID: 0611097-04 Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: LMM
cis-1,3-Dichloropropene	ND	0.50		mg/Kg	10	11/13/2006
1,2-Dibromo-3-chloropropane	ND	1.0		mg/Kg	10	11/13/2006
Dibromochloromethane	ND	0.50		mg/Kg	10	11/13/2006
Dibromomethane	ND	1.0		mg/Kg	10	11/13/2006
1,2-Dichlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
1,3-Dichlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
1,4-Dichlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
Dichlorodifluoromethane	ND	0.50		mg/Kg	10	11/13/2006
1,1-Dichloroethane	ND	1.0		mg/Kg	10	11/13/2006
1,1-Dichloroethene	ND	0.50		mg/Kg	10	11/13/2006
1,2-Dichloropropane	ND	0.50		mg/Kg	10	11/13/2006
1,3-Dichloropropane	ND	0.50		mg/Kg	10	11/13/2006
2,2-Dichloropropane	ND	1.0		mg/Kg	10	11/13/2006
1,1-Dichloropropene	ND	0.50		mg/Kg	10	11/13/2006
Hexachlorobutadiene	ND	1.0		mg/Kg	10	11/13/2006
2-Hexanone	ND	5.0		mg/Kg	10	11/13/2006
Isopropylbenzene	ND	0.50		mg/Kg	10	11/13/2006
4-Isopropyltoluene	ND	0.50		mg/Kg	10	11/13/2006
4-Methyl-2-pentanone	ND	5.0		mg/Kg	10	11/13/2006
Methylene chloride	ND	1.5		mg/Kg	10	11/13/2006
n-Butylbenzene	0.80	0.50		mg/Kg	10	11/13/2006
n-Propylbenzene	ND	0.50		mg/Kg	10	11/13/2006
sec-Butylbenzene	ND	0.50		mg/Kg	10	11/13/2006
Styrene	ND	0.50		mg/Kg	10	11/13/2006
tert-Butylbenzene	ND	0.50		mg/Kg	10	11/13/2006
1,1,1,2-Tetrachloroethane	ND	0.50		mg/Kg	10	11/13/2006
1,1,2,2-Tetrachloroethane	ND	0.50		mg/Kg	10	11/13/2006
Tetrachloroethene (PCE)	ND	0.50		mg/Kg	10	11/13/2006
trans-1,2-DCE	ND	0.50		mg/Kg	10	11/13/2006
trans-1,3-Dichloropropene	ND	0.50		mg/Kg	10	11/13/2006
1,2,3-Trichlorobenzene	ND	1.0		mg/Kg	10	11/13/2006
1,2,4-Trichlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
1,1,1-Trichloroethane	ND	0.50		mg/Kg	10	11/13/2006
1,1,2-Trichloroethane	ND	0.50		mg/Kg	10	11/13/2006
Trichloroethene (TCE)	ND	0.50		mg/Kg	10	11/13/2006
Trichlorofluoromethane	ND	0.50		mg/Kg	10	11/13/2006
1,2,3-Trichloropropane	ND	1.0		mg/Kg	10	11/13/2006
Vinyl chloride	ND	0.50		mg/Kg	10	11/13/2006
Xylenes, Total	ND	1.0		mg/Kg	10	11/13/2006
Surr: 1,2-Dichloroethane-d4	93.4	62-127		%REC	10	11/13/2006

Qualifiers: \* Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank  
 E Value above quantitation range H Holding times for preparation or analysis exceeded  
 J Analyte detected below quantitation limits MCL Maximum Contaminant Level  
 ND Not Detected at the Reporting Limit RL Reporting Limit  
 S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT:	Giant Refining Co	Client Sample ID:	#4 Oily soil
Lab Order:	0611097	Collection Date:	11/7/2006 3:35:00 PM
Project:	Misc. Soil Samples	Date Received:	11/8/2006
Lab ID:	0611097-04	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: LMM
Surr: 4-Bromofluorobenzene	97.5	75.2-127	%REC		10	11/13/2006
Surr: Dibromofluoromethane	98.8	68.1-120	%REC		10	11/13/2006
Surr: Toluene-d8	96.8	74-119	%REC		10	11/13/2006

- Qualifiers:
- \* Value exceeds Maximum Contaminant Level
  - E Value above quantitation range
  - J Analyte detected below quantitation limits
  - ND Not Detected at the Reporting Limit
  - S Spike recovery outside accepted recovery limits
  - B Analyte detected in the associated Method Blank
  - H Holding times for preparation or analysis exceeded
  - MCL Maximum Contaminant Level
  - RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT: Giant Refining Co Client Sample ID: #5 Oily soil  
 Lab Order: 0611097 Collection Date: 11/7/2006 3:40:00 PM  
 Project: Misc. Soil Samples Date Received: 11/8/2006  
 Lab ID: 0611097-05 Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 7471: MERCURY</b>						
Mercury	0.052	0.033		mg/Kg	1	11/30/2006
<b>EPA METHOD 6010B: SOIL METALS</b>						
Arsenic	ND	2.5		mg/Kg	1	11/17/2006 1:41:04 PM
Barium	570	2.0		mg/Kg	20	11/17/2006 2:21:52 PM
Cadmium	0.12	0.10		mg/Kg	1	11/17/2006 1:41:04 PM
Chromium	11	0.30		mg/Kg	1	11/17/2006 1:41:04 PM
Lead	7.6	0.25		mg/Kg	1	11/17/2006 1:41:04 PM
Selenium	ND	2.5		mg/Kg	1	11/17/2006 1:41:04 PM
Silver	ND	0.25		mg/Kg	1	11/17/2006 1:41:04 PM
<b>EPA METHOD 8260B: VOLATILES</b>						
Benzene	ND	0.50		mg/Kg	10	11/13/2006
Toluene	ND	0.50		mg/Kg	10	11/13/2006
Ethylbenzene	ND	0.50		mg/Kg	10	11/13/2006
Methyl tert-butyl ether (MTBE)	ND	0.50		mg/Kg	10	11/13/2006
1,2,4-Trimethylbenzene	5.0	0.50		mg/Kg	10	11/13/2006
1,3,5-Trimethylbenzene	1.8	0.50		mg/Kg	10	11/13/2006
1,2-Dichloroethane (EDC)	ND	0.50		mg/Kg	10	11/13/2006
1,2-Dibromoethane (EDB)	ND	0.50		mg/Kg	10	11/13/2006
Naphthalene	11	1.0		mg/Kg	10	11/13/2006
1-Methylnaphthalene	36	2.0		mg/Kg	10	11/13/2006
2-Methylnaphthalene	50	2.0		mg/Kg	10	11/13/2006
Acetone	ND	7.5		mg/Kg	10	11/13/2006
Bromobenzene	ND	0.50		mg/Kg	10	11/13/2006
Bromochloromethane	ND	0.50		mg/Kg	10	11/13/2006
Bromodichloromethane	ND	0.50		mg/Kg	10	11/13/2006
Bromoform	ND	0.50		mg/Kg	10	11/13/2006
Bromomethane	ND	1.0		mg/Kg	10	11/13/2006
2-Butanone	ND	5.0		mg/Kg	10	11/13/2006
Carbon disulfide	ND	5.0		mg/Kg	10	11/13/2006
Carbon tetrachloride	ND	1.0		mg/Kg	10	11/13/2006
Chlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
Chloroethane	ND	1.0		mg/Kg	10	11/13/2006
Chloroform	ND	0.50		mg/Kg	10	11/13/2006
Chloromethane	ND	0.50		mg/Kg	10	11/13/2006
2-Chlorotoluene	ND	0.50		mg/Kg	10	11/13/2006
4-Chlorotoluene	ND	0.50		mg/Kg	10	11/13/2006
cis-1,2-DCE	ND	0.50		mg/Kg	10	11/13/2006

Qualifiers: \* Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank  
 E Value above quantitation range H Holding times for preparation or analysis exceeded  
 J Analyte detected below quantitation limits MCL Maximum Contaminant Level  
 ND Not Detected at the Reporting Limit RL Reporting Limit  
 S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT:	Giant Refining Co	Client Sample ID:	#5 Oily soil
Lab Order:	0611097	Collection Date:	11/7/2006 3:40:00 PM
Project:	Misc. Soil Samples	Date Received:	11/8/2006
Lab ID:	0611097-05	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: LMM
cis-1,3-Dichloropropene	ND	0.50		mg/Kg	10	11/13/2006
1,2-Dibromo-3-chloropropane	ND	1.0		mg/Kg	10	11/13/2006
Dibromochloromethane	ND	0.50		mg/Kg	10	11/13/2006
Dibromomethane	ND	1.0		mg/Kg	10	11/13/2006
1,2-Dichlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
1,3-Dichlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
1,4-Dichlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
Dichlorodifluoromethane	ND	0.50		mg/Kg	10	11/13/2006
1,1-Dichloroethane	ND	1.0		mg/Kg	10	11/13/2006
1,1-Dichloroethene	ND	0.50		mg/Kg	10	11/13/2006
1,2-Dichloropropane	ND	0.50		mg/Kg	10	11/13/2006
1,3-Dichloropropane	ND	0.50		mg/Kg	10	11/13/2006
2,2-Dichloropropane	ND	1.0		mg/Kg	10	11/13/2006
1,1-Dichloropropene	ND	0.50		mg/Kg	10	11/13/2006
Hexachlorobutadiene	ND	1.0		mg/Kg	10	11/13/2006
2-Hexanone	ND	5.0		mg/Kg	10	11/13/2006
Isopropylbenzene	ND	0.50		mg/Kg	10	11/13/2006
4-Isopropyltoluene	ND	0.50		mg/Kg	10	11/13/2006
4-Methyl-2-pentanone	ND	5.0		mg/Kg	10	11/13/2006
Methylene chloride	ND	1.5		mg/Kg	10	11/13/2006
n-Butylbenzene	2.2	0.50		mg/Kg	10	11/13/2006
n-Propylbenzene	ND	0.50		mg/Kg	10	11/13/2006
sec-Butylbenzene	ND	0.50		mg/Kg	10	11/13/2006
Styrene	ND	0.50		mg/Kg	10	11/13/2006
tert-Butylbenzene	ND	0.50		mg/Kg	10	11/13/2006
1,1,1,2-Tetrachloroethane	ND	0.50		mg/Kg	10	11/13/2006
1,1,2,2-Tetrachloroethane	ND	0.50		mg/Kg	10	11/13/2006
Tetrachloroethene (PCE)	ND	0.50		mg/Kg	10	11/13/2006
trans-1,2-DCE	ND	0.50		mg/Kg	10	11/13/2006
trans-1,3-Dichloropropene	ND	0.50		mg/Kg	10	11/13/2006
1,2,3-Trichlorobenzene	ND	1.0		mg/Kg	10	11/13/2006
1,2,4-Trichlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
1,1,1-Trichloroethane	ND	0.50		mg/Kg	10	11/13/2006
1,1,2-Trichloroethane	ND	0.50		mg/Kg	10	11/13/2006
Trichloroethene (TCE)	ND	0.50		mg/Kg	10	11/13/2006
Trichlorofluoromethane	ND	0.50		mg/Kg	10	11/13/2006
1,2,3-Trichloropropane	ND	1.0		mg/Kg	10	11/13/2006
Vinyl chloride	ND	0.50		mg/Kg	10	11/13/2006
Xylenes, Total	2.4	1.0		mg/Kg	10	11/13/2006
Surr: 1,2-Dichloroethane-d4	90.8	62-127		%REC	10	11/13/2006

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT:	Giant Refining Co	Client Sample ID:	#5 Oily soil
Lab Order:	0611097	Collection Date:	11/7/2006 3:40:00 PM
Project:	Misc. Soil Samples	Date Received:	11/8/2006
Lab ID:	0611097-05	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: LMM
Surr: 4-Bromofluorobenzene	95.6	75.2-127		%REC	10	11/13/2006
Surr: Dibromofluoromethane	94.7	68.1-120		%REC	10	11/13/2006
Surr: Toluene-d8	92.3	74-119		%REC	10	11/13/2006

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT:	Giant Refining Co	Client Sample ID:	#6 Oily soil
Lab Order:	0611097	Collection Date:	11/7/2006 3:50:00 PM
Project:	Misc. Soil Samples	Date Received:	11/8/2006
Lab ID:	0611097-06	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 7471: MERCURY</b>						Analyst: IC
Mercury	0.64	0.16		mg/Kg	5	11/30/2006
<b>EPA METHOD 6010B: SOIL METALS</b>						Analyst: CMS
Arsenic	ND	2.5		mg/Kg	1	11/17/2006 1:43:37 PM
Barium	490	1.0		mg/Kg	10	11/17/2006 2:23:31 PM
Cadmium	0.28	0.10		mg/Kg	1	11/17/2006 1:43:37 PM
Chromium	25	1.5		mg/Kg	5	11/17/2006 2:35:57 PM
Lead	11	1.2		mg/Kg	5	11/17/2006 2:35:57 PM
Selenium	ND	12		mg/Kg	5	11/17/2006 2:35:57 PM
Silver	ND	0.25		mg/Kg	1	11/17/2006 1:43:37 PM
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: LMM
Benzene	ND	0.50		mg/Kg	10	11/13/2006
Toluene	ND	0.50		mg/Kg	10	11/13/2006
Ethylbenzene	ND	0.50		mg/Kg	10	11/13/2006
Methyl tert-butyl ether (MTBE)	ND	0.50		mg/Kg	10	11/13/2006
1,2,4-Trimethylbenzene	ND	0.50		mg/Kg	10	11/13/2006
1,3,5-Trimethylbenzene	ND	0.50		mg/Kg	10	11/13/2006
1,2-Dichloroethane (EDC)	ND	0.50		mg/Kg	10	11/13/2006
1,2-Dibromoethane (EDB)	ND	0.50		mg/Kg	10	11/13/2006
Naphthalene	ND	1.0		mg/Kg	10	11/13/2006
1-Methylnaphthalene	ND	2.0		mg/Kg	10	11/13/2006
2-Methylnaphthalene	ND	2.0		mg/Kg	10	11/13/2006
Acetone	ND	7.5		mg/Kg	10	11/13/2006
Bromobenzene	ND	0.50		mg/Kg	10	11/13/2006
Bromochloromethane	ND	0.50		mg/Kg	10	11/13/2006
Bromodichloromethane	ND	0.50		mg/Kg	10	11/13/2006
Bromoform	ND	0.50		mg/Kg	10	11/13/2006
Bromomethane	ND	1.0		mg/Kg	10	11/13/2006
2-Butanone	ND	5.0		mg/Kg	10	11/13/2006
Carbon disulfide	ND	5.0		mg/Kg	10	11/13/2006
Carbon tetrachloride	ND	1.0		mg/Kg	10	11/13/2006
Chlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
Chloroethane	ND	1.0		mg/Kg	10	11/13/2006
Chloroform	ND	0.50		mg/Kg	10	11/13/2006
Chloromethane	ND	0.50		mg/Kg	10	11/13/2006
2-Chlorotoluene	ND	0.50		mg/Kg	10	11/13/2006
4-Chlorotoluene	ND	0.50		mg/Kg	10	11/13/2006
cis-1,2-DCE	ND	0.50		mg/Kg	10	11/13/2006

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

CLIENT:	Giant Refining Co	Client Sample ID:	#6 Oily soil
Lab Order:	0611097	Collection Date:	11/7/2006 3:50:00 PM
Project:	Misc. Soil Samples	Date Received:	11/8/2006
Lab ID:	0611097-06	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: LMM
cis-1,3-Dichloropropene	ND	0.50		mg/Kg	10	11/13/2006
1,2-Dibromo-3-chloropropane	ND	1.0		mg/Kg	10	11/13/2006
Dibromochloromethane	ND	0.50		mg/Kg	10	11/13/2006
Dibromomethane	ND	1.0		mg/Kg	10	11/13/2006
1,2-Dichlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
1,3-Dichlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
1,4-Dichlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
Dichlorodifluoromethane	ND	0.50		mg/Kg	10	11/13/2006
1,1-Dichloroethane	ND	1.0		mg/Kg	10	11/13/2006
1,1-Dichloroethene	ND	0.50		mg/Kg	10	11/13/2006
1,2-Dichloropropane	ND	0.50		mg/Kg	10	11/13/2006
1,3-Dichloropropane	ND	0.50		mg/Kg	10	11/13/2006
2,2-Dichloropropane	ND	1.0		mg/Kg	10	11/13/2006
1,1-Dichloropropene	ND	0.50		mg/Kg	10	11/13/2006
Hexachlorobutadiene	ND	1.0		mg/Kg	10	11/13/2006
2-Hexanone	ND	5.0		mg/Kg	10	11/13/2006
Isopropylbenzene	ND	0.50		mg/Kg	10	11/13/2006
4-Isopropyltoluene	ND	0.50		mg/Kg	10	11/13/2006
4-Methyl-2-pentanone	ND	5.0		mg/Kg	10	11/13/2006
Methylene chloride	ND	1.5		mg/Kg	10	11/13/2006
n-Butylbenzene	ND	0.50		mg/Kg	10	11/13/2006
n-Propylbenzene	ND	0.50		mg/Kg	10	11/13/2006
sec-Butylbenzene	ND	0.50		mg/Kg	10	11/13/2006
Styrene	ND	0.50		mg/Kg	10	11/13/2006
tert-Butylbenzene	ND	0.50		mg/Kg	10	11/13/2006
1,1,1,2-Tetrachloroethane	ND	0.50		mg/Kg	10	11/13/2006
1,1,2,2-Tetrachloroethane	ND	0.50		mg/Kg	10	11/13/2006
Tetrachloroethene (PCE)	ND	0.50		mg/Kg	10	11/13/2006
trans-1,2-DCE	ND	0.50		mg/Kg	10	11/13/2006
trans-1,3-Dichloropropene	ND	0.50		mg/Kg	10	11/13/2006
1,2,3-Trichlorobenzene	ND	1.0		mg/Kg	10	11/13/2006
1,2,4-Trichlorobenzene	ND	0.50		mg/Kg	10	11/13/2006
1,1,1-Trichloroethane	ND	0.50		mg/Kg	10	11/13/2006
1,1,2-Trichloroethane	ND	0.50		mg/Kg	10	11/13/2006
Trichloroethene (TCE)	ND	0.50		mg/Kg	10	11/13/2006
Trichlorofluoromethane	ND	0.50		mg/Kg	10	11/13/2006
1,2,3-Trichloropropane	ND	1.0		mg/Kg	10	11/13/2006
Vinyl chloride	ND	0.50		mg/Kg	10	11/13/2006
Xylenes, Total	ND	1.0		mg/Kg	10	11/13/2006
Surr: 1,2-Dichloroethane-d4	93.8	62-127		%REC	10	11/13/2006

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 01-Dec-06

CLIENT:	Giant Refining Co	Client Sample ID:	#6 Oily soil
Lab Order:	0611097	Collection Date:	11/7/2006 3:50:00 PM
Project:	Misc. Soil Samples	Date Received:	11/8/2006
Lab ID:	0611097-06	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: LMM
Surr: 4-Bromofluorobenzene	90.6	75.2-127		%REC	10	11/13/2006
Surr: Dibromofluoromethane	98.2	68.1-120		%REC	10	11/13/2006
Surr: Toluene-d8	92.7	74-119		%REC	10	11/13/2006

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	



QA/QC SUMMARY REPORT

Client: Giant Refining Co  
 Project: Misc. Soil Samples

Work Order: 0611097

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW6010A

Sample ID: 0611097-06B MSD		MSD			Batch ID: 11772		Analysis Date: 11/17/2006 2:03:22 PM		
Arsenic	29.39	mg/Kg	2.5	117	75	125	11.1	30	
Cadmium	23.19	mg/Kg	0.10	91.3	75	125	13.8	30	
Silver	23.81	mg/Kg	0.25	94.9	75	125	14.6	30	
Sample ID: 0611097-06B MSD		MSD			Batch ID: 11772		Analysis Date: 11/17/2006 2:40:52 PM		
Chromium	41.33	mg/Kg	1.5	64.7	75	125	12.4	30	S
Lead	32.28	mg/Kg	1.2	86.2	75	125	6.05	30	
Sample ID: 0611097-06B MSD		MSD			Batch ID: 11772		Analysis Date: 11/17/2006 2:40:52 PM		
Selenium	29.98	mg/Kg	12	119	75	125	23.8	30	
Sample ID: MB-11772		MBLK			Batch ID: 11772		Analysis Date: 11/17/2006 1:19:54 PM		
Arsenic	ND	mg/Kg	2.5						
Barium	ND	mg/Kg	0.10						
Cadmium	ND	mg/Kg	0.10						
Chromium	ND	mg/Kg	0.30						
Lead	ND	mg/Kg	0.25						
Selenium	ND	mg/Kg	2.5						
Silver	ND	mg/Kg	0.25						
Sample ID: MB-11772		MBLK			Batch ID: 11772		Analysis Date: 11/17/2006 1:19:54 PM		
Selenium	ND	mg/Kg	2.5						
Sample ID: LCS-11772		LCS			Batch ID: 11772		Analysis Date: 11/17/2006 1:22:21 PM		
Arsenic	24.46	mg/Kg	2.5	97.8	80	120			
Barium	23.95	mg/Kg	0.10	95.5	80	120			
Cadmium	24.20	mg/Kg	0.10	96.8	80	120			
Chromium	24.42	mg/Kg	0.30	97.7	80	120			
Lead	23.61	mg/Kg	0.25	94.4	80	120			
Selenium	22.98	mg/Kg	2.5	87.6	80	120			
Silver	24.74	mg/Kg	0.25	98.9	80	120			
Sample ID: LCS-11772		LCS			Batch ID: 11772		Analysis Date: 11/17/2006 1:22:21 PM		
Selenium	23.51	mg/Kg	2.5	90.5	80	120			
Sample ID: 0611097-06B MS		MS			Batch ID: 11772		Analysis Date: 11/17/2006 2:00:47 PM		
Arsenic	26.29	mg/Kg	2.5	105	75	125			
Cadmium	20.20	mg/Kg	0.10	79.7	75	125			
Silver	20.57	mg/Kg	0.25	82.3	75	125			
Sample ID: 0611097-06B MS		MS			Batch ID: 11772		Analysis Date: 11/17/2006 2:38:24 PM		
Chromium	46.80	mg/Kg	1.5	86.8	75	125			
Lead	34.29	mg/Kg	1.2	94.6	75	125			
Sample ID: 0611097-06B MS		MS			Batch ID: 11772		Analysis Date: 11/17/2006 2:38:24 PM		
Selenium	23.60	mg/Kg	12	94.4	75	125			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
 Project: Misc. Soil Samples

Work Order: 0611097

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8260B									
Sample ID: MB-11700		MBLK			Batch ID: 11700	Analysis Date:			11/10/2006
Benzene	ND	mg/Kg	0.050						
Toluene	ND	mg/Kg	0.050						
Ethylbenzene	ND	mg/Kg	0.050						
Methyl tert-butyl ether (MTBE)	ND	mg/Kg	0.050						
1,2,4-Trimethylbenzene	ND	mg/Kg	0.050						
1,3,5-Trimethylbenzene	ND	mg/Kg	0.050						
1,2-Dichloroethane (EDC)	ND	mg/Kg	0.050						
1,2-Dibromoethane (EDB)	ND	mg/Kg	0.050						
Naphthalene	ND	mg/Kg	0.10						
1-Methylnaphthalene	ND	mg/Kg	0.20						
2-Methylnaphthalene	ND	mg/Kg	0.20						
Acetone	ND	mg/Kg	0.75						
Bromobenzene	ND	mg/Kg	0.050						
Bromochloromethane	ND	mg/Kg	0.050						
Bromodichloromethane	ND	mg/Kg	0.050						
Bromoform	ND	mg/Kg	0.050						
Bromomethane	ND	mg/Kg	0.10						
2-Butanone	ND	mg/Kg	0.50						
Carbon disulfide	ND	mg/Kg	0.50						
Carbon tetrachloride	ND	mg/Kg	0.10						
Chlorobenzene	ND	mg/Kg	0.050						
Chloroethane	ND	mg/Kg	0.10						
Chloroform	ND	mg/Kg	0.050						
Chloromethane	ND	mg/Kg	0.050						
2-Chlorotoluene	ND	mg/Kg	0.050						
4-Chlorotoluene	ND	mg/Kg	0.050						
cis-1,2-DCE	ND	mg/Kg	0.050						
cis-1,3-Dichloropropene	ND	mg/Kg	0.050						
1,2-Dibromo-3-chloropropane	ND	mg/Kg	0.10						
Dibromochloromethane	ND	mg/Kg	0.050						
Dibromomethane	ND	mg/Kg	0.10						
1,2-Dichlorobenzene	ND	mg/Kg	0.050						
1,3-Dichlorobenzene	ND	mg/Kg	0.050						
1,4-Dichlorobenzene	ND	mg/Kg	0.050						
Dichlorodifluoromethane	ND	mg/Kg	0.050						
1,1-Dichloroethane	ND	mg/Kg	0.10						
1,1-Dichloroethene	ND	mg/Kg	0.050						
1,2-Dichloropropane	ND	mg/Kg	0.050						
1,3-Dichloropropane	ND	mg/Kg	0.050						
2,2-Dichloropropane	ND	mg/Kg	0.10						
1,1-Dichloropropene	ND	mg/Kg	0.050						
Hexachlorobutadiene	ND	mg/Kg	0.10						
2-Hexanone	ND	mg/Kg	0.50						
Isopropylbenzene	ND	mg/Kg	0.050						

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Giant Refining Co  
 Project: Misc. Soil Samples

Work Order: 0611097

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8260B

Sample ID: MB-11700 MBLK Batch ID: 11700 Analysis Date: 11/10/2006

4-Isopropyltoluene	ND	mg/Kg	0.050
4-Methyl-2-pentanone	ND	mg/Kg	0.50
Methylene chloride	ND	mg/Kg	0.15
n-Butylbenzene	ND	mg/Kg	0.050
n-Propylbenzene	ND	mg/Kg	0.050
sec-Butylbenzene	ND	mg/Kg	0.050
Styrene	ND	mg/Kg	0.050
tert-Butylbenzene	ND	mg/Kg	0.050
1,1,1,2-Tetrachloroethane	ND	mg/Kg	0.050
1,1,2,2-Tetrachloroethane	ND	mg/Kg	0.050
Tetrachloroethene (PCE)	ND	mg/Kg	0.050
trans-1,2-DCE	ND	mg/Kg	0.050
trans-1,3-Dichloropropene	ND	mg/Kg	0.050
1,2,3-Trichlorobenzene	ND	mg/Kg	0.10
1,2,4-Trichlorobenzene	ND	mg/Kg	0.050
1,1,1-Trichloroethane	ND	mg/Kg	0.050
1,1,2-Trichloroethane	ND	mg/Kg	0.050
Trichloroethene (TCE)	ND	mg/Kg	0.050
Trichlorofluoromethane	ND	mg/Kg	0.050
1,2,3-Trichloropropane	ND	mg/Kg	0.10
Vinyl chloride	ND	mg/Kg	0.050
Xylenes, Total	ND	mg/Kg	0.10

Sample ID: LCS-11700 LCS Batch ID: 11700 Analysis Date: 11/10/2006

Benzene	0.9526	mg/Kg	0.050	95.3	80.8	132
Toluene	0.9187	mg/Kg	0.050	91.9	72.1	126
Chlorobenzene	0.9493	mg/Kg	0.050	94.9	75.4	140
1,1-Dichloroethene	0.9325	mg/Kg	0.050	93.2	59	147
Trichloroethene (TCE)	0.8759	mg/Kg	0.050	87.6	63.5	123

Sample ID: LCSD-11700 LCSD Batch ID: 11700 Analysis Date: 11/10/2006

Benzene	0.9738	mg/Kg	0.050	97.4	80.8	132	2.20	20
Toluene	0.8562	mg/Kg	0.050	85.6	72.1	126	7.04	20
Chlorobenzene	0.9606	mg/Kg	0.050	96.1	75.4	140	1.18	20
1,1-Dichloroethene	0.8966	mg/Kg	0.050	89.7	59	147	3.93	20
Trichloroethene (TCE)	0.8436	mg/Kg	0.050	84.4	63.5	123	3.76	20

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name GIANTREFIN

Date and Time Received:

11/8/2006

Work Order Number 0611097

Received by AT

Checklist completed by

Signature: [Handwritten Signature] Date: 11-8-06

Matrix

Carrier name Client drop-off

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present  Not Shipped
- Custody seals intact on sample bottles? Yes  No  N/A
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No
- Water - pH acceptable upon receipt? Yes  No  N/A

Container/Temp Blank temperature? 4° 4° C ± 2 Acceptable If given sufficient time to cool.

COMMENTS:

.....

Client contacted \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

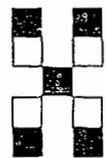
Corrective Action \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# CHAIN-OF-CUSTODY RECORD

QA/QC Package:

Std  Level 4

Other: \_\_\_\_\_



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite D  
Albuquerque, New Mexico 87109  
Tel. 505.345.3975 Fax 505.345.4107  
www.hallenvironmental.com

Client: Giant Refinery  
Cinza

Project Name: Misc. Soil  
samples

Address: Rt 3 Box 7  
Callup NM 87301

Project #: \_\_\_\_\_  
Project Manager: Cheryl Johnson

Phone #: 505-722-3833

Sampler: [Signature]

Fax #: 505-722-0210

Sample Temperature: 4"

### ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative		HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	PCPA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles or Headspace (Y or N)	
					HgCl <sub>2</sub>	HNO <sub>3</sub>															
11-7	3:15	Soil	Fuel Oil Rack	2			061097								X			X			
11-7	3:12		Gas Con	2											X			X			
11-7	3:20		Sour Nap. Soil	2											X			X			
11-7	3:35		#4-oily Soil	2											X			X			
11-7	3:40		#5 oily Soil	2											X			X			
11-7	3:50	✓	#6 Oily Soil	2											X			X			

Date: 11-8-06 Time: 1050 Relinquished By: (Signature) [Signature]

Received By: (Signature) [Signature]

Remarks:

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Relinquished By: (Signature) \_\_\_\_\_

Received By: (Signature) 11/8/06  
1050

COVER LETTER

Monday, November 12, 2007

Jim Lieb  
Giant Refining Company  
Rt. 3 Box 7  
Gallup, NM 87301

TEL: (505) 722-3833

FAX (505) 722-0210

RE: Fuel Oil Rock Soil 11-1-2007

Order No.: 0711013

Dear Jim Lieb:

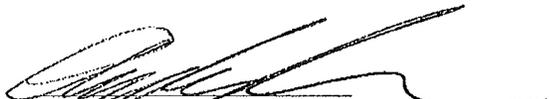
Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 11/1/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

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

Sincerely,

  
Andy Freeman, Business Manager  
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425

AZ license # AZ0682

ORELAP Lab # NM100001



**Hall Environmental Analysis Laboratory, Inc.**

Date: 12-Nov-07

<b>CLIENT:</b> Giant Refining Company	<b>Client Sample ID:</b> Fuel Oil Rock
<b>Lab Order:</b> 0711013	<b>Collection Date:</b> 11/1/2007 8:00:00 AM
<b>Project:</b> Fuel Oil Rock Soil 11-1-2007	<b>Date Received:</b> 11/1/2007
<b>Lab ID:</b> 0711013-01	<b>Matrix:</b> SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>MERCURY, TCLP</b>						Analyst: SLB
Mercury	ND	0.020		mg/L	1	11/6/2007 2:41:13 PM
<b>EPA METHOD 6010B: TCLP METALS</b>						Analyst: IC
Arsenic	ND	5.0		mg/L	1	11/8/2007 9:41:55 AM
Barium	ND	100		mg/L	1	11/8/2007 9:41:55 AM
Cadmium	ND	1.0		mg/L	1	11/8/2007 9:41:55 AM
Chromium	ND	5.0		mg/L	1	11/8/2007 9:41:55 AM
Lead	ND	5.0		mg/L	1	11/8/2007 9:41:55 AM
Selenium	ND	1.0		mg/L	1	11/8/2007 9:41:55 AM
Silver	ND	5.0		mg/L	1	11/8/2007 9:41:55 AM
<b>EPA METHOD 8270C TCLP</b>						Analyst: JDC
2,4-Dinitrotoluene	ND	0.13		mg/L	1	11/2/2007
Hexachlorobenzene	ND	0.13		mg/L	1	11/2/2007
Hexachlorobutadiene	ND	0.50		mg/L	1	11/2/2007
Hexachloroethane	ND	3.0		mg/L	1	11/2/2007
Nitrobenzene	ND	2.0		mg/L	1	11/2/2007
Pentachlorophenol	ND	100		mg/L	1	11/2/2007
Pyridine	ND	5.0		mg/L	1	11/2/2007
2,4,5-Trichlorophenol	ND	400		mg/L	1	11/2/2007
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	11/2/2007
Cresols, Total	ND	200		mg/L	1	11/2/2007
Surr: 2,4,6-Tribromophenol	67.4	20.9-128		%REC	1	11/2/2007
Surr: 2-Fluorobiphenyl	84.7	18.3-119		%REC	1	11/2/2007
Surr: 2-Fluorophenol	56.3	16.6-101		%REC	1	11/2/2007
Surr: 4-Terphenyl-d14	98.7	32.3-135		%REC	1	11/2/2007
Surr: Nitrobenzene-d5	81.8	22.6-117		%REC	1	11/2/2007
Surr: Phenol-d5	38.5	8-77.9		%REC	1	11/2/2007
<b>VOLATILES BY 8260B/1311</b>						Analyst: BDH
Benzene	ND	0.50		mg/L	1	11/6/2007 9:22:04 PM
2-Butanone	ND	10		mg/L	1	11/6/2007 9:22:04 PM
Carbon Tetrachloride	ND	0.50		mg/L	1	11/6/2007 9:22:04 PM
Chlorobenzene	ND	100		mg/L	1	11/6/2007 9:22:04 PM
Chloroform	ND	6.0		mg/L	1	11/6/2007 9:22:04 PM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	11/6/2007 9:22:04 PM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	11/6/2007 9:22:04 PM
1,1-Dichloroethene	ND	0.70		mg/L	1	11/6/2007 9:22:04 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	11/6/2007 9:22:04 PM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	11/6/2007 9:22:04 PM
Trichloroethene (TCE)	ND	0.50		mg/L	1	11/6/2007 9:22:04 PM
Vinyl chloride	ND	0.20		mg/L	1	11/6/2007 9:22:04 PM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

**Hall Environmental Analysis Laboratory, Inc.**

Date: 12-Nov-07

<b>CLIENT:</b>	Giant Refining Company	<b>Client Sample ID:</b>	Fuel Oil Rock
<b>Lab Order:</b>	0711013	<b>Collection Date:</b>	11/1/2007 8:00:00 AM
<b>Project:</b>	Fuel Oil Rock Soil 11-1-2007	<b>Date Received:</b>	11/1/2007
<b>Lab ID:</b>	0711013-01	<b>Matrix:</b>	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY 8260B/1311</b>						Analyst: <b>BDH</b>
Surr: 1,2-Dichloroethane-d4	96.5	69.9-130	%REC		1	11/6/2007 9:22:04 PM
Surr: 4-Bromofluorobenzene	100	71.2-123	%REC		1	11/6/2007 9:22:04 PM
Surr: Dibromofluoromethane	95.6	73.9-134	%REC		1	11/6/2007 9:22:04 PM
Surr: Toluene-d8	103	81.9-122	%REC		1	11/6/2007 9:22:04 PM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	



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800-735-4489 • 406-252-8325 • 406-252-6069 fax • ell@energylab.com

### LABORATORY ANALYTICAL REPORT

Client: Hall Environmental-Albuquerque  
Project: 07110013  
Lab ID: B07110126-001  
Client Sample ID: 0711013-01B, Fuel Oil Rock

Report Date: 11/06/07  
Collection Date: 11/01/07 08:00  
Date Received: 11/02/07  
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>IGNITABILITY</b>							
Flash Point (Ignitability)	>200	°F		30.0		SW1010M	11/06/07 09:51 / mgs
<b>CORROSIVITY</b>							
pH of Soil and Waste	8.70	s.u.		0.10		SW9045D	11/06/07 11:33 / mgs
<b>REACTIVITY</b>							
Cyanide, Reactive	ND	mg/kg		0.05	250	SW846 Ch 7	11/05/07 16:34 / kjp
Sulfide, Reactive	ND	mg/kg		20	500	SW846 Ch 7	11/05/07 12:30 / pwc

Report Definitions: RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



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### QA/QC Summary Report

Client: Hall Environmental-Albuquerque  
 Project: 07110013

Report Date: 11/06/07  
 Work Order: B07110128

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW846 Ch 7							Batch: 28609		
Sample ID: MB-29809 Cyanide, Reactive	Method Blank ND	mg/kg	0.05				Run: AUTOAN201-B_071105B	11/05/07 16:36	
Method: SW846 Ch 7							Batch: R102021		
Sample ID: MB-R102021 Sulfide, Reactive	Method Blank ND	mg/kg	10				Run: MISC-HZW_071105D	11/05/07 12:30	
Sample ID: LCS-R102021 Sulfide, Reactive	Laboratory Control Sample 38	mg/kg	20	119	50	150	Run: MISC-HZW_071105D	11/05/07-12:30	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC SUMMARY REPORT

Client: Giant Refining Company  
 Project: Fuel Oil Rock Soil 11-1-2007

Work Order: 0711013

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8270C TCLP

Sample ID: mb-14269 MBLK Batch ID: 14269 Analysis Date: 11/2/2007

2,4-Dinitrotoluene	ND	mg/L	0.13						
Hexachlorobenzene	ND	mg/L	0.13						
Hexachlorobutadiene	ND	mg/L	0.50						
Hexachloroethane	ND	mg/L	3.0						
Nitrobenzene	ND	mg/L	2.0						
Pentachlorophenol	ND	mg/L	100						
Pyridine	ND	mg/L	5.0						
2,4,5-Trichlorophenol	ND	mg/L	400						
2,4,6-Trichlorophenol	ND	mg/L	2.0						
Cresols, Total	ND	mg/L	200						

Sample ID: lcs-14269 LCS Batch ID: 14269 Analysis Date: 11/2/2007

2,4-Dinitrotoluene	0.06748	mg/L	0.00010	67.5	38.4	94.2			
Hexachlorobenzene	0.06932	mg/L	0.00010	69.3	42.1	81.1			
Hexachlorobutadiene	0.05126	mg/L	0.00010	51.3	34.3	85.2			
Hexachloroethane	0.05078	mg/L	0.00010	50.8	33.2	85.3			
Nitrobenzene	0.06776	mg/L	0.00010	67.8	6.84	126			
Pentachlorophenol	0.05216	mg/L	0.00010	52.2	6.48	109			
Pyridine	0.02028	mg/L	0.00010	20.3	1.11	76.5			
2,4,5-Trichlorophenol	0.06804	mg/L	0.00010	68.0	18.5	95.3			
2,4,6-Trichlorophenol	0.06908	mg/L	0.00010	69.1	13	103			
Cresols, Total	0.1641	mg/L	0.00010	54.7	5.76	107			

Sample ID: lcsd-14269 LCS Batch ID: 14269 Analysis Date: 11/2/2007

2,4-Dinitrotoluene	0.06496	mg/L	0.00010	65.0	38.4	94.2	3.81	15.5	
Hexachlorobenzene	0.06732	mg/L	0.00010	67.3	42.1	81.1	2.93	15.9	
Hexachlorobutadiene	0.04828	mg/L	0.00010	48.3	34.3	85.2	5.99	32.7	
Hexachloroethane	0.04954	mg/L	0.00010	49.5	33.2	85.3	2.47	36.7	
Nitrobenzene	0.06502	mg/L	0.00010	65.0	6.84	126	4.13	23	
Pentachlorophenol	0.05142	mg/L	0.00010	51.4	6.48	109	1.43	18.6	
Pyridine	0.02024	mg/L	0.00010	20.2	1.11	76.5	0.197	52	
2,4,5-Trichlorophenol	0.06490	mg/L	0.00010	64.9	18.5	95.3	4.72	39.3	
2,4,6-Trichlorophenol	0.06634	mg/L	0.00010	66.3	13	103	4.05	59.6	
Cresols, Total	0.1584	mg/L	0.00010	52.8	5.76	107	3.50	29.6	

Method: MERCURY, TCLP

Sample ID: MB-14316 MBLK Batch ID: 14316 Analysis Date: 11/6/2007 2:17:01 PM

Mercury ND mg/L 0.020

Sample ID: LCS-14316 LCS Batch ID: 14316 Analysis Date: 11/6/2007 2:18:35 PM

Mercury 0.004908 mg/L 0.0020 95.4 80 120

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Company  
 Project: Fuel Oil Rock Soil 11-1-2007

Work Order: 0711013

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 6010B: TCLP Metals

Sample ID: 0711013-01A MSD MSD Batch ID: 14313 Analysis Date: 11/8/2007 9:46:58 AM

Arsenic	0.5680	mg/L	0.20	114	75	125			
Cadmium	0.5491	mg/L	0.20	110	75	125			
Chromium	0.5050	mg/L	0.20	101	75	125			
Lead	0.5173	mg/L	0.20	103	75	125			
Selenium	0.6062	mg/L	0.20	121	75	125			
Silver	0.5496	mg/L	0.20	110	75	125			

Sample ID: MB-14313 MBLK Batch ID: 14313 Analysis Date: 11/8/2007 9:26:00 AM

Arsenic	ND	mg/L	5.0						
Barium	ND	mg/L	100						
Cadmium	ND	mg/L	1.0						
Chromium	ND	mg/L	5.0						
Lead	ND	mg/L	5.0						
Selenium	ND	mg/L	1.0						
Silver	ND	mg/L	5.0						

Sample ID: LCS-14313 LCS Batch ID: 14313 Analysis Date: 11/8/2007 9:28:27 AM

Arsenic	0.6399	mg/L	0.20	124	80	120			S
Barium	0.5430	mg/L	0.20	108	80	120			
Cadmium	0.5704	mg/L	0.20	114	80	120			
Chromium	0.5396	mg/L	0.20	108	80	120			
Lead	0.5387	mg/L	0.20	108	80	120			
Selenium	0.6019	mg/L	0.20	120	80	120			S
Silver	0.5683	mg/L	0.20	114	80	120			

Sample ID: 0711013-01A MS MS Batch ID: 14313 Analysis Date: 11/8/2007 9:44:26 AM

Arsenic	0.5570	mg/L	0.20	111	75	125			
Cadmium	0.5300	mg/L	0.20	106	75	125			
Chromium	0.4892	mg/L	0.20	97.8	75	125			
Lead	0.4966	mg/L	0.20	99.3	75	125			
Selenium	0.5667	mg/L	0.20	113	75	125			
Silver	0.5290	mg/L	0.20	108	75	125			

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name GIANTREFIN

Date and Time Received:

11/1/2007

Work Order Number 0711013

Received by AT

Checklist completed by

Signature

*[Handwritten Signature]*

Date

*11/1/07*

Matrix

Carrier name Client drop-off

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present  Not Shipped
- Custody seals intact on sample bottles? Yes  No  N/A
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No
- Water - Preservation labels on bottle and cap match? Yes  No  N/A
- Water - pH acceptable upon receipt? Yes  No  N/A

Container/Temp Blank temperature?

4°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding \_\_\_\_\_

Comments: \_\_\_\_\_

Corrective Action \_\_\_\_\_



COVER LETTER

Tuesday, February 19, 2008

Bryon Holbrook  
Western Refining Southwest, Gallup  
Rt. 3 Box 7  
Gallup, NM 87301

TEL: (505) 722-0258

FAX (505) 722-0210

RE: Fuel 0.1 Rack Soil

Order No.: 0802187

Dear Bryon Holbrook:

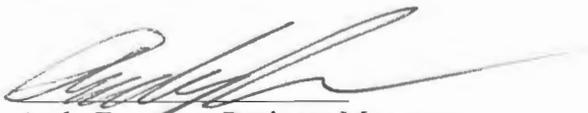
Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 2/15/2008 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

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

Sincerely,



Andy Freeman, Business Manager  
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425

AZ license # AZ0682

ORELAP Lab # NM100001



# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Feb-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0802187  
**Project:** Fuel 0.1 Rack Soil  
**Lab ID:** 0802187-01

**Client Sample ID:** Fuel Oil Rack Soil  
**Collection Date:** 2/14/2008 2:20:00 PM  
**Date Received:** 2/15/2008  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: <b>SCC</b>
Diesel Range Organics (DRO)	1000	100		mg/Kg	10	2/15/2008 11:32:59 AM
Motor Oil Range Organics (MRO)	710	500		mg/Kg	10	2/15/2008 11:32:59 AM
Surr: DNOP	112	61.7-135		%REC	10	2/15/2008 11:32:59 AM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/18/2008 10:14:40 AM
Surr: BFB	118	84-138		%REC	1	2/18/2008 10:14:40 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>NSB</b>
Benzene	ND	0.050		mg/Kg	1	2/18/2008 10:14:40 AM
Toluene	ND	0.050		mg/Kg	1	2/18/2008 10:14:40 AM
Ethylbenzene	ND	0.050		mg/Kg	1	2/18/2008 10:14:40 AM
Xylenes, Total	ND	0.10		mg/Kg	1	2/18/2008 10:14:40 AM
Surr: 4-Bromofluorobenzene	99.5	81.4-117		%REC	1	2/18/2008 10:14:40 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

## QA/QC SUMMARY REPORT

**Client:** Western Refining Southwest, Gallup

**Project:** Fuel 0.1 Rack Soil

**Work Order:** 0802187

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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**Method:** EPA Method 8015B: Diesel Range Organics

<b>Sample ID:</b> MB-15153	<i>MBLK</i>	Batch ID:	<b>15153</b>	Analysis Date:	2/15/2008 10:08:45 AM				
Diesel Range Organics (DRO)	ND	mg/Kg	10						
Motor Oil Range Organics (MRO)	ND	mg/Kg	50						
<b>Sample ID:</b> LCS-15153	<i>LCS</i>	Batch ID:	<b>15153</b>	Analysis Date:	2/15/2008 10:40:35 AM				
Diesel Range Organics (DRO)	34.22	mg/Kg	10	68.4	64.6	116			
<b>Sample ID:</b> LCSD-15153	<i>LCSD</i>	Batch ID:	<b>15153</b>	Analysis Date:	2/15/2008 11:06:30 AM				
Diesel Range Organics (DRO)	32.86	mg/Kg	10	65.7	64.6	116	4.04	17.4	

**Method:** EPA Method 8015B: Gasoline Range

<b>Sample ID:</b> MB-15151	<i>MBLK</i>	Batch ID:	<b>15151</b>	Analysis Date:	2/18/2008 9:44:10 AM				
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0						
<b>Sample ID:</b> LCS-15151	<i>LCS</i>	Batch ID:	<b>15151</b>	Analysis Date:	2/18/2008 11:15:32 AM				
Gasoline Range Organics (GRO)	23.50	mg/Kg	5.0	94.0	69.5	120			
<b>Sample ID:</b> LCSD-15151	<i>LCSD</i>	Batch ID:	<b>15151</b>	Analysis Date:	2/18/2008 11:46:09 AM				
Gasoline Range Organics (GRO)	23.30	mg/Kg	5.0	93.2	69.5	120	0.855	11.6	

**Method:** EPA Method 8021B: Volatiles

<b>Sample ID:</b> MB-15151	<i>MBLK</i>	Batch ID:	<b>15151</b>	Analysis Date:	2/18/2008 9:44:10 AM				
Benzene	ND	mg/Kg	0.050						
Toluene	ND	mg/Kg	0.050						
Ethylbenzene	ND	mg/Kg	0.050						
Xylenes, Total	ND	mg/Kg	0.10						
<b>Sample ID:</b> LCS-15151	<i>LCS</i>	Batch ID:	<b>15151</b>	Analysis Date:	2/18/2008 11:15:32 AM				
Benzene	0.3316	mg/Kg	0.050	118	78.8	132			
Toluene	2.043	mg/Kg	0.050	101	78.9	112			
Ethylbenzene	0.4209	mg/Kg	0.050	101	69.3	125			
Xylenes, Total	2.386	mg/Kg	0.10	104	73	128			
<b>Sample ID:</b> LCSD-15151	<i>LCSD</i>	Batch ID:	<b>15151</b>	Analysis Date:	2/18/2008 11:46:09 AM				
Benzene	0.3254	mg/Kg	0.050	116	78.8	132	1.89	27	
Toluene	2.014	mg/Kg	0.050	99.8	78.9	112	1.46	19	
Ethylbenzene	0.4083	mg/Kg	0.050	97.8	69.3	125	3.04	10	
Xylenes, Total	2.326	mg/Kg	0.10	101	73	128	2.55	13	

**Qualifiers:**

- |  |  |
|--|--|
| E Value above quantitation range             | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit               |
| R RPD outside accepted recovery limits       | S Spike recovery outside accepted recovery limits    |

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WESTERN REFINING GALLU

Date Received:

2/15/2008

Work Order Number 0802187

Received by: AT

Checklist completed by: Jamyk Shomin

Signature

2/15/08

Date

Sample ID labels checked by

TS  
Initials

Matrix

Carrier name Client drop-off

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present  Not Shipped
- Custody seals intact on sample bottles? Yes  No  N/A
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No
- Water - Preservation labels on bottle and cap match? Yes  No  N/A
- Water - pH acceptable upon receipt? Yes  No  N/A

Container/Temp Blank temperature?

5°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding \_\_\_\_\_

Comments: \_\_\_\_\_

Corrective Action \_\_\_\_\_



# **AOC 20 – Crude Slop and Ethanol Unloading Facility**

## AOC 20 – Crude Slop and Ethanol Unloading Facility

The Crude Slop and Ethanol Unloading Facility, which has been identified by NMED as Area of Concern #20, is located on the western portion of the refinery.

These truck unloading racks and the Additive Tanks (AOC 22) are an integral part of the Main Loading Racks (AOC 21).

This facility was previously discussed with NMED and in support of those discussions the information normally required for a Release Assessment Report pursuant to Permit Section IV.H.1.a was prepared and submitted to NMED prior to meeting on October 6, 2014. This information and additional information requested by NMED is attached.

NMED requested information in the format below.

3.

a. Any data or reports already provided to OCD;  
No data or reports have been provided to OCD because there have not been any spills requiring notice to or remediation under OCD.

b. Any data not provided to OCD, but correlated to the OCD reports;  
There are no OCD reports.

c. Site history;  
The site history is in the previously submitted in the Release Assessment Report format (attached).

This truck unloading rack was used to unload petroleum (crude, intermediates, and transmix), additives (Chevron's Techron, lubricity agents, and other agents) and ethanol.

### Process Knowledge - Methyl Tertiary Butyl Ether (MTBE)

MTBE was sourced from out-of-state manufacturers and transported to the refinery by rail car. MTBE was blended with gasoline in the tank field. MTBE was not stored in the Additive Tanks or injection-blended at the Main Loading Rack.

d. Location map  
See attached maps.

e. Previous sampling locations (including depths and a description of field methods); and  
There have not been any spills or other indications of any contamination in this area that prompted sampling of soils.

f. Analytical suites/types.  
NA

## AOC 20 – Crude Slop and Ethanol Unloading Facility

- (1) Location of unit(s) on a topographic map of appropriate scale, as required under 40 CFR §270.14(b)(19);

*See attached topo maps for location of AOC 20*

- (2) designation of type and function of unit(s);

*The facility is used to unload recovered oil and transmix that may be reclaimed from various locations within the refinery. Also, the area is used to unload ethanol that is delivered to the refinery via truck.*

- (3) dimensions, capacities and structural description of unit(s) (supply any available plans/drawings);

*The unloading area is approximately 15 feet by 40 feet and includes overhead pipelines and associated connections to support unloading operations. The pad drains to the Contact Waste Water Collection System (SWMU 12).*

- (4) dates that the unit(s) was operated;

*The facility was put into service sometime before 1990's and is still in operation.*

- (5) all available site history information;

*The refinery began operation in the late 1950s and the refinery property covers an area of approximately 810 acres. The refinery location and the regional vicinity is characterized as high desert plain comprised primarily of public lands used for grazing by cattle and sheep.*

*The Gallup Refinery is a crude oil refinery currently owned and operated by Western Refining Southwest, Inc. ("Western"), formerly known as Giant Industries Arizona, Inc. and formerly doing business as Giant Refining Company Ciniza Refinery, an Arizona corporation. The Gallup Refinery generally processes crude oil from the Four Corners area transported to the facility by pipeline or tanker truck. Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, alkylation, isomerization, sulfur recovery, merox treater, and hydrotreating. Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.*

- (6) Specifications of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on hazardous waste or hazardous constituents in the wastes;

*No wastes have been managed at the unit.*

- (7) All available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (to include ground water data, soil analyses, air, and surface water data).

*There is no information on any release of hazardous waste or hazardous constituents from the unit. The area is covered with concrete and drains to the Contact Waste Water Collection System to help prevent any release to the environment.*

## Response to NMED Request for Additional Information

- When was the concrete pad installed at the unit?
  - Were there any observations of stained soil before the concrete pad was installed?
  - Is there any photo documentation that shows no stained areas prior to installation of pad?

*An original pad was installed in the 1950s. This original concrete pad was demolished and removed to allow underground lines to be moved aboveground and replacement of the old pad with a new larger pad. The new concrete pad was installed in early 2012. There were no observations of stained soil before the new concrete pad was installed. No photo documentation is available of the area prior to construction of the new pad.*

- When trucks are loading or unloading are they on the concrete pad?

*Trucks are unloaded while parked on a concrete pad with berms and an internal drain system that is designed to contain any spills on the concrete pad.*

- Is the concrete stained?

*Please see the enclosed photo of the loading area, which shows very minor staining of the concrete. Minor staining such as that shown is not evidence of a release to the environment or a threat to human health or the environment.*

- Does Western have tangible evidence that coupling and uncoupling activities have not resulted in drips or leaks over the last 20+ years?

*It is not possible to provide "tangible evidence that coupling and uncoupling activities have not resulted in drips or leaks over the last 20+ years." Any such small drips or leaks that were contained on the pad would not have resulted in a release to the environment. Any large spills that could possibly have left the containment area would have been subject to reporting and remediation at the time of release. The mere presence of staining on the concrete does not indicate a threat of a release to the environment as the pad and associated berms and drain system are designed to contain such drips or small leaks.*

- Has the site been used for any other purpose prior to its use as the crude slop and ethanol loading facility?

*There is no evidence of industrial use of this location prior to the installation of the loading facility.*

# **AOC 21 – Main Loading Rack**

## AOC 21 – Main Loading Rack

The Main Loading Rack, which has been identified by NMED as Area of Concern #21, is located on the west side of the refinery.

NMED requested information in the format below.

3.

a. Any data or reports already provided to OCD;

Any data or reports provided to OCD have also been provided to NMED.

b. Any data not provided to OCD, but correlated to the OCD reports;

No such data has been identified.

c. Site history;

The Main Loading Racks, which were still in operation, began operation prior to 1962.

Petroleum products are loaded onto trucks. Additives are injection-blended with petroleum products during the loading process. Petroleum (crude, intermediates, transmix, and products) and additives including ethanol are off-loaded from trucks.

d. Location map

See attached maps.

e. Previous sampling locations (including depths and a description of field methods); and

No soil sampling data was identified; however, Western has recently installed monitoring wells in the vicinity of the loading racks as part of the assessment of the release from SWMU No. 12, which occurred to the north of the loading racks. Western is currently preparing an Interim Measures Report that will provide all of the available information collected as part of the SWMU No. 12 interim measures.

f. Analytical suites/types.

To be provided in the Interim Measures Report.

# **AOC 22 – Loading Rack Additive Tank Farm**

## AOC 22 – Loading Rack Additive Tank Farm

The Loading Rack Additive Tank Farm, which has been identified by NMED as Area of Concern #22, is located on the west side of the main loading racks, on the west side of the refinery.

These additive tanks and the truck unloading racks (AOC 20) are an integral part of the Main Loading Racks (AOC 21).

NMED requested information in the format below.

3.

a. Any data or reports already provided to OCD;  
See Chevron's Product Line Site Assessment, dated April 16, 2009, recommending No Further Action.

b. Any data not provided to OCD, but correlated to the OCD reports;  
No such data has been identified.

c. Site history;

The additive tanks were installed prior to 1997, but the exact date is uncertain. Only products (i.e., fuel additives) are managed in this area.

### Process Knowledge - Methyl Tertiary Butyl Ether (MTBE)

MTBE was sourced from out-of-state manufacturers and transported to the refinery by rail car. MTBE was blended with gasoline in the tank field. MTBE was not stored in the Additive Tanks or injection-blended at the Main Loading Rack.

d. Location map  
See attached maps.

e. Previous sampling locations (including depths and a description of field methods); and  
See Chevron's Product Line Site Assessment.

f. Analytical suites/types.  
See Chevron's Product Line Site Assessment.



**Gannett Fleming**

**Gannett Fleming West, Inc.**

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Suite 7000  
Albuquerque, New Mexico  
87110

Office (505) 265-8468  
Facsimile (505) 881-2513

April 16, 2009

Mr. Carl J. Chavez, CHMM  
New Mexico Energy, Minerals & Natural Resources Dept.  
Oil Conservation Division, Environmental Bureau  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

**RE: Facility #5081434 Product Line Site Assessment Report**

2009 APR 20 PM 12 43  
RECEIVED

Dear Mr. Chavez

At the request of Chevron EMC, Gannett Fleming West, Inc. (GFW) is submitting the enclosed site assessment report for the Techron release at the Gallup Refinery. It is our understanding that Chevron filed the appropriate C-141 Form for the release, and the purpose of our site investigation was to assess the need for additional remedial action at the site of the release. Based on the results of our site assessment, GFW requests a finding of No Further Action on behalf of Chevron EMC.

Should you have any questions or wish to discuss the contents of this report, you may contact me at (505) 265-8468 or Mr. David Gardner of Chevron EMC at (713) 432-2632.

Sincerely,  
**GANNETT FLEMING WEST, INC.**

Mike E. Brazie, P.E.  
Vice President

cc: David Gardner, Chevron EMC  
Ed Riege, Western Refining Co.  
Ron Weaver, Western Albuquerque Terminal

---

*Technical Report*

**Facility # 5081434**  
**Product Line Site Assessment**

Gannett Fleming West, Inc. Project No. 50206

Submitted to

**Chevron EMC**  
**4800 Fournace Place**  
**Bellaire, Texas 77401**

November 7, 2008

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 **Gannett Fleming**

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APPENDIX A – Laboratory Report

APPENDIX B – Site Photographs

# Acronyms

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bb1	barrels
cm/s	centimeters per second
DI	deionized
EDB	ethylene dibromide
EDC	1,2-dichloroethane
ft	feet
ft/ft	feet per foot
gpm	gallons per minute
GRO/DRO	gasoline range organics / diesel range organics
mg/kg	milligrams per kilogram
MEK	methyl ethyl ketone
mmhos/cm	micromhos per centimeters
MTBE	methyl tertiary butyl ether
NFA	No Further Action
OSE	Office of the State Engineer
ppm	parts per million
TPH	Total Petroleum Hydrocarbons
TMB	trimethyl benzenes
VOC	volatile organic compounds

## 1.0 BACKGROUND

Chevron Products Company has a product additive (Techron) tank and product line at the Western Refining Company's Ciniza Refinery. The refinery is located on the north side of Interstate 40, approximately 17 miles east of Gallup, New Mexico (Figure 1). Within the refinery, the product tank is located just west of the truck loading rack (Figure 2). On or about August 6, 2008, Chevron Products Company discovered a possible product release of less than 5 barrels (bbl) based on an inventory discrepancy and a verbal report from operators that the product was observed coming from a nearby electrical junction box.

### Site Description

The 10,000 gallon Techron tank is located at the west side of the truck loading rack at the Ciniza Refinery. The additive is contained within a steel above ground tank which is within a concrete secondary containment area. The additive is delivered to the loading rack by means of an underground product line that runs from the additive tank to the rack. Between the tank and the rack is an asphalt access road, under which the product line is located. This system was reportedly constructed 30 to 40 years ago, and no construction or as-built drawings were found to show the exact location of the underground additive line.

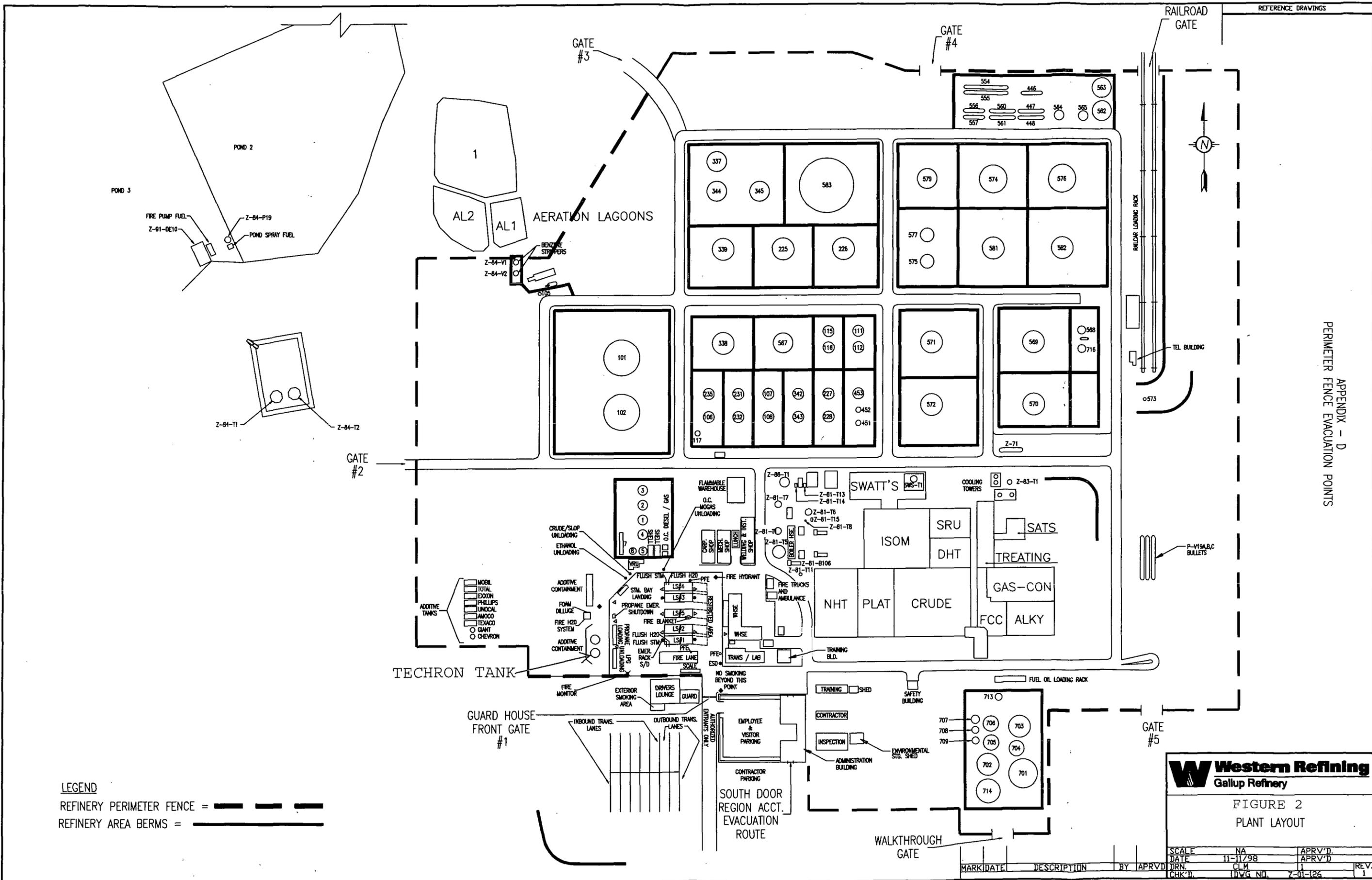
### Site Soils

The native soil beneath the refinery is the Rehobeth silty clay loam, which has formed in flood plains and on valley floors. It is naturally saline, with salinity up to about 8 mmhos/cm and organic matter content up to about 1 percent. Soil pH ranges from 8 to 9. According to the 2001 No Further Action (NFA) Report for the refinery, the soil at the site is bentonite clay and silt with a hydraulic conductivity of less than  $10^{-7}$  cm/sec.

### Site Geology

The refinery is located along the southwestern margin of the San Juan Basin in the Colorado Plateau Physiographic Province. The site lies on the western side of the Zuni Uplift. Surficial geology at the site consists of Quaternary alluvial deposits. The alluvium is underlain by the late Triassic Chinle Formation, which consists primarily of interbedded claystone and siltstone with minor amounts of sandstone and limestone. The Chinle Formation has a total thickness of about 1,600 feet in this area, and is generally not water-bearing, although water has been encountered in some of the minor interbedded sandstone lenses. Generally, the Chinle Formation acts as an aquitard.





APPENDIX - D  
PERIMETER FENCE EVACUATION POINTS

**LEGEND**  
 REFINERY PERIMETER FENCE =   
 REFINERY AREA BERMS =

**Western Refining**  
 Gallup Refinery

FIGURE 2  
 PLANT LAYOUT

SCALE	NA	APRVD.	
DATE	11-17-98	APRVD.	
DRN.	CLM		
CHK'D.	LDWG. NO. Z-01-126		REV. 1

## Surface Water

The site is located within the Rio Puerco valley, north of the Zuni Uplift. Surface water flow off the site is generally northwest by overland flow to the tributaries of the Rio Puerco north of the site. The Rio Puerco is a principal tributary of the Rio Grande, which is east of the site.

## Groundwater

The primary aquifer in the region is within the San Andres Limestone and Glorieta Sandstone formations, designated as part of the C multiple-aquifer system. The top of the San Andres Formation is at a depth of about 1,670 feet. Based on information on record at the Office of the State Engineer (OSE), groundwater in the area of the site ranges in depth from about 1,700 to 2,000 feet below ground surface, with the aquifer under artesian head. Groundwater has also been found at shallow depths, up to about 300 feet in localized areas within the region. These wells report a very low yield, on the order of less than 10 gallons per minute (gpm). Recent groundwater monitoring (Gannett Fleming West, 2008) found depth to groundwater between 21 and 27 feet below ground surface.

Based on GFW's search of the NM Office of the State Engineer's iWaters database, the closest water supply wells are approximately 2,800 and 4,000 feet away from the Techron additive tank. The NMDOT has two wells for construction of public works approximately 2,500 feet west of the site, and Chindi Peavy has a non-domestic livestock well approximately 4,000 feet north of the site. Using the average hydraulic gradient of the general area (0.0042 ft/ft) and an assumed average hydraulic conductivity for sandstone ( $1.0 \times 10^{-5}$  cm/sec), the calculated groundwater movement rate is approximately 2.1 feet/year. Assuming groundwater is flowing directly to the wells, we estimate it would take 1,300 years for hydrocarbon impacts from the tank to reach the NMDOT wells and 1,900 years to reach the Chindi Peavy well. These calculations assume a shallow water-bearing zone exists beneath the Techron tank and is continuous to these supply wells, which is unlikely given the discontinuous nature of the sandstone layers, and the fact that most of the water for this area is supplied by wells from deeper aquifers. Therefore, it appears that there are no receptors that would be immediately threatened by an additive release.

## Suspected Release

A release of the additive was suspected primarily based on an inventory discrepancy of approximately 157 gallons (< 5 bbl). Although no direct evidence of release was observed, operators at the refinery reported observing what appeared to them to be additive within the secondary containment berm and at the adjacent electrical junction box and light pole foundation shortly after the additive system pump was activated. Based on these observations, it was assumed that the release was from a break in the underground product line that had migrated into the adjacent electrical conduit. According to Chevron Products Company, an integrity test of the additive tank showed the integrity of the tank itself had not been compromised.

Because of the suspected release, loading of the additive was suspended and a program to repair the suspected ruptured product line was initiated. The repair plan was to excavate the product line and either replace the line or install a sleeve inside the existing line. Gannett Fleming, Inc. (GF) was tasked by Chevron EMC to observe the excavations, document any product that was observed, and sample any potentially impacted soil.

### **Purpose of Investigation**

The purpose of this investigation was to determine the presence of any subsurface hydrocarbon impacts that might have resulted from an additive release from the product line. If no hydrocarbons were found to be present above the soil action level, GF was to document that. If hydrocarbons were found, GF was asked to recommend a path forward to address the additive release.

## **2.0 FIELD INVESTIGATION**

The field investigation consisted of hand excavation of soil to try locating the additive product line for repairs, field observations, field sampling, and collection of soil samples for laboratory analysis.

### **Site Excavation**

GF mobilized to the site on September 2, 2008, when the repair program was initiated. The actual repair work was performed by Kachina Petroleum Company (Kachina), under contract to Chevron Products Company. Kachina began by hand digging an excavation at the east wall of the containment berm (Appendix B, photos 1, 2, and 3). The purpose of the excavation was to locate the product line coming from the additive tank to trace it and find the release point. The excavation was dug to approximately 4 feet along most of the containment wall, but no product line was uncovered. GF observed the digging and took a heated headspace sample of the soil from the bottom of the excavation. No evidence of any hydrocarbons was observed, and the headspace reading showed no Volatile Organic Compound (VOC) present.

Failing to find the product line by the end of the day, Kachina temporarily suspended work with the intention of continuing the search the following day. On September 3, Kachina began hand digging a new excavation north and east of the additive tank (Appendix B, photo 4). This location was west of the access road for the truck loading rack, on a line from the utility trench leading to the rack. This excavation exposed electrical conduits and one previously abandoned additive line, but no product line currently in use (Appendix B, photos 5 and 6).

Kachina then stopped work at that location and returned to the initial trench at the tank containment wall. They continued that excavation to the south and uncovered five utility conduits but still did not locate the Techron product line. The excavation then extended the entire length of the east wall of the tank containment berm, without uncovering a product line.

Kachina began a third excavation near the fire extinguisher at the intersection of the curb line of the access road and the utility trench (Appendix B, 7 and 8). This excavation uncovered approximately 12 utility conduits, but still did not find the Techron line. One additive line was encountered in this trench, but it turned to the north instead of to the south where the Techron tank was located. At that point, Kachina decided to stop work and develop a new work plan for replacing the additive line.

### Field Observations

GF observed the excavation and collected soil samples for heated headspace analysis. GF field personnel inspected each of the three excavations and checked the breathing zone for VOC concentrations periodically during the excavation using a photoionization detector (PID). No concentration of VOCs was detected in the breathing zone, and no visual evidence of hydrocarbons was observed in any of the excavations. No phase separated hydrocarbon was observed, although there was a slight petroleum odor in the soil around the utility conduits in the excavation at the tank containment wall. Minor discolored soil was also observed around the conduit in the excavation near the fire extinguisher.

### Field Testing

On September 2, 2008, prior to mobilizing to the site, GF calibrated the field instruments (PID and H<sub>2</sub>S monitor). Both were found to be in good operating order and were calibrated using manufacturer supplied calibration gas, according to instrument specifications. One soil sample was collected from each of the three excavations for heated headspace analysis. Samples were collected using a shovel and hand scoop. Prior to sample collection, the sampling equipment was decontaminated by washing in a solution of Alconox and deionized (DI) water, rinsed with DI water, and allowed to air dry. The samples were collected with a hand scoop and placed directly into ziplock bags. The bags were filled to about half-volume, sealed, heated, and allowed to volatilize for at least ten minutes. The sample was analyzed by inserting the PID probe directly into the bag to measure Total Petroleum Hydrocarbon (TPH) concentration. The sample from each excavation was collected from the soil that appeared to have the highest potential for hydrocarbons. The results are shown on Table 1.

<b>LOCATION</b>	<b>DEPTH (FT)</b>	<b>PID READNG (PPM)</b>
East side of tank containment wall	4	0.3
North and east of Techron tank	4	293
Curb line on utility trench alignment	2	54.3

The highest reading, and the only one that exceeded the soil action level of 100 parts per million (ppm), was around the utility lines in the excavation near the fire extinguisher, which was between the Techron tank and the access road for the truck loading rack. Because the Techron product line was never located, the source of this hydrocarbon impact cannot be determined. Since the site is a petroleum refinery, so a headspace result

of 293 ppm is not unusual, and could be associated with a long-term or older release and not with a recent release of Techron additive. No area of significant contamination between the Techron tank and the truck loading rack was found that could be directly correlated with the Chevron additive tank.

### 3.0 LABORATORY ANALYSIS

A soil sample was collected from each of the three excavations for laboratory analysis. These samples were collected from the same locations from which the headspace samples were collected. Based on the composition of Techron, the soil samples were analyzed for VOCs by EPA Method 8260B, and Gasoline and Diesel Range Organics (GRO/DRO) by EPA Method 8015. Samples were collected using the methanol extraction method. The sampling kits and bottles were provided by Test America, the laboratory that conducted the chemical analyses. The soil samples were collected using the methanol extraction device and extruded directly into the prepared sample bottles, which had the appropriate preservative added. The GRO/DRO samples were collected with the decontaminated hand scoop and placed directly into the laboratory-prepared soil sample jars. After collection, the samples were labeled and placed on ice in the sample container. The chain-of-custody form was completed, and the samples were shipped to the analytical laboratory on September 4, 2008. The analytical report (Appendix A) shows all samples were received by the laboratory in good condition and within specifications.

The sample locations are shown on Table 2. The results of the laboratory analyses are summarized on Table 3, and the full analytical report is included as Appendix A to this report.

<b>SAMPLE ID</b>	<b>SAMPLE LOCATION</b>
5084134-1	Beneath utility conduit in excavation by tank containment
5084134-2	Discolored soil in excavation northeast of Techron tank
5084134-3	Bottom of excavation near fire extinguisher

Table 3 and Appendix A show that very few parameters were detected in any of the three samples, and those that were detected were found at low concentrations.

### 4.0 CONCLUSIONS

The purpose of this investigation was to determine if any environmental impact had occurred from a suspected product additive release, and if environmental remediation was required. No such adverse environmental impact was discovered by this investigation, and so no further action is recommended at this time. Following are the conclusions of this investigation:

1. Although no broken product line was found, three soil excavations were dug on a direct line from the additive tank to the loading rack where any hydrocarbon impact would be expected. None was found.

Table 3  
 Summary of Soil Analytical Results  
 Chevron Facility # 5081434  
 Gallup, New Mexico

Sample ID	Date Sampled	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	EDB	EDC	TMBs	GRO	DRO	MEK	Naphthalene	Sample Depth (ft)
5084134-1	09/03/08	<0.082	<0.12	<0.096	<0.27	<0.18	<0.23	<0.15	59	180	1,900	<0.73	<0.41	4
5084134-2	09/03/08	0.014	<0.0041	0.015	<0.0082	0.03	<0.0041	<0.0041	0.006	5.6	12	0.040	0.0093	4
5084134-3	09/03/08	0.60	<0.038	0.44	<0.040	0.52	<0.073	<0.046	0.171	13	<3.1	<0.23	<0.13	2

**NOTES:**

All results reported in millograms per microgram (parts per million [ppm]).

< = Less than the reporting limit shown.

**Bold indicates detections**

2. The excavation east of the tank containment wall is between the additive tank and the junction box where additive was reportedly observed. Had the suspected additive release occurred in that area, it should have been detected in that excavation, but none was found.
3. The excavation between the additive tank and the loading rack access road should have detected any hydrocarbon release, had a significant release of additive occurred anywhere between the tank and the utility trench. No hydrocarbons were detected.
4. One end of the Techron additive line was found in the utility trench at the loading rack. The excavation near the fire extinguisher was on line with that utility trench and downgradient from the rack. Therefore, any significant Techron release from the additive line in that trench would be expected to migrate in the direction of that trench. However, no such impact was detected.
5. Based on the Material Safety Data Sheet (MSDS), the major composition of Techron is petroleum distillates, naphtha, and Stoddard solvent, which are common, non-hazardous constituents of petroleum products.
6. The release was small (less than 5 bbl) and the site soils are very low permeability ( $10^{-6}$  cm/sec) clays. Therefore, no hydrocarbon from this release is expected to leave the boundaries of the immediate product line area within the refinery.
7. The highest hydrocarbon concentration detected was in one sample showing DRO at a concentration of 1,900 mg/kg near the tank containment wall. Because Techron is primarily composed of light aromatics, rather than the heavier components of DROs, this detection does not appear to represent a recent release of Techron.

GF understands that a replacement additive product line has been installed between the Techron tank and the truck loading rack, and the additive operation is back in service. The former product line, which was never found except at the ends, has been abandoned in place. The line was flushed out with water and the ends were capped. With the new line installed, and the former line out of service, no additional release should occur from the old product line.

Because the actual additive line could not be found, a subsurface release could not be confirmed. No hydrocarbons were found that could be attributed to a Techron release. The hydrocarbon that was detected was at low concentrations, and of a type commonly found throughout petroleum refineries in general. Based on the laboratory analytical results, no hydrocarbon was found above soil action levels. If subsurface impact does exist, it is confined to a very small area, and does not appear to have any potential for offsite migration. Therefore GF recommends no further action at this site.

## 5.0 REFERENCES

Gannett Fleming West, 2008, Gallup Refinery Groundwater Confirmation Monitoring Report, Monitoring Wells OW-14 and OW-30.

Giant Ciniza Refinery., 2001, NFA Report

Natural Resources Conservation Service, 2004, Soil Survey of McKinley Area, New Mexico.

## ANALYTICAL REPORT

Job Number: 400-34074-1

SDG Number: CVX Fac #5084134

Job Description: Gallup, NM

For:

Gannett Fleming

2155 Louisiana NE

Suite 7000

Albuquerque, NM 87110

Attention: Mike E. Brazie



Stephanie Akers

Project Manager I

[stephanie.akers@testamericainc.com](mailto:stephanie.akers@testamericainc.com)

09/22/2008

The test results in this report meet all NELAP requirements for accredited parameters and relate only to the referenced samples. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without written approval from the laboratory.

TestAmerica Pensacola Certifications and Approvals: Alabama (40150), Arizona (AZ0710), Arkansas (88-0689), Florida (E81010), Illinois (200041), Iowa (367), Kansas (E-10253), Kentucky UST (53), Louisiana (30748), Maryland (233), Massachusetts (M-FL094), Michigan (9912), New Hampshire (250507), New Jersey (FL006), North Carolina (314), North Dakota (R-108), Oklahoma (9810), Pennsylvania (68-00467), Rhode Island (LAO00307), South Carolina (96026), Tennessee (TN02907), Texas (T104704286-08-TX), Virginia (00008), Washington (C2043), West Virginia (136), USDA Foreign Soil Permit (P330-08-00006).

TestAmerica Laboratories, Inc.

TestAmerica Pensacola 3355 McLemore Drive, Pensacola, FL 32514

Tel (850) 474-1001 Fax (850) 478-2671 [www.testamericainc.com](http://www.testamericainc.com)



**Job Narrative**  
**400-J34074-1**

**Comments**

No additional comments.

**Receipt**

All samples were received in good condition within temperature requirements.

**GC/MS VOA**

Method(s) 8260B: samples 5084134-1 (400-34074-1) and 5044134-3 (400-34074-3) required dilutions due to the presence of target and/or non-target analytes. Sample data has been reported to laboratory MDLs in order to report as low as possible.

No analytical or quality issues were noted.

**GC VOA**

Method(s) 8021B: The fid surrogate for sample 5084134-1 (400-34074-1) was outside acceptance limits due to matrix interference.

No other analytical or quality issues were noted.

**GC Semi VOA**

Method(s) 8015B: Surrogate recovery for the following sample(s) was outside control limits: 5084134-1 (400-34074-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No other analytical or quality issues were noted.

**Organic Prep**

No analytical or quality issues were noted.

**VOA Prep**

No analytical or quality issues were noted.

**EXECUTIVE SUMMARY - Detections**

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Lab Sample ID	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
Analyte						
<b>400-34074-1</b>	<b>5084134-1</b>					
Isopropylbenzene		0.20	J	0.89	mg/Kg	8260B
N-Propylbenzene		0.54	J	0.89	mg/Kg	8260B
o-Xylene		2.8		0.89	mg/Kg	8260B
p-Cymene		0.58	J	0.89	mg/Kg	8260B
1,2,4-Trimethylbenzene		29		0.89	mg/Kg	8260B
1,3,5-Trimethylbenzene		30		0.89	mg/Kg	8260B
Gasoline Range Organics (GRO)-C6-C10		180		18	mg/Kg	8015M
Diesel Range Organics [C10-C28]		1900		15	mg/Kg	8015B
Percent Solids		84		0.10	Percent	PercentMoisture
<b>400-34074-2</b>	<b>5084134-2</b>					
Acetone		0.18		0.020	mg/Kg	8260B
Benzene		0.014		0.0041	mg/Kg	8260B
Ethylbenzene		0.015		0.0041	mg/Kg	8260B
Methyl Ethyl Ketone		0.040		0.020	mg/Kg	8260B
Methyl tert-butyl ether		0.030		0.0041	mg/Kg	8260B
Naphthalene		0.0093		0.0041	mg/Kg	8260B
N-Propylbenzene		0.0050		0.0041	mg/Kg	8260B
1,2,4-Trimethylbenzene		0.0061		0.0041	mg/Kg	8260B
Gasoline Range Organics (GRO)-C6-C10		5.6		5.1	mg/Kg	8015M
Diesel Range Organics [C10-C28]		12		2.9	mg/Kg	8015B
Percent Solids		87		0.10	Percent	PercentMoisture
<b>400-34074-3</b>	<b>5084134-3</b>					
Benzene		0.60		0.28	mg/Kg	8260B
Ethylbenzene		0.44		0.28	mg/Kg	8260B
Isopropylbenzene		0.036	J	0.28	mg/Kg	8260B
Methyl tert-butyl ether		0.52		0.28	mg/Kg	8260B
m-Xylene & p-Xylene		0.10	J	0.56	mg/Kg	8260B
N-Propylbenzene		0.10	J	0.28	mg/Kg	8260B
1,2,4-Trimethylbenzene		0.10	J	0.28	mg/Kg	8260B
1,3,5-Trimethylbenzene		0.071	J	0.28	mg/Kg	8260B
Gasoline Range Organics (GRO)-C6-C10		13		5.6	mg/Kg	8015M
Percent Solids		82		0.10	Percent	PercentMoisture

## METHOD SUMMARY

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Description	Lab Location	Method	Preparation Method
<b>Matrix: Solid</b>			
Volatile Organic Compounds (GC/MS)	TAL PEN	SW846 8260B	
Closed System Purge and Trap	TAL PEN		SW846 5035
GRO by 8015M	TAL PEN	SW846 8015M	
Closed System Purge and Trap	TAL PEN		SW846 5035
Diesel Range Organics (DRO) (GC)	TAL PEN	SW846 8015B	
Ultrasonic Extraction	TAL PEN		SW846 3550B

### Lab References:

TAL PEN = TestAmerica Pensacola

### Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

## METHOD / ANALYST SUMMARY

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

<u>Method</u>	<u>Analyst</u>	<u>Analyst ID</u>
SW846 8260B	Hunt, Bruce	BH
SW846 8015M	Khramova, Galina	GK
SW846 8015B	Ayers, Kim	KA
EPA PercentMoisture	Chea, Vanda	VC

**SAMPLE SUMMARY**

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Client Matrix</b>	<b>Date/Time Sampled</b>	<b>Date/Time Received</b>
400-34074-1	5084134-1	Solid	09/03/2008 1430	09/05/2008 1011
400-34074-2	5084134-2	Solid	09/03/2008 1445	09/05/2008 1011
400-34074-3	5084134-3	Solid	09/03/2008 1500	09/05/2008 1011

**SAMPLE RESULTS**

# Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Client Sample ID: 5084134-1

Lab Sample ID: 400-34074-1

Date Sampled: 09/03/2008 1430

Client Matrix: Solid

% Moisture: 16.0

Date Received: 09/05/2008 1011

## 8260B Volatile Organic Compounds (GC/MS)

Method: 8260B

Analysis Batch: 400-76045

Instrument ID: GC/MS

Preparation: 5035

Prep Batch: 400-76052

Lab File ID: AS091008.D

Dilution: 200

Initial Weight/Volume: 6.68 g

Date Analyzed: 09/10/2008 1239

Final Weight/Volume: 5 g

Date Prepared: 09/10/2008 0800

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Acetone		<1.3		1.3	4.5
Benzene		<0.082		0.082	0.89
Bromobenzene		<0.23		0.23	0.89
Bromochloromethane		<0.14		0.14	0.89
Bromodichloromethane		<0.15		0.15	0.89
Bromoform		<0.089		0.089	0.89
Bromomethane		<0.16		0.16	0.89
Carbon disulfide		<0.18		0.18	0.89
Carbon tetrachloride		<0.30		0.30	0.89
Chlorobenzene		<0.093		0.093	0.89
Chloroethane		<0.34		0.34	0.89
Chloroform		<0.11		0.11	0.89
Chloromethane		<0.16		0.16	0.89
2-Chlorotoluene		<0.17		0.17	0.89
4-Chlorotoluene		<0.17		0.17	0.89
cis-1,2-Dichloroethene		<0.14		0.14	0.89
cis-1,3-Dichloropropene		<0.21		0.21	0.89
Dibromochloromethane		<0.16		0.16	0.89
1,2-Dibromo-3-Chloropropane		<0.59		0.59	0.89
Dibromomethane		<0.15		0.15	0.89
1,2-Dichlorobenzene		<0.13		0.13	0.89
1,3-Dichlorobenzene		<0.17		0.17	0.89
1,4-Dichlorobenzene		<0.15		0.15	0.89
Dichlorodifluoromethane		<0.23		0.23	0.89
1,1-Dichloroethane		<0.15		0.15	0.89
1,2-Dichloroethane		<0.15		0.15	0.89
1,1-Dichloroethene		<0.11		0.11	0.89
1,2-Dichloropropane		<0.13		0.13	0.89
1,3-Dichloropropane		<0.12		0.12	0.89
2,2-Dichloropropane		<0.32		0.32	0.89
1,1-Dichloropropene		<0.13		0.13	0.89
Ethylbenzene		<0.096		0.096	0.89
Ethylene Dibromide		<0.23		0.23	0.89
Hexachlorobutadiene		<0.20		0.20	0.89
2-Hexanone		<0.89		0.89	4.5
Iodomethane		<0.61		0.61	0.89
Isopropylbenzene		0.20	J	0.10	0.89
Isopropyl ether		<0.098		0.098	0.89
Methylene Chloride		<0.48		0.48	0.89
Methyl Ethyl Ketone		<0.73		0.73	4.5
methyl isobutyl ketone		<0.71		0.71	4.5
Methyl tert-butyl ether		<0.18		0.18	0.89
m-Xylene & p-Xylene		<0.27		0.27	1.8
Naphthalene		<0.41		0.41	0.89

# Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Client Sample ID: 5084134-1

Lab Sample ID: 400-34074-1

Date Sampled: 09/03/2008 1430

Client Matrix: Solid

% Moisture: 16.0

Date Received: 09/05/2008 1011

## 8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 400-76045	Instrument ID:	GC/MS
Preparation:	5035	Prep Batch: 400-76052	Lab File ID:	AS091008.D
Dilution:	200		Initial Weight/Volume:	6.68 g
Date Analyzed:	09/10/2008 1239		Final Weight/Volume:	5 g
Date Prepared:	09/10/2008 0800			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
n-Butylbenzene		<0.17		0.17	0.89
N-Propylbenzene		0.54	J	0.16	0.89
o-Xylene		2.8		0.13	0.89
p-Cymene		0.58	J	0.14	0.89
sec-Butylbenzene		<0.17		0.17	0.89
Styrene		<0.14		0.14	0.89
tert-Butylbenzene		<0.14		0.14	0.89
1,1,1,2-Tetrachloroethane		<0.18		0.18	0.89
1,1,2,2-Tetrachloroethane		<0.13		0.13	0.89
Tetrachloroethene		<0.15		0.15	0.89
Toluene		<0.12		0.12	0.89
trans-1,2-Dichloroethene		<0.12		0.12	0.89
trans-1,3-Dichloropropene		<0.16		0.16	0.89
1,2,3-Trichlorobenzene		<0.21		0.21	0.89
1,2,4-Trichlorobenzene		<0.13		0.13	0.89
1,1,1-Trichloroethane		<0.20		0.20	0.89
1,1,2-Trichloroethane		<0.16		0.16	0.89
Trichloroethene		<0.080		0.080	0.89
Trichlorofluoromethane		<0.14		0.14	0.89
1,2,3-Trichloropropane		<0.30		0.30	0.89
1,2,4-Trimethylbenzene		29		0.21	0.89
1,3,5-Trimethylbenzene		30		0.15	0.89
Vinyl acetate		<1.6		1.6	4.5
Vinyl chloride		<0.16		0.16	0.89

Surrogate	%Rec	Acceptance Limits
4-Bromofluorobenzene	102	73 - 124
Dibromofluoromethane	98	75 - 136
Toluene-d8 (Surr)	105	75 - 126

## Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Client Sample ID: 5084134-2

Lab Sample ID: 400-34074-2

Date Sampled: 09/03/2008 1445

Client Matrix: Solid

% Moisture: 13.5

Date Received: 09/05/2008 1011

### 8260B Volatile Organic Compounds (GC/MS)

Method: 8260B

Analysis Batch: 400-75880

Instrument ID: GC/MS

Preparation: 5035

Prep Batch: 400-75885

Lab File ID: AS090923.D

Dilution: 1.0

Initial Weight/Volume: 7.06 g

Date Analyzed: 09/09/2008 1718

Final Weight/Volume: 5 g

Date Prepared: 09/09/2008 0800

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Acetone		0.18		0.020
Benzene		0.014		0.0041
Bromobenzene		<0.0041		0.0041
Bromochloromethane		<0.0041		0.0041
Bromodichloromethane		<0.0041		0.0041
Bromoform		<0.0041		0.0041
Bromomethane		<0.0041		0.0041
Carbon disulfide		<0.0041		0.0041
Carbon tetrachloride		<0.0041		0.0041
Chlorobenzene		<0.0041		0.0041
Chloroethane		<0.0041		0.0041
Chloroform		<0.0041		0.0041
Chloromethane		<0.0041		0.0041
2-Chlorotoluene		<0.0041		0.0041
4-Chlorotoluene		<0.0041		0.0041
cis-1,2-Dichloroethene		<0.0041		0.0041
cis-1,3-Dichloropropene		<0.0041		0.0041
Dibromochloromethane		<0.0041		0.0041
1,2-Dibromo-3-Chloropropane		<0.0041		0.0041
Dibromomethane		<0.0041		0.0041
1,2-Dichlorobenzene		<0.0041		0.0041
1,3-Dichlorobenzene		<0.0041		0.0041
1,4-Dichlorobenzene		<0.0041		0.0041
Dichlorodifluoromethane		<0.0041		0.0041
1,1-Dichloroethane		<0.0041		0.0041
1,2-Dichloroethane		<0.0041		0.0041
1,1-Dichloroethene		<0.0041		0.0041
1,2-Dichloropropane		<0.0041		0.0041
1,3-Dichloropropane		<0.0041		0.0041
2,2-Dichloropropane		<0.0041		0.0041
1,1-Dichloropropene		<0.0041		0.0041
Ethylbenzene		0.015		0.0041
Ethylene Dibromide		<0.0041		0.0041
Hexachlorobutadiene		<0.0041		0.0041
2-Hexanone		<0.020		0.020
Iodomethane		<0.0041		0.0041
Isopropylbenzene		<0.0041		0.0041
Isopropyl ether		<0.0041		0.0041
Methylene Chloride		<0.0041		0.0041
Methyl Ethyl Ketone		0.040		0.020
methyl isobutyl ketone		<0.020		0.020
Methyl tert-butyl ether		0.030		0.0041
m-Xylene & p-Xylene		<0.0082		0.0082
Naphthalene		0.0093		0.0041

## Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Client Sample ID: 5084134-2

Lab Sample ID: 400-34074-2

Date Sampled: 09/03/2008 1445

Client Matrix: Solid

% Moisture: 13.5

Date Received: 09/05/2008 1011

### 8260B Volatile Organic Compounds (GC/MS)

Method: 8260B

Analysis Batch: 400-75880

Instrument ID: GC/MS

Preparation: 5035

Prep Batch: 400-75885

Lab File ID: AS090923.D

Dilution: 1.0

Initial Weight/Volume: 7.06 g

Date Analyzed: 09/09/2008 1718

Final Weight/Volume: 5 g

Date Prepared: 09/09/2008 0800

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
n-Butylbenzene		<0.0041		0.0041
N-Propylbenzene		0.0050		0.0041
o-Xylene		<0.0041		0.0041
p-Cymene		<0.0041		0.0041
sec-Butylbenzene		<0.0041		0.0041
Styrene		<0.0041		0.0041
tert-Butylbenzene		<0.0041		0.0041
1,1,1,2-Tetrachloroethane		<0.0041		0.0041
1,1,2,2-Tetrachloroethane		<0.0041		0.0041
Tetrachloroethene		<0.0041		0.0041
Toluene		<0.0041		0.0041
trans-1,2-Dichloroethene		<0.0041		0.0041
trans-1,3-Dichloropropene		<0.0041		0.0041
1,2,3-Trichlorobenzene		<0.0041		0.0041
1,2,4-Trichlorobenzene		<0.0041		0.0041
1,1,1-Trichloroethane		<0.0041		0.0041
1,1,2-Trichloroethane		<0.0041		0.0041
Trichloroethene		<0.0041		0.0041
Trichlorofluoromethane		<0.0041		0.0041
1,2,3-Trichloropropane		<0.0041		0.0041
1,2,4-Trimethylbenzene		0.0061		0.0041
1,3,5-Trimethylbenzene		<0.0041		0.0041
Vinyl acetate		<0.020		0.020
Vinyl chloride		<0.0041		0.0041

Surrogate	%Rec	Acceptance Limits
4-Bromofluorobenzene	101	73 - 124
Dibromofluoromethane	102	75 - 136
Toluene-d8 (Surr)	102	75 - 126

Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Client Sample ID: 5084134-3

Lab Sample ID: 400-34074-3

Date Sampled: 09/03/2008 1500

Client Matrix: Solid

% Moisture: 18.4

Date Received: 09/05/2008 1011

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B

Analysis Batch: 400-75880

Instrument ID: GC/MS

Preparation: 5035

Prep Batch: 400-75885

Lab File ID: AS090924.D

Dilution: 50

Initial Weight/Volume: 5.46 g

Date Analyzed: 09/09/2008 1739

Final Weight/Volume: 5 g

Date Prepared: 09/09/2008 0800

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Acetone		<0.41		0.41	1.4
Benzene		0.60		0.026	0.28
Bromobenzene		<0.073		0.073	0.28
Bromochloromethane		<0.043		0.043	0.28
Bromodichloromethane		<0.047		0.047	0.28
Bromoform		<0.028		0.028	0.28
Bromomethane		<0.051		0.051	0.28
Carbon disulfide		<0.056		0.056	0.28
Carbon tetrachloride		<0.095		0.095	0.28
Chlorobenzene		<0.029		0.029	0.28
Chloroethane		<0.11		0.11	0.28
Chloroform		<0.033		0.033	0.28
Chloromethane		<0.049		0.049	0.28
2-Chlorotoluene		<0.054		0.054	0.28
4-Chlorotoluene		<0.055		0.055	0.28
cis-1,2-Dichloroethene		<0.043		0.043	0.28
cis-1,3-Dichloropropene		<0.067		0.067	0.28
Dibromochloromethane		<0.049		0.049	0.28
1,2-Dibromo-3-Chloropropane		<0.19		0.19	0.28
Dibromomethane		<0.047		0.047	0.28
1,2-Dichlorobenzene		<0.040		0.040	0.28
1,3-Dichlorobenzene		<0.053		0.053	0.28
1,4-Dichlorobenzene		<0.046		0.046	0.28
Dichlorodifluoromethane		<0.073		0.073	0.28
1,1-Dichloroethane		<0.047		0.047	0.28
1,2-Dichloroethane		<0.046		0.046	0.28
1,1-Dichloroethene		<0.036		0.036	0.28
1,2-Dichloropropane		<0.042		0.042	0.28
1,3-Dichloropropane		<0.036		0.036	0.28
2,2-Dichloropropane		<0.10		0.10	0.28
1,1-Dichloropropene		<0.041		0.041	0.28
Ethylbenzene		0.44		0.030	0.28
Ethylene Dibromide		<0.073		0.073	0.28
Hexachlorobutadiene		<0.062		0.062	0.28
2-Hexanone		<0.28		0.28	1.4
Iodomethane		<0.19		0.19	0.28
Isopropylbenzene		0.036	J	0.031	0.28
Isopropyl ether		<0.031		0.031	0.28
Methylene Chloride		<0.15		0.15	0.28
Methyl Ethyl Ketone		<0.23		0.23	1.4
methyl isobutyl ketone		<0.22		0.22	1.4
Methyl tert-butyl ether		0.52		0.056	0.28
m-Xylene & p-Xylene		0.10	J	0.084	0.56
Naphthalene		<0.13		0.13	0.28

## Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Client Sample ID: 5084134-3

Lab Sample ID: 400-34074-3

Date Sampled: 09/03/2008 1500

Client Matrix: Solid

% Moisture: 18.4

Date Received: 09/05/2008 1011

### 8260B Volatile Organic Compounds (GC/MS)

Method: 8260B

Analysis Batch: 400-75880

Instrument ID: GC/MS

Preparation: 5035

Prep Batch: 400-75885

Lab File ID: AS090924.D

Dilution: 50

Initial Weight/Volume: 5.46 g

Date Analyzed: 09/09/2008 1739

Final Weight/Volume: 5 g

Date Prepared: 09/09/2008 0800

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
n-Butylbenzene		<0.054		0.054	0.28
N-Propylbenzene		0.10	J	0.050	0.28
o-Xylene		<0.040		0.040	0.28
p-Cymene		<0.044		0.044	0.28
sec-Butylbenzene		<0.053		0.053	0.28
Styrene		<0.043		0.043	0.28
tert-Butylbenzene		<0.044		0.044	0.28
1,1,1,2-Tetrachloroethane		<0.056		0.056	0.28
1,1,2,2-Tetrachloroethane		<0.040		0.040	0.28
Tetrachloroethene		<0.047		0.047	0.28
Toluene		<0.038		0.038	0.28
trans-1,2-Dichloroethene		<0.038		0.038	0.28
trans-1,3-Dichloropropene		<0.052		0.052	0.28
1,2,3-Trichlorobenzene		<0.067		0.067	0.28
1,2,4-Trichlorobenzene		<0.040		0.040	0.28
1,1,1-Trichloroethane		<0.062		0.062	0.28
1,1,2-Trichloroethane		<0.052		0.052	0.28
Trichloroethene		<0.025		0.025	0.28
Trichlorofluoromethane		<0.043		0.043	0.28
1,2,3-Trichloropropane		<0.095		0.095	0.28
1,2,4-Trimethylbenzene		0.10	J	0.067	0.28
1,3,5-Trimethylbenzene		0.071	J	0.047	0.28
Vinyl acetate		<0.51		0.51	1.4
Vinyl chloride		<0.052		0.052	0.28

Surrogate	%Rec	Acceptance Limits
4-Bromofluorobenzene	101	73 - 124
Dibromofluoromethane	96	75 - 136
Toluene-d8 (Surr)	103	75 - 126

Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Client Sample ID: 5084134-1

Lab Sample ID: 400-34074-1

Date Sampled: 09/03/2008 1430

Client Matrix: Solid

% Moisture: 16.0

Date Received: 09/05/2008 1011

8015M GRO by 8015M

Method: 8015M

Analysis Batch: 400-76008

Instrument ID: GC/PID/FID

Preparation: 5035

Prep Batch: 400-76064

Lab File ID: P091216.D

Dilution: 200

Initial Weight/Volume: 6.68 g

Date Analyzed: 09/13/2008 0206

Final Weight/Volume: 5.0 g

Date Prepared: 09/12/2008 1000

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10		180		18

Surrogate	%Rec		Acceptance Limits
a,a,a-Trifluorotoluene (fid)	151	X	69 - 129

Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Client Sample ID: 5084134-2

Lab Sample ID: 400-34074-2

Date Sampled: 09/03/2008 1445

Client Matrix: Solid

% Moisture: 13.5

Date Received: 09/05/2008 1011

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8015M GRO by 8015M

Method: 8015M

Analysis Batch: 400-76008

Instrument ID: GC/PID/FID

Preparation: 5035

Prep Batch: 400-76064

Lab File ID: P091218.D

Dilution: 50

Initial Weight/Volume: 5.67 g

Date Analyzed: 09/13/2008 0402

Final Weight/Volume: 5.0 g

Date Prepared: 09/12/2008 1000

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10		5.6		5.1

Surrogate	%Rec	Acceptance Limits
a,a,a-Trifluorotoluene (fid)	99	69 - 129

Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Client Sample ID: 5084134-3

Lab Sample ID: 400-34074-3  
Client Matrix: Solid

% Moisture: 18.4

Date Sampled: 09/03/2008 1500  
Date Received: 09/05/2008 1011

8015M GRO by 8015M

Method: 8015M  
Preparation: 5035  
Dilution: 50  
Date Analyzed: 09/13/2008 0500  
Date Prepared: 09/12/2008 1000

Analysis Batch: 400-76008  
Prep Batch: 400-76064

Instrument ID: GC/PID/FID  
Lab File ID: P091219.D  
Initial Weight/Volume: 5.45 g  
Final Weight/Volume: 5.0 g  
Injection Volume:  
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10		13		5.6

Surrogate	%Rec	Acceptance Limits
a,a,a-Trifluorotoluene (fid)	100	69 - 129

Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Client Sample ID: 5084134-1

Lab Sample ID: 400-34074-1

Date Sampled: 09/03/2008 1430

Client Matrix: Solid

% Moisture: 16.0

Date Received: 09/05/2008 1011

8015B Diesel Range Organics (DRO) (GC)

Method: 8015B

Analysis Batch: 400-75802

Instrument ID: GC/FID/FID

Preparation: 3550B

Prep Batch: 400-75702

Lab File ID: 0801008.D

Dilution: 5.0

Initial Weight/Volume: 30.14 g

Date Analyzed: 09/09/2008 0858

Final Weight/Volume: 5.0 mL

Date Prepared: 09/08/2008 0817

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Diesel Range Organics [C10-C28]		1900		15
Surrogate	%Rec			Acceptance Limits
o-Terphenyl	2		X	59 - 143

Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Client Sample ID: 5084134-2

Lab Sample ID: 400-34074-2

Date Sampled: 09/03/2008 1445

Client Matrix: Solid

% Moisture: 13.5

Date Received: 09/05/2008 1011

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8015B Diesel Range Organics (DRO) (GC)

Method: 8015B

Analysis Batch: 400-75802

Instrument ID: GC/FID/FID

Preparation: 3550B

Prep Batch: 400-75702

Lab File ID: 3801038.D

Dilution: 1.0

Initial Weight/Volume: 30.31 g

Date Analyzed: 09/08/2008 2027

Final Weight/Volume: 5.0 mL

Date Prepared: 09/08/2008 0817

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Diesel Range Organics [C10-C28]		12		2.9
Surrogate		%Rec		Acceptance Limits
o-Terphenyl		88		59 - 143

Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Client Sample ID: 5084134-3

Lab Sample ID: 400-34074-3

Date Sampled: 09/03/2008 1500

Client Matrix: Solid

% Moisture: 18.4

Date Received: 09/05/2008 1011

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8015B Diesel Range Organics (DRO) (GC)

Method: 8015B

Analysis Batch: 400-75802

Instrument ID: GC/FID/FID

Preparation: 3550B

Prep Batch: 400-75702

Lab File ID: 4001040.D

Dilution: 1.0

Initial Weight/Volume: 30.04 g

Date Analyzed: 09/08/2008 2039

Final Weight/Volume: 5.0 mL

Date Prepared: 09/08/2008 0817

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Diesel Range Organics [C10-C28]		<3.1		3.1

Surrogate	%Rec	Acceptance Limits
o-Terphenyl	80	59 - 143

Analytical Data

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

General Chemistry

Client Sample ID: 5084134-1

Lab Sample ID: 400-34074-1

Client Matrix: Solid

Date Sampled: 09/03/2008 1430

Date Received: 09/05/2008 1011

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	84		Percent	0.10	1.0	PercentMoisture
	Anly Batch: 400-75719		Date Analyzed			09/06/2008 0000

Client Sample ID: 5084134-2

Lab Sample ID: 400-34074-2

Client Matrix: Solid

Date Sampled: 09/03/2008 1445

Date Received: 09/05/2008 1011

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	87		Percent	0.10	1.0	PercentMoisture
	Anly Batch: 400-75719		Date Analyzed			09/06/2008 0000

Client Sample ID: 5084134-3

Lab Sample ID: 400-34074-3

Client Matrix: Solid

Date Sampled: 09/03/2008 1500

Date Received: 09/05/2008 1011

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	82		Percent	0.10	1.0	PercentMoisture
	Anly Batch: 400-75719		Date Analyzed			09/06/2008 0000

## DATA REPORTING QUALIFIERS

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Lab Section	Qualifier	Description
GC/MS VOA	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
GC VOA	X	Surrogate exceeds the control limits
GC Semi VOA	X	Surrogate exceeds the control limits

# QUALITY CONTROL RESULTS

## Quality Control Results

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

### QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
<b>GC/MS VOA</b>					
<b>Analysis Batch:400-75880</b>					
LCS 400-75885/2-A	Lab Control Spike	T	Solid	8260B	400-75885
MB 400-75885/1-A	Method Blank	T	Solid	8260B	400-75885
400-34074-2	5084134-2	T	Solid	8260B	400-75885
400-34074-3	5084134-3	T	Solid	8260B	400-75885

<b>Prep Batch: 400-75885</b>					
LCS 400-75885/2-A	Lab Control Spike	T	Solid	5035	
MB 400-75885/1-A	Method Blank	T	Solid	5035	
400-34074-2	5084134-2	T	Solid	5035	
400-34074-3	5084134-3	T	Solid	5035	

<b>Analysis Batch:400-76045</b>					
LCS 400-76052/2-A	Lab Control Spike	T	Solid	8260B	400-76052
MB 400-76052/1-A	Method Blank	T	Solid	8260B	400-76052
400-34074-1	5084134-1	T	Solid	8260B	400-76052

<b>Prep Batch: 400-76052</b>					
LCS 400-76052/2-A	Lab Control Spike	T	Solid	5035	
MB 400-76052/1-A	Method Blank	T	Solid	5035	
400-34074-1	5084134-1	T	Solid	5035	

Report Basis

T = Total

**GC VOA**

<b>Analysis Batch:400-76008</b>					
LCS 400-76064/2-A	Lab Control Spike	T	Solid	8015M	400-76064
MB 400-76064/1-A	Method Blank	T	Solid	8015M	400-76064
400-34074-1	5084134-1	T	Solid	8015M	400-76064
400-34074-2	5084134-2	T	Solid	8015M	400-76064
400-34074-3	5084134-3	T	Solid	8015M	400-76064

<b>Prep Batch: 400-76064</b>					
LCS 400-76064/2-A	Lab Control Spike	T	Solid	5035	
MB 400-76064/1-A	Method Blank	T	Solid	5035	
400-34074-1	5084134-1	T	Solid	5035	
400-34074-2	5084134-2	T	Solid	5035	
400-34074-3	5084134-3	T	Solid	5035	

Report Basis

T = Total

TestAmerica Pensacola

## Quality Control Results

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

### QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
<b>GC Semi VOA</b>					
<b>Prep Batch: 400-75702</b>					
LCS 400-75702/12-A	Lab Control Spike	T	Solid	3550B	
MB 400-75702/13-A	Method Blank	T	Solid	3550B	
400-34074-1	5084134-1	T	Solid	3550B	
400-34074-2	5084134-2	T	Solid	3550B	
400-34074-2MS	Matrix Spike	T	Solid	3550B	
400-34074-2MSD	Matrix Spike Duplicate	T	Solid	3550B	
400-34074-3	5084134-3	T	Solid	3550B	
<b>Analysis Batch:400-75802</b>					
LCS 400-75702/12-A	Lab Control Spike	T	Solid	8015B	400-75702
MB 400-75702/13-A	Method Blank	T	Solid	8015B	400-75702
400-34074-1	5084134-1	T	Solid	8015B	400-75702
400-34074-2	5084134-2	T	Solid	8015B	400-75702
400-34074-2MS	Matrix Spike	T	Solid	8015B	400-75702
400-34074-2MSD	Matrix Spike Duplicate	T	Solid	8015B	400-75702
400-34074-3	5084134-3	T	Solid	8015B	400-75702

**Report Basis**

T = Total

**General Chemistry**

**Analysis Batch:400-75719**

400-34074-1	5084134-1	T	Solid	PercentMoisture	
400-34074-2	5084134-2	T	Solid	PercentMoisture	
400-34074-3	5084134-3	T	Solid	PercentMoisture	

**Report Basis**

T = Total

TestAmerica Pensacola

## Quality Control Results

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

**Method Blank - Batch: 400-75885**

**Method: 8260B**  
**Preparation: 5035**

Lab Sample ID: MB 400-75885/1-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/09/2008 1057  
Date Prepared: 09/09/2008 0800

Analysis Batch: 400-75880  
Prep Batch: 400-75885  
Units: mg/Kg

Instrument ID: GC/MS  
Lab File ID: AS090905.D  
Initial Weight/Volume: 5 g  
Final Weight/Volume: 5 g

Analyte	Result	Qual	MDL	RL
Acetone	<0.0073		0.0073	0.025
Benzene	<0.00046		0.00046	0.0050
Bromobenzene	<0.0013		0.0013	0.0050
Bromochloromethane	<0.00076		0.00076	0.0050
Bromodichloromethane	<0.00084		0.00084	0.0050
Bromoform	<0.00050		0.00050	0.0050
Bromomethane	<0.00091		0.00091	0.0050
Carbon disulfide	<0.0010		0.0010	0.0050
Carbon tetrachloride	<0.0017		0.0017	0.0050
Chlorobenzene	<0.00052		0.00052	0.0050
Chloroethane	<0.0019		0.0019	0.0050
Chloroform	<0.00059		0.00059	0.0050
Chloromethane	<0.00088		0.00088	0.0050
2-Chlorotoluene	<0.00096		0.00096	0.0050
4-Chlorotoluene	<0.00098		0.00098	0.0050
cis-1,2-Dichloroethene	<0.00076		0.00076	0.0050
cis-1,3-Dichloropropene	<0.0012		0.0012	0.0050
Dibromochloromethane	<0.00087		0.00087	0.0050
1,2-Dibromo-3-Chloropropane	<0.0033		0.0033	0.0050
Dibromomethane	<0.00083		0.00083	0.0050
1,2-Dichlorobenzene	<0.00071		0.00071	0.0050
1,3-Dichlorobenzene	<0.00095		0.00095	0.0050
1,4-Dichlorobenzene	<0.00082		0.00082	0.0050
Dichlorodifluoromethane	<0.0013		0.0013	0.0050
1,1-Dichloroethane	<0.00083		0.00083	0.0050
1,2-Dichloroethane	<0.00082		0.00082	0.0050
1,1-Dichloroethene	<0.00064		0.00064	0.0050
1,2-Dichloropropane	<0.00074		0.00074	0.0050
1,3-Dichloropropane	<0.00065		0.00065	0.0050
2,2-Dichloropropane	<0.0018		0.0018	0.0050
1,1-Dichloropropene	<0.00073		0.00073	0.0050
Ethylbenzene	<0.00054		0.00054	0.0050
Ethylene Dibromide	<0.0013		0.0013	0.0050
Hexachlorobutadiene	<0.0011		0.0011	0.0050
2-Hexanone	<0.0050		0.0050	0.025
Iodomethane	<0.0034		0.0034	0.0050
Isopropylbenzene	<0.00056		0.00056	0.0050
Isopropyl ether	<0.00055		0.00055	0.0050
Methylene Chloride	<0.0027		0.0027	0.0050
Methyl Ethyl Ketone	<0.0041		0.0041	0.025
methyl isobutyl ketone	<0.0040		0.0040	0.025

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Method Blank - Batch: 400-75885

Method: 8260B  
Preparation: 5035

Lab Sample ID: MB 400-75885/1-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/09/2008 1057  
Date Prepared: 09/09/2008 0800

Analysis Batch: 400-75880  
Prep Batch: 400-75885  
Units: mg/Kg

Instrument ID: GC/MS  
Lab File ID: AS090905.D  
Initial Weight/Volume: 5 g  
Final Weight/Volume: 5 g

Analyte	Result	Qual	MDL	RL
Methyl tert-butyl ether	<0.0010		0.0010	0.0050
m-Xylene & p-Xylene	<0.0015		0.0015	0.010
Naphthalene	<0.0023		0.0023	0.0050
n-Butylbenzene	<0.00096		0.00096	0.0050
N-Propylbenzene	<0.00090		0.00090	0.0050
o-Xylene	<0.00071		0.00071	0.0050
p-Cymene	<0.00078		0.00078	0.0050
sec-Butylbenzene	<0.00095		0.00095	0.0050
Styrene	<0.00076		0.00076	0.0050
tert-Butylbenzene	<0.00079		0.00079	0.0050
1,1,1,2-Tetrachloroethane	<0.0010		0.0010	0.0050
1,1,2,2-Tetrachloroethane	<0.00072		0.00072	0.0050
Tetrachloroethene	<0.00084		0.00084	0.0050
Toluene	<0.00068		0.00068	0.0050
trans-1,2-Dichloroethene	<0.00068		0.00068	0.0050
trans-1,3-Dichloropropene	<0.00092		0.00092	0.0050
1,2,3-Trichlorobenzene	<0.0012		0.0012	0.0050
1,2,4-Trichlorobenzene	<0.00072		0.00072	0.0050
1,1,1-Trichloroethane	<0.0011		0.0011	0.0050
1,1,2-Trichloroethane	<0.00092		0.00092	0.0050
Trichloroethene	<0.00045		0.00045	0.0050
Trichlorofluoromethane	<0.00076		0.00076	0.0050
1,2,3-Trichloropropane	<0.0017		0.0017	0.0050
1,2,4-Trimethylbenzene	<0.0012		0.0012	0.0050
1,3,5-Trimethylbenzene	<0.00083		0.00083	0.0050
Vinyl acetate	<0.0091		0.0091	0.025
Vinyl chloride	<0.00092		0.00092	0.0050

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	103	73 - 124
Dibromofluoromethane	99	75 - 136
Toluene-d8 (Surr)	103	75 - 126

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Lab Control Spike - Batch: 400-75885

**Method: 8260B**  
**Preparation: 5035**

Lab Sample ID: LCS 400-75885/2-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/09/2008 1140  
Date Prepared: 09/09/2008 0800

Analysis Batch: 400-75880  
Prep Batch: 400-75885  
Units: mg/Kg

Instrument ID: GC/MS  
Lab File ID: AS090907.D  
Initial Weight/Volume: 5 g  
Final Weight/Volume: 5 g

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acetone	0.200	0.183	92	46 - 152	
Benzene	0.0500	0.0520	104	78 - 124	
Bromobenzene	0.0500	0.0514	103	81 - 120	
Bromochloromethane	0.0500	0.0480	96	77 - 123	
Bromodichloromethane	0.0500	0.0503	101	69 - 132	
Bromoform	0.0500	0.0484	97	66 - 130	
Bromomethane	0.0500	0.0486	97	21 - 156	
Carbon disulfide	0.0500	0.0376	75	65 - 123	
Carbon tetrachloride	0.0500	0.0507	101	65 - 149	
Chlorobenzene	0.0500	0.0533	107	83 - 120	
Chloroethane	0.0500	0.0460	92	53 - 134	
Chloroform	0.0500	0.0507	101	72 - 127	
Chloromethane	0.0500	0.0455	91	55 - 126	
2-Chlorotoluene	0.0500	0.0504	101	72 - 129	
4-Chlorotoluene	0.0500	0.0518	104	75 - 129	
cis-1,2-Dichloroethene	0.0500	0.0520	104	77 - 126	
cis-1,3-Dichloropropene	0.0500	0.0497	99	74 - 130	
Dibromochloromethane	0.0500	0.0477	95	76 - 122	
1,2-Dibromo-3-Chloropropane	0.0500	0.0443	89	60 - 139	
Dibromomethane	0.0500	0.0510	102	73 - 134	
1,2-Dichlorobenzene	0.0500	0.0518	104	82 - 120	
1,3-Dichlorobenzene	0.0500	0.0511	102	80 - 122	
1,4-Dichlorobenzene	0.0500	0.0510	102	76 - 128	
Dichlorodifluoromethane	0.0500	0.0456	91	41 - 140	
1,1-Dichloroethane	0.0500	0.0514	103	71 - 131	
1,2-Dichloroethane	0.0500	0.0438	88	66 - 137	
1,1-Dichloroethene	0.0500	0.0470	94	75 - 122	
1,2-Dichloropropane	0.0500	0.0519	104	78 - 121	
1,3-Dichloropropane	0.0500	0.0497	99	78 - 124	
2,2-Dichloropropane	0.0500	0.0488	98	64 - 141	
1,1-Dichloropropene	0.0500	0.0512	102	73 - 130	
Ethylbenzene	0.0500	0.0525	105	79 - 125	
Ethylene Dibromide	0.0500	0.0501	100	82 - 121	
Hexachlorobutadiene	0.0500	0.0573	115	62 - 150	
2-Hexanone	0.200	0.183	92	61 - 138	
Iodomethane	0.0500	0.0485	97	62 - 136	
Isopropylbenzene	0.0500	0.0539	108	78 - 126	
Isopropyl ether	0.0500	0.0518	104	63 - 143	
Methylene Chloride	0.0500	0.0457	91	67 - 131	
Methyl Ethyl Ketone	0.200	0.188	94	54 - 149	
methyl isobutyl ketone	0.200	0.193	96	67 - 134	
Methyl tert-butyl ether	0.0500	0.0469	94	68 - 137	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Lab Control Spike - Batch: 400-75885

Method: 8260B  
Preparation: 5035

Lab Sample ID: LCS 400-75885/2-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/09/2008 1140  
Date Prepared: 09/09/2008 0800

Analysis Batch: 400-75880  
Prep Batch: 400-75885  
Units: mg/Kg

Instrument ID: GC/MS  
Lab File ID: AS090907.D  
Initial Weight/Volume: 5 g  
Final Weight/Volume: 5 g

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
m-Xylene & p-Xylene	0.100	0.106	106	77 - 128	
Naphthalene	0.0500	0.0508	102	60 - 138	
n-Butylbenzene	0.0500	0.0524	105	62 - 143	
N-Propylbenzene	0.0500	0.0517	103	72 - 131	
o-Xylene	0.0500	0.0536	107	81 - 122	
p-Cymene	0.0500	0.0523	105	71 - 133	
sec-Butylbenzene	0.0500	0.0526	105	74 - 128	
Styrene	0.0500	0.0525	105	82 - 119	
tert-Butylbenzene	0.0500	0.0511	102	76 - 124	
1,1,1,2-Tetrachloroethane	0.0500	0.0503	101	78 - 124	
1,1,2,2-Tetrachloroethane	0.0500	0.0452	90	73 - 124	
Tetrachloroethene	0.0500	0.0544	109	79 - 126	
Toluene	0.0500	0.0534	107	80 - 123	
trans-1,2-Dichloroethene	0.0500	0.0496	99	77 - 124	
trans-1,3-Dichloropropene	0.0500	0.0476	95	75 - 128	
1,2,3-Trichlorobenzene	0.0500	0.0536	107	76 - 129	
1,2,4-Trichlorobenzene	0.0500	0.0546	109	74 - 132	
1,1,1-Trichloroethane	0.0500	0.0498	100	78 - 129	
1,1,2-Trichloroethane	0.0500	0.0514	103	78 - 122	
Trichloroethene	0.0500	0.0528	106	79 - 126	
Trichlorofluoromethane	0.0500	0.0508	102	65 - 138	
1,2,3-Trichloropropane	0.0500	0.0444	89	72 - 129	
1,2,4-Trimethylbenzene	0.0500	0.0523	105	74 - 131	
1,3,5-Trimethylbenzene	0.0500	0.0521	104	74 - 131	
Vinyl acetate	0.100	0.0962	96	55 - 156	
Vinyl chloride	0.0500	0.0433	87	60 - 124	
Surrogate			% Rec	Acceptance Limits	
4-Bromofluorobenzene			102	73 - 124	
Dibromofluoromethane			97	75 - 136	
Toluene-d8 (Surr)			102	75 - 126	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

**Method Blank - Batch: 400-76052**

**Method: 8260B**  
**Preparation: 5035**

Lab Sample ID: MB 400-76052/1-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/10/2008 1135  
Date Prepared: 09/10/2008 0800

Analysis Batch: 400-76045  
Prep Batch: 400-76052  
Units: mg/Kg

Instrument ID: GC/MS  
Lab File ID: AS091005.D  
Initial Weight/Volume: 5 g  
Final Weight/Volume: 5 g

Analyte	Result	Qual	MDL	RL
Acetone	<0.0073		0.0073	0.025
Benzene	<0.00046		0.00046	0.0050
Bromobenzene	<0.0013		0.0013	0.0050
Bromochloromethane	<0.00076		0.00076	0.0050
Bromodichloromethane	<0.00084		0.00084	0.0050
Bromoform	<0.00050		0.00050	0.0050
Bromomethane	<0.00091		0.00091	0.0050
Carbon disulfide	<0.0010		0.0010	0.0050
Carbon tetrachloride	<0.0017		0.0017	0.0050
Chlorobenzene	<0.00052		0.00052	0.0050
Chloroethane	<0.0019		0.0019	0.0050
Chloroform	<0.00059		0.00059	0.0050
Chloromethane	<0.00088		0.00088	0.0050
2-Chlorotoluene	<0.00096		0.00096	0.0050
4-Chlorotoluene	<0.00098		0.00098	0.0050
cis-1,2-Dichloroethene	<0.00076		0.00076	0.0050
cis-1,3-Dichloropropene	<0.0012		0.0012	0.0050
Dibromochloromethane	<0.00087		0.00087	0.0050
1,2-Dibromo-3-Chloropropane	<0.0033		0.0033	0.0050
Dibromomethane	<0.00083		0.00083	0.0050
1,2-Dichlorobenzene	<0.00071		0.00071	0.0050
1,3-Dichlorobenzene	<0.00095		0.00095	0.0050
1,4-Dichlorobenzene	<0.00082		0.00082	0.0050
Dichlorodifluoromethane	<0.0013		0.0013	0.0050
1,1-Dichloroethane	<0.00083		0.00083	0.0050
1,2-Dichloroethane	<0.00082		0.00082	0.0050
1,1-Dichloroethene	<0.00064		0.00064	0.0050
1,2-Dichloropropane	<0.00074		0.00074	0.0050
1,3-Dichloropropane	<0.00065		0.00065	0.0050
2,2-Dichloropropane	<0.0018		0.0018	0.0050
1,1-Dichloropropene	<0.00073		0.00073	0.0050
Ethylbenzene	<0.00054		0.00054	0.0050
Ethylene Dibromide	<0.0013		0.0013	0.0050
Hexachlorobutadiene	<0.0011		0.0011	0.0050
2-Hexanone	<0.0050		0.0050	0.025
Iodomethane	<0.0034		0.0034	0.0050
Isopropylbenzene	<0.00056		0.00056	0.0050
Isopropyl ether	<0.00055		0.00055	0.0050
Methylene Chloride	<0.0027		0.0027	0.0050
Methyl Ethyl Ketone	<0.0041		0.0041	0.025
methyl isobutyl ketone	<0.0040		0.0040	0.025

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Method Blank - Batch: 400-76052

Method: 8260B  
Preparation: 5035

Lab Sample ID: MB 400-76052/1-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/10/2008 1135  
Date Prepared: 09/10/2008 0800

Analysis Batch: 400-76045  
Prep Batch: 400-76052  
Units: mg/Kg

Instrument ID: GC/MS  
Lab File ID: AS091005.D  
Initial Weight/Volume: 5 g  
Final Weight/Volume: 5 g

Analyte	Result	Qual	MDL	RL
Methyl tert-butyl ether	<0.0010		0.0010	0.0050
m-Xylene & p-Xylene	<0.0015		0.0015	0.010
Naphthalene	<0.0023		0.0023	0.0050
n-Butylbenzene	<0.00096		0.00096	0.0050
N-Propylbenzene	<0.00090		0.00090	0.0050
o-Xylene	<0.00071		0.00071	0.0050
p-Cymene	<0.00078		0.00078	0.0050
sec-Butylbenzene	<0.00095		0.00095	0.0050
Styrene	<0.00076		0.00076	0.0050
tert-Butylbenzene	<0.00079		0.00079	0.0050
1,1,1,2-Tetrachloroethane	<0.0010		0.0010	0.0050
1,1,2,2-Tetrachloroethane	<0.00072		0.00072	0.0050
Tetrachloroethene	<0.00084		0.00084	0.0050
Toluene	<0.00068		0.00068	0.0050
trans-1,2-Dichloroethene	<0.00068		0.00068	0.0050
trans-1,3-Dichloropropene	<0.00092		0.00092	0.0050
1,2,3-Trichlorobenzene	<0.0012		0.0012	0.0050
1,2,4-Trichlorobenzene	<0.00072		0.00072	0.0050
1,1,1-Trichloroethane	<0.0011		0.0011	0.0050
1,1,2-Trichloroethane	<0.00092		0.00092	0.0050
Trichloroethene	<0.00045		0.00045	0.0050
Trichlorofluoromethane	<0.00076		0.00076	0.0050
1,2,3-Trichloropropane	<0.0017		0.0017	0.0050
1,2,4-Trimethylbenzene	<0.0012		0.0012	0.0050
1,3,5-Trimethylbenzene	<0.00083		0.00083	0.0050
Vinyl acetate	<0.0091		0.0091	0.025
Vinyl chloride	<0.00092		0.00092	0.0050

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	101	73 - 124
Dibromofluoromethane	98	75 - 136
Toluene-d8 (Surr)	98	75 - 126

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Lab Control Spike - Batch: 400-76052

**Method: 8260B**  
**Preparation: 5035**

Lab Sample ID: LCS 400-76052/2-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/10/2008 1157  
Date Prepared: 09/10/2008 0800

Analysis Batch: 400-76045  
Prep Batch: 400-76052  
Units: mg/Kg

Instrument ID: GC/MS  
Lab File ID: AS091006.D  
Initial Weight/Volume: 5 g  
Final Weight/Volume: 5 g

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acetone	0.200	0.192	96	46 - 152	
Benzene	0.0500	0.0486	97	78 - 124	
Bromobenzene	0.0500	0.0514	103	81 - 120	
Bromochloromethane	0.0500	0.0473	95	77 - 123	
Bromodichloromethane	0.0500	0.0512	102	69 - 132	
Bromoform	0.0500	0.0520	104	66 - 130	
Bromomethane	0.0500	0.0424	85	21 - 156	
Carbon disulfide	0.0500	0.0375	75	65 - 123	
Carbon tetrachloride	0.0500	0.0504	101	65 - 149	
Chlorobenzene	0.0500	0.0520	104	83 - 120	
Chloroethane	0.0500	0.0434	87	53 - 134	
Chloroform	0.0500	0.0497	99	72 - 127	
Chloromethane	0.0500	0.0414	83	55 - 126	
2-Chlorotoluene	0.0500	0.0500	100	72 - 129	
4-Chlorotoluene	0.0500	0.0511	102	75 - 129	
cis-1,2-Dichloroethene	0.0500	0.0489	98	77 - 126	
cis-1,3-Dichloropropene	0.0500	0.0482	96	74 - 130	
Dibromochloromethane	0.0500	0.0490	98	76 - 122	
1,2-Dibromo-3-Chloropropane	0.0500	0.0509	102	60 - 139	
Dibromomethane	0.0500	0.0525	105	73 - 134	
1,2-Dichlorobenzene	0.0500	0.0510	102	82 - 120	
1,3-Dichlorobenzene	0.0500	0.0502	100	80 - 122	
1,4-Dichlorobenzene	0.0500	0.0506	101	76 - 128	
Dichlorodifluoromethane	0.0500	0.0432	86	41 - 140	
1,1-Dichloroethane	0.0500	0.0488	98	71 - 131	
1,2-Dichloroethane	0.0500	0.0411	82	66 - 137	
1,1-Dichloroethene	0.0500	0.0454	91	75 - 122	
1,2-Dichloropropane	0.0500	0.0427	85	78 - 121	
1,3-Dichloropropane	0.0500	0.0501	100	78 - 124	
2,2-Dichloropropane	0.0500	0.0481	96	64 - 141	
1,1-Dichloropropene	0.0500	0.0483	97	73 - 130	
Ethylbenzene	0.0500	0.0507	101	79 - 125	
Ethylene Dibromide	0.0500	0.0521	104	82 - 121	
Hexachlorobutadiene	0.0500	0.0556	111	62 - 150	
2-Hexanone	0.200	0.205	103	61 - 138	
Iodomethane	0.0500	0.0478	96	62 - 136	
Isopropylbenzene	0.0500	0.0521	104	78 - 126	
Isopropyl ether	0.0500	0.0503	101	63 - 143	
Methylene Chloride	0.0500	0.0456	91	67 - 131	
Methyl Ethyl Ketone	0.200	0.192	96	54 - 149	
methyl isobutyl ketone	0.200	0.206	103	67 - 134	
Methyl tert-butyl ether	0.0500	0.0469	94	68 - 137	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

Lab Control Spike - Batch: 400-76052

Method: 8260B  
Preparation: 5035

Lab Sample ID: LCS 400-76052/2-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/10/2008 1157  
Date Prepared: 09/10/2008 0800

Analysis Batch: 400-76045  
Prep Batch: 400-76052  
Units: mg/Kg

Instrument ID: GC/MS  
Lab File ID: AS091006.D  
Initial Weight/Volume: 5 g  
Final Weight/Volume: 5 g

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
m-Xylene & p-Xylene	0.100	0.103	103	77 - 128	
Naphthalene	0.0500	0.0557	111	60 - 138	
n-Butylbenzene	0.0500	0.0504	101	62 - 143	
N-Propylbenzene	0.0500	0.0502	100	72 - 131	
o-Xylene	0.0500	0.0522	104	81 - 122	
p-Cymene	0.0500	0.0498	100	71 - 133	
sec-Butylbenzene	0.0500	0.0504	101	74 - 128	
Styrene	0.0500	0.0509	102	82 - 119	
tert-Butylbenzene	0.0500	0.0490	98	76 - 124	
1,1,1,2-Tetrachloroethane	0.0500	0.0502	100	78 - 124	
1,1,2,2-Tetrachloroethane	0.0500	0.0486	97	73 - 124	
Tetrachloroethene	0.0500	0.0523	105	79 - 126	
Toluene	0.0500	0.0531	106	80 - 123	
trans-1,2-Dichloroethene	0.0500	0.0471	94	77 - 124	
trans-1,3-Dichloropropene	0.0500	0.0492	98	75 - 128	
1,2,3-Trichlorobenzene	0.0500	0.0550	110	76 - 129	
1,2,4-Trichlorobenzene	0.0500	0.0549	110	74 - 132	
1,1,1-Trichloroethane	0.0500	0.0494	99	78 - 129	
1,1,2-Trichloroethane	0.0500	0.0532	106	78 - 122	
Trichloroethene	0.0500	0.0504	101	79 - 126	
Trichlorofluoromethane	0.0500	0.0493	99	65 - 138	
1,2,3-Trichloropropane	0.0500	0.0475	95	72 - 129	
1,2,4-Trimethylbenzene	0.0500	0.0510	102	74 - 131	
1,3,5-Trimethylbenzene	0.0500	0.0507	101	74 - 131	
Vinyl acetate	0.100	0.0975	98	55 - 156	
Vinyl chloride	0.0500	0.0401	80	60 - 124	
Surrogate		% Rec		Acceptance Limits	
4-Bromofluorobenzene		102		73 - 124	
Dibromofluoromethane		99		75 - 136	
Toluene-d8 (Surr)		102		75 - 126	

Calculations are performed before rounding to avoid round-off errors in calculated results.

**Quality Control Results**

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

**Method Blank - Batch: 400-76064**

**Method: 8015M**  
**Preparation: 5035**

Lab Sample ID: MB 400-76064/1-A  
Client Matrix: Solid  
Dilution: 50  
Date Analyzed: 09/10/2008 1810  
Date Prepared: 09/10/2008 1630

Analysis Batch: 400-76008  
Prep Batch: 400-76064  
Units: mg/Kg

Instrument ID: GC/PID/FID  
Lab File ID: P091002.D  
Initial Weight/Volume: 5.0 g  
Final Weight/Volume: 5.0 g  
Injection Volume:  
Column ID: PRIMARY

Analyte	Result	Qual	RL
Gasoline Range Organics (GRO)-C6-C10	<5.0		5.0

Surrogate	% Rec	Acceptance Limits
a,a,a-Trifluorotoluene (fid)	96	69 - 129

**Lab Control Spike - Batch: 400-76064**

**Method: 8015M**  
**Preparation: 5035**

Lab Sample ID: LCS 400-76064/2-A  
Client Matrix: Solid  
Dilution: 50  
Date Analyzed: 09/11/2008 1207  
Date Prepared: 09/10/2008 1630

Analysis Batch: 400-76008  
Prep Batch: 400-76064  
Units: mg/Kg

Instrument ID: GC/PID/FID  
Lab File ID: P091103.D  
Initial Weight/Volume: 5.0 g  
Final Weight/Volume: 5.0 g  
Injection Volume:  
Column ID: PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Gasoline Range Organics (GRO)-C6-C10	10.0	11.3	113	79 - 123	

Surrogate	% Rec	Acceptance Limits
a,a,a-Trifluorotoluene (fid)	96	69 - 129

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

**Method Blank - Batch: 400-75702**

**Method: 8015B**  
**Preparation: 3550B**

Lab Sample ID: MB 400-75702/13-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/08/2008 1918  
Date Prepared: 09/08/2008 0817

Analysis Batch: 400-75802  
Prep Batch: 400-75702  
Units: mg/Kg

Instrument ID: GC/FID/FID  
Lab File ID: 2601026.D  
Initial Weight/Volume: 30.00 g  
Final Weight/Volume: 5.0 mL  
Injection Volume:  
Column ID: PRIMARY

Analyte	Result	Qual	RL
Diesel Range Organics [C10-C28]	<2.5		2.5

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	78	59 - 143

**Lab Control Spike - Batch: 400-75702**

**Method: 8015B**  
**Preparation: 3550B**

Lab Sample ID: LCS 400-75702/12-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/08/2008 1924  
Date Prepared: 09/08/2008 0817

Analysis Batch: 400-75802  
Prep Batch: 400-75702  
Units: mg/Kg

Instrument ID: GC/FID/FID  
Lab File ID: 2701027.D  
Initial Weight/Volume: 30.00 g  
Final Weight/Volume: 5.0 mL  
Injection Volume:  
Column ID: PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Diesel Range Organics [C10-C28]	334	351	105	67 - 155	

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	89	59 - 143

Calculations are performed before rounding to avoid round-off errors in calculated results.

**Quality Control Results**

Client: Gannett Fleming

Job Number: 400-34074-1  
Sdg Number: CVX Fac #5084134

**Matrix Spike/  
Matrix Spike Duplicate Recovery Report - Batch: 400-75702**

**Method: 8015B  
Preparation: 3550B**

MS Lab Sample ID: 400-34074-2  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/08/2008 1935  
Date Prepared: 09/08/2008 0817

Analysis Batch: 400-75802  
Prep Batch: 400-75702

Instrument ID: GC/FID/FID  
Lab File ID: 2901029.D  
Initial Weight/Volume: 30.20 g  
Final Weight/Volume: 5.0 mL  
Injection Volume:  
Column ID: PRIMARY

MSD Lab Sample ID: 400-34074-2  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/08/2008 1941  
Date Prepared: 09/08/2008 0817

Analysis Batch: 400-75802  
Prep Batch: 400-75702

Instrument ID: GC/FID/FID  
Lab File ID: 3001030.D  
Initial Weight/Volume: 30.03 g  
Final Weight/Volume: 5.0 mL  
Injection Volume:  
Column ID: PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Diesel Range Organics [C10-C28]	84	85	43 - 144	2	47		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
o-Terphenyl	74	61	59 - 143

**Matrix Spike/  
Matrix Spike Duplicate Data Report - Batch: 400-75702**

**Method: 8015B  
Preparation: 3550B**

MS Lab Sample ID: 400-34074-2  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/08/2008 1935  
Date Prepared: 09/08/2008 0817

Units: mg/Kg

MSD Lab Sample ID: 400-34074-2  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 09/08/2008 1941  
Date Prepared: 09/08/2008 0817

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Diesel Range Organics [C10-C28]	12	384	386	335	341

Calculations are performed before rounding to avoid round-off errors in calculated results.



## Login Sample Receipt Check List

Client: Gannett Fleming

Job Number: 400-34074-1  
SDG Number: CVX Fac #5084134

Login Number: 34074

List Source: TestAmerica Pensacola

Creator: Hor, Koma

List Number: 1

Question	T / F / NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	



Photograph 1: Initial excavation, east containment wall



Photograph 2: Initial excavation



Photograph 3: Initial excavation with Techron tank in the background



Photograph 4: Second excavation



Photograph 5: Conduit in second excavation



Photograph 6: Conduit in second excavation



Photograph 7: Third excavation, near curb line



Photograph 8: Third excavation

# **AOC 24 – Crude Oil Tank Farm**

## **AOC 24 – Crude Oil Tank Farm (tanks 101 and 102)**

The Crude Oil Tank Farm, which has been identified by NMED as Area of Concern #24, is located on the west side of tank farm as indicated on the attached maps. The information normally required for a Release Assessment Report pursuant to Permit Section IV.H.1.a is provided in the attachment.

NMED requested information in the format below.

3.

- a. Any data or reports already provided to OCD;  
No data was identified that was only provided to OCD. Documentation demonstrating cleanup of a spill in the area that was provided to both NMED and OCD is attached.
- b. Any data not provided to OCD, but correlated to the OCD reports;  
None identified.
- c. Site history;  
The site history is discussed in the attachment in the Release Assessment Report format.
- d. Location map  
See attached maps.
- e. Previous sampling locations (including depths and a description of field methods); and  
Documentation demonstrating cleanup of a spill in the area that was provided to both NMED and OCD is included in the attachment.
- f. Analytical suites/types.  
NA

## AOC 24 – Crude Oil Tank Farm (tanks 101 and 102)

- (1) location of unit(s) on a topographic map of appropriate scale, as required under 40 CFR §270.14(b)(19);

*See attached topo maps for location of units/AOCs*

- (2) designation of type and function of unit(s);  
*The tanks are used to store crude oil.*
- (3) dimensions, capacities and structural description of unit(s) (supply any available plans/drawings);  
*There are two 80,000 bbl. steel tanks with approximate diameter of 110 feet.*
- (4) dates that the unit(s) was operated;  
*Tanks 101 and 102 were placed into service in approximately 1957 and 1991, respectively. Both tanks are still in service.*
- (5) all available site history information;

*The refinery began operation in the late 1950s and the refinery property covers an area of approximately 810 acres. The refinery location and the regional vicinity is characterized as high desert plain comprised primarily of public lands used for grazing by cattle and sheep.*

*The Gallup Refinery is a crude oil refinery currently owned and operated by Western Refining Southwest, Inc. ("Western"), formerly known as Giant Industries Arizona, Inc. and formerly doing business as Giant Refining Company Ciniza Refinery, an Arizona corporation. The Gallup Refinery generally processes crude oil from the Four Corners area transported to the facility by pipeline or tanker truck. Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, alkylation, isomerization, sulfur recovery, merox treater, and hydrotreating. Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.*

- (6) specifications of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on hazardous waste or hazardous constituents in the wastes;  
*No wastes have been managed in the tanks. The tanks are used to store crude oil and any sediment, which could possibly accumulate in the tanks, is not a listed hazardous waste while present in the tanks.*
- (7) All available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (to include ground water data, soil analyses, air, and surface water data).

*On December 31, 2006, approximately 6 barrels (250 gallons) of crude oil was spilled onto the ground when a process sewer drain line from the water draw on Tank 102 became clogged causing the drain box to overflow. Subsequently, a C-141 Release Notification report was submitted to the New Mexico Oil Conservation Division (NMOCD) and New Mexico Environment Department (NMED) on Jan. 2, 2007. The impacted soils were subsequently removed and disposed. During the removal of the spill impacted soils, unrelated impacts to deeper soils were observed. Seeps west of*

*the crude tanks were observed at this time and subsequently surface water samples were collected and analyzed. These water samples were found to contain chlorinated solvents, which were obviously not related to the crude oil tanks. The activities conducted after the initial spill notification are documented in the attached copies of emails related to the incident and associated documents submitted to NMED at that time.*

*More recently, hydrocarbons were observed in the same seep locations west of the crude tanks and Western implemented emergency measures to identify the source of the hydrocarbons and associated impacts to soils and groundwater. From these investigations, Western determined that a portion of the Contact Wastewater Collection System (SWMU No. 12) near the Bundle Cleaning Pad was corroded and had allowed contaminants to impact groundwater, which flows northwest toward the seep location. Western believes that the spill of six barrels of crude oil that occurred on December 31, 2006 was addressed, but that releases from SWMU No. 12 have impacted the subsurface beneath at least a portion the containment area that surrounds the crude oil tanks.*

#### Response to NMED Request for Additional Information

- Is there underground piping associated with the tanks or are all of the pipes exposed? If they are exposed, were they always exposed?

*The lines to the crude oil tanks have always been aboveground.*

- In an email to NMED on June 11, 2007 regarding the crude oil spill, Giant Refining stated "Giant had recovered the spilled crude oil and conducted excavation of the spill impacted soils in the area of the tank. The spill was contained in the berm surrounding the Tank 102. We noticed there was evident some oil impacted soils near the Tank 102. Due to frequent rain, very wet conditions until recently in the berm area made further excavation nearly impossible until recently. So last week we dug down in the impacted areas. Oil impacted soils became evident at depth in the additional excavation. The oil impacted soil appears to be resulting from past spillage of a historical nature. We excavated in several additional locations in the bermed area. The oil impaction exists also in these excavations." Subsequently seeps were discovered.

*A workplan in letter format to investigate water seeps and any potentially impacted soils near Tanks 101 and 102 was submitted to NMED on August 7, 2007. Site investigations took place during the week of August 20, 2007, which included sampling of soils and surface water and a conductivity survey.*

*An additional update was provided to NMED and MNOCD via email on December 20, 2007 in which it was reported that a ground conductivity study (EM-31) was completed during the summer of 2007 in the area of Tank 102. It was noted that a report on the study would be completed and provide by the end of 2007 (see the attached Trihydro report dated December 11, 2007).*

- In 2008 Trihydro was contracted – after a memo dated March 2008 there is no follow up report.

*The information collected in November 2007 indicated that the deeper impacts observed near the crude oil tanks were associated with an unrelated source. The spill incident had*

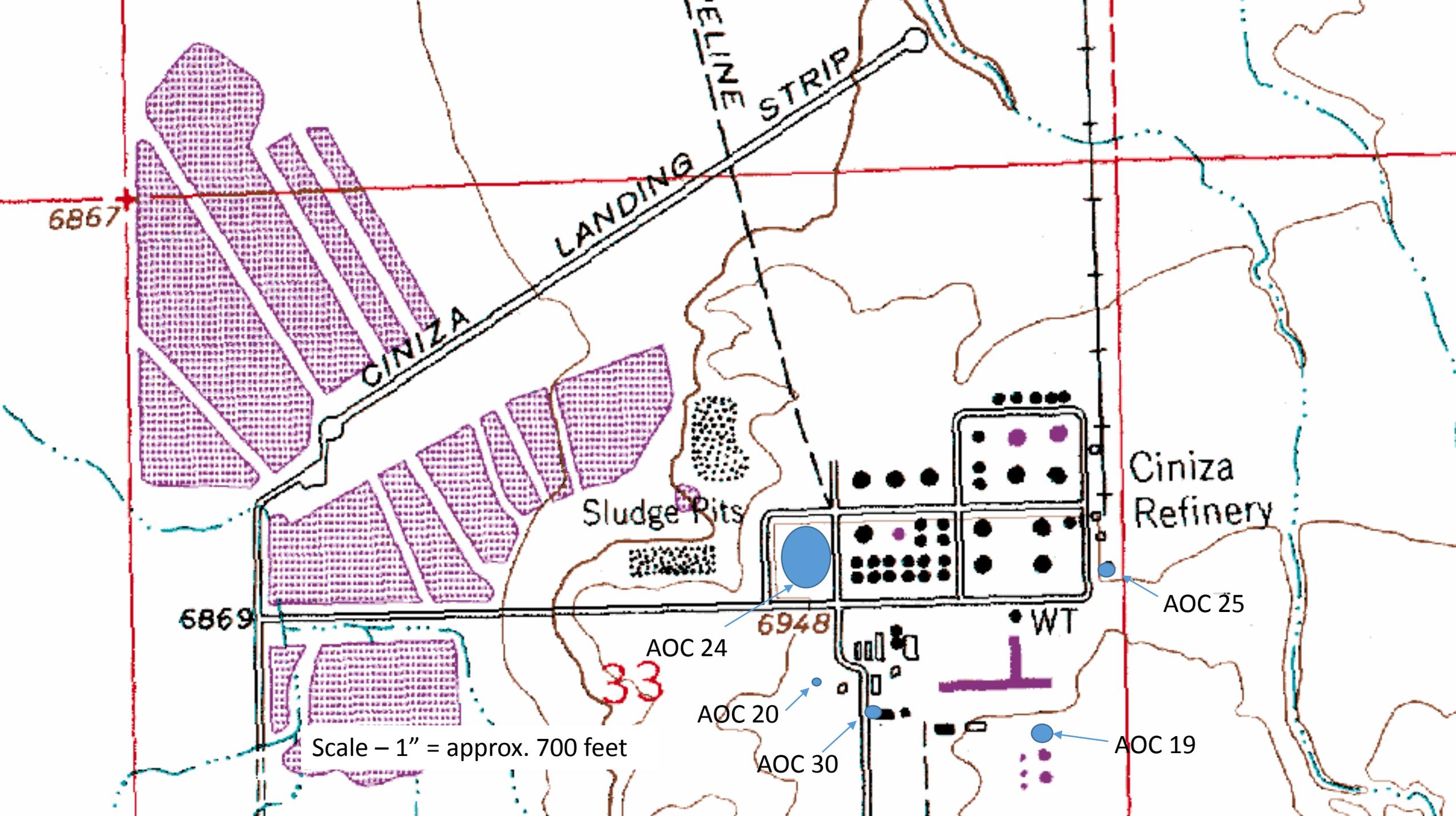
*been addressed and it appears no further work related to the crude oil spill was conducted in 2008.*

➤ Has the soil been cleaned up?

*Yes, the soil impacted by the release of six barrels of crude oil was removed; however, deeper unrelated impacts were identified and are now believed to be associated with a release from SWMU No. 12. Western has not identified confirmation samples collected from the excavation for removal of the spill impacted materials.*

➤ Was the source of the seeps found?

*More recent investigations in the same area indicates the seeps, which were first observed in 2006 along the drainage to the west of Tank 102, are most likely associated with leaks that were identified in the Contact Wastewater Collection System (SWMU No. 12). The corroded section of wastewater pipeline was replaced in 2013.*



6867

CINIZA

BASELINE LANDING STRIP

Sludge Pits

Ciniza Refinery

6869

AOC 24

6948

AOC 25

33

AOC 20

WT

Scale - 1" = approx. 700 feet

AOC 30

AOC 19

**From:** Price, Wayne, EMNRD [<mailto:wayne.price@state.nm.us>]  
**Sent:** Monday, June 11, 2007 8:53 PM  
**To:** Jim Lieb; Monzeglio, Hope, NMENV  
**Cc:** Ed Riege; Steve Morris; Chavez, Carl J, EMNRD  
**Subject:** RE: Giant (Western Refining) - Ciniza Refinery Tank 102 Cleanup

Dear Mr. Lieb:

In the future please include Carl Chavez on your correspondence. Mr. Chavez is the permit writer for your facility.

Wayne Price-Environmental Bureau Chief  
Oil Conservation Division  
1220 S. Saint Francis  
Santa Fe, NM 87505  
E-mail [wayne.price@state.nm.us](mailto:wayne.price@state.nm.us)  
Tele: 505-476-3490  
Fax: 505-476-3462

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**From:** Jim Lieb [<mailto:jl Lieb@giant.com>]  
**Sent:** Mon 6/11/2007 8:45 AM  
**To:** Monzeglio, Hope, NMENV; Price, Wayne, EMNRD  
**Cc:** Ed Riege; Steve Morris  
**Subject:** RE: Giant (Western Refining) - Ciniza Refinery Tank 102 Cleanup

Hope, Wayne:

Ciniza refinery is continuing the cleanup at Tank 102. As you may recall, a spill at Tank 102 (crude oil) occurred on December 31, 2006. Giant submitted the OCD's Form C-141 for this spill soon after the incident (a copy is attached to this email for your convenience). Giant had recovered the spilled crude oil and conducted excavation of the spill impacted soils in the area of the tank. The spill was contained in the berm surrounding the Tank 102.

We noticed there was evident some oil impacted soils near the Tank 102. Due to frequent rain, very wet conditions until recently in the berm area made further excavation nearly impossible until recently. So last week we dug down in the impacted areas. Oil impacted soils became evident at depth in the additional excavation. The oil impacted soil appears to be resulting from past spillage of a historical nature. We excavated in several additional locations in the bermed area. The oil impaction exists also in these excavations. We will show this to you during tomorrow's visit here.

Regards,

Jim Lieb  
Environmental Engineer  
Giant Industries, Inc.  
Ciniza Refinery  
I-40, Exit 39  
Jamestown, NM 87347  
(505) 722-0227  
fax (505) 722-0210  
[jl Lieb@giant.com](mailto:jl Lieb@giant.com)

**From:** Jim Lieb  
**Sent:** Monday, June 11, 2007 8:46 AM  
**To:** 'Monzeglio, Hope, NMENV'; 'wprice@state.nm.us'  
**Cc:** Ed Riege; Steve Morris  
**Subject:** RE: Giant (Western Refining) - Ciniza Refinery Tank 102 Cleanup

Hope, Wayne:

Ciniza refinery is continuing the cleanup at Tank 102. As you may recall, a spill at Tank 102 (crude oil) occurred on December 31, 2006. Giant submitted the OCD's Form C-141 for this spill soon after the incident (a copy is attached to this email for your convenience). Giant had recovered the spilled crude oil and conducted excavation of the spill impacted soils in the area of the tank. The spill was contained in the berm surrounding the Tank 102.

We noticed there was evident some oil impacted soils near the Tank 102. Due to frequent rain, very wet conditions until recently in the berm area made further excavation nearly impossible until recently. So last week we dug down in the impacted areas. Oil impacted soils became evident at depth in the additional excavation. The oil impacted soil appears to be resulting from past spillage of a historical nature. We excavated in several additional locations in the bermed area. The oil impaction exists also in these excavations. We will show this to you during tomorrow's visit here.

Regards,

Jim Lieb  
Environmental Engineer  
Giant Industries, Inc.  
Ciniza Refinery  
I-40, Exit 39  
Jamestown, NM 87347  
(505) 722-0227  
fax (505) 722-0210  
[jl Lieb@giant.com](mailto:jl Lieb@giant.com)

**From:** Jim Lieb  
**Sent:** Tuesday, August 07, 2007 3:03 PM  
**To:** 'Monzeglio, Hope, NMENV'; 'Chavez, Carl J, EMNRD'  
**Cc:** Ed Riege; Steve Morris; 'Regina Allen'  
**Subject:** WorkPlan for Tank 102 Subsurafce Investigation at Giant Refining Gallup

Hope and Carl:

Attached is the workplan for the Tanks 101 and 102 subsurface investigation. Trihydro will be on-site on August 20 for the work.

Regards,  
Jim Lieb  
Environmental Engineer  
Giant Industries, Inc.  
Ciniza Refinery  
I-40, Exit 39  
Jamestown, NM 87347  
(505) 722-0227  
fax (505) 722-0210  
[jl Lieb@giant.com](mailto:jl Lieb@giant.com)

**From:** Monzeglio, Hope, NMENV [<mailto:hope.monzeglio@state.nm.us>]

**Sent:** Tuesday, August 14, 2007 4:15 PM

**To:** Jim Lieb; Ed Riege

**Cc:** Cobrain, Dave, NMENV; Frischkorn, Cheryl, NMENV; Kieling, John, NMENV; Price, Wayne, EMNRD; Martinez, Cynthia, NMENV; Steve Morris

**Subject:** Approval with Direction Tank 101 and 102

Ed and Jim

The hard copy will go out in the mail tomorrow.

Hope

Hope Monzeglio  
Environmental Specialist  
New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East, BLDG 1  
Santa Fe NM 87505  
Phone: (505) 476-6045  
Main No.: (505)-476-6000  
Fax: (505)-476-6030  
[hope.monzeglio@state.nm.us](mailto:hope.monzeglio@state.nm.us)

**Websites:**

**[New Mexico Environment Department](#)**  
**[Hazardous Waste Bureau](#)**

Please note the new phone numbers

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**From:** Monzeglio, Hope, NMENV [<mailto:hope.monzeglio@state.nm.us>]  
**Sent:** Tuesday, August 21, 2007 2:25 PM  
**To:** Regina Allen; Chavez, Carl J, EMNRD  
**Cc:** Jim Lieb; Ed Riege; Steve Morris; Grant Price; Cobrain, Dave, NMENV; Frischkorn, Cheryl, NMENV  
**Subject:** RE: Revised Work Plan for Tank 101/102 soil contamination delineation

Jim and Regina

Looks good, I have no further comments.

Hope

---

**From:** Regina Allen [<mailto:rmallen@trihydro.com>]  
**Sent:** Thursday, August 16, 2007 11:28 AM  
**To:** Monzeglio, Hope, NMENV; Chavez, Carl J, EMNRD  
**Cc:** Jim Lieb; Ed Riege; Steve Morris; Grant Price  
**Subject:** Revised Work Plan for Tank 101/102 soil contamination delineation

Hope and Carl,

I have attached a pdf version of the work plan for delineating the soil contamination near Tanks 101 and 102. The comments from Hope have been incorporated as per our conference call yesterday (Aug. 15, 2007).

Let me know if you have any further questions. Thanks.

**Regina Allen**  
Environmental Scientist



1252 Commerce Drive  
Laramie, Wyoming 82070  
307/745-7474 (phone)  
307/745-7729 (fax)  
[rmallen@trihydro.com](mailto:rmallen@trihydro.com)  
[www.trihydro.com](http://www.trihydro.com)

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**From:** Monzeglio, Hope, NMENV [<mailto:hope.monzeglio@state.nm.us>]  
**Sent:** Monday, November 26, 2007 2:22 PM  
**To:** Jim Lieb; Ed Riege  
**Cc:** Cobrain, Dave, NMENV; Frischkorn, Cheryl, NMENV  
**Subject:** Tank 101 and 102

Jim

What is the status of the investigation at Tanks 101 and 102?

Thanks  
Hope

Hope Monzeglio  
Environmental Specialist  
New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East, BLDG 1  
Santa Fe NM 87505  
Phone: (505) 476-6045; Main No.: (505)-476-6000  
Fax: (505)-476-6060  
[hope.monzeglio@state.nm.us](mailto:hope.monzeglio@state.nm.us)

**Websites:**  
[New Mexico Environment Department](#)  
[Hazardous Waste Bureau](#)

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**From:** Jim Lieb  
**Sent:** Thursday, December 06, 2007 8:16 AM  
**To:** 'Regina Allen'  
**Cc:** Ed Riege; Steve Morris  
**Subject:** RE: Tank 101/102 path forward discussion

As of this date/ time, I am available any time on Thursday 12/13.  
Jim

---

**From:** Regina Allen [<mailto:rmallen@trihydro.com>]  
**Sent:** Wednesday, December 05, 2007 4:42 PM  
**To:** Ed Riege; Steve Morris; Jim Lieb  
**Cc:** Eric Worden; Grant Price; Peter Schulmeyer; Chelsea Neuman  
**Subject:** Tank 101/102 path forward discussion

Ed, Jim, and Steve,

I would like to schedule a meeting to discuss a path forward for the Tank 101/102 Area sometime on Thursday December 13<sup>th</sup> (a week from tomorrow and Van's birthday). The rest of this email is a preface/summary of a future meeting and to give you a heads up on what we (Trihydro) is thinking. Let me know what time works for you next Thursday and I will send out a meeting request.

We had a meeting today with our expert who can interpret EM data and this is where we're at:

I have attached DRAFTS of the figures that I am going to talk about in this email. We have talked internally with our EM data expert (Pete). Figure 1 shows the data with topography overlaid onto it. Figure 2 shows the results of the soil and water samples we collected also overlaid on the topography. I am summarizing a lot in this email that will be included in the progress report in more detail.

Figure 1: Generally clean water does not have as high of a conductivity reading as water that is contaminated. Based on our field observations and the EM data, it looks like there might be something else going on near Seep 1 and to the north of seep one. We think there might be something else going on *north* of seep 1 because we don't think that that conductivity change is solely related to is water because if you look at photos or are familiar with the area, it seems very dry in that area (EM data penetrated to about 3 meters).

Figure 2 & results spreadsheet: If you look at the results spreadsheet you will notice that there are hits of MTBE and other chlorinated compounds in the water in seep 1. It is possible that the seep is not related to the tank burm area. However, the sand lens that we encountered in our test pits of seep 1, 2 and west ditch (noted on figure 1) appears to be sloping downward; which leads us to think that maybe the sand lens extends back into the tank burm which would lead us to think that the seep *could* be coming from the tank burm area. Additionally, there are rather large hits of DRO and MRO in seep 1 and from the tank burm area.

#### Path forward

The goal of this project was to determine if the seeps were related to Tanks 101 & 102. Trihydro has discussed internally and we would like to sample the tank burm at deeper depths in order to try to connect to the sand lens that we suspect might connect the seep 1 with the tank burm area. In order to DO this, we would like to use the drill rig. We would like to see if we can collect samples while we are out there during the week of the 17<sup>th</sup> (but caution that we need to make sure we have thoroughly thought through the process and have all safety policies in place). We would also like to sample to the north of seep 1 in

the above mentioned suspect area and at a point between the Tank burm area and seep 1. The analyses we would like to run include a PIANO analysis and/or an isotope analysis. The PIANO analysis would provide a footprint of the hydrocarbon at each of the areas and the isotope analysis would give us an age of the hydrocarbon.

I want to reiterate that IF we can't get all of our ducks in a row (know exactly what we want to do, field memos, safe work practices, etc) prior to trying to using the drill rig in the Tank area while we are out there for the Fan Out Area, we can always come back because we've planned for it.

Again, I would like to schedule a meeting for Thursday December 13<sup>th</sup>. What time works for all of you?

**Regina Allen**  
**Environmental Scientist**





December 11, 2007

Mr. Jim Lieb  
Environmental Engineer  
Giant Refining  
Route 3 Box 7  
Gallup, NM 87301

RE: Project Status Report, Tank 101 and 102 Soil Investigation, Giant Refining – Gallup Refinery

Dear Mr. Lieb:

This correspondence has been prepared to provide a brief summary of field activities associated with the Tank 101 and 102 Soil Investigation. The investigation of this area was conducted in response to a request by the Giant Refining Company, Gallup Refinery (Gallup). Gallup requested Trihydro to identify the source of two water seeps located down gradient of Tank 102 and to delineate the soil contamination associated with these seeps. The New Mexico Environmental Department (NMED) was verbally contacted by Gallup personnel as part of the project preparation activities and is aware of the seeps/soil contamination near Tanks 101 and 102. As a result NMED requested that a work plan be approved before field work commenced. A work plan, in letter format, was submitted to NMED on August 16, 2007 (Work Plan).

## **FIELD ACTIVITIES**

Trihydro personnel were on-site during the week of August 20, 2007. Field activities associated with the Tank 101 and 102 Soil Investigation consisted of a site walk-through, an EM31-MK2 survey, surface water sampling, and soil sampling. These activities are described below.

### **Site Walk-Through**

A site walk-through was conducted with Gallup personnel prior to commencing the EM31-MK2 survey. During this walk through the seeps were located and a plan was developed to conduct the EM31-MK2 survey. As a health and safety issue, Gallup and Trihydro personnel decided that the sage brush needed to be removed before the EM31-MK2 survey could commence (i.e. reducing the danger of rattlesnake bites). In accordance with the work plan the area was staked out in 15 feet intervals to assist the EM31-MK2 survey coverage. As the brush was being cleared the area was staked out using wooden 3 foot stakes. After the majority of the sage brush had been cleared a second site walk-through was conducted to look for any surface contamination. Some residuum was observed in and along the drainage ditch. These locations were logged with a global positioning system (GPS) and are included on Figure 1. Other features that had the potential interest to the EM31-MK2 survey were also logged (e.g. test pits, rebar, fence, roadways, and tank berms).



Mr. Jim Lieb  
December 11, 2007  
Page 2

### **EM31-MK2 Survey**

An electromagnetic survey was performed on an area west of Tanks 101 and 102 which encompassed both seeps. The area was approximately 440 feet (north-south) by 625 feet (east-west) and is illustrated on Figure 1. The survey was performed with a Geonics EM31-MK2 ground conductivity meter.

The EM31-MK2 ground conductivity meter creates an electromagnetic induction field into the ground and measures two components of the return electromagnetic field which vary with changes in geology or other subsurface features. The two components are a quadrature-phase component and an in-phase component. The quadrature-phase component is a direct conductivity reading of subsurface geology measured in millisiemens per meter (mS/m). Since moisture content can affect conductivity of the subsurface geology, this phase may be useful in delineating soil contamination associated with the seeps. The in-phase component is a measurement of the magnetic susceptibility of subsurface features and is a good indicator of high-conductivity features such as metal objects and is measured as the ratio of the secondary to primary magnetic field in parts per thousand (ppt). This phase may be helpful in identifying metallic subsurface utilities. The effective depth of response is up to 9 ft bgs. Calibration of the EM31-MK2 ground conductivity meter was performed per the manufacturer's instruction.

Continuous measurement and recording of ground conductivity and metallic response was performed in conjunction with GPS navigation. The survey was completed on foot by Trihydro personnel with the EM31-MK2 and GPS units. The survey area was divided into a bi-directional grid with a grid spacing of approximately 15 feet. The boundaries of the survey area and the boundary/grid line intersects were staked prior to conducting the survey.

The EM31-MK2 data was plotted and mapped using Geosoft's OasisMontaj software. A color grid was generated using the "minimum curvature" algorithm within the program. The color grid was overlain on an existing contour map of the refinery to assist in analyzing the image. This is illustrated on Figure 1.

### **Surface Water Sampling**

Surface water samples were collected from Seep 1 and Seep 2 and analyzed for Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), Diesel Range Organics (DRO), Gasoline Range Organics (GRO), Motor Oil Range Organics (MRO), and Resource Conservation and Recovery Act (RCRA) metals. Surface water samples were not collected from the West Ditch test pit because surface water was not present. Results are summarized in Table 1 and discussed below.

### **Soil Sampling**

The subsurface soil investigation of the area began the week of August 20, 2007. Three test pits were installed directly up-gradient of Tanks 101 and 102 inside the tank berm, three test pits were installed direction down-gradient of Tanks 101 and 102 inside the tank berm, one test pit was installed at Seep 1 (Seep 1 Test Pit), one test pit was installed in between Seep 1 and Seep 2 (Seep 2 Test Pit), and one test



pit was installed west of the drainage ditch located directly west of Seep 2 (West Ditch Test Pit). The test pit sampling and logging procedures were followed in accordance with the Work Plan and locations are shown on Figure 1.

The three test pits installed directly up-gradient of Tanks 101 and 102 were installed at the request of NMED to assist in determining if the source of the seeps was a result of these up-gradient tanks. The test pits are identified as TK 102\_SE, TK Center, and TK 101\_NE on Figure 1. These test pits were sampled at 2 and 8 feet below ground surface (ft bgs), 2 and 6 ft bgs, and 2 and 8 ft bgs respectively and analyzed for DRO and GRO. The samples were also field-screened using a photo-ionization detector (PID) as outlined in the Work Plan. The results were logged on field forms that will be included in the final report. No elevated PID readings were identified and soil samples were collected at each location in accordance with the Work Plan. As shown in Table 1, analytical results from each discreet interval were reported as non-detect.

The three test pits installed directly down-gradient of Tanks 101 and 102 were installed to determine any potential connection to the seeps with contamination within the tank berms. These are identified as TK 101\_W, TK 102\_W, and Tank 102\_SW on Figure 1. These test pits were sampled at 2 and 5.5 ft bgs, 2 and 6 ft bgs, and 2 and 6 ft bgs respectively and analyzed for DRO and GRO. The samples were also field-screened using a PID. The results were logged on field forms that will be included in the final report. As with the previous set of test pits, no elevated PID readings were identified.

Seep 1, Seep 2, and West Ditch test pits were excavated to a water-bearing sand lens layer. Seep 1 test pit was located against an embankment and was excavated to a total depth of 3 ft bgs. During the excavation a black seam was encountered. Soil samples were collected from above and below the black seam, directly from the black seam, and from the water-bearing sand lens layer. The water-bearing sand lens layer is located at approximately 1.5 to 2 ft bgs. Seep 2 test pit was excavated to a depth of 7 ft bgs and sampled at 2 and 6 ft bgs. A water-bearing sand lens layer was encountered at 7 ft bgs. The test pit became unstable at 7 ft bgs due to the high moisture content making it impossible to collect a sample below the water-bearing sand lens layer. The West Ditch test pit was excavated to a depth of 9 ft bgs and sampled at 4, 8, and 9 ft bgs. A water-bearing sand lens layer was encountered at 8 ft bgs. As with the Seep 1 test pit, this test pit became unstable at this depth due to the high moisture content; therefore a sample was not collected below the water-bearing sand lens layer.

### **Photo Documentation**

Field work was documented and recorded in Trihydro personnel's field log book in accordance with the Work Plan. Photos were taken at the test pits, residuum locations, and seeps. These photos will be included as part of the final report.



Mr. Jim Lieb  
December 11, 2007  
Page 4

### **ANALYTICAL DATA**

Samples were shipped to Hall Environmental located in Albuquerque, New Mexico for analysis. The surface water samples collected from the seeps were analyzed for VOCs by method 8260, SVOCs by 8270, DRO, GRO, MRO, and RCRA metals. The soil samples collected from the test pits were analyzed for DRO, GRO, MRO, and VOCs. The analytical detections reported for soil and surface water are illustrated on Figure 2 and summarized in Table 1. A detailed summary of the analytical data will be presented in the final report.

### **PATH FORWARD**

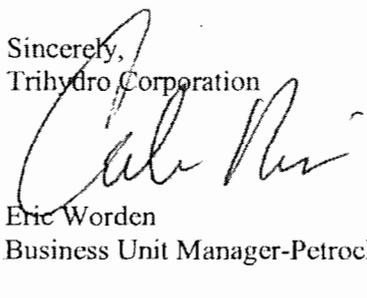
In order to further determine if the seeps are related to the Tank 101 and 102 bermed area, Trihydro proposes to collect additional soil and/or water samples. The samples would be collected from the area of the test pits, TK 102 W, and TK 102 SW at deeper depths in order to try to connect the water-bearing sand lens layer to the seeps.

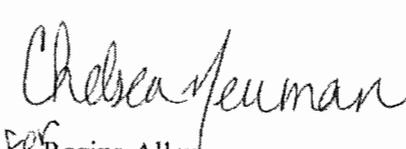
Additionally, the area north of Seep 1 and Seep 2 and the area west of Seep 1 would be soil sampled. These locations would be sampled in order to confirm the EM31-MK2 signals (i.e. contamination, water, or other).

The samples will be collected using the hollow stem auger drill rig procedures as described in the Work Plan. The analyses would consist of a PIANO analysis and/or an Isotope analysis, as well as, DRO and GRO. The PIANO analysis should provide a footprint of the hydrocarbon at each of the areas and Isotope analysis should give an age of the hydrocarbon.

If you have any questions, please feel free to contact us at (307) 745-7474.

Sincerely,  
Trihydro Corporation

*for*   
Eric Worden  
Business Unit Manager-Petrochemical Services

  
*for* Regina Allen  
Project Manager

697-007-001

cc: Ed Riege, Giant Refining

## **AOC 25 – Tanks 573 (Kerosene Tank) Justification to Remove AOC**

- A RCRA Facility Report (RFA) or equivalent justifying the addition of this AOC was not present in the record at permit renewal.
- The tank was emptied and placed out-of-service in the early 1990s.
- There are no documented releases from the tank.
- AOC 25 should be removed from the permit.

## AOOC 25 – Tank 573 (Kerosene Tank)

- (1) location of unit(s) on a topographic map of appropriate scale, as required under 40 CFR §270.14(b)(19);

*See attached topo maps for location of units/AOCs*

- (2) designation of type and function of unit(s);

*A petroleum product (kerosene) was stored in Tank 573.*

- (3) dimensions, capacities and structural description of unit(s) (supply any available plans/drawings);

*Tank 573 was an aboveground steel tank with a fixed steel roof. It was designed to hold approximately 250 barrels. The lines near the tank were located above ground.*

- (4) dates that the unit(s) was operated;

*The tank was placed into service in the late 1950s or 1960s, removed from service in early 1990's and demolished in 2012.*

- (5) all available site history information;

*The refinery began operation in the late 1950s and the refinery property covers an area of approximately 810 acres. The refinery location and the regional vicinity is characterized as high desert plain comprised primarily of public lands used for grazing by cattle and sheep.*

*The Gallup Refinery is a crude oil refinery currently owned and operated by Western Refining Southwest, Inc. ("Western"), formerly known as Giant Industries Arizona, Inc. and formerly doing business as Giant Refining Company Ciniza Refinery, an Arizona corporation. The Gallup Refinery generally processes crude oil from the Four Corners area transported to the facility by pipeline or tanker truck. Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, alkylation, isomerization, sulfur recovery, merox treater, and hydrotreating. Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.*

- (6) specifications of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on hazardous waste or hazardous constituents in the wastes;

*No wastes were managed at or in tank 573.*

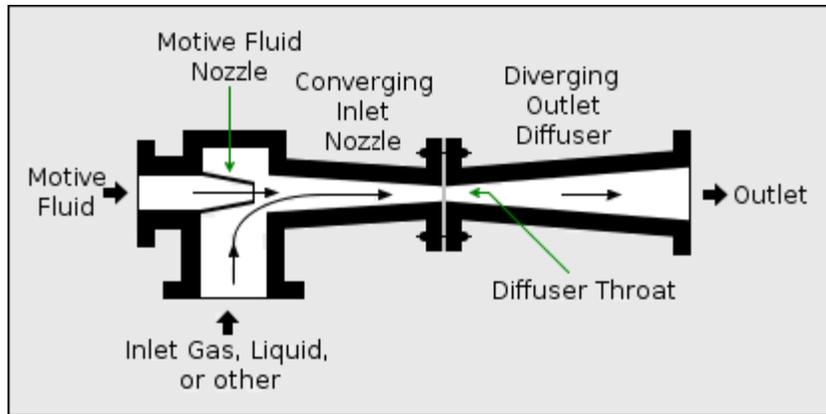
- (7) all available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (to include ground water data, soil analyses, air, and surface water data).

*There is no information to indicate any release of hazardous waste or hazardous constituents from or at Tank 573. The tank was demolished (removed) to make way for a nitrogen tank. A new concrete foundation was constructed prior to installation of a new tank in this same location. There was no report of a historical release uncovered during construction of the foundation.*

### Vacuum Railcar Offloading System

*The railcar offloading system induced a vacuum assist to initiate flow from the railcars. Once flow was initiated, the vacuum system was disconnected and shutdown.*

Vacuum was generated using an Eductor (jet pump). The “motive fluid” in the diagram below was Kerosene. The “inlet gas” is pulled from the vacuum loop. Kerosene was circulated from Tank-573 through a pump into the Eductor and returned back to the tank.



According to Gallup refinery personnel who operated the system, it was in good working order with no leaks. The tank was maintained at a half-full level, thus tank overflows were unlikely. Service was discontinued when the unloading operations were changed in the early 1990s.

#### Response to NMED Request for Additional Information

- Why was tank removed from service?

The unloading operations were changed such that Tank 573 was no longer used. Kerosene was removed and the tank was placed out-of-service in the early 1990s.

- How was kerosene put in or taken out of the tank?

All lines to the tank were aboveground. Kerosene was used as a circulation liquid and secondarily as an absorbent and desiccant in support of the railcar unloading operations and thus was not routinely put in and/or removed from the tank.

- Was the tank empty when it was demolished?

Yes. Refinery safety protocol requires that the tank and all lines must be purged of hydrocarbon (liquids and gases) before removal operations commenced.

- Was the tank cleaned and disposed of?

Yes, see the answer above. The clean tank was staged onsite to be re-use within the refinery or scrapped.

- What was the condition of the tank (rust, any holes observed), are there photographs to confirm this?

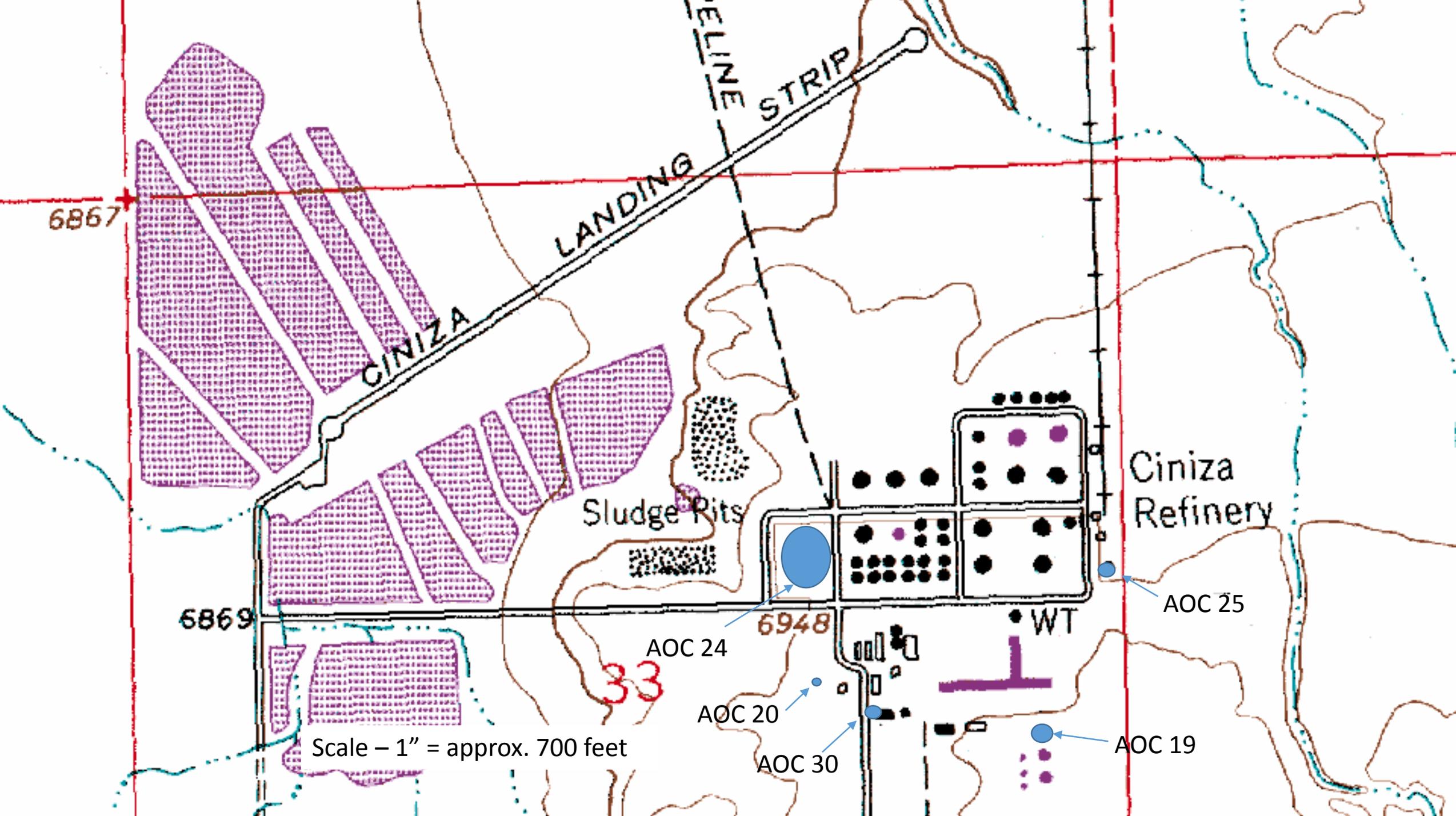
There is no record of any holes being observed or any visual or olfactory indication of any releases to the soil beneath the tank when it was removed in 2012.

➤ Was there soil staining observed around the tank when it was removed?

No soil staining was observed around or beneath the tank when it was removed in 2012.

➤ Were any soil samples collected?

Soil samples were not collected when the tank was removed because there was no indication of any impacts to soils based on visual and/or olfactory observations.



6867

CINIZA

LANDING

STRIP

Sludge Pits

Ciniza Refinery

6869

AOC 24

6948

AOC 25

33

AOC 20

WT

Scale - 1" = approx. 700 feet

AOC 30

AOC 19



08-02-2011

Image USDA Farm Service Agency

Google earth



05-03-2012

Google earth



## **AOC 26 – Process Area**

## AOC 26 – Process Area

The NMED has identified the process area as Area of Concern #26. The process units are located on the southeastern corner of the refinery.

NMED requested information in the format below.

3.

a. Any data or reports already provided to OCD;

NMED has identified five events they indicate justify inclusion of the process units as an AOC. These items are listed and numbered below for subsequent reference.

### Release Events

- 1) February 24, 2006, approximately 1,680 gallons of slop oil released from the desalter unit drain pipe; vacuumed up and put back into refinery process system estimated 1,596 gallons recovered; see also emails dated February 2006 between NMED, OCD, and Giant Refining regarding planned cleanup.
- 2) October 5, 2006, approximately 34.3 lbs hydrofluoric acid (HF) to sewer from Alkylation Unit; nothing recovered (went to sewer) – no cleanup necessary because of large amount of water used to suppress fire. The concentration of HF in sewer estimated to be 5 ppm.
- 3) October 19, 2009, approximately 30 barrels (1,260 gallons) of oily water was discovered in a ditch immediately to the north of the process area (Release Notification dated Oct. 20, 2009); planned to collect water and sludge samples and determine if continuous seep or caused by rain event.
- 4) December 3, 2009, “somewhat less than” 2 barrels (approximately 79 gallons) of gasoline was found to have leaked from a product line in the process area (Release Notification dated Dec. 4, 2009).
- 5) November 30, 2014 NHT Piping to fin fan hole, no soil contaminated, foam sprayed.

Information related to the five spill events has been provided to both NMED and OCD based on Western’s records (see attached correspondence).

b. Any data not provided to OCD, but correlated to the OCD reports;

No additional data was located that was not previously provided to both agencies.

c. Site history;

The process units were constructed in the current location when the refinery was built in the 1950s. Over time additional units were added in the same general area.

d. Location map

See attached maps.

e. Previous sampling locations (including depths and a description of field methods); and

### Event 1

The confirmation samples were collected from both the sidewalls (four samples) and floor of the excavation (six samples). The available documentation is attached.

### Event 2

There were no samples collected because the release of HF went to the sewer. There is nothing about this release event that would constitute the inclusion of the process units as an AOC.

### Event 3

The possible release identified in the C-141 submitted on October 19, 2009 relates to an area that

is approximately 1,800 feet to the northwest of the process units and has no relationship to operations at the process units. The C-141 and map showing the subject area is attached.

Event 4

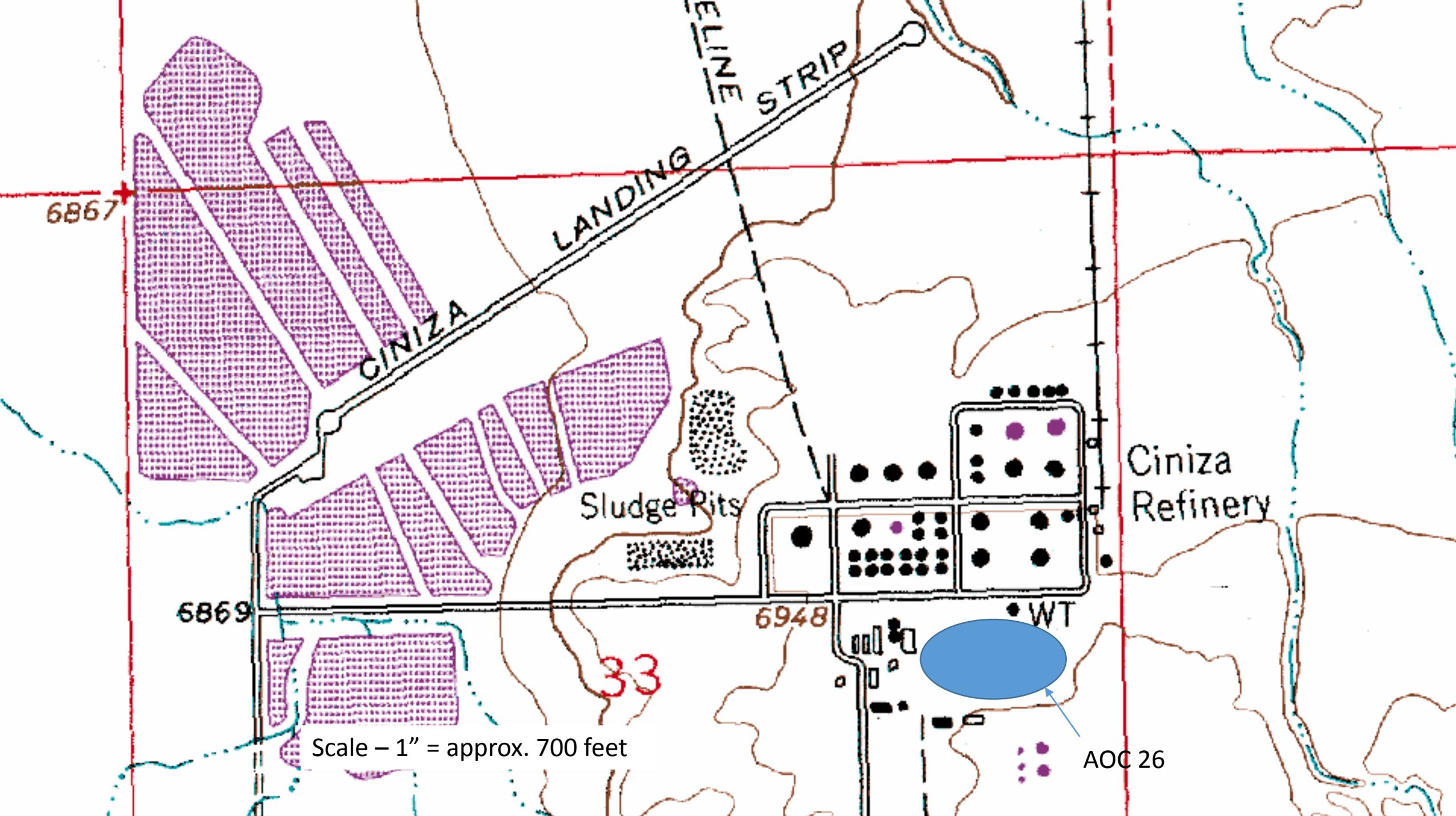
This release was estimated at only 79 gallons, less than two barrels. The affected area was only 6 feet by 6 feet and all soils indicating any impacts were excavated for off-site disposal. There is no rational basis that any residual hydrocarbons that could possibly remain in soils six years after this very small release would constitute a threat to human health or the environment.

Event 5

The small release of naphtha and hydrogen was contained within the concrete containment area and the release did not impact soils or groundwater. The initial and final C-141s are attached.

f. Analytical suites/types.

The chemical analyses for Event 1 included BTEX and total petroleum hydrocarbons, as specified by NMED.



6867

CINIZA LANDING STRIP

CINIZA

Sludge Pits

Ciniza Refinery

6869

6948

33

WT

Scale - 1" = approx. 700 feet

AOC 26

EVENT 1 - February 24, 2006

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
12 St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised October 10, 2003

Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

Name of Company Giant Refining – Ciniza Refinery	Contact Jim Lieb
Address I-40, Exit 39, Jamestown NM 87347	Telephone No. 505-722-3227
Facility Name Ciniza Refinery	Facility Type Oil refinery

Surface Owner Giant Industries, Inc.	Mineral Owner Giant Industries, Inc.	Lease No.
--------------------------------------	--------------------------------------	-----------

**LOCATION OF RELEASE**

Unit Letter	Section 23 & 33	Township 15N	Range 15W	Feet from the	North/South Line	Feet from the	East/West Line	County McKinley
-------------	--------------------	-----------------	--------------	---------------	------------------	---------------	----------------	--------------------

Latitude 35°29'30" Longitude 108°24'40"

**NATURE OF RELEASE**

Type of Release Slop oil	Volume of Release 1,680 gallons	Volume Recovered 1,596
Source of Release Main sewer line	Date and Hour of Occurrence 2/24/06 1900 hours	Date and Hour of Discovery 2/24/06 1900 hours
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? National Response Center (Ms. Rawls) NRC Rpt 789164 OCD- Carl Chavez NMED – Hope Monzeglio	
By Whom? Steve Morris, within 24 hours of spill	Date and Hour 2/25/06 at 1100 hours	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*  
Contractors working in sewer line excavation inadvertently caused a stop plug to become loose which allowed slop oil in pipe to release. The slop oil came out of drain pipe from the desalter interface level. The oil from the desalter interface must be drained into the sewer line system on a periodic basis for proper operation of the desalter. The spilled oil was immediately pumped out of excavation.

Describe Area Affected and Cleanup Action Taken.\*  
Excavation in refinery facility. All of the spill was confined to the excavation. None of the spill impacted surface waters. The spilled material was immediately vacuumed up into a vac truck and spill material was put back into refinery process system.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:		<b>OIL CONSERVATION DIVISION</b>	
Printed Name:		Approved by District Supervisor:	
Title:		Approval Date:	Expiration Date:
E-mail Address:		Conditions of Approval:	
Date:		Attached <input type="checkbox"/>	
Phone:			

\* Attach Additional Sheets If Necessary

**Jim Lieb**

---

**From:** Chavez, Carl J, EMNRD [CarlJ.Chavez@state.nm.us]  
**Sent:** Tuesday, February 28, 2006 8:54 AM  
**To:** Jim Lieb  
**Cc:** Monzeglio, Hope, NMENV  
**Subject:** RE: 2/25/06 spill

Jim:

Ok. Yes, 5% will work and Hope Monzeglio thinks it is ok to use 5%. Please make sure the volumes are not equal in future reporting. Please resubmit the report with the new recovered volume and the clarification on the cause of problem with explanation for why crude oil is present in the sewer line. This helps us to understand whether Giant may have a crude oil leak in its sewer line system, etc. Thank you.

Carl J. Chavez, CHMM  
New Mexico Energy, Minerals & Natural Resources Dept.  
Oil Conservation Division, Environmental Bureau  
1220 South St. Francis Dr., Santa Fe, New Mexico 87505  
Office: (505) 476-3491  
Fax: (505) 476-3462  
E-mail: [CarlJ.Chavez@state.nm.us](mailto:CarlJ.Chavez@state.nm.us)  
Website: <http://www.emnrd.state.nm.us/ocd/>  
(Pollution Prevention Guidance is under "Publications")

---

**From:** Jim Lieb [mailto:[jlieb@giant.com](mailto:jlieb@giant.com)]  
**Sent:** Tuesday, February 28, 2006 8:53 AM  
**To:** Chavez, Carl J, EMNRD  
**Cc:** Ed Riege; Monzeglio, Hope, NMENV; Foust, Denny, EMNRD; Price, Wayne, EMNRD  
**Subject:** RE: 2/25/06 spill

Carl:

The spilled material was crude oil that was in the sewer pipe.

In preparing the form I assumed that the oil was all pumped out. On second thought some oil may have been absorbed by the clay. So I will make an estimate that up to 5 % was absorbed =  $0.05 \times 1680$  gallons = 84 gallons. Hence the amount recovered is estimated as  $1680 - 84 = 1596$  gallons.

The asterisks were already on the form I have. They do not mean anything.

I will revise the form and re-submit to you and Denny and Hope.

I apologise for any confusion this may have caused. I did'nt mean to be inaccurate.

Sincerely,

Jim Lieb  
Environmental Engineer

---

**From:** Chavez, Carl J, EMNRD [mailto:[CarlJ.Chavez@state.nm.us](mailto:CarlJ.Chavez@state.nm.us)]

2/28/2006

**Jim Lieb**

---

**From:** Jim Lieb  
**Sent:** Tuesday, February 28, 2006 8:38 AM  
**To:** 'Chavez, Carl J, EMNRD'  
**Cc:** Ed Riege; 'Monzeglio, Hope, NMENV'; 'denny.foust@state.nm.us'; 'wprice@state.nm.us'  
**Subject:** RE: 2/25/06 spill

Carl:

The spilled material was crude oil that was in the sewer pipe.

In preparing the form I assumed that the oil was all pumped out. On second thought some oil may have been absorbed by the clay. So I will make an estimate that up to 5 % was absorbed =  $0.05 \times 1680$  gallons = 84 gallons. Hence the amount recovered is estimated as  $1680 - 84 = 1596$  gallons.

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I will revise the form and re-submit to you and Denny and Hope.

I apologise for any confusion this may have caused. I did'nt mean to be inaccurate.

Sincerely,

Jim Lieb  
Environmental Engineer

---

**From:** Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]  
**Sent:** Tuesday, February 28, 2006 7:44 AM  
**To:** Jim Lieb; Monzeglio, Hope, NMENV  
**Cc:** Ed Riege; Price, Wayne, EMNRD; denny.faust@state.nm.us  
**Subject:** RE: 2/25/06 spill

Jim:

Good morning. The phone message I received on 2/25/06 from Steve Morris of Giant indicated that the release was a crude oil release; however, your report seems to indicate that the release occurred from a sewer line that may have contained oily refinery water. Was the release crude oil or oily water?

Another point of concern from the report is the volume of the release in comparison to the volume recovered. The volumes should not be equal and the concern is that Giant is not accurately recording the true volume recovered on the C-141. Please resubmit the C-141 with the correct volume and cause of problem information. Lastly, is there any reason for the asterisk denoted on the form? Thank you.

Carl J. Chavez, CHMM  
New Mexico Energy, Minerals & Natural Resources Dept.  
Oil Conservation Division, Environmental Bureau  
1220 South St. Francis Dr., Santa Fe, New Mexico 87505  
Office: (505) 476-3491  
Fax: (505) 476-3462  
E-mail: CarlJ.Chavez@state.nm.us  
Website: <http://www.emnrd.state.nm.us/ocd/>  
(Pollution Prevention Guidance is under "Publications")

2/28/2006

GIANT  
CINIZA  
REFINERY

EXCAVATION PIT DETAIL  
PROCESS SEWER LINE SLOP OIL SPILL OF 2-24-06  
SPILL AREA SAMPLING LOCATIONS (PROPOSED)

X = PROPOSED SAMPLE LOCATION  
S

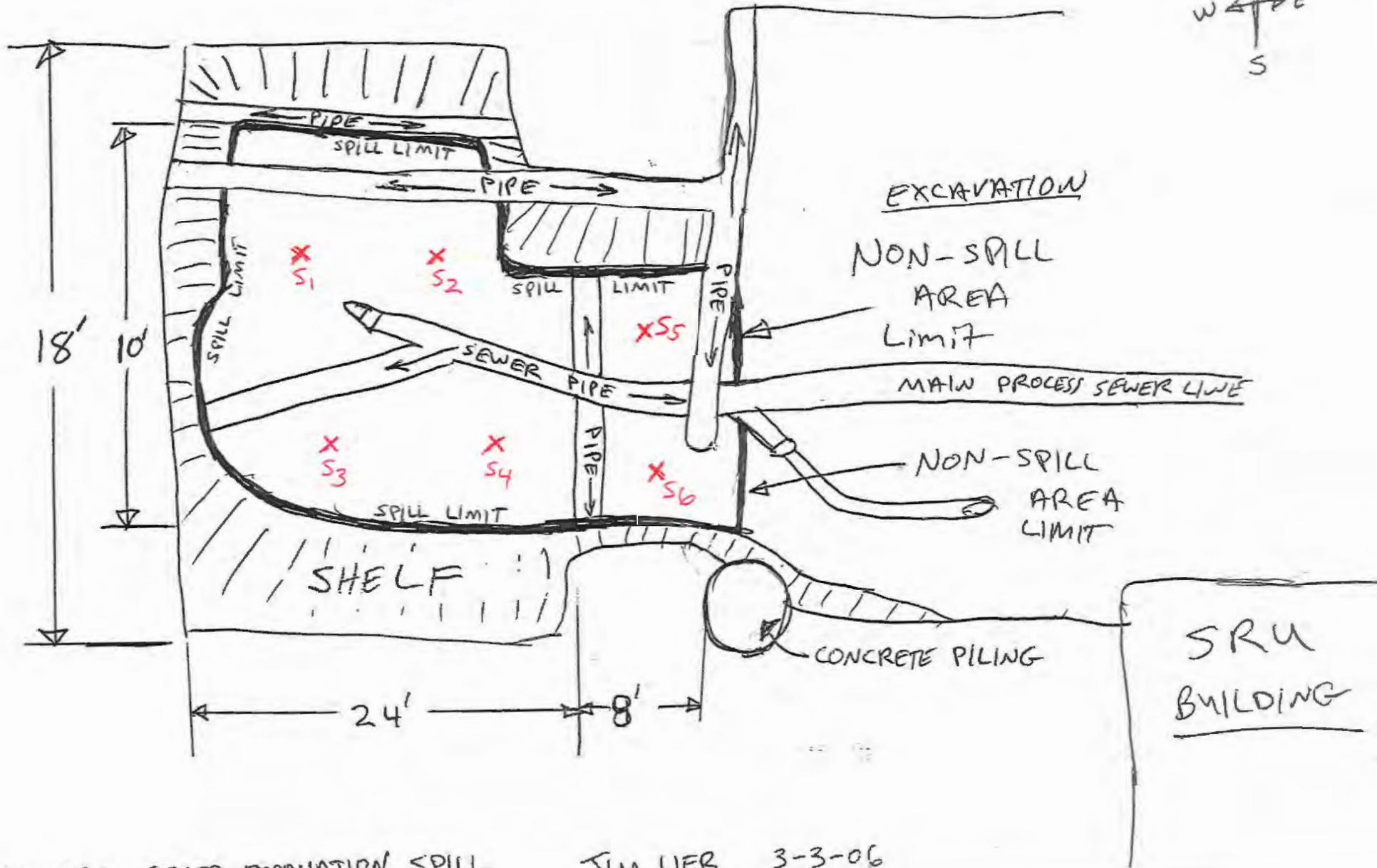


FIGURE: SEWER EXCAVATION SPILL

JIM UEB 3-3-06

GIANT  
CINIZA  
REFINERY

EXCAVATION PIT DETAIL  
PROCESS SEWER LINE SLOP OIL SPILL OF 2-24-06  
SPILL AREA SAMPLING LOCATIONS (PROPOSED)

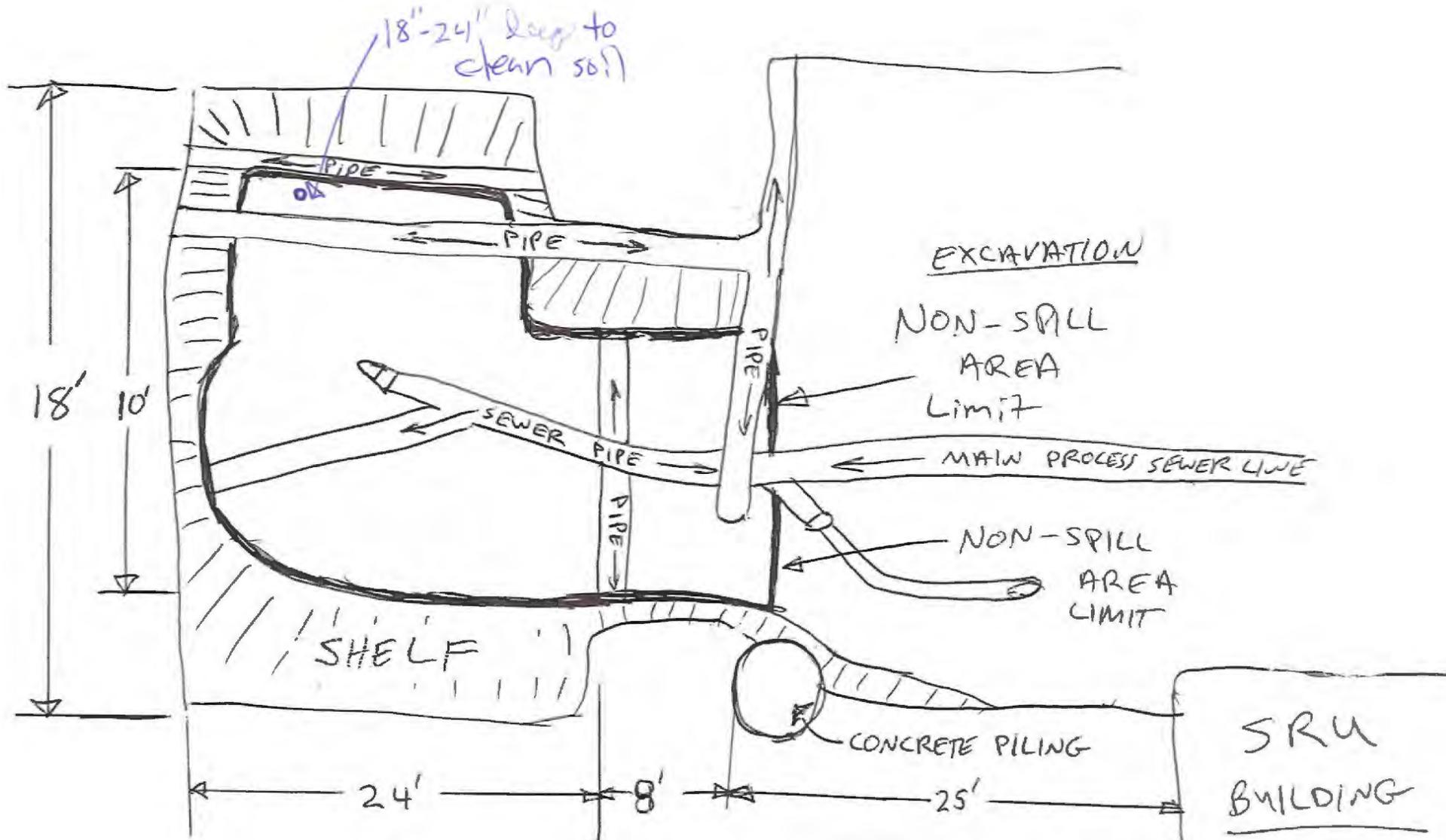


FIGURE: SEWER EXCAVATION SPILL

JIM LEB 3-3-06

**Jim Lieb**

---

**From:** Jim Lieb  
**Sent:** Monday, March 06, 2006 8:27 AM  
**To:** 'Monzeglio, Hope, NMENV'; 'Chavez, Carl J, EMNRD'  
**Cc:** Ed Riege; Ed Rios; Steve Morris; Johnny Sanchez; Jim Hallock  
**Subject:** Clean up of Sewer Excavation Slop Oil Spill

Hope and Carl:

Per your request for Giant to sample the process sewer slop oil spill that occurred in the excavation, I have prepared a figure showing the spill area with proposed sampling locations. I have shown the spill area within the excavation with a dark line showing the limits of spill. The spill was limited to within the shelf areas. Giant proposes to sample at 6 locations as shown on the figure. We will excavate the spill contaminated soil and take the samples. Samples will be delivered to Hall Environmental Analysis Laboratory in Albuquerque under chain of custody. At request of NMED the samples will be sampled for EPA Method 8021B for BTEX, EPA Method 8015B for GRO and DRO (DRO must cover the range from C10 to C36).

Ciniza expects the excavation of the contaminated soils will begin today. Because this is an active construction and process area we cannot leave open the excavation. Due to safety concerns of leaving an open hole area inside an active process area Ciniza will backfill with clean overburden after excavation of the oil-contaminated soil. We could not begin excavation till now because of on-going construction work in the excavation area to the east of the contaminated zone.

I have included a figure showing the location of the excavation area within the refinery. It is adjacent to the sulfur recovery unit building which I have shown on both figures including an arrow showing north.

Please let me know if the proposed sampling locations are acceptable to NMED.

Sincerely,

Jim Lieb  
Environmental Engineer  
Giant - Ciniza Refinery  
[jl Lieb@giant.com](mailto:jl Lieb@giant.com)  
(505) 722-3227

**Jim Lieb**

---

**From:** Monzeglio, Hope, NMENV [hope.monzeglio@state.nm.us]  
**Sent:** Tuesday, February 28, 2006 8:52 AM  
**To:** Jim Lieb; Ed Riege  
**Cc:** Cobrain, Dave, NMENV; Price, Wayne, EMNRD; CarlJ.Chavez@state.nm.us; Foust, Denny, EMNRD  
**Subject:** Confirmation sampling

Jim and Ed

So there is no confusion, in my email yesterday pertaining to soil confirmation samples I referred to DRO extended covering the carbon range from C32- C36. The DRO should cover the carbon range from C10 to C36. Let me know if you have any questions.

Hope

Email stated below:

Jim

Thank you for the follow up. NMED would like Giant to collect confirmation soil samples upon excavating to clean soil in the excavation area which the crude spill occurred in. The size of the excavation will determine the number of samples you will need to collect. The samples should be analyzed for EPA Method 8021B for BTEX, EPA Method 8015B for GRO and DRO extended covering the carbon range C32-C36.

C10 - C36

Hope Monzeglio  
Environmental Specialist  
New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East, BLDG 1  
Santa Fe NM 87505  
Phone: (505) 428-2545  
Fax: (505)-428-2567  
hope.monzeglio@state.nm.us

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2/28/2006

**Jim Lieb**


---

**From:** Chavez, Carl J, EMNRD [CarlJ.Chavez@state.nm.us]  
**Sent:** Tuesday, February 28, 2006 7:04 AM  
**To:** Jim Lieb; Monzeglio, Hope, NMENV  
**Cc:** Ed Riege; Price, Wayne, EMNRD; denny.faust@state.nm.us  
**Subject:** RE: 2/25/06 spill

Jim:

Good morning. The phone message I received on 2/25/06 from Steve Morris of Giant indicated that the release was a crude oil release; however, your report seems to indicate that the release occurred from a sewer line that may have contained oily refinery water. Was the release crude oil or oily water?

Another point of concern from the report is the volume of the release in comparison to the volume recovered. The volumes should not be equal and the concern is that Giant is not accurately recording the true volume recovered on the C-141. Please resubmit the C-141 with the correct volume information. Thank you.

Carl J. Chavez, CHMM  
 New Mexico Energy, Minerals & Natural Resources Dept.  
 Oil Conservation Division, Environmental Bureau  
 1220 South St. Francis Dr., Santa Fe, New Mexico 87505  
 Office: (505) 476-3491  
 Fax: (505) 476-3462  
 E-mail: [CarlJ.Chavez@state.nm.us](mailto:CarlJ.Chavez@state.nm.us)  
 Website: <http://www.emnrd.state.nm.us/ocd/>  
 (Pollution Prevention Guidance is under "Publications")

---

**From:** Jim Lieb [mailto:jl Lieb@giant.com]  
**Sent:** Monday, February 27, 2006 5:09 PM  
**To:** Monzeglio, Hope, NMENV  
**Cc:** Ed Riege; Price, Wayne, EMNRD; Chavez, Carl J, EMNRD; denny.faust@state.nm.us  
**Subject:** RE: 2/25/06 spill

Hope:

I have prepared a Release Notification and Corrective Action form (Form C-141) for the spill. I will put a hard copy with original signature to you and provide the required 2 copies to the OCD district office in Aztec.

Sincerely,

Jim Lieb

---

**From:** Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]  
**Sent:** Monday, February 27, 2006 11:34 AM  
**To:** Jim Lieb; Ed Riege  
**Cc:** Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; WPRICE@state.nm.us  
**Subject:** RE: 2/25/06 spill

Jim

2/28/2006

Thank you for the follow up. NMED would like Giant to collect confirmation soil samples upon excavating to clean soil in the excavation area which the crude spill occurred in. The size of the excavation will determine the number of samples you will need to collect. The samples should be analyzed for EPA Method 8021B for BTEX, EPA Method 8015B for GRO and DRO extended covering the carbon range C32-C36.

Call me with any questions. 505-428-2545

Hope

---

**From:** Jim Lieb [mailto:jlieb@giant.com]  
**Sent:** Monday, February 27, 2006 12:16 PM  
**To:** Monzeglio, Hope, NMENV  
**Cc:** Chavez, Carl J, EMNRD; Ed Riege  
**Subject:** RE: 2/25/06 spill

Hope:

We are planning to excavate the contaminated soil and place it into 40 yard boxes from Enichem. The boxes will be kept covered with rain repellent tarps. The boxes will be kept on site pending approval by Enichem for disposal as hazardous waste at a permitted TSD. If Enichem does not have boxes available, we will place the excavated soil onto plastic tarp material and construct an enclosing berm surrounding the soil. I will keep you informed which method of accumulation is used. We will excavate to clean soil based on visual and olfactory observations.

I performed calculation on constituents in the spilled material and have determined that the spilled crude contained an RQ of benzene (80 pounds) and xylene (166 pounds). I reported this information to the NRC today at approx. 11:45 am.

If you have any questions, please contact me by email or at (505) 722-3227 or Ed Riege at (505) 722-3217.  
Sincerely,

Jim Lieb  
Environmental Engineer

---

**From:** Ed Riege  
**Sent:** Monday, February 27, 2006 8:28 AM  
**To:** 'Monzeglio, Hope, NMENV'  
**Cc:** Jim Lieb  
**Subject:** RE: 2/25/06 spill

Hope,

After the contaminated soil is removed there will be no further excavation. Jim is researching the options on the plans for the contaminated soil and will get back with you. We are not sure whether to go with drums or plastic in a bermed area and then ship off site for disposal.

Thanks  
Ed

-----Original Message-----

**From:** Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]  
**Sent:** Monday, February 27, 2006 8:18 AM  
**To:** Ed Riege  
**Subject:** 2/25/06 spill

Ed

I received the message from Steve this morning about the spill. I have a few questions pertaining to the spill. Is Giant still excavating the area where the spill occurred after the contaminated soil is removed? What are Giants plans for the contaminated soil.

2/28/2006

Thanks

Hope

Hope Monzeglio  
Environmental Specialist  
New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East, BLDG 1  
Santa Fe NM 87505  
Phone: (505) 428-2545  
Fax: (505)-428-2567  
[hope.monzeglio@state.nm.us](mailto:hope.monzeglio@state.nm.us)

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**Jim Lieb**

---

**From:** Monzeglio, Hope, NMENV [hope.monzeglio@state.nm.us]  
**Sent:** Monday, February 27, 2006 11:34 AM  
**To:** Jim Lieb; Ed Riege  
**Cc:** Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; WPRICE@state.nm.us  
**Subject:** RE: 2/25/06 spill

Jim

Thank you for the follow up. NMED would like Giant to collect confirmation soil samples upon excavating to clean soil in the excavation area which the crude spill occurred in. The size of the excavation will determine the number of samples you will need to collect. The samples should be analyzed for EPA Method 8021B for BTEX, EPA Method 8015B for GRO and DRO extended covering the carbon range C32-C36.

Call me with any questions. 505-428-2545

Hope

---

**From:** Jim Lieb [mailto:jlleb@giant.com]  
**Sent:** Monday, February 27, 2006 12:16 PM  
**To:** Monzeglio, Hope, NMENV  
**Cc:** Chavez, Carl J, EMNRD; Ed Riege  
**Subject:** RE: 2/25/06 spill

Hope:

We are planning to excavate the contaminated soil and place it into 40 yard boxes from Enichem. The boxes will be kept covered with rain repellent tarps. The boxes will be kept on site pending approval by Enichem for disposal as hazardous waste at a permitted TSDF. If Enichem does not have boxes available, we will place the excavated soil onto plastic tarp material and construct an enclosing berm surrounding the soil. I will keep you informed which method of accumulation is used. We will excavate to clean soil based on visual and olfactory observations.

I performed calculation on constituents in the spilled material and have determined that the spilled crude contained an RQ of benzene (80 pounds) and xylene (166 pounds). I reported this information to the NRC today at approx. 11:45 am.

If you have any questions, please contact me by email or at (505) 722-3227 or Ed Riege at (505) 722-3217.  
Sincerely,

Jim Lieb  
Environmental Engineer

---

**From:** Ed Riege  
**Sent:** Monday, February 27, 2006 8:28 AM  
**To:** 'Monzeglio, Hope, NMENV'  
**Cc:** Jim Lieb  
**Subject:** RE: 2/25/06 spill

Hope,  
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2/27/2006

Thanks  
Ed

-----Original Message-----

**From:** Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]  
**Sent:** Monday, February 27, 2006 8:18 AM  
**To:** Ed Riege  
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Ed

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Thanks

Hope

Hope Monzeglio  
Environmental Specialist  
New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East, BLDG 1  
Santa Fe NM 87505  
Phone: (505) 428-2545  
Fax: (505)-428-2567  
[hope.monzeglio@state.nm.us](mailto:hope.monzeglio@state.nm.us)

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2/27/2006

<b>Integrated Contingency Plan</b>	Revision 3
Core Plan	4/28/04

Emergency Response Notification Form

Company:  Giant Industries Arizona, Inc. d/b/a Giant Refining Co. Ciniza Refinery I-40, Exit 39 Jamestown, NM 87347  (505) 722-3833	Notifier's Name: <i>Stephen C. Morris</i>
	Position: <i>Environmental Engineer</i>
	Notification Date: <i>2-25-2006</i>
Notification Time: <i>11 00 hrs.</i>	

Incident Description (Source or Cause): *Contractors working on piping in excavation inadvertently caused a plug to be dislodged from a drain pipe with Grade Oil in it.*

Incident Date: *2/24/06*

Incident Time: *1900 hrs*

Incident Location: *Ciniza Refinery Process area*

Material Released & Estimated Quantity:  
*Grade Oil 40 bbl (1680 gallons)*

Response Actions Taken: *Immediate action: start vacuuming up oil with vac truck.*

Impact (Evacuation, Damage, Injuries):  
*No injuries or equipment damage. Soil contaminated - Amount yet to be determined.*

Additional Information: *NRC Phone # 1-800-424-8802  
NRC Report # 789164  
NRC contact name: Ms. Rawls*

Agencies To Be Notified (circle all that apply):

NRC   
  USCG   
  SERC   
  OSHA   
 NMOCD   
 NMED   
 LEPC   
 Police/Fire

**Jim Lieb**

---

**From:** Jim Lieb  
**Sent:** Thursday, March 30, 2006 10:30 AM  
**To:** 'Chavez, Carl J, EMNRD'  
**Subject:** RE: Giant Ciniza PDA/SRU Excavation Pit Followup

No problema

---

**From:** Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]  
**Sent:** Thursday, March 30, 2006 9:34 AM  
**To:** Jim Lieb  
**Subject:** RE: Giant Ciniza PDA/SRU Excavation Pit Followup

Thanks Jim.

Carl J. Chavez, CHMM  
New Mexico Energy, Minerals & Natural Resources Dept.  
Oil Conservation Division, Environmental Bureau  
1220 South St. Francis Dr., Santa Fe, New Mexico 87505  
Office: (505) 476-3491  
Fax: (505) 476-3462  
E-mail: [CarlJ.Chavez@state.nm.us](mailto:CarlJ.Chavez@state.nm.us)  
Website: <http://www.emnrd.state.nm.us/ocd/>  
(Pollution Prevention Guidance is under "Publications")

---

**From:** Jim Lieb [mailto:jl Lieb@giant.com]  
**Sent:** Thursday, March 30, 2006 8:36 AM  
**To:** Price, Wayne, EMNRD; Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; Monzeglio, Hope, NMENV; Foust, Denny, EMNRD  
**Cc:** Ed Rios; Ed Riege; Steve Morris  
**Subject:** Giant Ciniza PDA/SRU Excavation Pit Followup

Good Morning All:

Yesterday morning, Steve Morris and I took samples from the walls of the excavation pit at the points of (based on visual observation) what appeared to be the highest contamination. We took samples from all four sides. The samples are being sent to Hall Environmental Lab for analysis for TPH (8015B), and BTEX (8021). I will forward the results to you as soon as I receive them from Hall.

I have attached for your review a copy of the analytical including metals for the sample we took from the bottom of the pit on Friday last week.

If you have any questions, please contact me at (505) 722-0227.

Regards,

Jim Lieb  
Environmental Engineer  
Giant – Ciniza Refinery  
[jl Lieb@giant.com](mailto:jl Lieb@giant.com)

5/12/2006



EVENT 3 - October 19, 2009

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Form C-141  
Revised October 10, 2003

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

RECEIVED  
2009 OCT 23 PM 12 48

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

Name of Company Western Refining Southwest Inc.	Contact Gaurav Rajen
Address I-40 Exit 39, Jamestown, NM 87347	Telephone No. 505-722-0227
Facility Name Gallup Refinery	Facility Type Oil refinery

Surface Owner Western Refining	Mineral Owner Western Refining	Lease No.
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**LOCATION OF RELEASE**

Unit Letter	Section 23&33	Township 15N	Range 15W	Feet from the	North/South Line	Feet from the	East/West Line	County McKinley
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Latitude 35°29'22" Longitude 108°25'24"

**NATURE OF RELEASE**

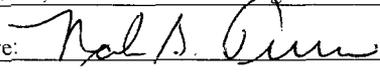
Type of Release Suspected historical release of hydrocarbons recently washed into a ditch by rainfall – based on smell of diesel, possible oil sheen on liquids	Volume of Release 30 barrels (1,200 gallons) estimated of oily water – the hydrocarbon content is much lesser	Volume Recovered 0 barrels
Source of Release It appears that a rain event may have picked up hydrocarbons absorbed onto surface/ subsurface soils from historical spills and collected in a ditch running east to west at the north-west end of the hill on which the refinery is located	Date and Hour of Occurrence Within past 10 - 15 days (approximately)	Date and Hour of Discovery 10/19/2009; 1:30 pm
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Carl J. Chavez, NMEMNRD, Oil Conservation Division; Hope Monzeglio, NMED Hazardous Waste Bureau.(via telephone)	
By Whom? Gaurav Rajen	Date and Hour 10/20/2009 (approximately) 11:00 am	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. Not applicable	

If a Watercourse was Impacted, Describe Fully.\* Not applicable

Describe Cause of Problem and Remedial Action Taken.\* At approximately 1:30 pm on 10/19/2009, during a routine walk-through of arroyos and ditches in a field that lies immediately north of the hill on which the refinery is located, a ditch containing non-moving water was found to have some possible hydrocarbon staining – suspected from color of the water and smell of diesel.

Describe Area Affected and Cleanup Action Taken.\* The affected area has a surface area less than approximately 150 square feet with some vertical penetration of the (possible) hydrocarbons to an as yet unknown depth. We plan to collect water and sludge samples, then pick up the water using a truck with a vacuum pump. We will then wait to see if the water reappears and is a continuous seep, or an occurrence caused by a rain event. In further cleanup actions, contaminated soils will be excavated, confirmatory environmental samples will be collected and analyzed, and all contaminated materials will be disposed off in accordance with applicable regulations.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Mark B. Turri	Approved by District Supervisor:	
Title: Refinery Manager – Gallup	Approval Date:	Expiration Date:
E-mail Address: mturri@wnr.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 10-20-2009 Phone: 505-722-3833		

• Attach Additional Sheets If Necessary

**Chavez, Carl J, EMNRD**

---

**From:** Rajen, Gaurav [Gaurav.Rajen@wnr.com]  
**Sent:** Thursday, October 22, 2009 1:18 PM  
**To:** Monzeglio, Hope, NMENV  
**Cc:** Riege, Ed; Turri, Mark; Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; Kieling, John, NMENV; Larsen, Thurman  
**Subject:** RE: C-141 for possible release of hydrocarbons - October 20, 2009

Dear Hope:

Many thanks for your recent e-mail. In response to your request for more information –

- 1) We have collected water and sludge samples from three locations in the ditch (that runs generally southeast-northwest) on Tuesday morning, October 20, 2009 – a) at the southeast end, b) mid-way along the ditch, and c) at the northwest end. The samples are being analyzed for – water: TPH, method 418.1; sludge: Semi-volatile Organic Compounds (SVOCs), method 8270C, metals (TCLP); and TPH (method 418.1). These are screening samples. Based on our test results, we will plan additional analyses as needed.
- 2) We collected grab samples using dedicated augers for each of the three sludge samples, and dedicated booms with cups and/or bottles for the water samples. There were no field investigation-derived wastes generated. The sample containers, preservatives, cooling requirements and holding times were as required by the test methods and the testing laboratory.
- 3) A figure showing the approximate location of the ditch is attached below. (For your reference, the ditch is somewhat west and south of OW-13. For ease of location on the larger map we have drawn it much bigger than it actually is – the length must be about 40 feet or so, and a few feet wide and deep, with the water depth being a few inches and a foot or so wide. )

Best regards,

Raj



Approximate location of ditch – not to scale

---

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

**Sent:** Wednesday, October 21, 2009 7:54 AM

**To:** Rajen, Gaurav

**Cc:** Riege, Ed; Turri, Mark; Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; Kieling, John, NMENV

**Subject:** RE: C-141 for possible release of hydrocarbons - October 20, 2009

Raj

NMED would like some additional information from review of the C-141 form: 1) what analytical methods will be run on the water and sludge samples; 2) provide me with a description of how Gallup will collect the water and sludge samples; 3) provide a figure showing the location of the ditch with the stagnant water. This information can be sent via email. Let me know if you have any questions.

EVENT 4 - December 3, 2009

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised October 10, 2003

Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

Name of Company Western Refining	Contact Beck Larsen
Address I-40 / Exit 39	Telephone No.(505) 722-0258
Facility Name Western Refining (Gallup)	Facility Type Refinery

Surface Owner	Mineral Owner	Lease No.
---------------	---------------	-----------

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	28	15 N	15 W					McKinley

Latitude 35° 29' 030" Longitude 108° 24' 040"

**NATURE OF RELEASE**

Type of Release Straight Run Gasoline	Volume of Release < 2 bbls (79 gallons)	Volume Recovered < 2 bbls (79 gallons)
Source of Release Product Line Leak	Date and Hour of Occurrence 12/03/09 / 1100 hrs	Date and Hour of Discovery 12/03/09 / 1100 hrs
Was Immediate Notice Given? (Courtesy Notification) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? OCD (Brandon Powell) NMED (Steve Conley) and NMED (Hope Monziglio)- <b>courtesy notification</b> given	
By Whom? Beck Larsen	Date and Hour 12/4/09 Message left @ 0918 / 0926 / 0921 respectively	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

Outside contractor personnel found seepage coming from the ground of a product line with straight run gasoline located in the Process Area. Operations Shift Supervisor, Offsite Supervisor and QI were notified. Fire Department immediately called to scene. Product was immediately removed. Cleanup efforts were initiated. A verbal courtesy call was made to the Agency around 0920 to 0925.

Describe Area Affected and Cleanup Action Taken.\*Firefighting personnel were notified. Firefighters laid a foam blanket over the spill area. The size of the affected area was estimated to be 6 ft by 6 ft with approximately 3.5 inches of product. The product line is located within the Process Area. Offsite and Operations personnel isolated the line. Maintenance crews began cleanup of area and replacement of the line. Cleanup was completed on 12/4/09. The gasoline contaminated soil that was excavated was about 2 to 3 drums.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	<b>OIL CONSERVATION DIVISION</b>	
	Approved by District Supervisor:	
Printed Name: Beck Larsen	Approval Date:	Expiration Date:
Title: Environmental Engineer	Conditions of Approval:	
E-mail Address: Thurman.larsen@wnr.com	Attached <input type="checkbox"/>	
Date: 12/4/09	Phone: (505) 722-0258	

\* Attach Additional Sheets If Necessary

EVENT 5 - November 30, 2014

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Form C-141  
Revised August 8, 2011

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

Name of Company: WESTERN REFINING	Contact: Beck Larsen
Address: I-40 / EXIT 39, JAMESTOWN, NM 87347	Telephone No. (505) 722-0258
Facility Name: WESTERN RENINING (GALLUP REFINERY)	Facility Type: Petroleum Refinery

Surface Owner	Mineral Owner	API No.
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	28	15 N	15 W					MCKINLEY

Latitude 35° 029' 024" Longitude 108° 024' 024"

**NATURE OF RELEASE**

Type of Release: NHT Feed stream containing Naphtha and Hydrogen	Volume of Release ~ 10 bbls	Volume Recovered: N/A
Source of Release: pinhole in the NHT Piping inlet going to the Fin Fan	Date and Hour of Occurrence 11/30/14 @ 1715 hrs	Date and Hour of Discovery 11/30/14 @ 1715 hrs
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? OCD (B. Powel/ C. Chavez); NMED (R Horowitz/K. Vanhorn)	
By Whom? Beck Larsen	Date and Hour: 12/01/14 1712 / 1715; 1719/ 1722 hrs	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.\* No

Describe Cause of Problem and Remedial Action Taken.\*  
A 1/8 inch pinhole was found in the inlet piping to the NHT Fin Fan. Valve was closed and isolating the fin fan at 1740 hrs. Release was from 1715 hrs to 1820 hrs with the last 45 minutes with foam applied. Operations applied steam to release until ERT team responded within the first 20 minutes and began applying foam to the affected area.

Describe Area Affected and Cleanup Action Taken.\*  
Concrete containment pad in the NHT Unit. Area was cleaned up. No contamination to soil was impacted.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	<b><u>OIL CONSERVATION DIVISION</u></b>	
Printed Name: Beck Larsen	Approved by Environmental Specialist:	
Title: Environmental Engineer	Approval Date:	Expiration Date:
E-mail Address: thurman.larsen@wnr.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 12/8/2014	Phone: (505) 722-0258	

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Form C-141  
Revised August 8, 2011

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

Name of Company: WESTERN REFINING	Contact: Beck Larsen
Address: I-40 / EXIT 39, JAMESTOWN, NM 87347	Telephone No. (505) 722-0258
Facility Name: WESTERN RENINING (GALLUP REFINERY)	Facility Type: Petroleum Refinery

Surface Owner	Mineral Owner	API No.
---------------	---------------	---------

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	28	15 N	15 W					MCKINLEY

Latitude 35° 029' 024" Longitude 108° 024' 024"

**NATURE OF RELEASE**

Type of Release: NHT Feed stream containing Naphtha and Hydrogen	Volume of Release > 5 bbls	Volume Recovered: N/A
Source of Release: pinhole in the NHT Piping inlet going to the Fin Fan	Date and Hour of Occurrence 11/30/14 @ 1715 hrs	Date and Hour of Discovery 11/30/14 @ 1715 hrs
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? OCD (B. Powel/ C. Chavez); NMED (R Horowitz/K. Vanhorn)	
By Whom? Beck Larsen	Date and Hour: 12/01/14 1712 / 1715; 1719/ 1722 hrs	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.\* No

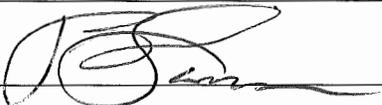
Describe Cause of Problem and Remedial Action Taken.\*

A 1/8 inch pinhole was found in the inlet piping to the NHT Fin Fan. Valve was closed and isolating the fin fan at 1740 hrs. Release was from 1715 hrs to 1820 hrs with the last 45 minutes with foam applied. Operations applied steam to release until ERT team responded within the first 20 minutes and began applying foam to the affected area.

Describe Area Affected and Cleanup Action Taken.\*

Concrete containment pad in the NHT Unit

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	<b><u>OIL CONSERVATION DIVISION</u></b>	
Printed Name: Beck Larsen	Approved by Environmental Specialist:	
Title: Environmental Engineer	Approval Date:	Expiration Date:
E-mail Address: thurman.larsen@wnr.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 12/8/2014	Phone: (505) 722-0258	

## AOC 26 – Process Units

- Western to locate confirmation sample results for Event 1 spill remediation
  - **Some of the confirmation sample laboratory results were located and are attached (see Attachment AOC 26). It is possible additional analyses were conducted, but the laboratory reports could not be located.**
- Western to check into historic practices for heat exchanger bundle cleaning
  - **Bundles were cleaned in-place and water from this activity drained onto the concrete pad and then into the sewer system.**
- Discussed possibility of using groundwater data from immediate area of Process Units to determine if AOC could be dropped

COVER LETTER

Monday, April 10, 2006

Steve Morris  
Giant Refining Co  
Rt. 3 Box 7  
Gallup, NM 87301

TEL: (505) 722-3833  
FAX (505) 722-0210

RE: PDA/SRU Excavation Wall Samples

Order No.: 0603351

Dear Steve Morris:

Hall Environmental Analysis Laboratory received 4 sample(s) on 3/31/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

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

Sincerely,



Andy Freeman, Business Manager  
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682  
ORELAP Lab # NMI00001



**Hall Environmental Analysis Laboratory**

Date: 10-Apr-06

CLIENT: Giant Refining Co  
Project: PDA/SRU Excavation Wall Samples  
Lab Order: 0603351

**CASE NARRATIVE**

---

"S" flags denote that the surrogate was not recoverable due to sample dilution or matrix interferences.

# Hall Environmental Analysis Laboratory

Date: 10-Apr-06

CLIENT: Giant Refining Co  
 Lab Order: 0603351  
 Project: PDA/SRU Excavation Wall Samples  
 Lab ID: 0603351-01

Client Sample ID: East Wall  
 Collection Date: 3/29/2006 7:15:00 AM  
 Date Received: 3/31/2006  
 Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: SCC
Diesel Range Organics (DRO)	32000	500		mg/Kg	50	4/7/2006 2:30:21 PM
Motor Oil Range Organics (MRO)	ND	2500		mg/Kg	50	4/7/2006 2:30:21 PM
Surr: DNDP	0	60-124	S	%REC	50	4/7/2006 2:30:21 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	170	100		mg/Kg	20	4/5/2006 10:23:05 PM
Surr: BFB	128	79-128		%REC	20	4/5/2006 10:23:05 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: NSB
Benzene	ND	1.0		mg/Kg	20	4/5/2006 10:23:05 PM
Toluene	5.6	1.0		mg/Kg	20	4/5/2006 10:23:05 PM
Ethylbenzene	5.4	1.0		mg/Kg	20	4/5/2006 10:23:05 PM
Xylenes, Total	29	1.0		mg/Kg	20	4/5/2006 10:23:05 PM
Surr: 4-Bromofluorobenzene	107	84.4-117		%REC	20	4/5/2006 10:23:05 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level      B Analyte detected in the associated Method Blank  
 E Value above quantitation range      H Holding times for preparation or analysis exceeded  
 J Analyte detected below quantitation limits      ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits

# Hall Environmental Analysis Laboratory

Date: 10-Apr-06

CLIENT: Giant Refining Co  
 Lab Order: 0603351  
 Project: PDA/SRU Excavation Wall Samples  
 Lab ID: 0603351-02

Client Sample ID: West Wall  
 Collection Date: 3/29/2006 7:30:00 AM  
 Date Received: 3/31/2006  
 Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: SCC
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/7/2006 1:23:59 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/7/2006 1:23:59 PM
Surr: DNOP	107	60-124		%REC	1	4/7/2006 1:23:59 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/6/2006 11:44:34 AM
Surr: BFB	107	79-128		%REC	1	4/6/2006 11:44:34 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: NSB
Benzene	ND	0.050		mg/Kg	1	4/6/2006 11:44:34 AM
Toluene	ND	0.050		mg/Kg	1	4/6/2006 11:44:34 AM
Ethylbenzene	ND	0.050		mg/Kg	1	4/6/2006 11:44:34 AM
Xylenes, Total	ND	0.050		mg/Kg	1	4/6/2006 11:44:34 AM
Surr: 4-Bromofluorobenzene	96.7	84.4-117		%REC	1	4/6/2006 11:44:34 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 S Spike Recovery outside accepted recovery limits  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

Date: 10-Apr-06

CLIENT: Giant Refining Co  
 Lab Order: 0603351  
 Project: PDA/SRU Excavation Wall Samples  
 Lab ID: 0603351-03

Client Sample ID: North Wall  
 Collection Date: 3/29/2006 7:45:00 AM  
 Date Received: 3/31/2006  
 Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: SCC
Diesel Range Organics (DRO)	45000	500		mg/Kg	50	4/7/2006 1:50:51 AM
Motor Oil Range Organics (MRO)	ND	2500		mg/Kg	50	4/7/2006 1:50:51 AM
Surr: DNOP	0	60-124	S	%REC	50	4/7/2006 1:50:51 AM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	240	100		mg/Kg	20	4/5/2006 11:19:39 PM
Surr: BFB	138	79-128	S	%REC	20	4/5/2006 11:19:39 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: NSB
Benzene	ND	1.0		mg/Kg	20	4/5/2006 11:19:39 PM
Toluene	3.5	1.0		mg/Kg	20	4/5/2006 11:19:39 PM
Ethylbenzene	ND	1.0		mg/Kg	20	4/5/2006 11:19:39 PM
Xylenes, Total	33	1.0		mg/Kg	20	4/5/2006 11:19:39 PM
Surr: 4-Bromofluorobenzene	113	84.4-117		%REC	20	4/5/2006 11:19:39 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 S Spike Recovery outside accepted recovery limits  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

Date: 10-Apr-06

CLIENT: Giant Refining Co  
 Lab Order: 0603351  
 Project: PDA/SRU Excavation Wall Samples  
 Lab ID: 0603351-04

Client Sample ID: South Wall  
 Collection Date: 3/29/2006 8:00:00 AM  
 Date Received: 3/31/2006  
 Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE ORGANICS</b>						Analyst: SCC
Diesel Range Organics (DRO)	40000	500		mg/Kg	50	4/7/2006 2:23:58 AM
Motor Oil Range Organics (MRO)	ND	2500		mg/Kg	50	4/7/2006 2:23:58 AM
Surr: DNOP	0	60-124	S	%REC	50	4/7/2006 2:23:58 AM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	220	100		mg/Kg	20	4/6/2006 12:40:36 PM
Surr: BFB	149	79-128	S	%REC	20	4/6/2006 12:40:36 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: NSB
Benzene	ND	1.0		mg/Kg	20	4/6/2006 12:40:36 PM
Toluene	5.8	1.0		mg/Kg	20	4/6/2006 12:40:36 PM
Ethylbenzene	7.4	1.0		mg/Kg	20	4/6/2006 12:40:36 PM
Xylenes, Total	44	1.0		mg/Kg	20	4/6/2006 12:40:36 PM
Surr: 4-Bromofluorobenzene	116	84.4-117		%REC	20	4/6/2006 12:40:36 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level      B Analyte detected in the associated Method Blank  
 E Value above quantitation range      H Holding times for preparation or analysis exceeded  
 J Analyte detected below quantitation limits      ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co  
 Work Order: 0603351  
 Project: PDA/SRU Excavation Wall Samples

**ANALYTICAL QC SUMMARY REPORT**

TestCode: 8015DRO\_S

Sample ID: MB-10113	SampType: MBLK	TestCode: 8015DRO_S	Units: mg/Kg	Prep Date: 4/4/2006	RunNo: 18818						
Client ID: ZZZZZ	Batch ID: 10113	TestNo: SW8015		Analysis Date: 4/5/2006	SeqNo: 467263						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO) ND 10  
 Motor Oil Range Organics (MRO) ND 50

Sample ID: LGS-10113	SampType: LCS	TestCode: 8015DRO_S	Units: mg/Kg	Prep Date: 4/4/2006	RunNo: 18818						
Client ID: ZZZZZ	Batch ID: 10113	TestNo: SW8015		Analysis Date: 4/5/2006	SeqNo: 467264						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO) 41.47 10 50 0 82.9 67.4 117

Sample ID: LCSD-10113	SampType: LCSD	TestCode: 8015DRO_S	Units: mg/Kg	Prep Date: 4/4/2006	RunNo: 18818						
Client ID: ZZZZZ	Batch ID: 10113	TestNo: SW8015		Analysis Date: 4/5/2006	SeqNo: 467265						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO) 38.68 10 50 0 77.4 67.4 117 41.47 6.97 17.4

6/9

Qualifiers: E Value above quantitation range H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co  
**Work Order:** 0603351  
**Project:** PDA/SRU Excavation Wall Samples

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 8015GRO\_S

Sample ID: MB-10098	SampType: MBLK	TestCode: 8015GRO_S	Units: mg/Kg	Prep Date: 3/31/2006	RunNo: 18842						
Client ID: ZZZZZ	Batch ID: 10098	TestNo: SW8015	(SW5035)	Analysis Date: 4/5/2006	SeqNo: 467547						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRQ)	ND	5.0									

7/9

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co  
 Work Order: 0603351  
 Project: PDA/SRU Excavation Wall Samples

## ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX\_S

Sample ID: MB-10098	SampType: MBLK	TestCode: 8021BTEX_S	Units: mg/Kg	Prep Date: 3/31/2006	RunNo: 18842						
Client ID: ZZZZZ	Batch ID: 10098	TestNo: SW8021	(SW5035)	Analysis Date: 4/5/2006	SeqNo: 467531						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	ND	0.050									
Toluene	ND	0.050									
Ethylbenzene	ND	0.050									
Xylenes, Total	ND	0.050									

Sample ID: LCS-10098	SampType: LCS	TestCode: 8021BTEX_S	Units: mg/Kg	Prep Date: 3/31/2006	RunNo: 18842						
Client ID: ZZZZZ	Batch ID: 10098	TestNo: SW8021	(SW5035)	Analysis Date: 4/5/2006	SeqNo: 467532						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	0.4721	0.050	0.452	0	104	85.6	116				
Toluene	1.859	0.050	1.62	0	115	82.4	120				
Ethylbenzene	0.4260	0.050	0.456	0	93.4	86.4	111				
Xylenes, Total	2.002	0.050	1.8	0	111	78.4	125				

6/8

<b>Qualifiers:</b> E Value above quantitation range ND Not Detected at the Reporting Limit	H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits	J Analyte detected below quantitation limits S Spike Recovery outside accepted recovery limits
--	--	---

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name GIANTREFIN

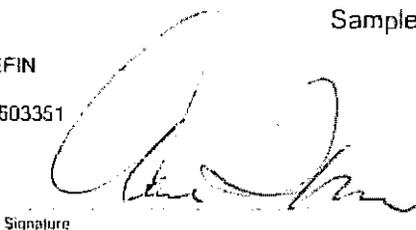
Date and Time Received:

3/31/2006

Work Order Number 0603351

Received by AT

Checklist completed by



Signature

3/31/06

Date

Matrix Carrier name Client drop-off

- Shipping containers/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present  Not Shipped
- Custody seals intact on sample bottles? Yes  No  N/A
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No
- Water - pH acceptable upon receipt? Yes  No  N/A
- Container/Temp Blank temperature? 2° 4° C ± 2 Acceptable  
If given sufficient time to cool.

COMMENTS:

Client contacted \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding \_\_\_\_\_

Comments: \_\_\_\_\_

Corrective Action \_\_\_\_\_

# CHAIN-OF-CUSTODY RECORD

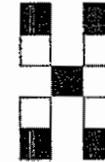
QA / QC Package:  
 Std  Level 4   
 Other: \_\_\_\_\_

Client: *Giant Refining Company - Tinaja*  
 Address: *Route 3 Box 7 Gallup, NM 87301*

Project Name: *PDA/SRU Excavation Wall Samples*  
 Project #: \_\_\_\_\_

Project Manager: *Jim Lieb*  
 Sampler: *Steve Morris*  
 Sample Temperature: *2 °C*

Phone #: *505 722 3833*  
 Fax #: *505 722 0210*



**HALL ENVIRONMENTAL ANALYSIS LABORATORY**  
 4901 Hawkins NE, Suite D  
 Albuquerque, New Mexico 87109  
 Tel. 505.345.3975 Fax 505.345.4107  
 www.hallenvironmental.com

## ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative		HEAL No.	BTEX + <del>MTBE</del> + TPH's (B021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 80156 (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EOC (Method 8021)	8310 (PNA or PAH)	RCRA B Metals	Anions (F, Cl, NO <sub>2</sub> , NO <sub>3</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / PCB's (8082)	82608 (VOA)	8270 (Semi-VOA)	Air Bubbles or Headspace (Y or N)	
					HgCl <sub>2</sub>	HNO <sub>3</sub>															
<i>3/29/06</i>	<i>0715</i>	<i>Soil</i>	<i>East Wall</i>	<i>2</i>			<i>06351-1</i>	<i>X</i>	<i>X</i>												
<i>"</i>	<i>0730</i>	<i>"</i>	<i>West Wall</i>	<i>2</i>			<i>-2</i>	<i>X</i>	<i>X</i>												
<i>"</i>	<i>0745</i>	<i>"</i>	<i>North Wall</i>	<i>2</i>			<i>-3</i>	<i>X</i>	<i>X</i>												
<i>"</i>	<i>0800</i>	<i>"</i>	<i>South Wall</i>	<i>2</i>			<i>-4</i>	<i>X</i>	<i>X</i>												

Date: *3/31/06* Time: *0917* Relinquished By: (Signature) *Steve Morris*  
 Received By: (Signature) *Jim Lieb*

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Relinquished By: (Signature) \_\_\_\_\_  
 Received By: (Signature) \_\_\_\_\_

Remarks: \_\_\_\_\_

*3/31/06  
0917*

## **AOC 27 – Boiler and Cooler Unit Area**

## AOC 27 – Boiler and Cooling Unit Area

The NMED has identified the locations of the boilers and cooling units as Area of Concern #27. The boilers are located on the western end of the process area and the cooling units are located on the northern portion of the process area.

NMED requested information in the format below.

3.

a. Any data or reports already provided to OCD;  
No data or reports have been provided to OCD that were not provided to NMED.

b. Any data not provided to OCD, but correlated to the OCD reports;  
NA

c. Site history;  
The boilers and cooling units were constructed when the refinery was built in the 1950s. There are no documented releases directly associated with either the boilers or cooling units. Chromium was reportedly present in the cooling tower water in 1980. The analytical method and concentrations are not known. See the attachment.

### Process Knowledge - Sumps and Vacuum Trucks

Sumps are an industry and regulatory recognized liquids collection apparatus. Vacuum trucks are an industry and regulatory recognized means for liquids transfer. The purpose of sumps and vacuum trucks is to properly manage liquids.

d. Location map  
See attached maps.

e. Previous sampling locations (including depths and a description of field methods); and  
There have not been any spills or other indications of releases from the boilers or cooling units that required sampling. A release from a nearby sour naphtha line was excavated and the line brought above ground, but no documentation was found regarding sample collection. This release was not associated with the boilers or cooling units.

f. Analytical suites/types.  
NA

11.01.6.07.4



**Shell Oil Company**  
Interoffice Memorandum

MAY 12, 1981

FROM: SUPERINTENDENT OPERATIONS - CINIZA REFINERY  
TO: MANAGER ENVIRONMENTAL CONSERVATION, OPERATIONS  
SUBJECT: INVENTORY OF PAST HAZARDOUS SUBSTANCE  
HANDLING ACTIVITIES

Attached is a list of potentially hazardous wastes disposed of at Ciniza and a description of the wastes. Only wastes listed with a RCRA number are considered hazardous under current Federal regulations.

Also attached is a list of inactive hazardous waste sites; these are also identified on our RCRA permit application.

Please direct any requests for additional information to M.J. Sapp (SSN 434-3239).

A handwritten signature in cursive script, appearing to read "C.D. Shook".

C.D. Shook

MJS/bc

Attachments

cc: B.C. Bell  
R.J. Trautner  
File 11.04A ✓

## CINIZA REFINERY WASTE DISPOSAL

1

HAZARDOUS WASTE	TYPE	YEARS PRODUCED	AMOUNT	DISPOSAL	SOURCE
1. Acid Soluble Oil	corrosive, toxic	1958-current	500 B/YR	V	E
2. API Overflow	heavy metals	1958-current	80 gpm	EP	CO
3a. API Separator	RCRA-K051	1958-1980	100 TON/YR	SP	IN
3b. API Separator	RCRA-K051	1980-current	100 TON/YR	LT	CO
4. Asbestos Insulation	RCRA-U013	1958-current	0.5 TON/YR	LF	IN
5. Defluorinator Bauxite	fluorides	1958-current	2 TON/YR	V	E
6a. Heat Exchanger Cleaning Sludge	RCRA-K050	1958-1980	unknown	V	IN
6b. Heat Exchanger Cleaning Sludge	RCRA-K050	1980-current	unknown	LT	CO
7. Hydrotreating Catalyst	cobalt-moly nickel	1970-current	50 TONS to date	V	E
8a. Leaded Tank Sludge	RCRA-K052	1965-1980	1 TON/YR	B	IR
8b. Leaded Tank Sludge	RCRA-K052	1980-current	1 TON/YR	LT	IR, CO
9a. Slop Oil Tank Sludge	RCRA-K049	1958-1980	2 TON/YR	SP	IN
9b. Slop Oil Tank Sludge	RCRA-K049	1980-current	2 TON/YR	LT	CO
10a. Softener Waste Water	RCRA-D002	1970-1980	40 TON/YR	EP	PR
10b. Softener Waste Water	RCRA-D002	1980-current	40 TON/YR	N	PR, CO
11a. Spent Caustic	-	1958-1965	25 TON/YR	S	PR
11b. Spent Caustic	-	1965-current	25 TON/YR	EP	PR
12a. Trichloroethane	RCRA-F001	1960-1980	0.5 TON/YR	P, EP	IN
12b. Trichloroethane	RCRA-F001	1980-current	0.5 TON/YR	S	CO

HAZARDOUS WASTE	TYPE	YEARS PRODUCED	AMOUNT	DISPOSAL	SOURCE
13. Alky Scrap Metal	fluorides	1958-current	5 TON/YR	LF	E
14. Waste Oil	waste oil	1958-1980	10 TON/YR	LT	E
15. KOH	pH, basic	1958-current	2 TON/YR	EP	E
16. Laboratory Chemicals	toxic, other	1958-current	200 LB/YR	LF, EP	E

DISPOSAL KEY

EP      evaporation ponds  
N        neutralization  
B        burial  
LT       land treatment  
LF       landfill  
SP       sludge pit  
P        poured out on ground  
V        various  
S        sold

SOURCE KEY

IN       interviews  
PR       purchasing records  
IR       inspection records  
CO       current operation, refers to amount only  
E        estimated

CINIZA REFINERY

INACTIVE HAZARDOUS WASTE DISPOSAL SITES

- Evaporative Ponds - received unneutralized softener waste.  
Site active but not receiving hazardous waste.
- Past Land Treatment Area - inactive, contains waste oils which might be designated hazardous waste.
- Past Landfill Area - contains asbestos insulation, potentially other hazardous wastes.
- Sludge Pits - contain API separator sludge, slop oil and possibly other materials. Current plans are to move this material to the land treatment area.
- Alky Scrap Landfill - contains fluoride contaminated scrap from HF Alkylation Unit.

CINIZA REFINERY

WASTE DESCRIPTIONS

Asbestos is currently landfilled in compliance with federal regulations.

Heat Exchangers, prior to 1980, were cleaned in place, at various locations around the Refinery, no effort was made to collect the sludge.

Leaded tank bottoms were, until 1980, buried outside the tank manway. An analysis of leaded sludge from Tank 569 showed

Total Pb	690	ug/gm
EP Pb	0.08	mg/liter
Total Organic Pb	2.4	ug/gm

Slop oil bottoms and API separator sludge were placed in sludge pits until 1980. This material is currently disposed of by land-treatment.

Softener wastewater is acidic due to the excess HCl used during regeneration of the resin. Free HCl in the water will evaporate with the water.

Trichloroethane used as a degreasing solvent has in the past been disposed of by pouring it on the ground. This practice has been stopped and spent solvent will be returned to the manufacturer for recycling.

Other Waste

Acid soluble oil (ASO) is a waste product from the HF alkylation unit. ASO is a polymerization product which contains combined fluorides. In removing ASO from the system some HF acid is also removed. This material is neutralized with soda ash in the alkylation unit and drained to the process sewer. It is believed much of the ASO is removed as in emulsion from the API separator. In

the past ASO has been burned in the Alky furnace and burned from an open pit. Some ASO entered the ground from this pit.

Refinery API overflow, process waterwater, is not a hazardous waste. The residue which remains in the ponds after evaporation of the water may be considered hazardous in the future. An analysis of RCRA metals in the overflow is attached.

Bauxite (activated alumina) is used to remove fluorides from LPG in the alkylation unit. Spent bauxite has in the past been spread on refinery roads and landfilled.

Hydrotreating catalyst has been landfilled at various locations in the refinery. It may also have been spread on refinery roads. Current practice is to sell the catalyst for metals reclamation or to have the catalyst merchant regenerated.

Spent caustic now goes to the process sewer and is finally deposited by evaporation in the ponds. Prior to 1965 some spent caustic was sold.

Scrap metal from the alkylation unit is weathered to reduce fluoride contamination and then landfilled.

Waste oils of various types were placed in the old landtreatment area, including a substantial amount of waxy residue from the crude tank.

Potassium hydroxide (KOH) used in the Alky defluorinators is disposed of through the sewer to the evaporation ponds.

Laboratory Chemicals used in routine testing are normally disposed of through the sewer to the evaporation ponds. Outdated chemicals are occasionally disposed of in the landfill.

API SEPARATOR OVERFLOW ANALYSIS

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 Separator 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
<b>Chromium</b>	<b>&lt;0.001</b>	<b>0.026</b>	<b>13.</b>	<b>0.91</b>	<b>0.64</b>	<b>1.2</b>
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

11.01.01.07.A



**Shell Oil Company**  
Interoffice Memorandum

August 5, 1980

FROM: SUPERINTENDENT OPERATIONS, CINIZA REFINERY  
TO: MANAGER ENVIRONMENTAL CONSERVATION -  
OPERATIONS  
SUBJECT: HAZARDOUS WASTE LIST

As requested in your memorandum of 7/7/80, attached is a copy of  
Ciniza's Solid and Hazardous Waste Inventory.

A handwritten signature in black ink, appearing to read "C.D. Shook".

C.D. Shook

MJS/rr

cc B.C. Bell (w/o attachments)  
Environmental File 11.04.A



**Shell Oil Company**  
Interoffice Memorandum

July 29, 1980

FROM: SENIOR ENGINEER  
TO: SUPERINTENDENT OPERATIONS  
SUBJECT: REFINERY SOLID WASTE INVENTORY

Attached is the Ciniza Refinery Solid Waste Inventory. Approximate amounts are:

Aqueous Waste	140 gpm
Hydrocarbon Waste	800 B/yr
Chemicals	375 Mlb/yr
Other Solid Waste	400 Mlb/yr

The above list includes hazardous and nonhazardous wastes. Each waste in the inventory is classified as to type hazardous or nonhazardous, disposal method and approximate amount. This information was compiled with the assistance of Refinery department managers and supervisors.

A handwritten signature in cursive script that reads "M. J. Sapp".

M. J. Sapp

MJS/jg

Attachments

cc: B.C. Bell  
B. Lewis  
M.S. Mexal  
J.J. Stokes  
S.L. Yates  
J.M. Villalobos  
C.F. Yonker

Environmental File 11.01 C.04

## CINIZA REFINERY SOLID WASTE INVENTORY SUMMARY

### Aqueous Waste to Ponds

Hazardous	35
Nonhazardous	<u>105</u>
Total	140 gpm

### Hydrocarbon Waste

ASO	500 B/year
Tank Bottom	100 B/year
Leaded Sludge	25 B/year
Asphalt	25 B/year
Solvent	20 B/year
API Sludge	50 B/year
Slop Oil Bottoms	10 B/year
Waste Motor Oil	<u>25 B/year</u>
	~ 800 B/year

### Chemicals

Spent Caustic	100 Mlb/year
H.F. Acid in ASO	200 Mlb/year
Lab Reagents	0.5 Mlb/year
Nalco, all	50 Mlb/year
Soda Ash	<u>25 Mlb/year</u>
	~ 375 Mlb/year

### Miscellaneous Solid Waste

Vessel Cleaning Sludge	1 Mlb/year
Trash	12 Mlb/year
Filters	1000 yr
Inert Support Media	2 Mlb/year
Catalyst	3 Mlb/year
Insulation	1 Mlb/year
Scrap Metal	<u>380 Mlb/year</u>
	~ 400 Mlb/year

CINIZA REFINERY SOLID WASTE INVENTORY

	<u>Type/EPA#</u>	<u>Disposal</u>	<u>Amount</u>
A. Process Water Draws	(NH)	PS	1 gpm*
B. Desalter Brine	(NH)	PS	15 gpm
C. H.F. Alkylation ASO	(H) D002	PS	500 B/year
D. Cooling Tower Blowdown	(H) D007	PS	35 gpm
E. Softner Waste Water	(NH)	PS	25 gpm
F. Boiler Blowdown	(NH)	PS	35 gpm
G. Spent Caustic	(H) D002	PS	100 Mlb/year
H. Pump Leakage & Drains	(NH)	R	1 gpm*
J. Heat Exchanger Sludge	(H) K050	PS	1000 lb/year*
K. Sampling Blowdown	(NH)	R	1 gpm *
L. Sanitary Sewer	(NH)	PS	5 gpm
M. Hydrocarbon Spills	(NH)	PS	
N. Cleaned Drums	(NH)	S	
O. Trash	(NH)	B	5 ton/year*
P. Ceramic Catalyst Supports	(NH)	L	1000 lb/year*
Q. Tank Bottoms	(NH)	LF	100 B/year
R. CWT Filter, Anthracite	(H) D007	L	300 ft <sup>3</sup> /year
S. Support Media, Quartz Rock	(NH)	L	1000 lb/year *
T. Filters	(NH)	L	1000 year
U. Spent Catalyst		L	
	FCC	(NH)	normally sold
	Silica Gel	(NH)	500#/year
	Bauxite	(NH)	2000#/year
	Water Treating Resins	(NH)	50 ft <sup>3</sup> /yr*

V.	Tank Water Draws	(NH)	PS	1 gpm*
W.	Leaded Sludge	(H) K052	L	25 B/year
X.	Insulation, Asbestos Non-Asbestos	(H) U013	L	500 #/year
		(NH)	L	500 #/year*
Y.	Scrap Metal	(NH)	S	180 T/year
Z.	Alky Scrap Metal	(NA)	L	10 T/year
a.	Rubber Hoses	(NA)	L	
b.	Contaminated Earth	(H)	L	
c.	Hydrocarbon Samples Asphalt	(NH)	R	10 gal/day
		(NH)	L	3 gal/day
d.	Acids		PS	
		HF Hydrofluoric	(H) U134	Spills only
		H <sub>2</sub> SO <sub>4</sub> Sulfuric	(H) D002	
		HCl Hydrochloric	(H) D002	
e.	Laboratory Reagents (1)		PS	500 lb/year*
	Acetone	(H) F003		
	Acetic Acid	(NH)		
	Isopropyl Alcohol	(NH)		
	Potassium Hydroxide	(H) D002		
	Silver Nitrate	(H) D011		
	Phenolphthalein	(NH)		
	Tetraethyl Lead	(H) P110		
	Oleic Acid	(NH)		
	Iodine	(NH)		
	Chloroform	(NH)		
	Ammonia	(NH)		
	Chromic Acid	(H) D002		
	White Oil	(NH)		
	Chloroethane	(H) F001		
	Trichloroethylene	(H) F002		
	Others			

1. To be considered hazardous, these materials must be disposed of in the pure state, after normal lab use in testing their disposal is as a solid waste.

f.	Gasoline Additives	(H) <sup>(2)</sup>	LF	Spills
	Exxon Arco Chevron Union Mobil Conoco Gulf Shell Amoco Red Dye Ethyl 733-67 Bronze Dye			
	Tetra Ethyl Lead	(H) P110	LF	Spills
	Asphalt Additives	(H) <sup>(2)</sup>	LF	Spills
	Emery 17065 Process			
	Merox 1,2 Kontol Trichloroethane Nalco Dispersant Nalco Chromate Nalco Sulfite Nalco Biocide	(H) <sup>(2)</sup>	LF	Spills
g.	Condensate includes condensate used as wash water	(NH)	PS	25 gpm
h.	Used Oil Absorbant	(NH)	L	
j.	Laboratory Trash	(NH)	B	1 T/year*
k.	Solvents		PS	20 drum/yr
	Trichloroethane	(H) F001		
m.	Brine Spills	(NH)	PS	
n.	KOH Water Draw	(H) D002	PS	
p.	Ethylene Glycol antifreeze	(NH)	PS	4 drum/yr

2. Proprietary compound spills are to be disposed of as hazardous waste.

q.	Waste Lube Oil	(NH)	R	
r.	Oily Straw, API Separator	(NH)	B,L	
s.	API Separator Sludge	(H) K051	LF	50 B/year*
t.	Trash Burning Residue	(NH)	L	
u.	Soda Ash	(H) D002	PS	13 tons/year
v.	Slop Oil Tank Bottoms	(H) K049	LF	10 B/year*
w.	Waste Motor Oil	(NH)	LF	25 B/year*

KEY:

- H - Hazardous
- NH - Nonhazardous
- PS - Process Sewer
- B - Burned
- L - Landfill
- LF - Landfarm
- R - Recovered
- S - Sold
- \* - Estimated

# **AOC 28 – Warehouse and Maintenance Shop Area**

## AOC 28 – Warehouse and Maintenance Shop Area

The Warehouse and Maintenance Shop, which has been identified by NMED as Area of Concern #28, is located west of the process areas as indicated on the attached maps.

NMED requested information in the format below.

3.

a. Any data or reports already provided to OCD;  
No data or reports have been provided to OCD because there have not been any spills requiring notice to or remediation under OCD.

b. Any data not provided to OCD, but correlated to the OCD reports;  
There are no OCD reports.

c. Site history;

The warehouse and maintenance shops are believed to have been constructed when the refinery was initially constructed in the late 1950s.

Process Knowledge –

- Instrumentation & Electrical (I&E) Shop – The floor drain/sump drains to the refinery Contact Waste Water System (SWMU 12). Water is used in instrument testing is discharged to the drain. Periodically, a vacuum truck is used to unclog the drain. See the attached Photo 1.
- Mechanical Shop – The shop does not have a floor drain or below grade sump. The above-grade neutralization and hot tanks are connected to the refinery Contact Waste Water System (SWMU 12). Periodically, a vacuum truck is used to unclog the drain. See the attached Photo 2.
- Sumps are an industry and regulatory recognized liquids collection apparatus. Vacuum trucks are an industry and regulatory recognized means for liquids transfer. The purpose of sumps and vacuum trucks is to properly manage liquids.

Used oil is recovered for on-site processing. There was use of chlorinated cleaning solvents in the past and disposal onsite as documented in the May 12, 1981 memorandum (attached).

d. Location map  
See attached maps.

e. Previous sampling locations (including depths and a description of field methods); and  
There have not been any spills or other indications of any contamination in this area that prompted sampling of soils.

f. Analytical suites/types.  
NA

AOC 28 Photo 1



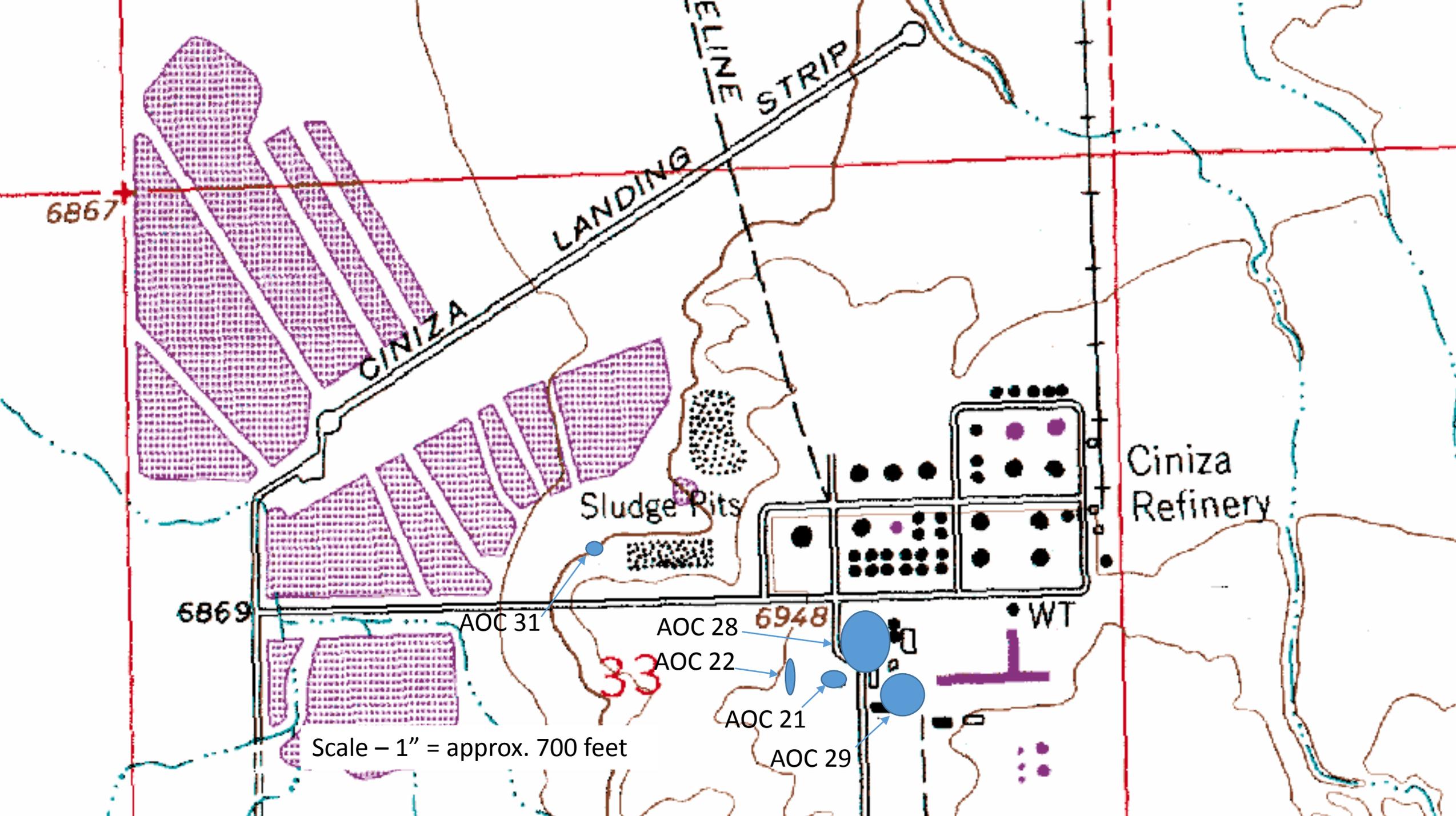
I & E Shop Floor  
Drain (Sump)

2015/05/07



Mechanics Shop  
Hot Tank (Sump)

EMERGENCY  
SHOWER &  
EYEWASH



11.01.6.07.4



**Shell Oil Company**  
Interoffice Memorandum

MAY 12, 1981

FROM: SUPERINTENDENT OPERATIONS - CINIZA REFINERY  
TO: MANAGER ENVIRONMENTAL CONSERVATION, OPERATIONS  
SUBJECT: INVENTORY OF PAST HAZARDOUS SUBSTANCE  
HANDLING ACTIVITIES

Attached is a list of potentially hazardous wastes disposed of at Ciniza and a description of the wastes. Only wastes listed with a RCRA number are considered hazardous under current Federal regulations.

Also attached is a list of inactive hazardous waste sites; these are also identified on our RCRA permit application.

Please direct any requests for additional information to M.J. Sapp (SSN 434-3239).

A handwritten signature in cursive script, appearing to read "C.D. Shook".

C.D. Shook

MJS/bc

Attachments

cc: B.C. Bell  
R.J. Trautner  
File 11.04A ✓

## CINIZA REFINERY WASTE DISPOSAL

1

HAZARDOUS WASTE	TYPE	YEARS PRODUCED	AMOUNT	DISPOSAL	SOURCE
1. Acid Soluble Oil	corrosive, toxic	1958-current	500 B/YR	V	E
2. API Overflow	heavy metals	1958-current	80 gpm	EP	CO
3a. API Separator	RCRA-K051	1958-1980	100 TON/YR	SP	IN
3b. API Separator	RCRA-K051	1980-current	100 TON/YR	LT	CO
4. Asbestos Insulation	RCRA-U013	1958-current	0.5 TON/YR	LF	IN
5. Defluorinator Bauxite	fluorides	1958-current	2 TON/YR	V	E
6a. Heat Exchanger Cleaning Sludge	RCRA-K050	1958-1980	unknown	V	IN
6b. Heat Exchanger Cleaning Sludge	RCRA-K050	1980-current	unknown	LT	CO
7. Hydrotreating Catalyst	cobalt-moly nickel	1970-current	50 TONS to date	V	E
8a. Leaded Tank Sludge	RCRA-K052	1965-1980	1 TON/YR	B	IR
8b. Leaded Tank Sludge	RCRA-K052	1980-current	1 TON/YR	LT	IR, CO
9a. Slop Oil Tank Sludge	RCRA-K049	1958-1980	2 TON/YR	SP	IN
9b. Slop Oil Tank Sludge	RCRA-K049	1980-current	2 TON/YR	LT	CO
10a. Softener Waste Water	RCRA-D002	1970-1980	40 TON/YR	EP	PR
10b. Softener Waste Water	RCRA-D002	1980-current	40 TON/YR	N	PR, CO
11a. Spent Caustic	-	1958-1965	25 TON/YR	S	PR
11b. Spent Caustic	-	1965-current	25 TON/YR	EP	PR
12a. Trichloroethane	RCRA-F001	1960-1980	0.5 TON/YR	P, EP	IN
12b. Trichloroethane	RCRA-F001	1980-current	0.5 TON/YR	S	CO

HAZARDOUS WASTE	TYPE	YEARS PRODUCED	AMOUNT	DISPOSAL	SOURCE
13. Alky Scrap Metal	fluorides	1958-current	5 TON/YR	LF	E
14. Waste Oil	waste oil	1958-1980	10 TON/YR	LT	E
15. KOH	pH, basic	1958-current	2 TON/YR	EP	E
16. Laboratory Chemicals	toxic, other	1958-current	200 LB/YR	LF, EP	E

DISPOSAL KEY

EP      evaporation ponds  
N      neutralization  
B      burial  
LT      land treatment  
LF      landfill  
SP      sludge pit  
P      poured out on ground  
V      various  
S      sold

SOURCE KEY

IN      interviews  
PR      purchasing records  
IR      inspection records  
CO      current operation, refers to amount only  
E      estimated

CINIZA REFINERY

INACTIVE HAZARDOUS WASTE DISPOSAL SITES

- Evaporative Ponds - received unneutralized softener waste.  
Site active but not receiving hazardous waste.
- Past Land Treatment Area - inactive, contains waste oils which might be designated hazardous waste.
- Past Landfill Area - contains asbestos insulation, potentially other hazardous wastes.
- Sludge Pits - contain API separator sludge, slop oil and possibly other materials. Current plans are to move this material to the land treatment area.
- Alky Scrap Landfill - contains fluoride contaminated scrap from HF Alkylation Unit.

CINIZA REFINERY

WASTE DESCRIPTIONS

Asbestos is currently landfilled in compliance with federal regulations.

Heat Exchangers, prior to 1980, were cleaned in place, at various locations around the Refinery, no effort was made to collect the sludge.

Leaded tank bottoms were, until 1980, buried outside the tank manway. An analysis of leaded sludge from Tank 569 showed

Total Pb	690	ug/gm
EP Pb	0.08	mg/liter
Total Organic Pb	2.4	ug/gm

Slop oil bottoms and API separator sludge were placed in sludge pits until 1980. This material is currently disposed of by land-treatment.

Softener wastewater is acidic due to the excess HCl used during regeneration of the resin. Free HCl in the water will evaporate with the water.

Trichloroethane used as a degreasing solvent has in the past been disposed of by pouring it on the ground. This practice has been stopped and spent solvent will be returned to the manufacturer for recycling.

Other Waste

Acid soluble oil (ASO) is a waste product from the HF alkylation unit. ASO is a polymerization product which contains combined fluorides. In removing ASO from the system some HF acid is also removed. This material is neutralized with soda ash in the alkylation unit and drained to the process sewer. It is believed much of the ASO is removed as in emulsion from the API separator. In

the past ASO has been burned in the Alky furnace and burned from an open pit. Some ASO entered the ground from this pit.

Refinery API overflow, process waterwater, is not a hazardous waste. The residue which remains in the ponds after evaporation of the water may be considered hazardous in the future. An analysis of RCRA metals in the overflow is attached.

Bauxite (activated alumina) is used to remove fluorides from LPG in the alkylation unit. Spent bauxite has in the past been spread on refinery roads and landfilled.

Hydrotreating catalyst has been landfilled at various locations in the refinery. It may also have been spread on refinery roads. Current practice is to sell the catalyst for metals reclamation or to have the catalyst merchant regenerated.

Spent caustic now goes to the process sewer and is finally deposited by evaporation in the ponds. Prior to 1965 some spent caustic was sold.

Scrap metal from the alkylation unit is weathered to reduce fluoride contamination and then landfilled.

Waste oils of various types were placed in the old landtreatment area, including a substantial amount of waxy residue from the crude tank.

Potassium hydroxide (KOH) used in the Alky defluorinators is disposed of through the sewer to the evaporation ponds.

Laboratory Chemicals used in routine testing are normally disposed of through the sewer to the evaporation ponds. Outdated chemicals are occasionally disposed of in the landfill.

API SEPARATOR OVERFLOW ANALYSIS

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 Separator 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

11.01.07.A



**Shell Oil Company**  
Interoffice Memorandum

August 5, 1980

FROM: SUPERINTENDENT OPERATIONS, CINIZA REFINERY

TO: MANAGER ENVIRONMENTAL CONSERVATION -  
OPERATIONS

SUBJECT: HAZARDOUS WASTE LIST

As requested in your memorandum of 7/7/80, attached is a copy of Ciniza's Solid and Hazardous Waste Inventory.

A handwritten signature in black ink, appearing to read "C.D. Shook".

C.D. Shook

MJS/rr

cc B.C. Bell (w/o attachments)  
Environmental File 11.04.A



**Shell Oil Company**  
Interoffice Memorandum

July 29, 1980

FROM: SENIOR ENGINEER  
TO: SUPERINTENDENT OPERATIONS  
SUBJECT: REFINERY SOLID WASTE INVENTORY

Attached is the Ciniza Refinery Solid Waste Inventory. Approximate amounts are:

Aqueous Waste	140 gpm
Hydrocarbon Waste	800 B/yr
Chemicals	375 Mlb/yr
Other Solid Waste	400 Mlb/yr

The above list includes hazardous and nonhazardous wastes. Each waste in the inventory is classified as to type hazardous or nonhazardous, disposal method and approximate amount. This information was compiled with the assistance of Refinery department managers and supervisors.

A handwritten signature in cursive script that reads "M. J. Sapp".

M. J. Sapp

MJS/jg

Attachments

cc: B.C. Bell  
B. Lewis  
M.S. Mexal  
J.J. Stokes  
S.L. Yates  
J.M. Villalobos  
C.F. Yonker

Environmental File 11.01 C.04

## CINIZA REFINERY SOLID WASTE INVENTORY SUMMARY

### Aqueous Waste to Ponds

Hazardous	35
Nonhazardous	<u>105</u>
Total	140 gpm

### Hydrocarbon Waste

ASO	500 B/year
Tank Bottom	100 B/year
Leaded Sludge	25 B/year
Asphalt	25 B/year
Solvent	20 B/year
API Sludge	50 B/year
Slop Oil Bottoms	10 B/year
Waste Motor Oil	<u>25 B/year</u>
	~ 800 B/year

### Chemicals

Spent Caustic	100 Mlb/year
H.F. Acid in ASO	200 Mlb/year
Lab Reagents	0.5 Mlb/year
Nalco, all	50 Mlb/year
Soda Ash	<u>25 Mlb/year</u>
	~ 375 Mlb/year

### Miscellaneous Solid Waste

Vessel Cleaning Sludge	1 Mlb/year
Trash	12 Mlb/year
Filters	1000 yr
Inert Support Media	2 Mlb/year
Catalyst	3 Mlb/year
Insulation	1 Mlb/year
Scrap Metal	<u>380 Mlb/year</u>
	~ 400 Mlb/year

CINIZA REFINERY SOLID WASTE INVENTORY

	<u>Type/EPA#</u>	<u>Disposal</u>	<u>Amount</u>
A. Process Water Draws	(NH)	PS	1 gpm*
B. Desalter Brine	(NH)	PS	15 gpm
C. H.F. Alkylation ASO	(H) D002	PS	500 B/year
D. Cooling Tower Blowdown	(H) D007	PS	35 gpm
E. Softner Waste Water	(NH)	PS	25 gpm
F. Boiler Blowdown	(NH)	PS	35 gpm
G. Spent Caustic	(H) D002	PS	100 Mlb/year
H. Pump Leakage & Drains	(NH)	R	1 gpm*
J. Heat Exchanger Sludge	(H) K050	PS	1000 lb/year*
K. Sampling Blowdown	(NH)	R	1 gpm *
L. Sanitary Sewer	(NH)	PS	5 gpm
M. Hydrocarbon Spills	(NH)	PS	
N. Cleaned Drums	(NH)	S	
O. Trash	(NH)	B	5 ton/year*
P. Ceramic Catalyst Supports	(NH)	L	1000 lb/year*
Q. Tank Bottoms	(NH)	LF	100 B/year
R. CWT Filter, Anthracite	(H) D007	L	300 ft <sup>3</sup> /year
S. Support Media, Quartz Rock	(NH)	L	1000 lb/year *
T. Filters	(NH)	L	1000 year
U. Spent Catalyst		L	
	FCC	(NH)	normally sold
	Silica Gel	(NH)	500#/year
	Bauxite	(NH)	2000#/year
	Water Treating Resins	(NH)	50 ft <sup>3</sup> /yr*

V.	Tank Water Draws	(NH)	PS	1 gpm*
W.	Leaded Sludge	(H) K052	L	25 B/year
X.	Insulation, Asbestos Non-Asbestos	(H) U013	L	500 #/year
		(NH)	L	500 #/year*
Y.	Scrap Metal	(NH)	S	180 T/year
Z.	Alky Scrap Metal	(NA)	L	10 T/year
a.	Rubber Hoses	(NA)	L	
b.	Contaminated Earth	(H)	L	
c.	Hydrocarbon Samples Asphalt	(NH)	R	10 gal/day
		(NH)	L	3 gal/day
d.	Acids		PS	
		HF Hydrofluoric	(H) U134	Spills only
		H <sub>2</sub> SO <sub>4</sub> Sulfuric	(H) D002	
		HCl Hydrochloric	(H) D002	
e.	Laboratory Reagents (1)		PS	500 lb/year*
	Acetone	(H) F003		
	Acetic Acid	(NH)		
	Isopropyl Alcohol	(NH)		
	Potassium Hydroxide	(H) D002		
	Silver Nitrate	(H) D011		
	Phenolphthalein	(NH)		
	Tetraethyl Lead	(H) P110		
	Oleic Acid	(NH)		
	Iodine	(NH)		
	Chloroform	(NH)		
	Ammonia	(NH)		
	Chromic Acid	(H) D002		
	White Oil	(NH)		
	Chloroethane	(H) F001		
	Trichloroethylene	(H) F002		
	Others			

1. To be considered hazardous, these materials must be disposed of in the pure state, after normal lab use in testing their disposal is as a solid waste.

f.	Gasoline Additives	(H) <sup>(2)</sup>	LF	Spills
	Exxon Arco Chevron Union Mobil Conoco Gulf Shell Amoco Red Dye Ethyl 733-67 Bronze Dye			
	Tetra Ethyl Lead	(H) P110	LF	Spills
	Asphalt Additives	(H) <sup>(2)</sup>	LF	Spills
	Emery 17065 Process			
	Merox 1,2 Kontol Trichloroethane Nalco Dispersant Nalco Chromate Nalco Sulfite Nalco Biocide	(H) <sup>(2)</sup>	LF	Spills
g.	Condensate includes condensate used as wash water	(NH)	PS	25 gpm
h.	Used Oil Absorbant	(NH)	L	
j.	Laboratory Trash	(NH)	B	1 T/year*
k.	Solvents		PS	20 drum/yr
	Trichloroethane	(H) F001		
m.	Brine Spills	(NH)	PS	
n.	KOH Water Draw	(H) D002	PS	
p.	Ethylene Glycol antifreeze	(NH)	PS	4 drum/yr

2. Proprietary compound spills are to be disposed of as hazardous waste.

q.	Waste Lube Oil	(NH)	R	
r.	Oily Straw, API Separator	(NH)	B,L	
s.	API Separator Sludge	(H) K051	LF	50 B/year*
t.	Trash Burning Residue	(NH)	L	
u.	Soda Ash	(H) D002	PS	13 tons/year
v.	Slop Oil Tank Bottoms	(H) K049	LF	10 B/year*
w.	Waste Motor Oil	(NH)	LF	25 B/year*

KEY:

- H - Hazardous
- NH - Nonhazardous
- PS - Process Sewer
- B - Burned
- L - Landfill
- LF - Landfarm
- R - Recovered
- S - Sold
- \* - Estimated

# **AOC 29 – Equipment Yard and Drum Storage Area**

## AOC 29 – Equipment Yard and Drum Storage Area

The Equipment Yard and Drum Storage Area, which has been identified by NMED as Area of Concern #29 and it is shown on the attached maps.

NMED requested information in the format below.

3.

a. Any data or reports already provided to OCD;  
As there have not been any documented spills or other releases in this area, no data or reports have been provided to OCD.

b. Any data not provided to OCD, but correlated to the OCD reports;  
No data identified.

c. Site history;

The equipment yard and drum storage area date back to at least 1962 and may have been constructed when the refinery was built in the late 1950s. No hazardous wastes are known to have been managed at the area. Some empty containers have been temporarily stored in this area pending disposal/recycling. There are no documented spills in this area.

d. Location map  
See attached maps.

e. Previous sampling locations (including depths and a description of field methods); and  
No samples have been collected from this area.

f. Analytical suites/types.  
NA

## AOC 29 – Equipment Yard and Drum Storage Area

- (1) location of unit(s) on a topographic map of appropriate scale, as required under 40 CFR § 270.14(b)(19);

*See attached topo maps for location of AOC 29*

- (2) designation of type and function of unit(s);

*The activities conducted within AOC 29 include storage of equipment and supplies.*

- (3) dimensions, capacities and structural description of unit(s) (supply any available plans/drawings);

*There are two warehouse buildings, one of which is approximately 40 feet by 100 feet and the other is 60 feet by 100 feet. The old firehouse is located on the northeast corner of this area. An exterior storage area measures approximately 100 feet by 130 feet.*

- (4) dates that the unit(s) was operated;

*The warehouse buildings date back to at least 1962 and may have been constructed when the refinery was built in the late 1950s.*

- (5) all available site history information;

*The refinery began operation in the late 1950s and the refinery property covers an area of approximately 810 acres. The refinery location and the regional vicinity is characterized as high desert plain comprised primarily of public lands used for grazing by cattle and sheep.*

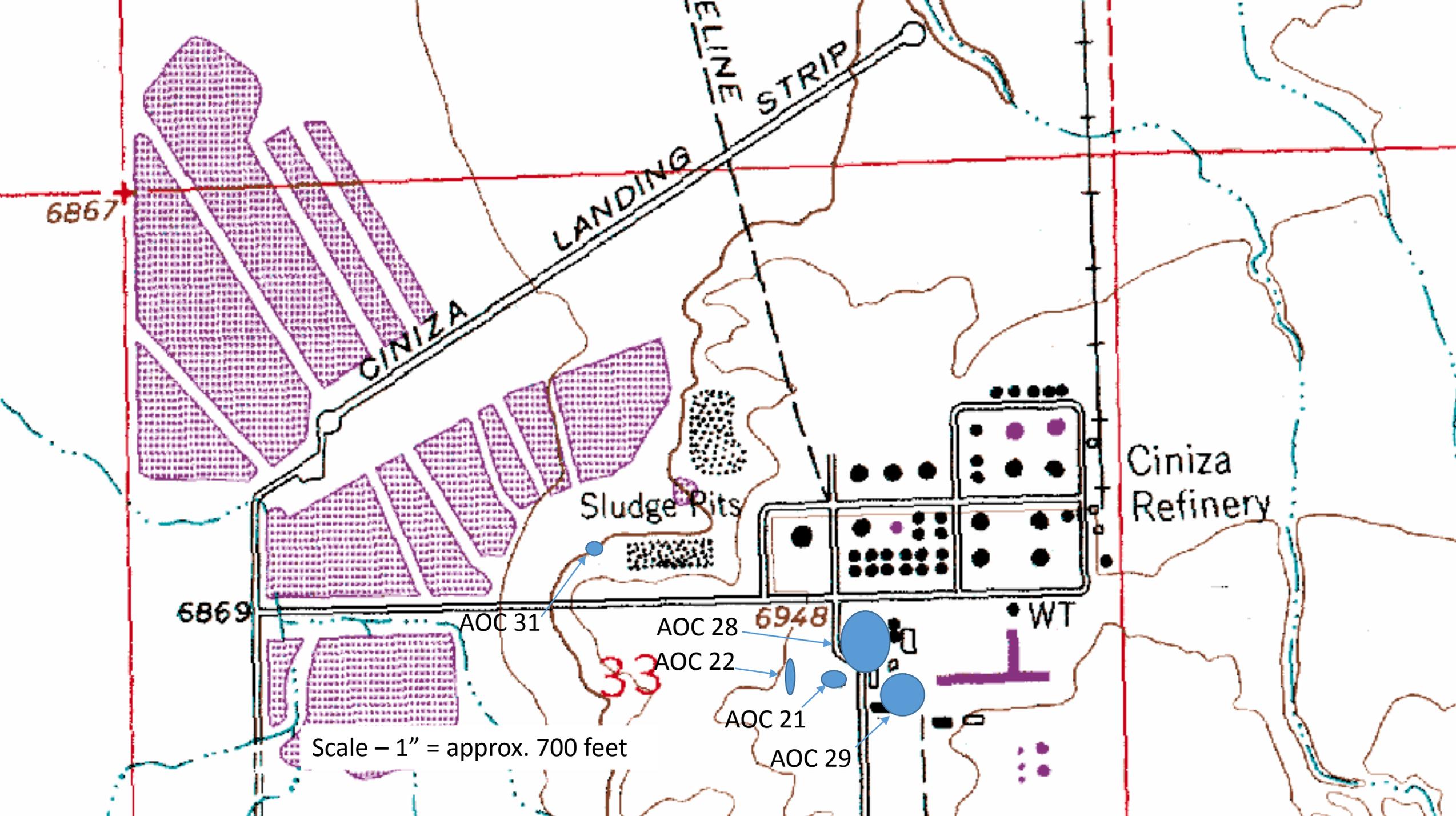
*The Gallup Refinery is a crude oil refinery currently owned and operated by Western Refining Southwest, Inc. ("Western"), formerly known as Giant Industries Arizona, Inc. and formerly doing business as Giant Refining Company Ciniza Refinery, an Arizona corporation. The Gallup Refinery generally processes crude oil from the Four Corners area transported to the facility by pipeline or tanker truck. Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, alkylation, isomerization, sulfur recovery, merox treater, and hydrotreating. Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.*

- (6) specifications of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on hazardous waste or hazardous constituents in the wastes;

*No hazardous wastes are known to have been managed at the AOC. Some empty containers have been temporarily stored in this area pending disposal/recycling.*

- (7) all available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (to include ground water data, soil analyses, air, and surface water data).

*There are no documented spills at this AOC.*



## AOC 29 – Equipment Yard and Drum Storage Area

- Western to identify how this area is used, what is stored in this area.
  - **The area is used to stored new materials such as pipe valves, flanges, chemicals, compressed gases, bags of catalysts. All totes containing liquids are stored on lined, bermed secondary containment to prevent spills to the asphalt and concrete.**
- What is cover material for this area?
  - **Entire area is covered with asphalt or concrete.**
- Obtain new photo documentation of use of this area and condition of surface cover.
  - **See Attachment AOC 29 for photos of the AOC.**



AOC 29 – Equipment Yard and Drum Storage Area Photo Location Map



AOC 29 – photo 1; southeast corner of AOC looking east



AOC 29 – Photo 2; east side of AOC looking east



AOC 29 – Photo 3, looking north toward northeast corner of AOC



AOC 29 – Photo 4; east central portion of AOC looking east



AOC 29 – Photo 5; northeast corner of AOC looking north-northeast



AOC 29 – Photo 6; north end of AOC, looking west



AOC 29 – Photo 7; north end of AOC looking west



AOC 29 – Photo 8; mid area of AOC looking west



AOC 29 – Photo 9; southwest end of AOC looking south –southwest



AOC 29 - Photo 10; southwest corner of AOC looking west

# **AOC 30 – Laboratory**

## AOC 30 – Laboratory

The Laboratory, which has been identified by NMED as Area of Concern #30, is located to the west of the process areas as shown on the attached maps.

This AOC was previously discussed with NMED and in support of those discussions the information normally required for a Release Assessment Report pursuant to Permit Section IV.H.1.a was prepared and submitted to NMED prior to meeting on October 6, 2014. This information and additional information requested by NMED is attached.

NMED requested information in the format below.

3.

- a. Any data or reports already provided to OCD;  
No data or reports have been provided to OCD because there have not been any spills requiring notice to or remediation under OCD.
- b. Any data not provided to OCD, but correlated to the OCD reports;  
There are no OCD reports.
- c. Site history;  
The site history is discussed in Attachment A under the previously submitted Release Assessment Report documentation.
- d. Location map  
See attached maps.
- e. Previous sampling locations (including depths and a description of field methods); and  
There have not been any spills or other indications of any contamination in this area that prompted sampling of soils.
- f. Analytical suites/types.  
NA

## AOC 30 – Laboratory

- (1) location of unit(s) on a topographic map of appropriate scale, as required under 40 CFR §270.14(b)(19);

*See attached topo maps for location of units/AOCs.*

- (2) designation of type and function of unit(s);

*The laboratory is Western's on-site lab that is used to maintain quality control over the refining process and to help ensure compliance with environmental regulations. It primarily handles petroleum products or related materials and water samples.*

- (3) dimensions, capacities and structural description of unit(s) (supply any available plans/drawings);

*The building in which the laboratory is located is approximately 40 feet by 120 feet. The lab building has a concrete floor with drains that connect to the Contact Waste Water Collection System (SWMU No. 12).*

- (4) dates that the unit(s) was operated;

*The lab is believed to have been in service since the 1950s or 1960s and is still in service.*

- (5) all available site history information;

*The refinery began operation in the late 1950s and the refinery property covers an area of approximately 810 acres. The refinery location and the regional vicinity is characterized as high desert plain comprised primarily of public lands used for grazing by cattle and sheep.*

*The Gallup Refinery is a crude oil refinery currently owned and operated by Western Refining Southwest, Inc. ("Western"), formerly known as Giant Industries Arizona, Inc. and formerly doing business as Giant Refining Company Ciniza Refinery, an Arizona corporation. The Gallup Refinery generally processes crude oil from the Four Corners area transported to the facility by pipeline or tanker truck. Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, alkylation, isomerization, sulfur recovery, merox treater, and hydrotreating. Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.*

- (6) specifications of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on hazardous waste or hazardous constituents in the wastes;

*The refinery laboratory analyzes both hydrocarbon and water samples. The materials that are generated in the laboratory can be categorized as follows:*

- *spent/unused hydrocarbon samples;*
- *spent/unused wastewater samples;*
- *discharges from sinks in the laboratory; and*
- *discharges from bottle washing systems in the laboratory.*

*The spent/unused hydrocarbon samples are normally disposed of in segregated drums located outside the laboratory. These drums contents are picked up periodically by a vacuum truck in the refinery and sent to the refinery slop system. The wastewater samples are discharged to the sewer and through the API separator prior to discharge to the wastewater treatment plant.*

*Discharges from the sinks in the laboratory are routed to the wastewater treatment plant via the API separator. With improvements in best management practices, care is taken not to discharge various chemicals or reagents (such as nitro benzene) that could cause problems in the wastewater treatment plant. Chemicals or reagents that could upset a wastewater treatment plant are managed separately, for example, disposed of in a separate drum and sent off-site for disposal.*

- (7) all available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (to include ground water data, soil analyses, air, and surface water data).

*On October 26, 2006 two glass jars of cuprous chloride were observed in the lab building to be leaking. Cuprous chloride is a white to greyish crystalline powder and has a very low solubility in water. It is used as a desulfuring agent in the refining industry. The area of the spill was cleaned up with the leaking containers and spilled material being placed in the over-pack containers. The over-pack containers were shipped off-site for proper disposal. The fact that this area was already addressed is acknowledged in NMED's letter of October 25, 2006.*

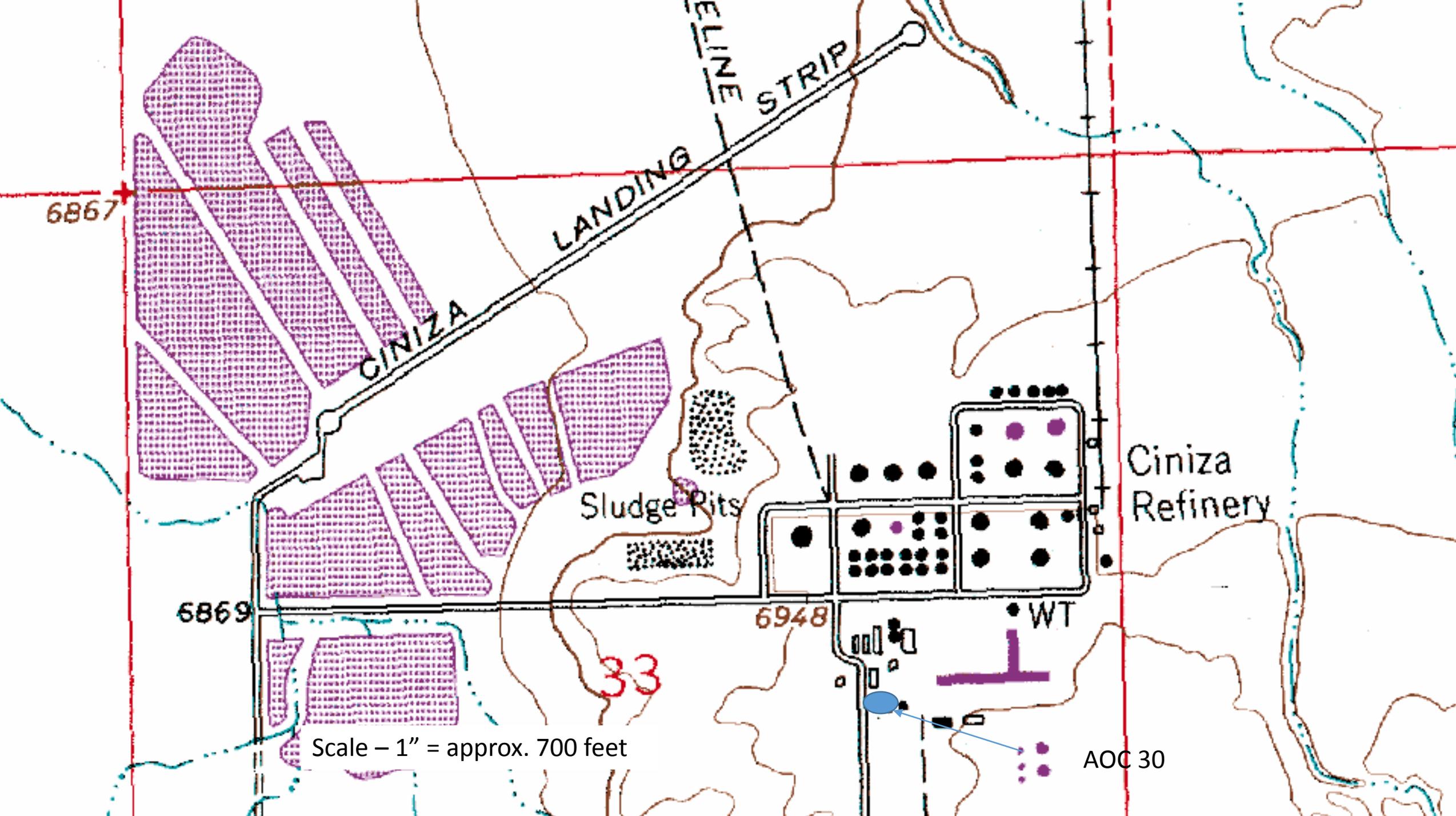
#### Response to NMED Request for Additional Information

- Can Western show that best management practices have been followed for the last 50+ years and that no chemicals or waste material have been spilled or disposed of from the laboratory?

*Neither Western nor Giant have operated the refinery for the past 50+ years and therefore cannot attest to the adherence to best management practices since the refinery began operations in the late 1950s. While best management practices have changed over the last 50+ years, Western does implement current best management practices and continues to improve on these practices. There was a spill at the laboratory, which is discussed above, but this spill was addressed.*

- What were the waste management practices prior to the installation of the new wastewater treatment system?

*The waste management practices are explained in bullet No. 6 above. The waste management practices did not change with the installation of the new wastewater treatment system.*



Scale - 1'' = approx. 700 feet

AOC 30

# **AOC 31 – Tanks 27 and 28**

## AOC 31 – Tanks 27 and 28

The area where Tanks 27 and 28 are located has been identified by NMED as Area of Concern #31 and it is shown on the attached maps.

NMED requested information in the format below.

3.

a. Any data or reports already provided to OCD;  
No data or reports have been identified that were provided to OCD and not to NMED.

b. Any data not provided to OCD, but correlated to the OCD reports;  
None identified.

c. Site history;

Based on aerial photos, it appears the tanks may have been installed before 1962; however, they were refurbished in 2010.

Tanks 27 and 28 are surge tanks used to temporarily store combined wastewater and contact storm water flows prior to treatment in the refinery's new water treatment plant. Prior to the construction of the new treatment plant, the tanks served a similar purpose and allowed temporary storage of wastewater/contact storm water to prevent an overflow at the API Separator during storm events. There are no documented spills from Tanks 27 or 28.

d. Location map  
See attached maps.

e. Previous sampling locations (including depths and a description of field methods); and  
There are no sampling locations identified.

f. Analytical suites/types.  
NA

## AOC 31 – Tanks 27 and 28

- (1) location of unit(s) on a topographic map of appropriate scale, as required under 40 CFR

§ 270.14(b)(19);

*See attached topo maps for location of AOC 31*

- (2) designation of type and function of unit(s);

*Tanks 27 and 28 are surge tanks used to temporarily store combined wastewater and contact stormwater flows prior to treatment in the refinery's new water treatment plant. Tank 35 is the primary equalization/surge tank and Tanks 27 and 28 are only used when Tank 35 exceeds its maximum storage capacity or is out of service for inspection and/or repairs.*

- (3) dimensions, capacities and structural description of unit(s) (supply any available plans/drawings);

*The two tanks have a diameter of 33.5 feet and are 32 feet tall with a working volume of 166,000 gallons. The tanks are made of welded steel with an internal floating roof.*

- (4) dates that the unit(s) was operated;

*Based on aerial photos, it appears the tanks may have been installed before 1962; however, they were recently refurbished.*

- (5) all available site history information;

*The refinery began operation in the late 1950s and the refinery property covers an area of approximately 810 acres. The refinery location and the regional vicinity is characterized as high desert plain comprised primarily of public lands used for grazing by cattle and sheep.*

*The Gallup Refinery is a crude oil refinery currently owned and operated by Western Refining Southwest, Inc. ("Western"), formerly known as Giant Industries Arizona, Inc. and formerly doing business as Giant Refining Company Ciniza Refinery, an Arizona corporation. The Gallup Refinery generally processes crude oil from the Four Corners area transported to the facility by pipeline or tanker truck. Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, alkylation, isomerization, sulfur recovery, merox treater, and hydrotreating. Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.*

- (6) specifications of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on hazardous waste or hazardous constituents in the wastes;

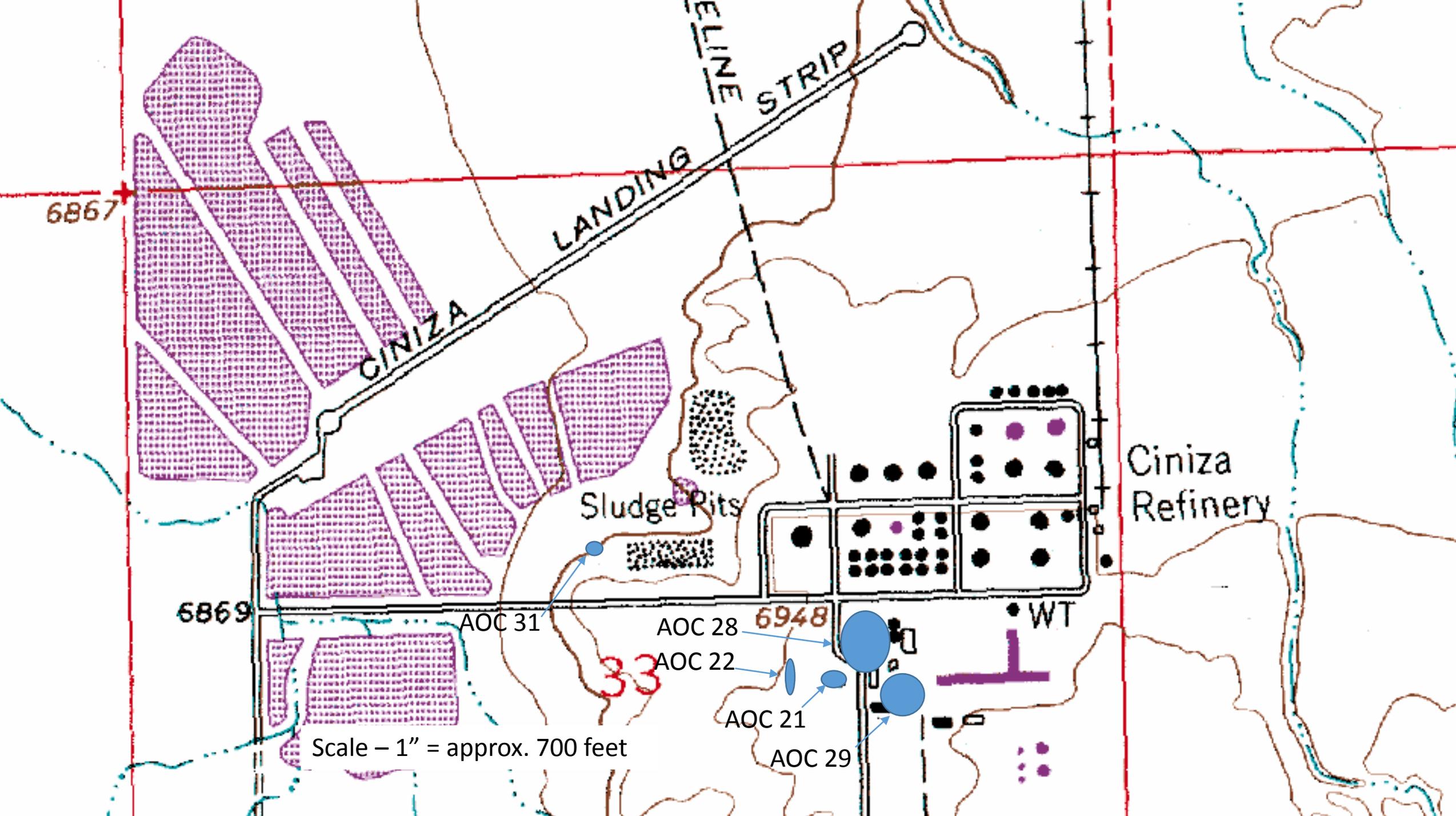
*The purpose of the tanks is to temporarily store refinery wastewater/contact stormwater until it can be treated in the treatment plant. Prior to the construction of the new treatment plant, the tanks served a similar purpose and allowed temporary storage of wastewater/contact stormwater to prevent an overflow at the API Separator during storm events.*

*During the operational life of the refinery, there have been many samples of the wastewater collected and analyzed, and this information is routinely included in*

*annual monitoring reports that are submitted to the NMED. As expected, these chemical analyses have shown the presence of hazardous constituents (e.g., benzene, toluene, ethylbenzene, xylenes, etc.). It is also possible that hazardous wastes (e.g., F037) could have accumulated in the tanks.*

- (7) all available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (to include ground water data, soil analyses, air, and surface water data).

*There are no documented spills from Tanks 27 or 28. A release of wastewater did occur at nearby Tank 35 and this was reported to both NMED and the New Mexico Oil Conservation Division (NMOCD), which has legal authority over spills of hydrocarbons in refineries. The spill was cleaned up and this was documented in a final C-141 form that was submitted to both NMED and NMOCD on 2/7/2012.*



AOC 31 – Tank 27 and 28

- Western to determine timing of remediation of Tank 35 overflow vs. use of temporary flow lines to Baker tanks.
  - **After discussing the site activities with refinery personnel, it was learned that temporary flow lines were not used to transfer fluids to the Baker tanks that were located outside of the secondary containment that surrounds the wastewater tanks. The individual Baker tanks were each placed on a secondary containment designed to capture any small leaks associated with transfer of fluids from the tanks. A vacuum truck was used to transfer fluids directly to and from each Baker tank and thus temporary flow lines were not utilized. Some Baker tanks did remain in the area after the remediation of the Tank 35 overflow was completed, but they each had their own secondary containment.**

# **AOC 32 – Flare and Ancillary Tanks**

## AOC 32 – Flare and Ancillary Tanks

The NMED has identified the location of the flare and associated tanks/knock-out drums as Area of Concern #32. The flare is located on the western portion of the refinery, immediately adjacent SWMU No. 14 Old API Separator.

NMED requested information in the format below.

3.

- a. Any data or reports already provided to OCD;  
No data or reports have been provided to OCD that were not provided to NMED.
- b. Any data not provided to OCD, but correlated to the OCD reports;  
None indentified.
- c. Site history;  
The Flare and associated tanks are known to have been present at their current location in 1997, but it is not certain when they were initially constructed at this location. There are documented releases associated with upset events at the flare with the most recent occurring on December 10, 2013.
- d. Location map  
See attached maps.
- e. Previous sampling locations (including depths and a description of field methods); and  
There have been several spills or other releases at the flare with the most recent occurring on December 10, 2013. The sampling results from this event should provide the most current information on existing conditions in the area of the flare. The C-141 (initial and final) and associated information for this spill event and remediation are in already NMED files, as copies were recently provided by NMED.
- f. Analytical suites/types.  
Included with C-141 reports.

# **AOC 33 – Storm Water Collection System**

## **AOC 33 – Storm Water Collection System**

The Storm Water Collection System, which has been identified by NMED as Area of Concern #33, is located throughout the refinery.

AOC 33 and SMWU 12 - Contact Wastewater Collection System are duplicative because the systems have been combined.

NMED requested information in the format below.

3.

- a. Any data or reports already provided to OCD;  
No data or reports have been identified that were provided to OCD and not to NMED.
- b. Any data not provided to OCD, but correlated to the OCD reports;  
No such data has been identified.
- c. Site history;  
The connection of the Storm Water Collection System to the Contact Wastewater Collection System (SMWU 12) was completed on August 29, 2012.
- d. Location map  
See attached maps.
- e. Previous sampling locations (including depths and a description of field methods); and  
There are no recent sampling locations identified.
- f. Analytical suites/types.  
NA

# **AOC 34 – Scrap Yard**

## AOC 34 – Scrap Yard

The Scrap Yard, which has been identified by NMED as Area of Concern #34, is located on the far north side of the refinery.

NMED requested information in the format below.

3.

a. Any data or reports already provided to OCD;  
No data or reports have been identified that were provided to OCD and not to NMED.

b. Any data not provided to OCD, but correlated to the OCD reports;  
No such data has been identified.

c. Site history;  
The date in which the Scrap Yard came into service is uncertain; however, it was not identified as either a SWMU or Unit of Concern during the 1987 RCRA Facility Assessment.

During a NMED Site Inspection conducted on June 14, 1995, the presence of five-gallon and one-gallon containers of paint related wastes were observed stored on pallets in the "bone yard." There was no indication by the NMED inspectors of any release or threat of a release of the contents, but rather only that a hazardous waste determination had not been completed.

Currently the Scrap Yard is used primarily to store used equipment (e.g., used steel pipe) before being recycled or sold for scrap. There have not been any documented releases in the Scrap Yard that required notice to any regulatory agency or remediation.

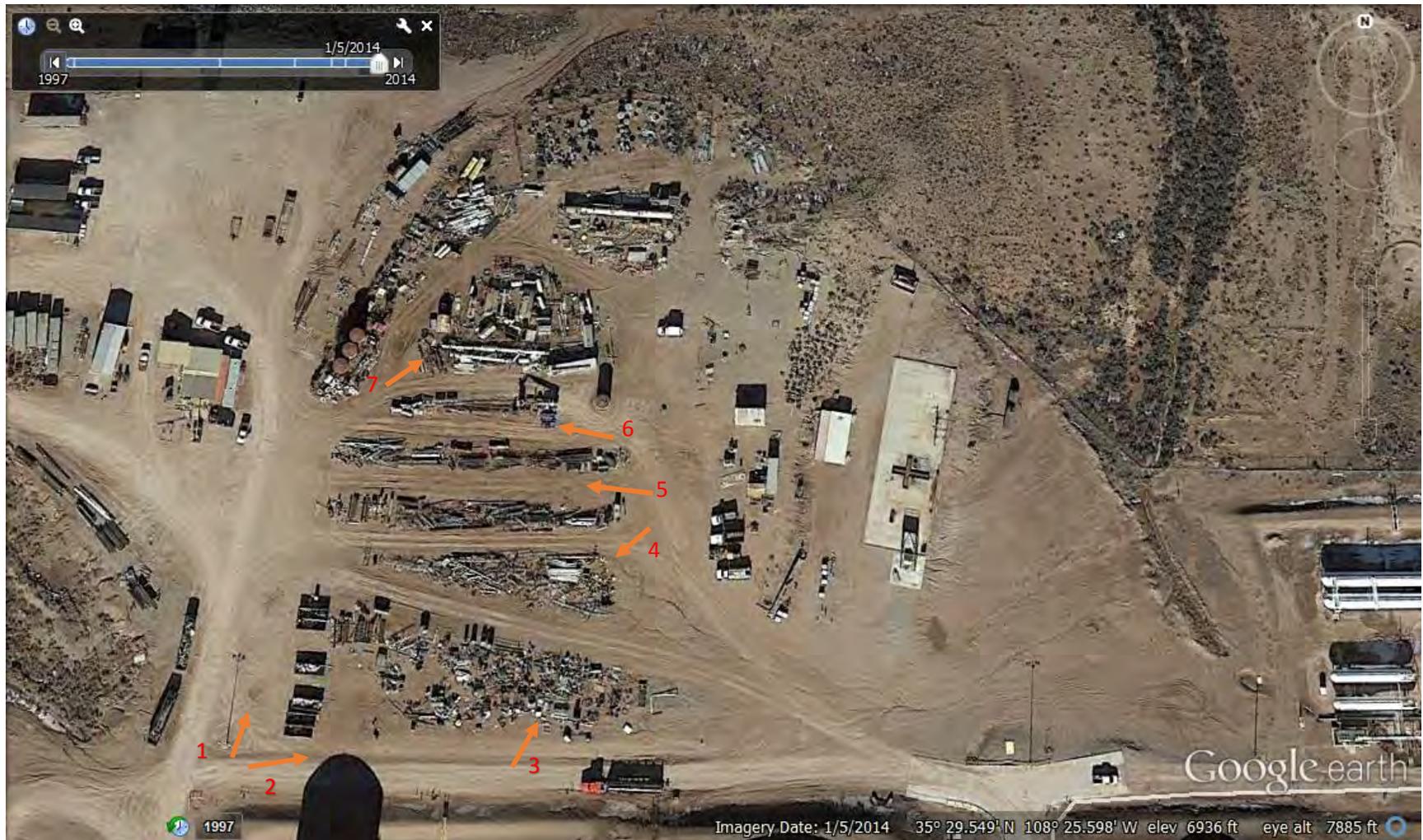
d. Location map  
See attached maps.

e. Previous sampling locations (including depths and a description of field methods); and  
There are no sampling locations identified at AOC 34.

f. Analytical suites/types.  
NA

## AOC 34 – Scrap Yard

- Western to obtain photo documentation of material/equipment stored in scrap yard and condition of surface soils in this area.
  - **See the attached photos of the equipment stored in the AOC and condition of soils (Attachment AOC 34). No stained soils were observed while taking the photos. The area is routinely checked to make sure only appropriate materials are stored in this area.**



AOC 34 – Scrap Yard Photo Location Map



AOC 34 – Photo 1; Southwest corner of AOC looking northeast



AOC 34 – Photo; southwest area of AOC looking east-northeast



AOC 34 – Photo 3; southeast corner of AOC looking northeast



AOC 34 – Photo 4; east portion of AOC looking south-southwest



AOC 34 – Photo 5; east central portion of AOC looking west



AOC 34 – Photo 6; northeast portion of AOC looking west-northwest



AOC 34 – Photo 7; northern portion of AOC looking northeast