AP - 110
C-141s

Chavez, Carl J, EMNRD

From: Combs, Robert <Robert.Combs@HollyFrontier.com>
Sent: Friday, October 5, 2018 1:58 PM
To: Chavez, Carl J, EMNRD; Denton, Scott
Cc: Griswold, Jim, EMNRD; Brown, Maxey G, EMNRD; Sahba, Arsin M.
Subject: RE: [EXT] RE: HollyFrontier Navajo Refining, LLC Lea/Lovington Refinery (AP-110) C-141 Reconciliation &
Attachments: 2018-10-05 Initial C141 - Lovington Tk-1206.pdf; Site Plan.pdf; Release Extent.pdf; Gas Oil MSDS.PDF

Carl,
Please see the attached initial C-141 form for the Tk-1206 gasoil release in Lovington on 9/29/18 (related to the first item below). Additionally, there are figures for the Lovington Site Plan, a markup of the spill extent, and a SDS for gasoil. If you have any questions, please let me know.
Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Friday, October 05, 2018 11:52 AM
To: Combs, Robert; Denton, Scott
Cc: Griswold, Jim, EMNRD; Brown, Maxey G, EMNRD; Sahba, Arsin M.
Subject: RE: [EXT] RE: HollyFrontier Navajo Refining, LLC Lea/Lovington Refinery (AP-110) C-141 Reconciliation &

Robert, et al.:

Good morning! Received. OCD is assessing the response, and will respond as needed.

Thank you.

From: Combs, Robert <Robert.Combs@HollyFrontier.com>
Sent: Thursday, October 4, 2018 12:19 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>; Denton, Scott <Scott.Denton@HollyFrontier.com>
Cc: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Brown, Maxey G, EMNRD <MaxeyG.Brown@state.nm.us>; Sahba, Arsin M. <Arsin.Sahba@HollyFrontier.com>
Subject: [EXT] RE: HollyFrontier Navajo Refining, LLC Lea/Lovington Refinery (AP-110) C-141 Reconciliation &

Carl,

Please see below for responses to your comments:

Page 2: The most recent release requiring a C-141 or equivalent follow-up. Please submit by COB Friday, Oct. 5, 2018.
HFNR Response:

- C-141 preparation is underway; we plan to submit the C-141 by COB 10/5/18
- Note – I was not driving to the refinery at the time of the call

Page 3: Record lacking C-141 follow-up from release. Please submit by COB Friday, Oct. 5, 2018.
HFNR Response:

- This is in reference to the Lovington crude line release on 7/8/18.
- Navajo submitted Initial C-141 on 8/9/18 and provided a remediation plan on 9/10/18. Sent email to OCD on 9/19/18 for update that sampling would soon take place. The samples were collected on 9/25/18 and lab results are pending. Additional communication is forthcoming.
- If needed, any of these documents can be provided.

Page 4: Asphalt Discovery and Remediation Document - Loading Rack Additional Investigation in 2017, OCD requests an update from the minimum of weekly monitoring and bailing until such time as Navajo submits updated data supporting a reduced monitoring and bailing frequency to OCD for approval and/or OCD reviews the upcoming annual report for progress.
HFNR Response:

- The ongoing monitoring and recovery for this issue through calendar year 2017 was documented in the 2017 Annual Facility-Wide Groundwater Monitoring Report, submitted on April 13, 2018.
- The well continues to be gauged and bailed on at least a weekly basis; no reduction in the frequency is recommended at this point so no request for reduction will be made as yet.

Also, when will the FWGWMR 2018 be submitted?

- The 2017 FWGWMR was submitted on April 13, 2018. The 2018 FWGWMR will be due on April 15, 2019, and will include the groundwater monitoring and LNAPL recovery results through calendar year 2018.

If you would like to discuss, please let me know.
Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Tuesday, October 02, 2018 3:48 PM

To: Combs, Robert; Denton, Scott
Cc: Griswold, Jim, EMNRD; Brown, Maxey G, EMNRD
Subject: HollyFrontier Navajo Refining, LLC Lea/Lovington Refinery (AP-110) C-141 Reconciliation &

Robert and Scott:

Please find attach the C-141 thumbnail in the admin. record.

Page 2: The most recent release requiring a C-141 or equivalent follow-up. Please submit by COB Friday, Oct. 5, 2018.

Page 3: Record lacking C-141 follow-up from release. Please submit by COB Friday, Oct. 5, 2018.

Page 4: Asphalt Discovery and Remediation Document - Loading Rack Additional Investigation in 2017, OCD requests an update from the minimum of weekly monitoring and bailing until such time as Navajo submits updated data supporting a reduced monitoring and bailing frequency to OCD for approval and/or OCD reviews the upcoming annual report for progress.

Also, when will the FWGWMR 2018 be submitted?

Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
E-mail: CarlJ.Chavez@state.nm.us
"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD **and see "Publications")**

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CONFIDENTIALITY NOTICE: This e-mail, and any attachments, may contain information that is privileged and confidential.If you received this message in error, please advise the sender immediately by reply e-mail and do not retain any paper or electronic copies of this message or any attachments.Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.

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 Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: **HollyFrontier Navajo Refining LLC**	OGRID
Contact Name: **Robert Combs**	Contact Telephone: **575-746-5382**
Contact email: **Robert.Combs@hollyfrontier.com**	Incident # *(assigned by OCD)*
Contact mailing address: **501 E. Main St., Artesia, NM 88210**	

Location of Release Source

Latitude **32°52'46.09"N (32.87947)** Longitude **103°18'8.04"W (-104.30223)**
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: **Navajo Refining LLC**	Site Type: **Petroleum Refinery**
Date Release Discovered: **9/29/2018, approx. 06:00**	API# *(if applicable)*: **N/A**

Unit Letter	Section	Township	Range	County
	36	**16S**	**36E**	**Lea**

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* **City of Lovington**)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☒ Other (describe) **Gas Oil**	Volume/Weight Released (provide units) **Approx. 30 bbls initially; release from tank is ongoing but contained as described below.**	Volume/Weight Recovered (provide units) **more than 60 bbls to date**

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Cause of Release:

Leak from Tank 1206, specific location on tank is unknown.

Operator discovered gas oil release leaking onto the ground surface from the north/northwest side of the tank. Immediately upon discovery, dirt work was performed to control and contain the flow of the released gas oil. Dirt work included digging a depression and building dikes/berms near the release area and plastic sheeting was placed within the diked area to provide a liner for further gas oil accumulation during tank de-inventory. Free liquids were then recovered from the accumulation area to the extent practical. Recovery of free liquids accumulating in the lined, diked area is ongoing with a vacuum truck and the material is transferred to the crude tanks. Recovery of free liquids will continue as needed until tank de-inventory is complete and no free liquids remain in the lined, diked area. Any contaminated soil removed is/will be staged on plastic sheeting or stored in roll-off containers.

The location of Tank 1206 is shown on the attached Refinery Site Plan and the approximate extent of the release area is shown on the second attached figure. A Material Safety Data Sheet (MSDS) detailing the characteristics of the released material is also attached.

The release is entirely contained within the tank's secondary containment which consists of earthen berms. The release did not reach any watercourses.

Was this a major release as defined by 19.15.29.7(A) NMAC?	If YES, for what reason(s) does the responsible party consider this a major release?
☒ Yes ☐ No	**Release volume is estimated to be greater than reporting threshold of 25 bbls.**

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Robert Combs (Navajo Refining) called and left a voicemail for Carl Chavez (Oil Conservation Division) on 9/29/18 at 11:33.

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

- ☐ The source of the release has been stopped.
- ☒ The impacted area has been secured to protect human health and the environment.
- ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:
It is expected that the source of the release will be eliminated once the tank is deinventoried, which is underway.

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

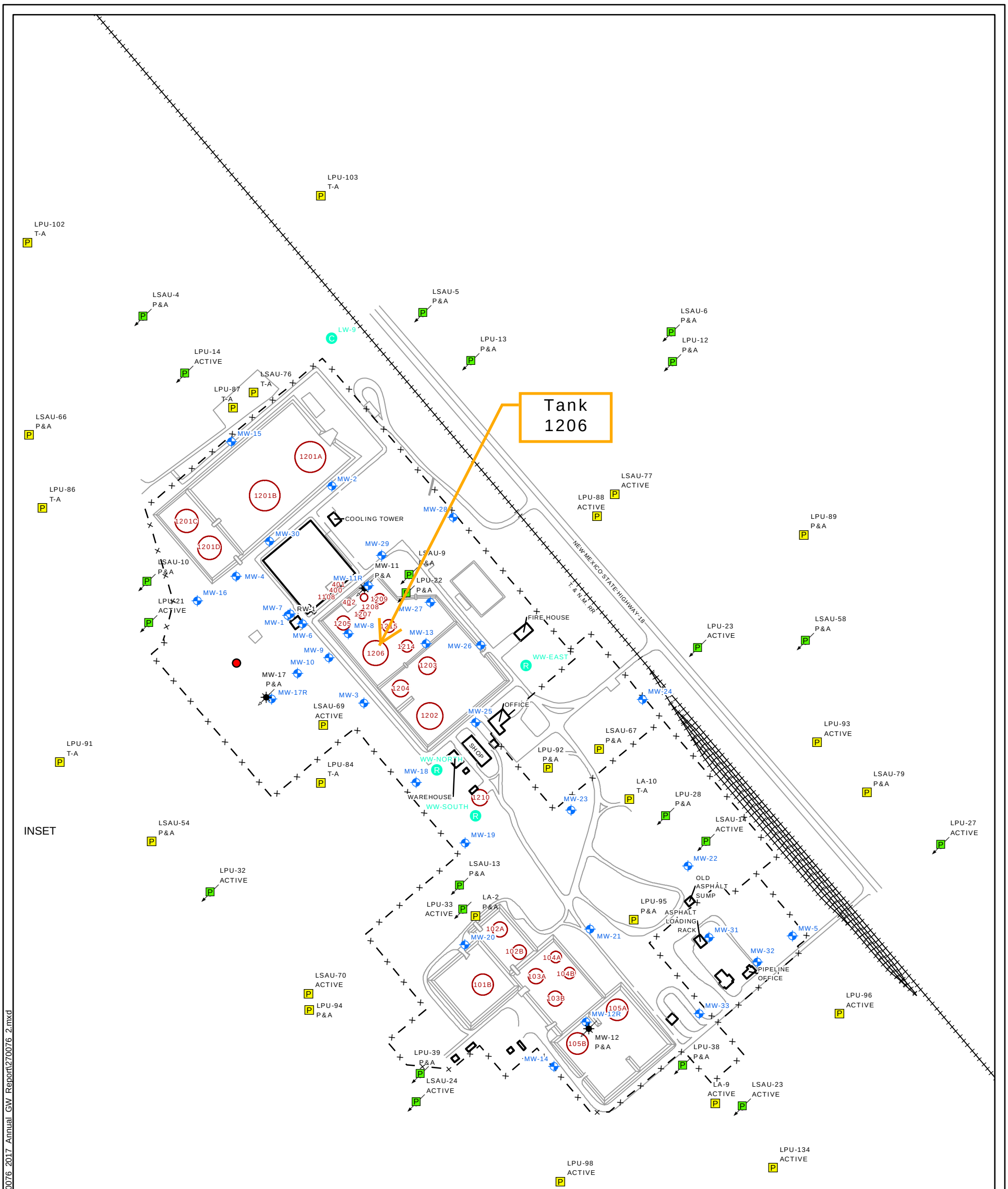
Printed Name: **Robert Combs** Title: **Environmental Specialist**

Signature: [signature] Date: 10/5/18

email: **Robert.Combs@hollyfrontier.com** Telephone: **575-746-5382**

OCD Only

Received by: _____ Date: _____



Document Path: J:\Holly Energy Partners\Navajo Lovington\270076 2017 Annual GW Report\270076 2.mxd

LEGEND

- MONITORING WELL
- MONITORING WELL - PLUGGED AND ABANDONED
- OIL PRODUCTION WELL
- OIL PRODUCTION-CONVERTED TO INJECTION WELL
- RECOVERY WELL
- REFINERY WATER SUPPLY WELL
- CITY OF LOVINGTON WATER SUPPLY WELL
- FLARE
- RAIL
- FENCE
- BUILDINGS
- TANKS

0 250 500 1,000
FEET

N

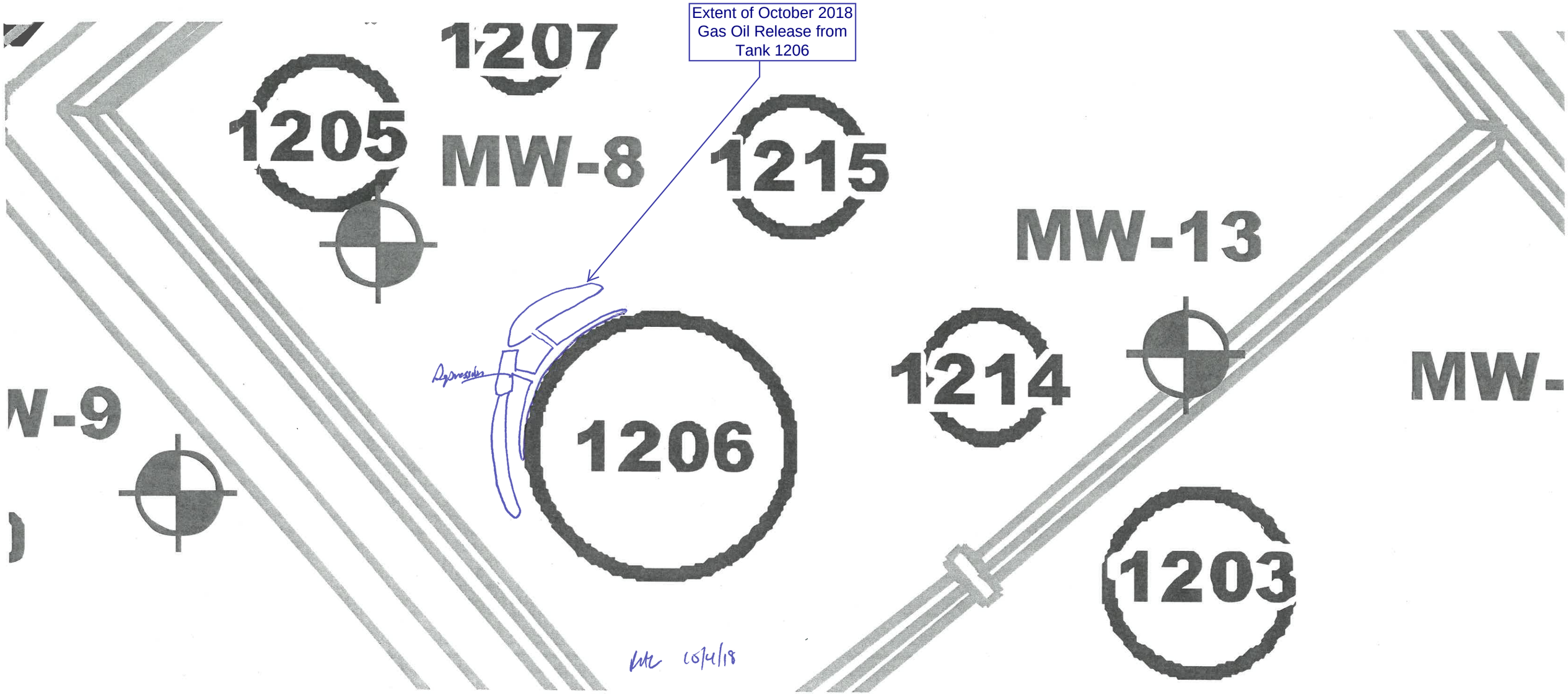
REFINERY SITE PLAN

HOLLYFRONTIER NAVAJO REFINING LLC
AP-110, LOVINGTON REFINERY, LOVINGTON, NM

PROJECT NO: 270076	MXD: 270076_2
AUTHOR: MLOVELACE	DATE: 4/6/2018

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 2


1207
1205
MW-8
1215
Extent of October 2018
Gas Oil Release from
Tank 1206
MW-13
1214
1206
1203
N-9
MW-
10/4/18

HOLLYFRONTIER
NAVAJO REFINING COMPANY, LLC

MATERIAL SAFETY DATA SHEET - GAS OIL

SECTION 1 - PRODUCT and COMPANY IDENTIFICATION

MANUFACTURER:

NAVAJO REFINING COMPANY, LLC
PO BOX 159
ARTESIA, NM 88211-0159

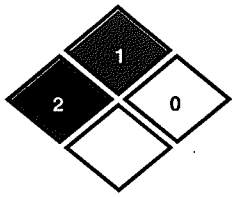
CONTACT INFORMATION:

Main Telephone – (575) 748-3311
Safety Department – (575) 365-8364 (24 Hours)
Environmental Department – (575) 365-8365 (24 Hours)

EMERGENCY PHONE NUMBERS:

CHEMTREC: 1-800-424-9300 (for fire, spill and emergency response information)
New Mexico Poison Information Center: 1-800-432-6866
Texas (El Paso) Poison Information Center: (915) 533-1244
Arizona Poison Information Center: 1-800-362-0101 or (602) 253-3334

PRODUCT NAME: Gas Oil
CAS NUMBER: 68783-08-4
CHEMICAL FAMILY: Petroleum Hydrocarbon
FORMULA: Mixture
SYNONYMS: FCC Feed Stock, VGO, Flasher Gas Oil, AGO, Light Vacuum Gas Oil, LVGO, Heavy Vacuum Gas Oil, HVGO



NFPA 704 (SECTION 16)

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS			OSHA LIMITS (TWA)		NIOSH LIMITS (TWA)			ACGIH LIMITS (TWA)	
COMPONENTS	VOL %	CAS NO.	PEL	STEL	REL	STEL	IDLH	TLV	STEL
Gas Oil Containing	100%	68783-08-4	NE	NE	NE	NE	NE	NE	NE
Vacuum Distillate	40%	70592-78-8	NE	NE	NE	NE	NE	NE	NE

OTHER INGREDIENT INFORMATION: Gas Oil may contain traces of sulfur. **NE** designates Not Established.

SECTION 3 - PHYSICAL DATA

BOILING POINT: 350° – 1000°F
VAPOR PRESSURE: <1.0 mmHg @20°C
VAPOR DENSITY (AIR=1): N/A
SOLUBILITY IN WATER: Negligible
ODOR THRESHOLD: N/A
SPECIFIC GRAVITY (WATER=1): 0.914 – 0.928
% VOLATILE BY VOLUME: 0%
EVAPORATION RATE: N/A
AUTOIGNITION TEMP: 505°F*
APPEARANCE AND ODOR: Dark brown liquid with a hydrocarbon odor.
*Data for Fuel Oil #4.

GAS OIL

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

CLASSIFICATION: Class IIIB
FLASH POINT: >200°F
FLAMMABLE LIMITS: LEL = 1.0%* UEL = 5.0%*
EXTINGUISHING MEDIA: Dry chemical (Class B fire extinguisher), carbon dioxide (CO_2), water spray or foam
SPECIAL FIRE FIGHTING PROCEDURES: Move container from fire area, if possible. Use water to keep fire-exposed containers cool. Use foam for spill control.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Evacuate a radius of 1500 feet for uncontrolled fires. Vapors are heavier than air and may travel great distances and flash back. Extinguish only if flow can be stopped.
*Data for Fuel Oil No. 4.

NFPA FIRE = 1 (low)

SECTION 5 - REACTIVITY DATA

STABILITY: Stable
HAZARDOUS POLYMERIZATION: Will not occur
CONDITIONS TO AVOID/INCOMPATABILITY: Strong oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, sulfur dioxide

NFPA REACTIVITY = 0 (minimal)

SECTION 6 - HEALTH HAZARD DATA

ROUTES OF ENTRY: Ingestion, skin contact, inhalation.

HEALTH HAZARDS: Depression of central nervous system ranging from mild headache to anesthesia, coma, and death. Liver and kidney damage may occur.

CARCINOGENICITY: No data available.

SIGNS AND SYMPTOMS OF EXPOSURE: May cause nausea, vomiting, dizziness, headache, coughing or gagging and depression of the central nervous system.

EMERGENCY AND FIRST AID PROCEDURES:
INGESTION: Immediately seek medical attention. DO NOT induce vomiting. Give water to dilute, if conscious. Extreme care must be used to prevent aspiration.
INHALATION: Maintain respiration, assist with artificial respiration if needed and give oxygen if available and trained to do so. Seek medical attention.

NFPA HEALTH = 2 (Moderate)

GAS OIL

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Eliminate all sources of ignition. Contain spill. Use water fog to dilute or foam to suppress vapor cloud. Use SCBA to avoid breathing vapors. Absorb liquid with sand or clay. Larger spills may be picked up with a vacuum truck.

WASTE DISPOSAL: Dispose in accordance with RCRA regulations. Do not put in sewers or any watercourse.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: All equipment and storage containers should be properly grounded. This material is subject to OHSA and DOT regulations. Portable metal containers should be bonded to the storage container before transferring liquid.

OTHER PRECAUTIONS: Do not weld on containers unless they have been properly cleaned and purged using safe work practices. Avoid breathing vapors.

SECTION 8 - ENVIRONMENTAL AND SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Use NIOSH/MSHA-approved respiratory protection in areas exceeding exposure limits, the type to be determined by the degree of exposure.

VENTILATION: Use in well-ventilated area. Mechanical exhaust should be explosion-proof.

EYE/SKIN PROTECTION: Full-face protection, chemical protective gloves, and coveralls with long sleeves.

WORK/HYGIENIC PRACTICES: Remove contaminated clothing as soon as possible. Always wash after handling hazardous chemicals.

REFER TO DEPARTMENT OF TRANSPORTATION (DOT) EMERGENCY RESPONSE GUIDEBOOK GUIDE 128 FOR ADDITIONAL EMERGENCY INFORMATION.

This information is believed to be accurate and as reliable as information available to us. We make no warranty or guarantee as to its accuracy and assume no liability from its use. Users should determine the suitability of the information for their particular purposes.

SAMPLE T104B GAS OIL LOVINGTON

ASTM D-97 Pour Point of petroleum products

ASTM D-97 85°F

ASTM D-4402 Rotational Viscosity @ temperatures below

ASTM D-4402 @ 80°F 2780

ASTM D-4402 @ 90°F 678

ASTM D-4402 @ 100°F 169

ASTM D-4402 @ 110°F 61

ASTM D-4402 @ 120°F 36

ASTM D-4402 @ 200°F 19.2

ASTM D-4402 @ 210°F 17.6

DATE 7/30/12

#1 TESTER R.GREEN / M.BROWN

Note: From R. Green 10/17/12, units are Centipoise, cP (phone call w/D.Boyer)

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, July 20, 2018 1:16 PM
To: CarlJ.Chavez@state.nm.us
Subject: Lovington Refinery Out-of-Service 12 in. Line Crude Oil Release

Note to self:

- Carl on 7/18 received call Tuesday 7/17 at 4:05 p.m. with phone msg. from Randy Dade (Navajo) regarding a refinery discovery of a 5 – 6 bbl spill w/ 2 bbl recovery from a 12 in. out-of-service line at the W side perimeter fence. A C-141 Form will be submitted soon. On 7/18 spoke with Scott Denton and Randy Date on telephone. Randy will be submitting C-141 soon. No emergency receptor or public health issues at time of notification.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
E-mail: CarlJ.Chavez@state.nm.us
"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD **and see "Publications")**

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, December 22, 2017 11:56 AM
To: Combs, Robert (Robert.Combs@hollyfrontier.com)
Cc: Dawson, Scott, EMNRD; Griswold, Jim, EMNRD; Billings, Bradford, EMNRD; Yu, Olivia, EMNRD
Subject: FW: Lovington Refinery (AP-110) Asphalt Discovery and Remediation Document
Attachments: Lovington - Loading Rack Addtl Investgation FINAL to OCD 11.17.17.pdf

Robert:

Good morning. The New Mexico Oil Conservation Division (OCD) convened this morning after evaluation of the attached HollyFrontier Navajo Refining LLC (Navajo) above subject report.

OCD was pleased with the report and work conducted up to completion of a professional quality report submitted for OCD review. Thank you.

OCD concurs with Navajo's conclusions and "Path Forward" with recommendations; however, OCD requires at a minimum of weekly monitoring and bailing until such time as Navajo submits updated data supporting a reduced monitoring and bailing frequency to OCD for approval and/or OCD reviews the upcoming annual report for progress.

Please contact me if you have questions. Thank you and Seasons Greetings! ☺

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
E-mail: CarlJ.Chavez@state.nm.us
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From: Chavez, Carl J, EMNRD
Sent: Friday, December 1, 2017 5:03 PM
To: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>
Cc: Combs, Robert (Robert.Combs@hollyfrontier.com) <Robert.Combs@hollyfrontier.com>
Subject: FW: Lovington Refinery Asphalt Discovery and Remediation Document

Jim:

We should discuss soon.

CONCLUSIONS

The results of the December 2016 and June 2017 soil and groundwater investigations completed at the asphalt loading rack area indicate the following:

• Vertical and lateral delineation of TPH in soil above RALs is complete based on laboratory results of soil samples collected at MW-31 and SB-01-062017 through SB-04-062017.
• Lateral delineation of P AHs m soil is complete based on laboratory results of soil samples collected at soil borings SB-01-062017 through SB-04-062017.
• Vertical delineation of PAHs in soil was not achieved; however, further delineation is not feasible since the deepest sample (98 feet bgs) was collected just above the saturated zone. Therefore, groundwater in the vicinity of the asphalt loading rack will be assessed in all directions for PAHs as part of the ongoing facility-wide groundwater monitoring program.
• Lateral delineation of dissolved-phase PAHs in groundwater above WQCC Standards is complete in all directions of the asphalt loading rack and MW-31 based on laboratory results of groundwater samples collected from wells MW-32 and MW-33 in June 2017 and wells MW-5, MW-21, and MW-22 since at least 2010.
• Lateral delineation of LNAPL is complete in all directions of the asphalt loading rack and MW-31 based on soil screening results at soil borings SB-01-062017 through SB-04-062017 and wells MW-32 and MW-33; and groundwater gauging data collected from the surrounding wells since at least 2010.
• LNAPL characterization results for MW-31 indicate a mixture of primarily moderately weathered middle distillate and a lesser amount of gasoline range material.
• The mean LNAPL transmissivity at MW-31 was calculated to be 0.05 ft2/day in June 2017, which is below the range of LNAPL recovery endpoint values established by the ITRC indicating that hydraulic or pneumatic methods of LNAPL recovery would be ineffective at MW-31.

PATH FORWARD
Navajo recommends the following path forward to address the soil and groundwater impacts at the asphalt loading rack:

• Continue to implement the facility-wide groundwater monitoring program. The FWGWMWP will be updated to include the three new monitoring wells (MW-31 through MW-33) and to include TPH GRO and DRO analysis at select wells (MW-5, MW-21, MW-22, MW-31 through MW-33, WW-North, WW-South, and WW-North).
• Continue to conduct routine, manual LNAPL recovery at monitoring well MW-31 using bailing or skimming techniques. Recovery will be conducted on a weekly to monthly basis depending on apparent LNAPL thickness and recovered volumes. Recovery will be documented in the Annual Facility-Wide Groundwater Monitoring Report that is due to the NMOCD by April 15 of each calendar year.
• Conduct LNAPL bail-down testing at MW-31 on a periodic basis (semi-annually to annually) to confirm the June 2017 LNAPL transmissivity calculation and to assess LNAPL transmissivity over time as LNAPL recovery efforts continue.

These recommendations are based on the following:

• The most likely source of the historical soil impacts was the drainage boxes and drain line and these have been plugged and abandoned. There are no other diesel storage or active diesel transfer lines present in the vicinity of the loading rack. Therefore, source abatement is considered complete. Continued LNAPL recovery will improve groundwater conditions. The concrete slab present beneath the asphalt loading rack serves as a "cap" over the historical soil impacts, effectively preventing worker exposure to impacted soil and preventing vertical migration of fluids from the surface through the impacted soil zone (i.e., prevents precipitation from percolating through the soil impacts and leaching to groundwater).
• Further excavation of impacted soil in this area is not feasible due to the existence of loading rack infrastructure, active loading rack operations, and the depth of soil impacts. Loading rack operations, which include active truck traffic and loading, occurs on a 24-hour basis.

• VOCs and/or SVOCs are delineated in groundwater in all directions within the refinery boundary. The proposed groundwater monitoring program effectively monitors VOCs and SVOCs in all directions of the asphalt loading rack (i.e., installation of any additional wells would be redundant).
• Installation of a hydraulic or pneumatic LNAPL recovery system at monitoring well MW-31 would not be practicable due to the low LNAPL transmissivity and because the presence of the system would interfere with active loading operations.

Navajo requests NMOCD approval of this recommended path forward for the historical impacts at the asphalt loading rack. If you have any questions or concerns, please do not hesitate to contact Scott Denton at (575) 746-5487 or myself at (575) 746-5382.

From: Chavez, Carl J, EMNRD
Sent: Friday, December 1, 2017 1:20 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Brown, Maxey G, EMNRD <MaxeyG.Brown@state.nm.us>
Subject: Lovington Refinery Asphalt Discovery and Remediation Document

FYI: OCD-SF is currently reviewing.

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"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD **and see "Publications")**

November 17, 2017

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

Re: Additional Investigation of Historical Asphalt Loading Rack Release, HollyFrontier Navajo Refining LLC, Lovington, New Mexico, AP-110

Dear Mr. Chavez:

HollyFrontier Navajo Refining LLC (Navajo) is submitting this letter to document additional investigation and abatement activities completed in response to historical soil and groundwater impacts discovered at the asphalt loading rack at the Navajo facility (refinery) in Lovington, New Mexico. This letter supplements recent communication between Navajo and the New Mexico Oil Conservation Division (NMOCD) and recommends a path forward regarding the historical soil and groundwater impacts.

BACKGROUND

Holly Energy Partners (HEP) operates the asphalt loading rack located at the southeastern portion of the refinery. Loading rack operations consist of the loading of asphalt from the loading rack into transport trucks that deliver the asphalt to Navajo's refinery in Artesia, New Mexico for additional processing. The transfer of this asphalt between the Lovington and Artesia refineries is completed by truck because pipeline transfer of asphalt is not possible. Only asphalt has been managed at the loading rack since Navajo acquired ownership of the refinery in 1989. No diesel fuel was stored, handled, or transferred at the loading rack or loading rack area since Navajo has owned and operated the refinery. A 7-inch thick concrete slab underlies the extent of the loading rack and a concrete curb bounds the loading rack as secondary containment. The loading rack, including the slab and an associated subgrade drainage line, was constructed prior to Navajo's ownership and operation of the refinery.

In November 2015, HEP commenced construction activities to expand the loading rack operations. The activities included the removal of a 7-foot by 60-foot section of concrete slab from the existing 50-foot by 65-foot concrete slab, as shown in Figure 1. This portion of the concrete slab was being removed to allow for the installation of structural foundations for additional loading and pipe racks. Stained soil with a hydrocarbon odor was encountered beneath the removed section of the concrete slab. This discovery was reported to the NMOCD District I Office in Hobbs, New Mexico on December 1, 2015, by HEP submitting a C-141 Form.

HEP contracted Safety Environmental Solutions, Inc. (SESI) to assess the discovered soil impacts. SESI conducted soil assessment activities in November 2015, December 2015, and March 2016. Results of the soil assessment activities indicated Total Petroleum Hydrocarbons (TPH) Diesel Range Organics (DRO) and polycyclic aromatic hydrocarbons (PAHs) (naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene) are present in soil in exceedance of applicable screening standards. The highest concentrations were located near one of two drain boxes (i.e., the easternmost drain box) located immediately southeast of the removed concrete slab (Figure 1). These two drain boxes were connected to a subgrade drainage line that runs along the southern side of the removed concrete slab. The elevated concentrations of TPH DRO near the easternmost drain box (in soil samples BH-4-1115 and Drain Box) indicate that surface spills on the concrete pad flowing to this drain box was the potential source of the historical soil impacts.

Soil removal activities were completed in March 2016 in conjunction with the initial soil assessment activities. This included excavation of soil within the area where the concrete slab was removed to an approximate depth of 2 feet below ground surface (bgs), at which depth native well-compacted caliche was encountered. Navajo further excavated soil from around the easternmost drain box to an approximate depth of 4.5 feet bgs. The two drain boxes and associated drainage line adjacent to the excavation were emptied of fluids (i.e., storm water from recent rainfall) with a vacuum truck and were plugged with concrete. The locations of the asphalt rack, concrete slab cut, soil borings, excavated area, and drain boxes are presented on Figure 1. Soil in exceedance of DRO and PAHs at greater depths remained in place because excavation was not practical due to the presence of caliche and the depth of impacts (to 95 feet). Navajo documented initial investigation and abatement activities conducted by HEP in a letter report that was submitted to the NMOCD on September 15, 2016. NMOCD requested Navajo assess groundwater conditions at the asphalt loading rack in an email dated September 16, 2016.

Navajo submitted a work plan to NMOCD on November 30, 2016 for installation of one groundwater monitoring well (MW-31). TRC Environmental Corporation (TRC) implemented the work plan on December 15, 2016, by installing monitoring well MW-31. The December 2016 investigation results indicated PAHs were present in groundwater at MW-31 beneath the loading rack at concentrations above Water Quality Control Commission (WQCC) groundwater standards for human health (WQCC Standards) and TPH was present at a concentration of 584 milligrams per liter (mg/L).

Monitoring well MW-31 did not contain light non-aqueous phase liquid (LNAPL) after installation and development activities in December 2016, but measurable LNAPL was present during site-wide groundwater gauging conducted on February 6, 2017. The NMOCD was immediately notified of the LNAPL discovery. The NMOCD requested a work plan for additional investigation of hydrocarbon soil and groundwater impacts at the asphalt loading rack

in an email dated February 8, 2017. A summary of the December 2016 investigation results and a work plan for additional investigation and LNAPL recovery was submitted to the NMOCD in an email on February 24, 2017. The NMOCD provided comments to the February 2017 work plan on March 1, 2017. Navajo responded to the NMOCD comments (concurring with OCD's changes with the exception of one) and the NMOCD approved the work plan with comments on March 17, 2017.

Navajo has conducted routine recovery of LNAPL at monitoring well MW-31 since LNAPL was discovered in February 2017. Additional soil, groundwater, and LNAPL investigation was conducted in the vicinity of the asphalt loading rack in June 2017. This report presents the results of the investigation activities conducted in December 2016 and June 2017, and LNAPL recovery activities conducted to date.

INVESTIGATION ACTIVITIES

TRC conducted additional soil and groundwater investigation activities in December 2016 and June 2017. The investigation activities were conducted in accordance with work plans submitted to the NMOCD via email on November 30, 2016, February 24, 2017, and March 17, 2017.

The December 2016 investigation was conducted to achieve vertical delineation of DRO and PAHs in soil and to assess groundwater beneath the asphalt loading rack. The June 2017 investigation was conducted to achieve the following objectives:

- Delineate the lateral extent of naphthalene and TPH DRO in soil and naphthalene in groundwater;
- Delineate the lateral extent of LNAPL; and
- Characterize the LNAPL and surrounding formation in order to develop an effective LNAPL recovery program.

Soil Investigation Activities

Soil investigation activities conducted in December 2016 and June 2017 are described below. Soil boring and monitoring well locations are shown on Figure 1. Soil boring/well construction logs are provided as Attachment A.

December 2016 Soil Investigation

On December 17, 2016, one soil boring was drilled and converted to a monitoring well (MW-31) at the asphalt loading rack. The soil boring and well were drilled using air rotary drilling

techniques. Soil drill cuttings were continuously collected, described based on lithology, moisture content, and notable presence of hydrocarbon impacts (i.e., odor and staining); and screened for organic vapors using a photoionization detector (PID). Discrete, grab soil samples were collected at 10-foot intervals, starting at 5 feet bgs, using a split-spoon sampler for screening and potential laboratory analysis. However, sample recovery was limited with approximately 10 to 20 percent recovery at each sample interval except the sample collected at 75 feet bgs.

Two soil samples were collected for laboratory analysis from (1) the depth with the greatest indication of impacts based on PID readings (75 feet bgs) and (2) immediately above the depth of saturation (98 feet bgs). A discrete soil sample was collected from 75 feet bgs using a split-spoon sampler, while the sample collected from immediately above the depth of saturation was collected from the air rotary soil cuttings due to limited sample recovery using the split-spoon sampler. The soil samples were submitted to Cardinal Laboratories in Hobbs, New Mexico for analysis of TPH GRO and DRO by Method 8015 and PAHs by Method 8270. The locations of the monitoring well and previous soil samples are shown on Figure 1. Well installation activities are described in the groundwater investigation section below.

June 2017 Soil Investigation

From June 12 to 16, 2017, four soil borings (SB-01-062017, SB-02-062017, SB-03-062017, and SB-04-062017) were drilled and two monitoring wells (MW-32 and MW-33) were installed at locations shown on Figure 1. The four soil borings were drilled to depths ranging from 90 to 105 feet bgs using air rotary drilling techniques to determine the lateral extent of hydrocarbon impacts in soil beneath the loading rack. At each soil boring, discrete soil cores were continuously collected with a core sampler, described based on lithology, moisture content, and notable presence of hydrocarbon impacts (i.e., odor and staining); and screened for organic vapors using a PID. However, sample recovery was poor due to similar subsurface conditions encountered while drilling MW-31 and the core sampler met refusal at approximately 90 to 95 feet bgs at each of the four soil borings except SB-01-062017 because flowing sands bound up the core sampler. Air rotary drill cuttings were continuously collected at 2-foot intervals, logged, and screened due to the limited recovery using the core sampler. Soil drill cuttings were also collected at 2-foot intervals, logged, and screened at the two monitoring wells. No discrete soil samples were collected for laboratory analysis at the two monitoring wells, in accordance with the February 2017 work plan.

Two soil samples were collected from each of the four soil borings for laboratory analysis from (1) the depth with the greatest impacts encountered at MW-31 to laterally assess impacts at that depth (75 feet bgs) and either (2) the total depth of the soil boring (90 to 95 feet bgs) in SB-02-062017, SB-03-062017, and SB-04-062017 or the depth immediately above saturation (100 feet

bgs) in SB-01-062017 because there were no indications of impacts. Discrete soil samples were collected from 75 feet bgs using a core sampler, while samples collected from the second, deeper location (total boring depth or depth immediately above saturation) were collected from the air rotary soil cuttings. The soil samples were submitted to ESC Lab Sciences in Mount Juliet, Tennessee for analysis of volatile organic compounds (VOCs) by Method 8260, semi-volatile organic compounds (SVOCs) by Method 8270, and TPH GRO and DRO by Method 8015. No soil samples were collected for laboratory analysis from monitoring wells MW-32 and MW-33. Well installation activities are described in the groundwater investigation section below.

Groundwater Investigation Activities

One monitoring well (MW-31) was installed on December 17, 2016, and two monitoring wells (MW-32 and MW-33) were installed from June 14 to 15, 2017, under New Mexico Office of the State Engineer (OSE) permit L-14228. The well locations are shown on Figures 1 and 2. The monitoring wells were installed using air rotary drilling techniques. Each monitoring well was installed to a total depth of at least 15 feet below the top of the water table and the well screens were installed across the saturated zone-vadose zone interface. The monitoring wells were constructed using 2-inch inner diameter Schedule 40 polyvinyl chloride (PVC) casing and twenty linear feet of 0.010-inch machine-slot PVC screen. The annular space was filled with 8/16-grade silica sand to approximately 2 feet above the screen. The annular space above the sand pack was sealed using hydrated 3/8-inch bentonite chips above the sand pack to 2 feet below the ground surface (bgs) and Portland cement from 2 feet bgs to the ground surface.

Each monitoring well was completed with a concrete pad and either a flush-grade steel cover (MW-31 and MW-32) or a stickup, steel protective cover (MW-33). Soil boring/well construction logs and OSE Well Records for MW-31 through MW-33 is provided in Attachment A.

Each monitoring well was developed by surging and purging using a submersible pump. Upon completion of development activities, a sample was collected from each monitoring well using a new, disposable bailer. The groundwater sample collected from MW-31 in December 2016 was submitted to Cardinal Laboratories for analysis of TPH by Method 418.1 and PAHs by Method 8270 in accordance with the November 2016 work plan. Groundwater samples collected from MW-32 and MW-33 in June 2017 were submitted to ESC Lab Sciences for analysis of VOCs by Method 8260, SVOCs by Method 8270, and TPH DRO and GRO by Method 8015 in accordance with the February 2017 work plan.

On June 22, 2017, Navajo contractor Hydrologic Monitoring, LLC (HMI) conducted synoptic gauging of all 33 site wells (MW-1 through MW-11, MW-12R, MW-13 through MW-16, MW-

17R, and MW-18 through MW-33) and one recovery well (RW-1) using an oil-water interface probe.

LNAPL Investigation and Recovery Activities

TRC collected LNAPL samples from MW-31 on February 9, 2017 and May 31, 2017 for laboratory characterization. The LNAPL sample collected in February 2017 was submitted to Cardinal Laboratories (Cardinal) in Hobbs, New Mexico for product fingerprinting, specific gravity, and sulfur analysis (Cardinal subcontracted the LNAPL fingerprinting to Mitchell Analytical Lab in Odessa, Texas). The LNAPL sample collected in May 2017 was submitted to Torkelson Geochemistry, Inc. (Torkelson) in Tulsa, Oklahoma for fingerprinting and sulfur analysis to confirm the February 2017 characterization results (Torkelson subcontracted the sulfur analysis to Green Country Testing, Inc. in Tulsa, Oklahoma).

TRC conducted LNAPL bail-down testing at well MW-31 from June 12 to 13, 2017. Bail-down tests were conducted to determine LNAPL transmissivity and potential LNAPL recovery rates, which are critical metrics for selection of an appropriate LNAPL recovery method. In addition, these metrics will also provide baseline data necessary to evaluate the effectiveness of the selected recovery method over time and to identify a practical recoverability end-point.

One LNAPL bail-down test was conducted at MW-31 by rapidly removing LNAPL from the well using a disposable bailer and then measuring the LNAPL recharge in the well for a 24-hour period. Prior to bailing, the static depth to LNAPL and groundwater was gauged from the top of casing. LNAPL was then bailed until the product thickness stabilized or until 90 percent the thickness of the LNAPL was removed, as visually observed in the bailer. The amount of water bailed was minimized to the extent practical. Approximately 2.5 gallons of LNAPL were bailed from the well. During the recharge portion of the bail-down test, depth to LNAPL and groundwater was measured at regular intervals for up to 24 hours.

Navajo conducted routine LNAPL recovery at monitoring well MW-31 since LNAPL was discovered in February 2017. LNAPL recovery activities included manual bailing on a primarily weekly basis from February 9, 2017 through July 21, 2017, but LNAPL was occasionally recovered on a daily or bi-weekly basis. The depth to LNAPL and groundwater was gauged in MW-31 before and after conducting manual bailing recovery. On August 17, 2017, a passive skimmer (Petro-Bailer™) was installed in MW-31. The skimmer was emptied on a daily to weekly basis. The depth to LNAPL and groundwater was gauged in MW-31 after removing the passive skimmer from the well.

INVESTIGATION RESULTS

Results of the December 2016 and June 2017 investigations and LNAPL recovery activities conducted to date are provided below. Laboratory analytical reports are provided as Attachment B.

Soil Investigation Results

The lithology encountered during the December 2016 and June 2017 soil investigations was consistent with previous investigations and consisted of caliche (to depths ranging from 5 to 16 feet bgs) overlying sand (generally to depths of 20 feet bgs) and sandstone (generally beneath 20 feet bgs). Elevated PID readings were observed in MW-31 from 15 to 33 feet bgs (93 parts per million [ppm] to 108 ppm) and from 65 to 98 feet bgs (91 ppm to 409 ppm). PID readings at soil borings SB-01-062017 through SB-04-062017 and wells MW-32 and MW-33 were all less than 5 ppm. No soil staining was observed at any of the December 2016 or June 2017 boring/well locations.

Laboratory analytical results from all soil investigations conducted at the asphalt loading rack to date are summarized in Table 1. The soil analytical results were compared to screening levels in accordance with the "Release Response Guidance" included as Appendix B of the December 2015 *Revised Facility-Wide Groundwater Monitoring Work Plan* (Revised FWGWMWP) that was approved by NMOCD in an email on March 9, 2016. Soil analytical results for benzene, total BTEX, and total TPH were compared to NMOCD Remediation Action Levels (RALs) as determined using the ranking system found in the NMOCD *Guidelines for the Remediation of Leaks and Spills* dated August 13, 1993. A ranking score of "0" was determined for the historical soil impacts discovered at the asphalt loading rack based on the following:

- The average depth to groundwater across the refinery is 110.65 feet bgs based on June 2017 groundwater gauging results. The June 2017 groundwater gauging results are consistent with historical groundwater levels measured at the refinery.

- The asphalt loading rack is located more than 1,000 feet from the nearest water source (e.g., a public water supply well) and more than 200 feet from the nearest private domestic water source (e.g., a private water supply well). Portions of the refinery are located within the wellhead protection areas of City of Lovington public supply wells and water supply wells used on behalf of Navajo at the refinery; however, the asphalt loading rack is not located within any wellhead protection area.

- The asphalt loading rack is located more than 1,000 feet from the nearest surface water body.

The NMOCD RALs for a ranking score of "0" are provided in Table 1. BTEX was not detected at concentrations above the RAL in any of the soil samples collected at the asphalt loading rack from November 2015 through June 2017. TPH DRO and GRO were not detected at concentrations above the RAL of 5,000 milligrams per kilogram (mg/kg) in any of the delineation soil samples collected from MW-31 and SB-01-062017 through SB-04-062017 during the December 2016 and June 2017 investigations. Vertical and lateral delineation of TPH DRO to less than the RAL in soil is complete associated with asphalt loading rack.

Analytical results for toluene, ethyl benzene, xylenes, naphthalene, and total PAHs were compared to their respective WQCC Standards with an applied dilution factor (DF) of 20 (i.e., 20x DF) in accordance with the Revised FWGWMWP. Concentrations of PAHs were greater than the WQCC Standard with a 20x DF (0.6 mg/kg) in both soil samples collected from MW-31, with the greatest concentration reported at 75 feet bgs (21.26 mg/kg). PAHs were not detected in any of the soil samples collected from soil borings SB-01-0617 through SB-04-0617. Lateral delineation of PAHs in soil associated with the asphalt loading rack is complete. Vertical delineation of PAHs in soil above groundwater at MW-31 was not achieved and further delineation is not feasible since the deepest sample (98 feet bgs) was collected just above the saturated zone. Therefore, groundwater in the vicinity of the asphalt loading rack will be assessed in all directions for PAHs as part of the ongoing facility-wide groundwater monitoring program.

Groundwater Investigation Results

Navajo implements a robust facility-wide groundwater monitoring program that includes semi-annual groundwater monitoring of wells located throughout the refinery and quarterly sampling of the three refinery water supply wells. Semi-annual groundwater gauging events conducted at the refinery since at least 2012 indicate groundwater flows south/southeast across the refinery (i.e., natural gradient) with radial flow towards a cone of depression created by three water supply wells located within the central portion of the refinery (i.e., induced gradient). A groundwater potentiometric surface map based on groundwater gauging data collected by HMI on June 22, 2017, is provided as Figure 2. The June 2017 gauging results and groundwater flow regime are consistent with historical results. LNAPL was not detected in any well except for MW-31, and therefore LNAPL delineation is complete in all directions.

Laboratory analytical results from the December 2016 and June 2017 groundwater investigations are summarized on Table 2 and Figure 3. TPH was not previously included in the facility-wide groundwater monitoring program due to lack of historical detections. During the August 2016 semi-annual groundwater monitoring event, groundwater samples collected from monitoring wells MW-5, MW-21, and MW-22, which are located immediately in the natural downgradient direction (MW-5) or the induced downgradient direction (MW-21 and MW-22) of the asphalt

loading rack and MW-31, were submitted for laboratory analysis of TPH GRO and DRO. Groundwater samples collected from the three water supply wells in August 2016, February 2017, and May 2017 were also analyzed for TPH DRO and GRO. Figure 3 also presents TPH GRO and DRO, benzene, and PAH results from the most recent groundwater sampling events at wells surrounding the asphalt loading rack area (MW-5, MW-21, and MW-22 in August 2016) and at the water supply wells (WW-North, WW-South, and WW-East in May 2017). Recent groundwater results in the vicinity of the asphalt loading rack indicate the following:

- In December 2016, PAHs were detected in groundwater at MW-31 at a total concentration of 0.140 mg/L, which exceeds the WQCC Standard of 0.03 mg/L (LNAPL was detected in MW-31 as of February 2017). PAHs were not detected in wells MW-32 and MW-33 in June 2017. PAHs have never been detected in any of the monitoring wells located immediately in the natural downgradient direction and/or the induced downgradient direction of the asphalt loading rack (MW-5, MW-21, and MW-22) or any of the water supply wells (as recently reported in *2016 Annual Facility-Wide Groundwater Monitoring Report*). PAHs in groundwater beneath the asphalt loading rack and MW-31 are delineated in all directions.

- TPH was detected in groundwater at MW-31 at a concentration of 621 mg/L in December 2016. Analytical Method 418.1 used to analyze the groundwater sample collected from MW-31 in December 2016 (), in accordance with the work plan, did not differentiate between GRO and DRO. TPH GRO was not detected in groundwater samples collected from monitoring wells MW-32 and MW-33 in June 2017; monitoring wells MW-5, MW-21, and MW-22 in August 2016; and water supply wells WW-North, WW-South, and WW-East in May 2017. TPH DRO was detected in groundwater at wells MW-32 and MW-33 in June 2017 at concentrations of 0.507 mg/L and 3.14 mg/L, respectively. TPH DRO was detected in groundwater at wells MW-5, MW-21, and MW-22 in August 2016 at concentrations ranging from 0.366 mg/L to 0.819 mg/L. TPH DRO was not detected in groundwater above the reporting limit at the three water supply wells in May 2017.

There is no WQCC Standard for TPH DRO or TPH GRO. TPH data should be screened in conjunction with indicator VOCs and SVOCs associated with TPH mixtures in accordance with the New Mexico Environment Department's (NMED's) March 2017 *Risk Assessment Guidance for Investigations and Remediation Volume I*. No indicator VOCs or SVOCs were detected above their respective reporting limit or WQCC Standard in any groundwater samples collected from wells MW-5, MW-21, MW-22, MW-32, and MW-33 in either August 2016 or June 2017. A summary of organic analytical results of groundwater monitoring events conducted from 2010 through 2016 were provided to the NMOCD in the *2016 Annual Facility-Wide Groundwater Monitoring Report*. Delineation of TPH GRO and TPH DRO in groundwater is considered

complete in all directions due to the absence of indicator VOCs and SVOCs in all directions from the asphalt loading rack and MW-31.

LNAPL Investigation and Recovery Results

LNAPL characterization laboratory results indicated the LNAPL present in MW-31 is a mixture of moderately weathered middle distillate (either diesel fuel or fuel oil) and a much smaller amount of an unidentified gasoline range material. The LNAPL contains concentrations of sulfur ranging from 0.309 percent or 3,090 parts per million (ppm0] to 0.355 percent or 3,550 ppm. The LNAPL has a specific gravity of 0.8317 (at 60° Fahrenheit). LNAPL characterization laboratory reports are provided in Attachment B.

The LNAPL recovery data collected during the June 2017 bail-down testing was analyzed to determine LNAPL transmissivity. The data collected after the first 300 minutes indicated stabilization and thus was not used for transmissivity calculations in the API LNAPL Transmissivity Workbook Tool shown in Attachment C. LNAPL transmissivity is an accurate metric for understanding LNAPL recovery, is directly proportional to LNAPL recoverability, and is used to track remediation progress towards residual LNAPL saturation. Apparent LNAPL thickness is a relatively poor metric of LNAPL recoverability, as it does not account for soil and LNAPL fluid properties, soil heterogeneity and LNAPL aquifer conditions (i.e., unconfined, perched, confined). LNAPL transmissivity was calculated for MW-31 using the API LNAPL Transmissivity Workbook Tool, a series of Excel-based Spreadsheets that provide the average of LNAPL transmissivities calculated by three well-known analytical models for both unconfined and confined conditions. The analytical models are the Bouwer and Rice Solution (1976), the Cooper-Jacob Method (1946), and the Copper, Broedehoeft, and Papadopoulos Method (1967) for the unconfined conditions at the refinery.

LNAPL transmissivities calculated from the June 2017 LNAPL bail-down testing at MW-31 ranged from 0.04 square feet per day (ft^2/day) with the Copper, Broedehoeft, and Papadopoulos Method to 0.05 ft^2/day with the Bouwer and Rice and Cooper-Jacob Methods, for an average LNAPL transmissivity value of 0.05 ft^2/day. LNAPL bail-down testing data and analyses are provided in Attachment C. According to the Interstate Technology and Regulatory Council (ITRC), hydraulic or pneumatic methods of LNAPL recovery become ineffective when LNAPL transmissivity values reach between 0.1 and 0.8 ft^2/day or below. For comparison, LNAPL transmissivity values for new releases are typically around 80 ft^2/day. LNAPL transmissivity measured at MW-31 in June 2017 is below the range of LNAPL recovery endpoint values for hydraulic or pneumatic recovery methods as established by the ITRC. However, LNAPL transmissivity at MW-31 should be evaluated periodically over time to confirm the initial result and to evaluate any changes over the time with LNAPL recovery efforts.

Results of routine LNAPL gauging and recovery activities are summarized in Table 3. Approximately 64.10 gallons of LNAPL have been manually recovered from MW-31 since February 2017. Apparent LNAPL thickness in MW-31 has ranged from 6.12 feet on February 6, 2017 (date LNAPL first detected) to 0.62 on August 22, 2017. Since recovery activities commenced, the average apparent LNAPL thickness measured at MW-31 is 1.87 feet.

CONCLUSIONS

The results of the December 2016 and June 2017 soil and groundwater investigations completed at the asphalt loading rack area indicate the following:

- Vertical and lateral delineation of TPH in soil above RALs is complete based on laboratory results of soil samples collected at MW-31 and SB-01-062017 through SB-04-062017.

- Lateral delineation of PAHs in soil is complete based on laboratory results of soil samples collected at soil borings SB-01-062017 through SB-04-062017.

- Vertical delineation of PAHs in soil was not achieved; however, further delineation is not feasible since the deepest sample (98 feet bgs) was collected just above the saturated zone. Therefore, groundwater in the vicinity of the asphalt loading rack will be assessed in all directions for PAHs as part of the ongoing facility-wide groundwater monitoring program.

- Lateral delineation of dissolved-phase PAHs in groundwater above WQCC Standards is complete in all directions of the asphalt loading rack and MW-31 based on laboratory results of groundwater samples collected from wells MW-32 and MW-33 in June 2017 and wells MW-5, MW-21, and MW-22 since at least 2010.

- Lateral delineation of LNAPL is complete in all directions of the asphalt loading rack and MW-31 based on soil screening results at soil borings SB-01-062017 through SB-04-062017 and wells MW-32 and MW-33; and groundwater gauging data collected from the surrounding wells since at least 2010.

- LNAPL characterization results for MW-31 indicate a mixture of primarily moderately weathered middle distillate and a lesser amount of gasoline range material.

- The mean LNAPL transmissivity at MW-31 was calculated to be 0.05 ft^2/day in June 2017, which is below the range of LNAPL recovery endpoint values established by the ITRC indicating that hydraulic or pneumatic methods of LNAPL recovery would be ineffective at MW-31.

PATH FORWARD

Navajo recommends the following path forward to address the soil and groundwater impacts at the asphalt loading rack:

- Continue to implement the facility-wide groundwater monitoring program. The FWGWMWP will be updated to include the three new monitoring wells (MW-31 through MW-33) and to include TPH GRO and DRO analysis at select wells (MW-5, MW-21, MW-22, MW-31 through MW-33, WW-North, WW-South, and WW-North).

- Continue to conduct routine, manual LNAPL recovery at monitoring well MW-31 using bailing or skimming techniques. Recovery will be conducted on a weekly to monthly basis depending on apparent LNAPL thickness and recovered volumes. Recovery will be documented in the Annual Facility-Wide Groundwater Monitoring Report that is due to the NMOCD by April 15 of each calendar year.

- Conduct LNAPL bail-down testing at MW-31 on a periodic basis (semi-annually to annually) to confirm the June 2017 LNAPL transmissivity calculation and to assess LNAPL transmissivity over time as LNAPL recovery efforts continue.

These recommendations are based on the following:

- The most likely source of the historical soil impacts was the drainage boxes and drain line and these have been plugged and abandoned. There are no other diesel storage or active diesel transfer lines present in the vicinity of the loading rack. Therefore, source abatement is considered complete. Continued LNAPL recovery will improve groundwater conditions. The concrete slab present beneath the asphalt loading rack serves as a "cap" over the historical soil impacts, effectively preventing worker exposure to impacted soil and preventing vertical migration of fluids from the surface through the impacted soil zone (i.e., prevents precipitation from percolating through the soil impacts and leaching to groundwater).

- Further excavation of impacted soil in this area is not feasible due to the existence of loading rack infrastructure, active loading rack operations, and the depth of soil impacts. Loading rack operations, which include active truck traffic and loading, occurs on a 24-hour basis.

- VOCs and/or SVOCs are delineated in groundwater in all directions within the refinery boundary. The proposed groundwater monitoring program effectively monitors VOCs and SVOCs in all directions of the asphalt loading rack (i.e., installation of any additional wells would be redundant).

- Installation of a hydraulic or pneumatic LNAPL recovery system at monitoring well MW-31 would not be practicable due to the low LNAPL transmissivity and because the presence of the system would interfere with active loading operations.

Navajo requests NMOCD approval of this recommended path forward for the historical impacts at the asphalt loading rack. If you have any questions or concerns, please do not hesitate to contact Scott Denton at (575) 746-5487 or myself at (575) 746-5382.

Sincerely,

Robert Combs
Environmental Specialist

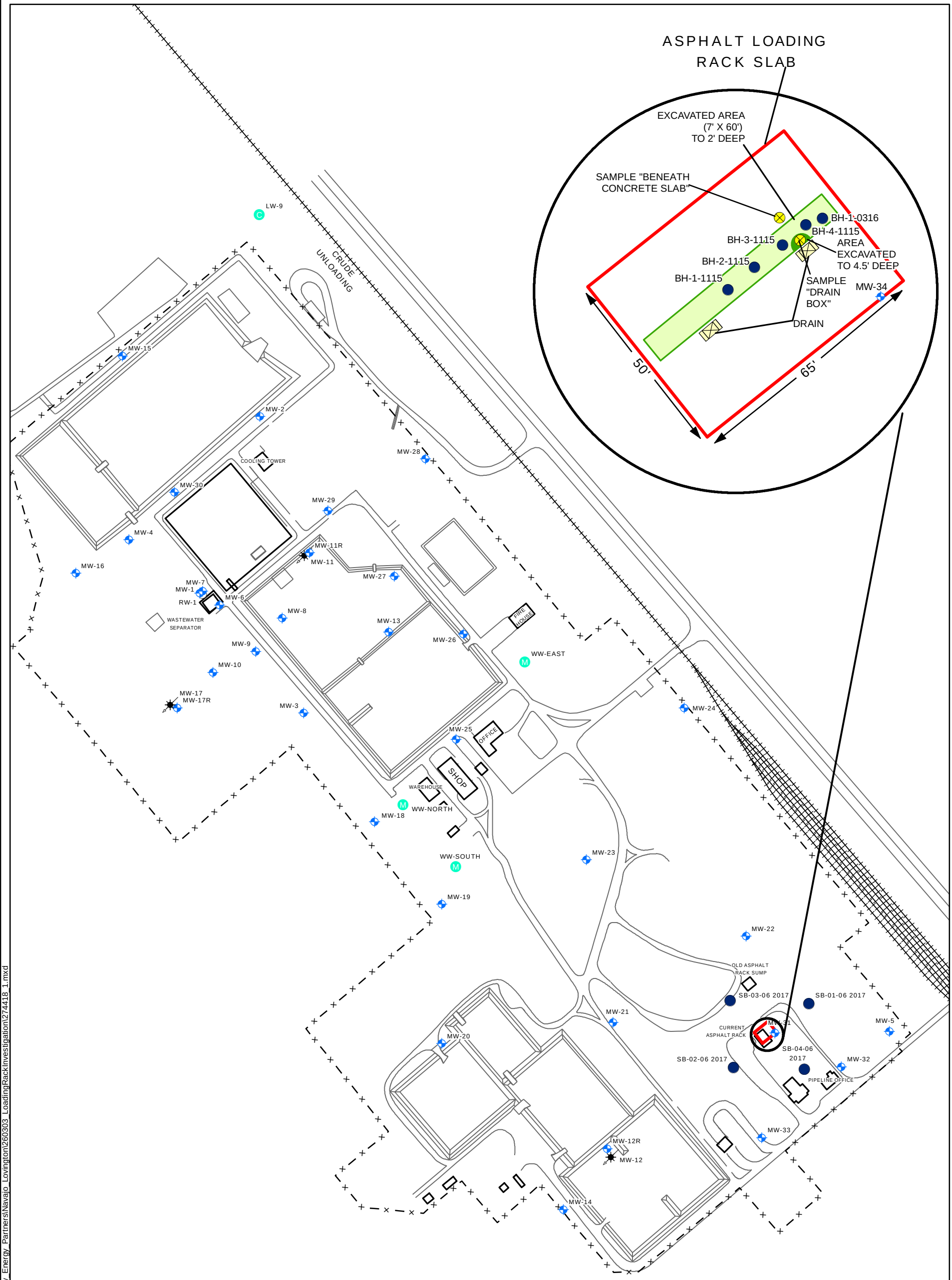
Attachments
Figure 1 – Site Plan and Soil Boring Location Map
Figure 2 – Groundwater Potentiometric Surface Map, June 22, 2017
Figure 3 – Dissolved-Phase Hydrocarbon Groundwater Concentration Map in Asphalt Loading Rack Vicinity

Table 1 – Soil Analytical Results, Asphalt Loading Rack Investigation
Table 2 – Groundwater Analytical Results, Asphalt Loading Rack Investigation
Table 3 – LNAPL Gauging and Recovery Results, Monitoring Well MW-31, Asphalt Loading Rack Investigation

Attachment A – Soil Boring/Well Construction Logs and State Well Reports
Attachment B – Laboratory Analytical Reports
Attachment C – LNAPL Bail-down Test Results and Analyses, MW-31

cc: J. Griswold, NMOCD
S. Denton, HFC
A. Sahba, HFC
J. Speer, TRC
B. Gilbert, TRC

FIGURES



Document Path: J:\Holly_Energy_Partners\Navajo_Lovington\260303_LoadingRackInvestigation\274418_1.mxd

LEGEND

- MONITORING WELL
- MONITORING WELL - PLUGGED AND ABANDONED
- RECOVERY WELL
- REFINERY WATER SUPPLY WELL
- CITY OF LOVINGTON WATER SUPPLY WELL
- DPT AND AIR ROTARY SOIL BORING
- GRAB SOIL SAMPLE
- DRAINS
- RAIL
- BUILDINGS
- ASPHALT LOADING RACK CONCRETE SLAB
- FENCE
- EXCAVATED AREA

N

0 175 350 700

FEET

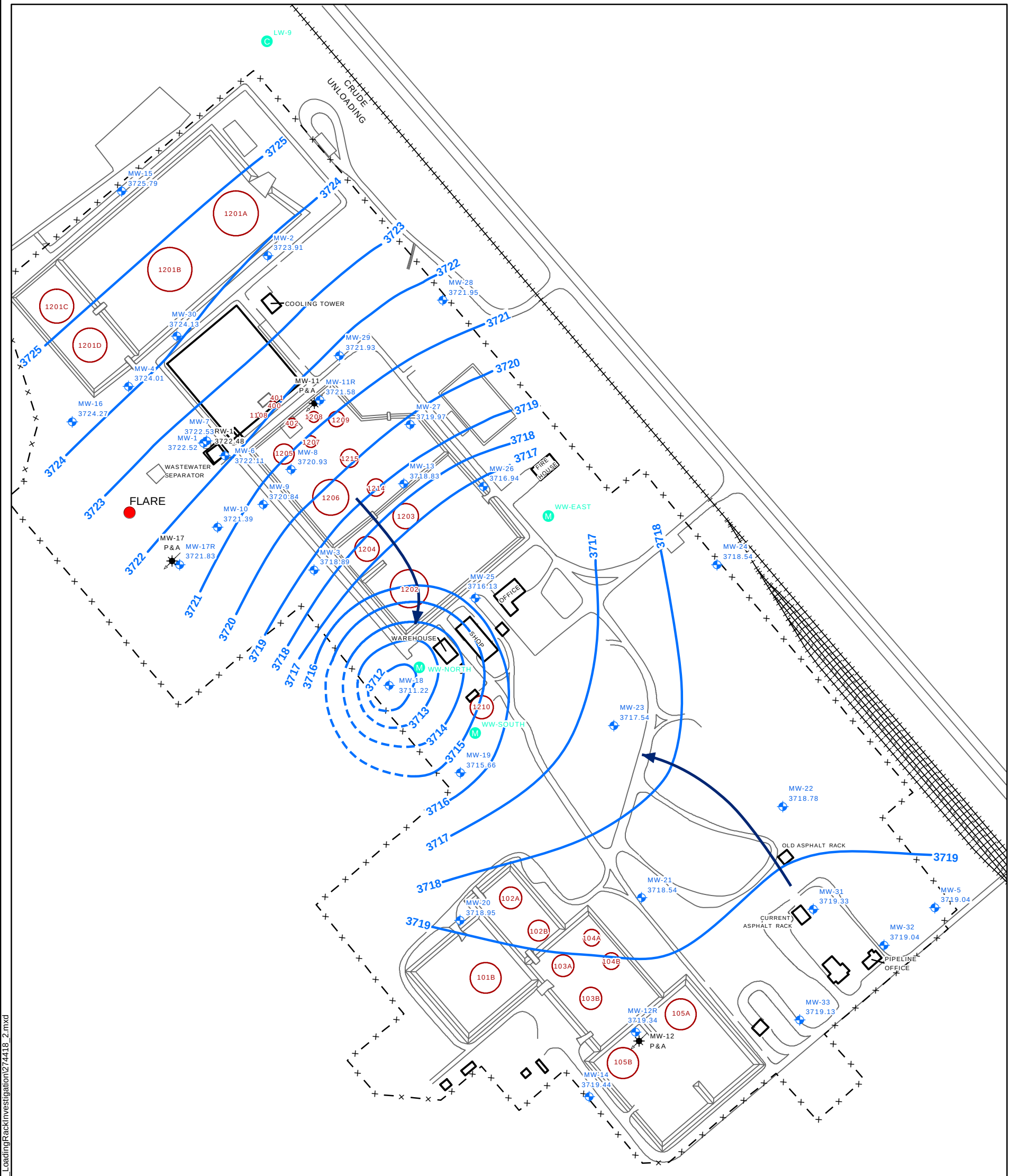
SITE PLAN AND SOIL BORING LOCATION MAP

HOLLYFRONTIER NAVAJO REFINING LLC
LEA REFINERY LOVINGTON, NM

PROJECT NO: 274418	MXD: 274418_1
AUTHOR: MLOVELACE	DATE: 11/14/2017

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 1



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LEGEND

- MONITORING WELL
- MONITORING WELL - PLUGGED AND ABANDONED
- RECOVERY WELL
- REFINERY WATER SUPPLY WELL
- CITY OF LOVINGTON WATER SUPPLY WELL
- FLARE
- RAIL
- FENCE
- BUILDINGS
- TANKS
- GROUNDWATER FLOW DIRECTION
- GROUNDWATER POTENTIOMETRIC SURFACE CONTOUR (FEET AMSL)
- 3719.44 GROUNDWATER ELEVATION (FEET AMSL)

N

0 175 350

FEET

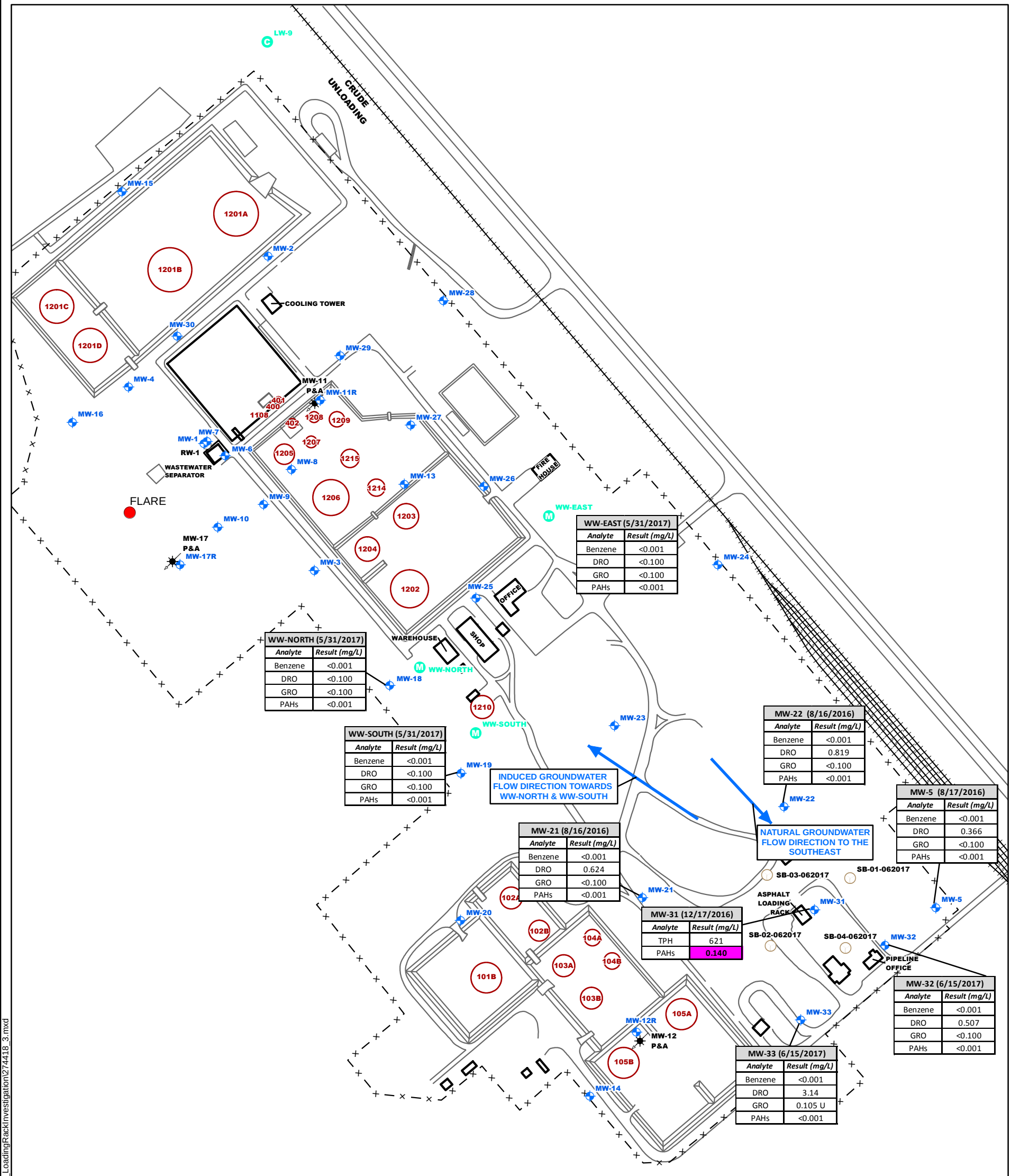
GROUNDWATER POTENTIOMETRIC SURFACE MAP
JUNE 22, 2017

HOLLYFRONTIER NAVAJO REFINING LLC
LEA REFINERY LOVINGTON, NM

PROJECT NO: 274418	MXD: 274418_2
AUTHOR: MLOVELACE	DATE: 7/25/2017

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE
2



DRO = DIESEL RANGE ORGANICS
GRO = GASOLINE RANGE ORGANICS
TPH = TOTAL PETROLEUM HYDROCARBONS
PAHs = POLYCYCLIC AROMATIC HYDROCARBONS (NAPHTHALENE + 1-METHYLNAPHTHALENE + 2-METHYLNAPTHALENE)
0.140 = CONCENTRATION EXCEEDS NEW MEXICO WATER QUALITY CONTROL COMMISSION (WQCC) HUMAN HEALTH STANDARD
U = RESULT QUALIFIED AS NOT DETECTED BECAUSE LESS THAN 5 TIMES THE ASSOCIATED LABORATORY METHOD BLANK CONCENTRATION

LEGEND

- SOIL BORINGS
- MONITORING WELL
- MONITORING WELL - PLUGGED AND ABANDONED
- RECOVERY WELL
- REFINERY WATER SUPPLY WELL
- CITY OF LOVINGTON WATER SUPPLY WELL
- WATER WELL
- FLARE
- RAIL
- FENCE
- BUILDINGS
- TANKS

N

0 175 350
FEET

DISSOLVED-PHASE HYDROCARBON GROUNDWATER CONCENTRATIONS IN ASPHALT LOADING RACK VICINITY

HOLLYFRONTIER NAVAJO REFINING LLC
LEA REFINERY LOVINGTON, NM

PROJECT NO: 274418	MXD: 274418_3
AUTHOR: MLOVELACE	DATE: 11/16/2017

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 3

Document Path: J:\Holly_Energy_Partners\Navajo_Lovington\260303_LoadingRackInvestigation\274418_3.mxd

TABLES

Table 1. Soil Analytical Results, Asphalt Loading Rack Investigation
HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Sample Location:		BH-1-1115	BH-2-1115	BH-3-1115		BH-4-1115		Drain Box[1]	Beneath Concrete Slab[2]	BH-1-0316									MW-31		SB-01-062017		SB-02-062017		SB-03-062017		SB-04-062017		
Depth (feet bgs):		0.8 - 1.4	1.1 - 1.7	2.3 - 2.7	4 - 4.3	0.7 - 1.0	1.5 - 1.7	4.7	2.2	10 - 15	20 - 25	30 - 35	40 - 45	50 - 55	60 - 65	70 -75	80 - 85	90 - 95[3]	75	98[3]	75	100[3]	75	95[3]	75	90[3]	75	75 (Dup)	90[3]
Sample Collection Date:		11/19/2015	11/19/2015	11/19/2015	11/19/2015	11/19/2015	11/19/2015	12/14/2015	12/14/2015	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	12/15/2016	12/15/2016	6/12/2017	6/12/2017	6/12/2017	6/12/2017	6/12/2017	6/12/2017	6/13/2017	6/13/2017	6/13/2017
Analyte	**Screening Standard**	**ANALYTICAL RESULTS (mg/kg)**																											
		Total Petroleum Hydrocarbons (Method 8015)																											
GRO C6-C10	--	44.9	43.1	30.5	343	265	<10.0	279	26.8	32.0	39.0	245	140	66.8	271	508	162	21.4	NA	NA	<0.128	<0.106	<0.128	<0.121	<0.105	<0.126	0.140	<0.131	<0.127
DRO >C10-C28	--	2,120	1,620	1,180	7,570	11,300	321	9,420	1,070	1,420	1,980	3,560	2,720	2,580	5,460	8,140	4,050	838	1,550	2,490	<5.13	6.70	8.00	5.37	4.26	<5.03	<4.57	<5.23	<5.07
Total TPH	5,000[4]	2,165	1,663	1,211	**7,913**	**11,565**	321	**9,699**	1,097	1,452	2,019	3,805	2,860	2,647	**5,731**	**8,648**	4,212	859	1,550	2,490	--	6.70	8.00	5.37	4.26	--	0.140	--	--
		Volatile Organic Compounds[5] (Method 8021 or 8260)[6]																											
Benzene	10[4]	<0.050	<0.050	<0.050	<0.200	<0.200	<0.050	<0.200	<0.200	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	NA	NA	<0.00128	<0.00106	<0.00128	<0.00121	<0.00105	<0.00126	<0.00114	<0.00131	<0.00127
Toluene	15[7]	<0.050	0.065	<0.050	0.270	0.289	<0.050	0.217	<0.200	<0.130	<0.130	<0.130	<0.130	<0.130	<0.130	0.264	<0.130	<0.130	NA	NA	<0.00641	<0.00530	<0.00641	<0.00603	<0.00525	<0.00628	<0.00572	<0.00654	<0.00634
Ethylbenzene	15[7]	0.599	0.939	0.588	10.4	2.72	0.302	0.675	0.393	<0.085	<0.085	0.792	0.531	0.339	0.946	3.16	0.739	<0.085	NA	NA	<0.00128	<0.00106	<0.00128	<0.00121	<0.00105	<0.00126	<0.00114	<0.00131	<0.00127
Xylenes	12.4[7]	<0.150	<0.150	<0.150	<0.600	1.87	0.250	1.99	1.25	<0.135	<0.135	2.31	1.60	0.474	2.70	8.55	1.80	<0.135	NA	NA	<0.00385	<0.00318	<0.00385	<0.00362	<0.00315	<0.00377	<0.00343	<0.00393	<0.00381
Total BTEX	50[4]	0.645	1.04	0.659	10.80	4.88	0.581	2.88	1.65	--	--	3.10	2.13	0.813	3.65	11.97	2.54	--	NA	NA	--	--	--	--	--	--	--	--	--
n-Propylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.313	<0.030	0.537	0.707	0.430	1.64	3.74	1.04	<0.030	NA	NA	<0.00128	<0.00106	<0.00128	<0.00121	<0.00105	<0.00126	<0.00114	<0.00131	<0.00127
1,3,5-Trimetyhlbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.090	<0.090	1.61	1.09	0.783	2.36	4.37	1.36	<0.090	NA	NA	<0.00128	<0.00106	<0.00128	<0.00121	<0.00105	<0.00126	<0.00114	<0.00131	<0.00127
1,2,4-Trimethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.085	<0.085	5.19	3.82	2.89	8.43	14.8	4.87	0.724	NA	NA	<0.00128	<0.00106	<0.00128	<0.00121	<0.00105	<0.00126	<0.00114	<0.00131	<0.00127
sec-Butylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.338	<0.085	0.961	0.748	0.602	1.60	2.83	0.997	<0.085	NA	NA	<0.00128	<0.00106	<0.00128	<0.00121	<0.00105	<0.00126	<0.00114	<0.00131	<0.00127
p-Isopropyltoluene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.065	<0.065	2.11	1.43	1.19	2.91	4.88	1.88	0.314	NA	NA	<0.00128	<0.00106	<0.00128	<0.00121	<0.00105	<0.00126	<0.00114	<0.00131	<0.00127
n-Butylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.633	<0.090	1.06	2.91	2.71	4.50	9.36	3.80	0.693	NA	NA	<0.00128	<0.00106	<0.00128	<0.00121	<0.00105	<0.00126	<0.00114	<0.00131	<0.00127
Naphthalene	0.6[7]	NA	NA	NA	NA	NA	NA	NA	NA	**1.04**	0.266	**2.11**	**2.73**	**3.09**	**5.08**	**7.03**	**3.44**	**0.910**	NA	NA	<0.00641	<0.00530	<0.00641	<0.00603	<0.00525	<0.00628	<0.00572	<0.00131	<0.00634
		Semivolatile Organic Compounds[5] (Method 8270)																											
Naphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.798	0.140	1.4	2.78	2.38	4.39	5.76	2.37	0.274	3.52	2.8	<0.0423	<0.0350	<0.0423	<0.0398	<0.0347	<0.0415	<0.0377	<0.0116	<0.0419
2-Methylnapthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	2.63	0.215	5.71	9.81	9.75	13.6	18.0	9.58	1.43	9.02	8.37	<0.0423	<0.0350	<0.0423	<0.0398	<0.0347	<0.0415	<0.0377	<0.0113	<0.0419
1-Methylnapthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	2.86	0.27	7.08	9.60	9.72	13.1	17.5	9.66	1.49	8.72	8.34	<0.0423	<0.0350	<0.0423	<0.0398	<0.0347	<0.0415	<0.0377	<0.0144	<0.0419
Total PAHs[8]	0.6[7]	NA	NA	NA	NA	NA	NA	NA	NA	**6.288**	**0.625**	**14.19**	**22.19**	**21.85**	**31.09**	**41.26**	**21.61**	**3.194**	**21.26**	**19.51**	--	--	--	--	--	--	--	--	--
Acenaphthylene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.031	<0.031	0.151	0.065	0.227	0.263	<0.310	0.623	0.041	NA	NA	<0.0423	<0.0350	<0.0423	<0.0398	<0.0347	<0.0415	<0.0377	<0.00878	<0.0419
Fluorene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.577	0.036	1.00	1.22	1.39	1.49	2.05	1.44	0.262	NA	NA	<0.0423	<0.0350	<0.0423	<0.0398	<0.0347	<0.0415	<0.0377	<0.00892	<0.0419
Phenanthrene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.821	<0.060	1.37	1.78	1.99	2.22	3.42	2.07	0.438	NA	NA	<0.0423	<0.0350	<0.0423	<0.0398	<0.0347	<0.0415	<0.0377	<0.00691	<0.0419

1.04 Concentration exceeded applicable screening standard

Dup = Duplicate sample

mg/kg = milligrams per kilogram

GRO = Gasoline Range Orangics

DRO = Deisel Range Organics

BTEX - Benzene, Toluene, Ethylbenzene, and Xylenes

-- = Not Applicable

NA = Not Analyzed

[1] Grab sample collected from north sidewall of area excavated immediately north of the easternmost drain box.

[2] Grab sample collected from beneath the loading rack concrete slab north of BH-3-1115 by hand digging 2.2 feet horizontally from the north excavation sidewall.

[3] Grab sample collected from air-rotary cuttings because discrete samples could not be recovered from this sampling depth.

[4] Based on a total ranking score of zero points in accordance with New Mexico's Oil Conservation Division's *Guidelines for Remediation of Leaks, Spills and Releases* dated August 13, 1993. (>100' depth to groundwater, >200' from wellhead protection area, >1,000' from nearest surface water body).

[5] Only Volatile Organic Compounds and Semi-Volatile Organic Compounds that were detected above the reported detection limit are included in this table (except for benzene which is included because it is a primary indicator compound associated with TPH mixtures).

[6] Soil samples collected on November 19, 2015 and December 14, 2015, were analyzed for VOCs by Method 8021. Soil samples collected in March 2016 and June 2017 were analyzed for VOCs by Method 8260.

[7] New Mexico Water Quality Control Commission (WQCC) Human Health Standards (WQCC Standards) with an applied dilution factor (DF) of 20 (i.e., 20x DF), in accordance with the Release Response Guidance included as Appendix B of the December 2015 *Revised Facility-Wide Groundwater Monitoring Work Plan* that was approved by the OCD in an email on March 9, 2016.

[8] Total Polycyclic Aromatic Hydrocarbons (PAHs) = sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene concentrations in accordance with WQCC Standards.

Table 2. Groundwater Analytical Results, Asphalt Loading Rack Investigation

HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	WQCC Volatiles (Method 8260, mg/L)				WQCC Semi-Volatiles (Method 8270, mg/L)				TPH (Method 8015, mg/L)		TPH (Method 418.1)
		Benzene	Ethylbenzene	Toluene	Total Xylenes	Total PAHs	Naphthalene	1-methyl naphthalene	2-methyl naphthalene	TPH GRO (Low Fraction)	TPH DRO (High Fraction)	
NM WQCC Groundwater Human Health Standards:		**0.010**	**0.75**	**0.75**	**0.62**	**0.03**	N/A	N/A	N/A	N/A	N/A	N/A
MW-31	12/17/2016	--	--	--	--	0.140	0.039	0.050	0.051	--	--	584
(duplicate)	12/17/2016	--	--	--	--	0.121	0.031	0.045	0.045	--	--	621
MW-32	6/15/2017	<0.0010	<0.0010	<0.0010	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.100	0.507	--
(duplicate)	6/15/2017	<0.0010	<0.0010	<0.0010	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.100	0.427	--
MW-33	6/15/2017	<0.0010	<0.0010	<0.0010	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	0.105 U	3.14	--

Notes:

0.140 Result exceeds the New Mexico Water Quality Control Commission (WQCC) Human Health Standard

mg/L = milligrams per liter

< = Not reported above laboratory reporting limit

-- = Not Analyzed

N/A = Not Applicable, no WQCC Human Health Standard established for constituent

Total PAHs = naphthalene + 1-methylnaphthalene + 2-methylnaphthalene

U = Result qualified as not-detected because result was less than five-times the associated laboratory method blank concentration

December 2016 anlyses conducted by Cardinal Laboratories in Hobbs, New Mexico

June 2017 analyses conducted by ESC Lab Sciences in Mount Juliet, Tennessee

Groundwater analytical results from routine facility-wide groundwater monitoring are provided to the Oil Conservation Division in annual groundwater monitoring reports by April 15 of each calendar year.

Table 3. LNAPL Gauging and Recovery Results, Monitoring Well MW-31, Asphalt Loading Rack Investigation
HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Date	Prior to Bailing				After Bailing or Removing Skimmer[1]				LNAPL Volume Recovered (gal)	Cumulative LNAPL Recovered (gal)
	Initial Depth to Water (ft btoc)	Initial Depth to LNAPL (ft btoc)	Initial Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation[2] (ft amsl)	Final Depth to Water (ft btoc)	Final Depth to LNAPL (ft btoc)	Final Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation[2] (ft amsl)		
2/9/2017	105.04	98.92	6.12	3,719.22	100.52	99.81	0.71	3,719.24	7.50	7.50
3/3/2017	102.71	99.39	3.32	3,719.22	100.30	99.90	0.40	3,719.20	3.28	10.78
3/8/2017	101.21	99.57	1.64	3,719.32	99.95	99.83	0.12	3,719.32	1.19	11.96
3/15/2017	101.48	99.45	2.03	3,719.38	99.98	99.82	0.16	3,719.32	1.59	13.55
3/22/2017	101.84	99.34	2.50	3,719.41	100.07	99.99	0.08	3,719.17	1.72	15.27
3/29/2017	101.73	99.42	2.31	3,719.36	100.47	100.37	0.10	3,718.78	1.72	16.98
4/4/2017	101.79	99.47	2.32	3,719.31	100.27	100.11	0.16	3,719.03	1.85	18.83
4/12/2017	101.77	99.37	2.40	3,719.40	100.30	100.10	0.20	3,719.04	1.85	20.68
4/19/2017	101.71	99.40	2.31	3,719.38	100.27	100.17	0.10	3,718.98	1.72	22.40
4/24/2017	101.48	99.45	2.03	3,719.38	100.09	99.77	0.32	3,719.35	1.66	24.06
4/25/2017	100.68	99.67	1.01	3,719.33	99.83	99.78	0.05	3,719.38	0.96	25.02
4/26/2017	100.82	99.56	1.26	3,719.40	100.02	99.75	0.27	3,719.37	2.50	27.52
4/27/2017	100.51	99.61	0.90	3,719.41	99.88	99.73	0.15	3,719.41	1.50	29.02
4/28/2017	100.73	99.55	1.18	3,719.42	99.68	99.59	0.09	3,719.56	1.00	30.02
5/4/2017	101.44	99.52	1.92	3,719.33	100.33	99.74	0.59	3,719.33	1.45	31.47
5/11/2017	101.59	99.59	2.00	3,719.24	100.00	99.89	0.11	3,719.26	1.85	33.32
5/16/2017	101.78	99.62	2.16	3,719.19	100.30	99.83	0.47	3,719.26	1.45	34.77
5/18/2017	101.73	99.58	2.15	3,719.23	100.37	99.43	0.94	3,719.58	1.32	36.10
5/24/2017	101.85	99.38	2.47	3,719.37	100.89	99.98	0.91	3,719.04	1.72	37.81
5/31/2017	101.49	99.55	1.94	3,719.29	100.26	99.38	0.88	3,719.64	1.19	39.00
6/12/2017	103.28	99.50	3.78	3,719.03	100.80	99.96	0.84	3,719.07	2.51	41.51
6/23/2017	101.78	99.61	2.17	3,719.19	100.04	99.83	0.21	3,719.30	1.32	42.83
6/26/2017	101.71	99.70	2.01	3,719.13	100.27	99.87	0.40	3,719.23	1.45	44.28
6/29/2017	101.59	99.54	2.05	3,719.28	100.56	99.89	0.67	3,719.17	1.45	45.74
7/6/2017	100.78	99.65	1.13	3,719.33	100.02	99.63	0.39	3,719.47	1.72	47.45
7/11/2017	101.48	99.59	1.89	3,719.26	100.37	99.67	0.70	3,719.38	1.32	48.78
7/13/2017	103.58	99.91	3.67	3,718.64	101.13	100.42	0.71	3,718.63	1.98	50.76
7/18/2017	102.90	99.98	2.92	3,718.70	101.11	100.32	0.79	3,718.72	1.72	52.47
7/21/2017	101.54	99.54	2.00	3,719.29	100.02	99.97	0.05	3,719.19	1.32	53.79
8/22/2017	--	--	--	--	101.03	100.41	0.62	3,718.66	0.26	54.06
8/23/2017	--	--	--	--	101.01	100.04	0.97	3,718.97	0.26	54.32
8/29/2017	--	--	--	--	101.46	100.36	1.10	3,718.62	0.26	54.59
8/31/2017	--	--	--	--	101.45	100.35	1.10	3,718.63	0.26	54.85
9/5/2017	--	--	--	--	101.35	100.31	1.04	3,718.68	0.26	55.12
9/7/2017	--	--	--	--	101.13	100.25	0.88	3,718.77	0.26	55.38
9/11/2017	--	--	--	--	101.47	100.36	1.11	3,718.62	0.26	55.64
9/12/2017	--	--	--	--	101.45	100.35	1.10	3,718.63	0.26	55.91
9/14/2017	--	--	--	--	101.44	100.36	1.08	3,718.63	0.26	56.17
9/18/2017	--	--	--	--	101.47	100.27	1.20	3,718.70	0.26	56.44
9/19/2017	--	--	--	--	101.38	100.23	1.15	3,718.75	0.26	56.70
9/20/2017	--	--	--	--	101.44	100.32	1.12	3,718.66	0.26	56.96
9/22/2017	--	--	--	--	101.40	100.28	1.12	3,718.70	0.26	57.23
9/25/2017	--	--	--	--	101.47	100.25	1.22	3,718.71	0.26	57.49

Table 3. LNAPL Gauging and Recovery Results, Monitoring Well MW-31, Asphalt Loading Rack Investigation
HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

	Prior to Bailing				After Bailing or Removing Skimmer[1]					
Date	Initial Depth to Water (ft btoc)	Initial Depth to LNAPL (ft btoc)	Initial Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation[2] (ft amsl)	Final Depth to Water (ft btoc)	Final Depth to LNAPL (ft btoc)	Final Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation[2] (ft amsl)	LNAPL Volume Recovered (gal)	Cumulative LNAPL Recovered (gal)
9/26/2017	--	--	--	--	101.45	100.36	1.09	3,718.63	0.26	57.76
9/27/2017	--	--	--	--	101.45	100.35	1.10	3,718.63	0.26	58.02
9/28/2017	--	--	--	--	101.13	100.20	0.93	3,718.81	0.26	58.29
10/2/2017	--	--	--	--	101.47	100.25	1.22	3,718.71	0.26	58.55
10/3/2017	--	--	--	--	101.45	100.36	1.09	3,718.63	0.26	58.81
10/4/2017	--	--	--	--	102.67	100.14	2.53	3,718.60	0.26	59.08
10/5/2017	--	--	--	--	102.73	100.10	2.63	3,718.63	0.26	59.34
10/9/2017	--	--	--	--	101.44	100.36	1.08	3,718.63	0.26	59.61
10/10/2017	--	--	--	--	101.46	100.36	1.10	3,718.62	0.26	59.87
10/12/2017	--	--	--	--	102.67	100.14	2.53	3,718.60	0.26	60.13
10/13/2017	--	--	--	--	102.50	100.05	2.45	3,718.71	0.26	60.40
10/16/2017	--	--	--	--	102.46	100.05	2.41	3,718.71	0.26	60.66
10/17/2017	--	--	--	--	102.56	100.23	2.33	3,718.55	0.26	60.93
10/18/2017	--	--	--	--	102.22	100.23	1.99	3,718.61	0.26	61.19
10/19/2017	--	--	--	--	102.71	99.89	2.82	3,718.81	0.26	61.46
10/23/2017	--	--	--	--	102.62	100.15	2.47	3,718.60	0.26	61.72
10/24/2017	--	--	--	--	101.87	99.57	2.30	3,719.21	0.26	61.98
10/25/2017	--	--	--	--	101.88	99.87	2.01	3,718.96	0.26	62.25
10/31/2017	--	--	--	--	102.82	100.00	2.82	3,718.70	0.26	62.51
11/1/2017	--	--	--	--	102.70	100.02	2.68	3,718.70	0.26	62.78
11/2/2017	--	--	--	--	102.72	100.00	2.72	3,718.71	0.26	63.04
11/3/2017	--	--	--	--	102.41	100.05	2.36	3,718.72	0.26	63.30
11/6/2017	--	--	--	--	102.44	100.13	2.31	3,718.65	0.26	63.57
11/7/2017	--	--	--	--	102.23	100.20	2.03	3,718.63	0.26	63.83
11/8/2017	--	--	--	--	102.43	100.25	2.18	3,718.55	0.26	64.10

Notes:

LNAPL = Light Non-Aqueous Phase Liquid

ft btoc = feet below top of casing

ft amsl = feet above mean sea level

-- = not measured; passive skimmer installed in well prohibits fluid gauging prior to removal.

[1] Passive skimmer (Petro-Bailer™) installed in well on August 17, 2017.

[2] Groundwater elevation corrected for the presence of LNAPL using a specific gravity of 0.8317. Top of well casing elevation = 3,819.17 feet amsl.

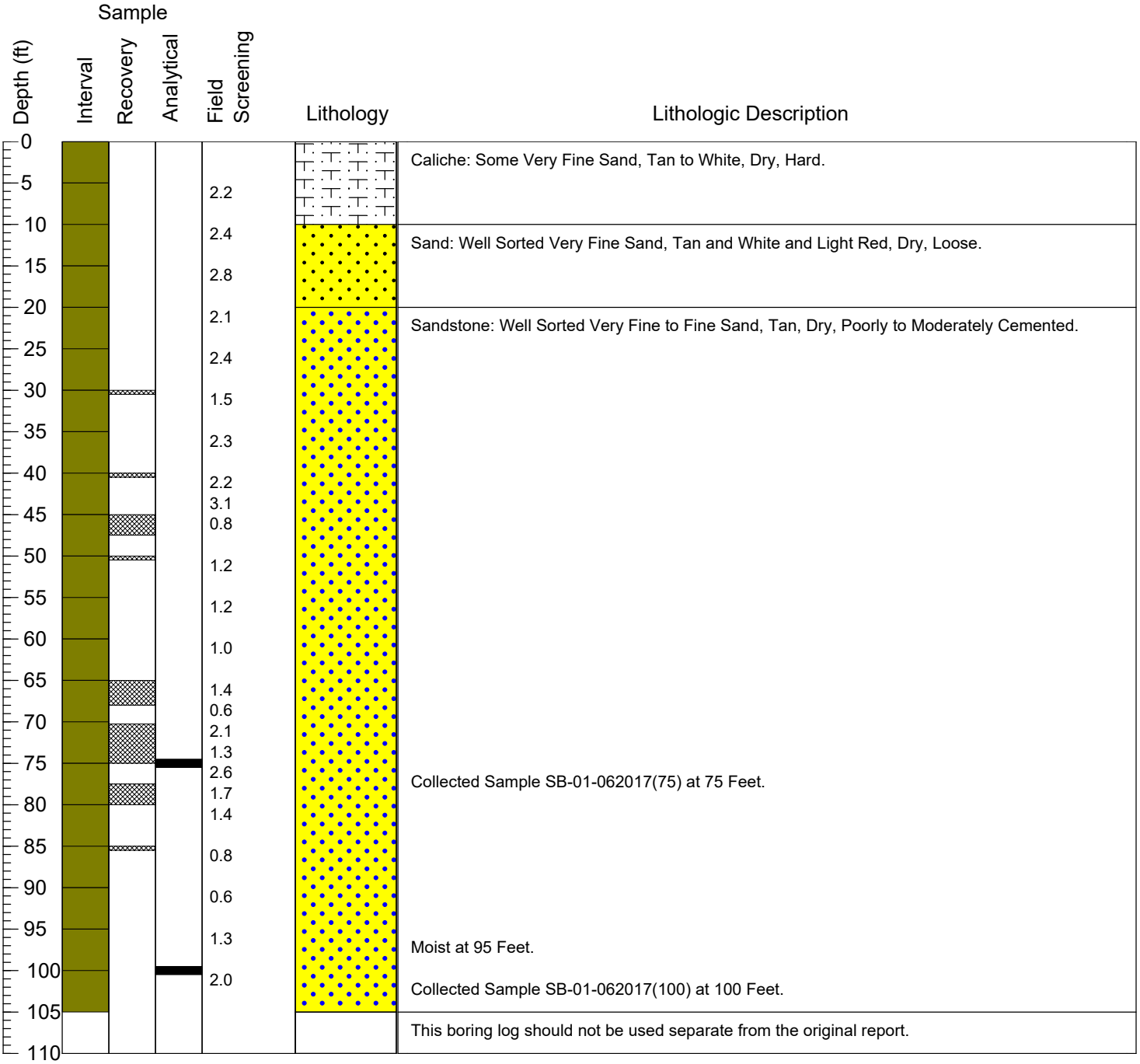
ATTACHMENT A

Soil Boring/Well Construction Log and State Well Reports

BORING LOG

SB-01-062017

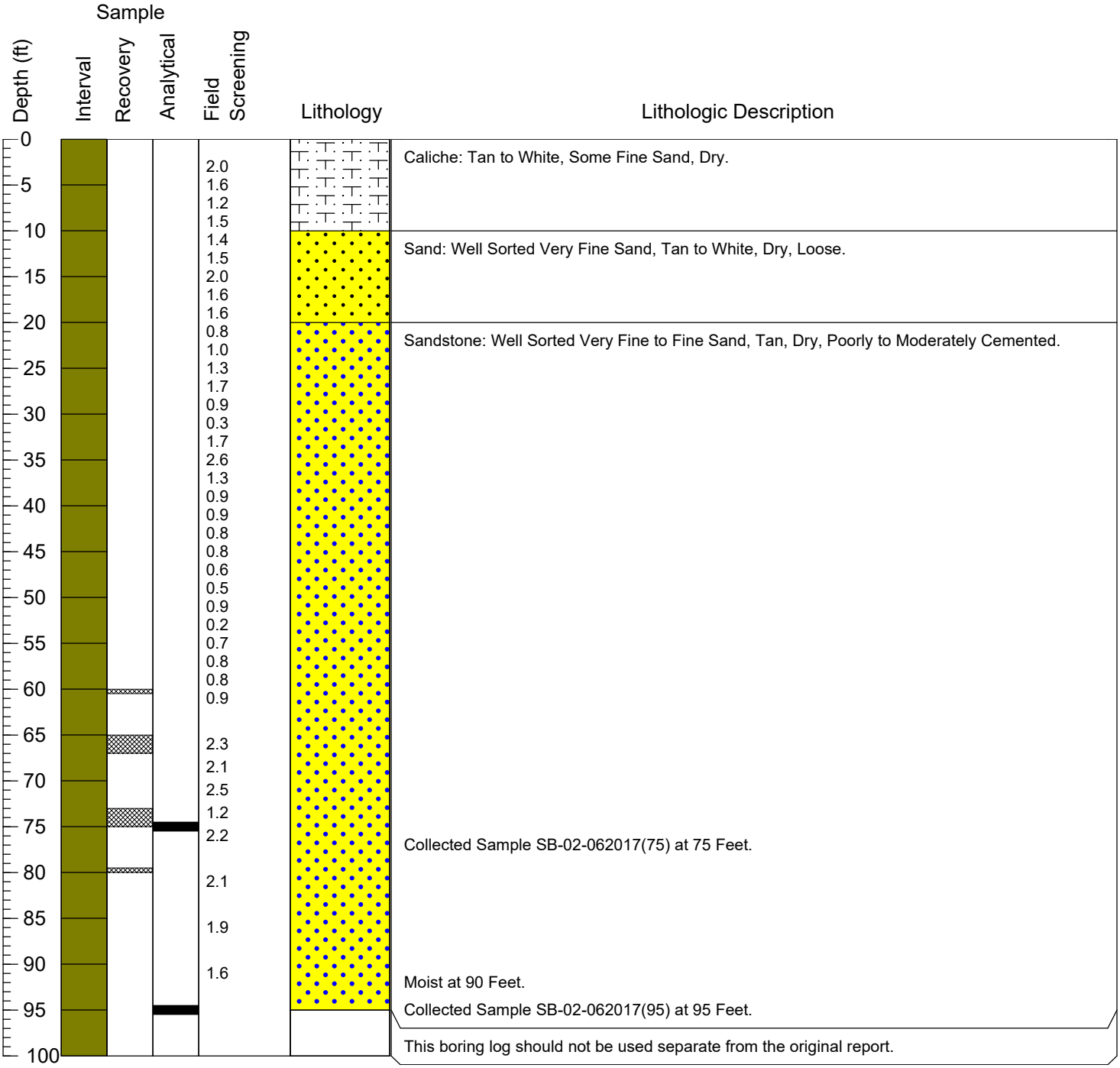
Client: HollyFrontier Navajo Refining LLC Site: Navajo Lovington Refinery Address: 7406 South Main Street, Lovington, New Mexico 88260 Project: Asphalt Loading Rack Soil Investigation	TRC Project #: 274418 Start Date: 6/12/17 Finish Date: 6/12/17 Permit #: OSE L-14228
Drilling Company: HCI Drilling — Driller: Ken Cooper Drilling Method: Air Rotary Boring Diameter (in): 7-7/8 — Boring Depth (ft bgs): 105 Sampling Method: Continuous, core sampler and drill cuttings Grout: 3/8-inch Bentonite Chips and Powder Field Screening Parameter: Volatile Organic Compounds Meter: MiniRAE 3000 PID — Units: ppm	TRC Site Rep.: John P. O'Neal TRC Reviewer: Julie Speer Coord. System: NM State Plane East Zone X-Coord.: 32.87577 Y-Coord.: -103.29627 Elevation Datum: NAVD1988 Ground Elevation (ft): 3817.00



BORING LOG

SB-02-062017

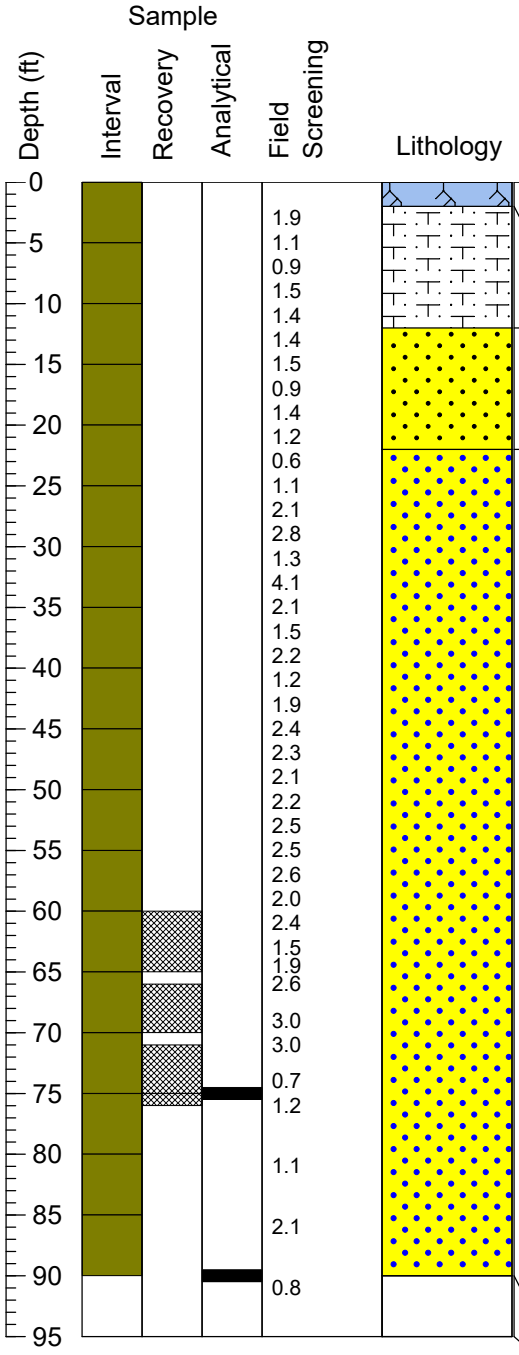
Client: HollyFrontier Navajo Refining LLC Site: Navajo Lovington Refinery Address: 7406 South Main Street, Lovington, New Mexico 88260 Project: Asphalt Loading Rack Soil Investigation	TRC Project #: 274418 Start Date: 6/12/17 Finish Date: 6/13/17 Permit #: OSE L-14228
Drilling Company: HCI Drilling — Driller: Ken Cooper Drilling Method: Air Rotary Boring Diameter (in): 7-7/8 — Boring Depth (ft bgs): 95 Sampling Method: Continuous, core sampler and drill cuttings Grout: 3/8-inch Bentonite Chips and Powder	TRC Site Rep.: John P. O'Neal TRC Reviewer: Julie Speer X,Y Coord. System: Latitude, Longitude X-Coord.: 32.87514 Y-Coord.: -103.29718
Field Screening Parameter: Volatile Organic Compounds Meter: MiniRAE 3000 PID — Units: ppm	Elevation Datum: NAVD1998 Ground Elevation (ft): 3817.61



BORING LOG

SB-03-062017

Client: HollyFrontier Navajo Refining LLC Site: Navajo Lovington Refinery Address: 7406 South Main Street, Lovington, New Mexico 88260 Project: Asphalt Loading Rack Soil Investigation	TRC Project #: 274418 Start Date: 6/13/17 Finish Date: 6/13/17 Permit #: OSE L-14228
Drilling Company: HCI Drilling — Driller: Ken Cooper Drilling Method: Air Rotary Boring Diameter (in): 7-7/8 — Boring Depth (ft bgs): 90 Sampling Method: Continuous, core sampler and drill cuttings Grout: 3/8-inch Bentonite Chips and Powder	TRC Site Rep.: John P. O'Neal TRC Reviewer: Julie Speer X,Y Coord. System: Latitude, Longitude X-Coord.: 32.87581 Y-Coord.: -103.29721
Field Screening Parameter: Volatile Organic Compounds Meter: MiniRAE 3000 PID — Units: ppm	Elevation Datum: NAVD1998 Ground Elevation (ft): 3819.65

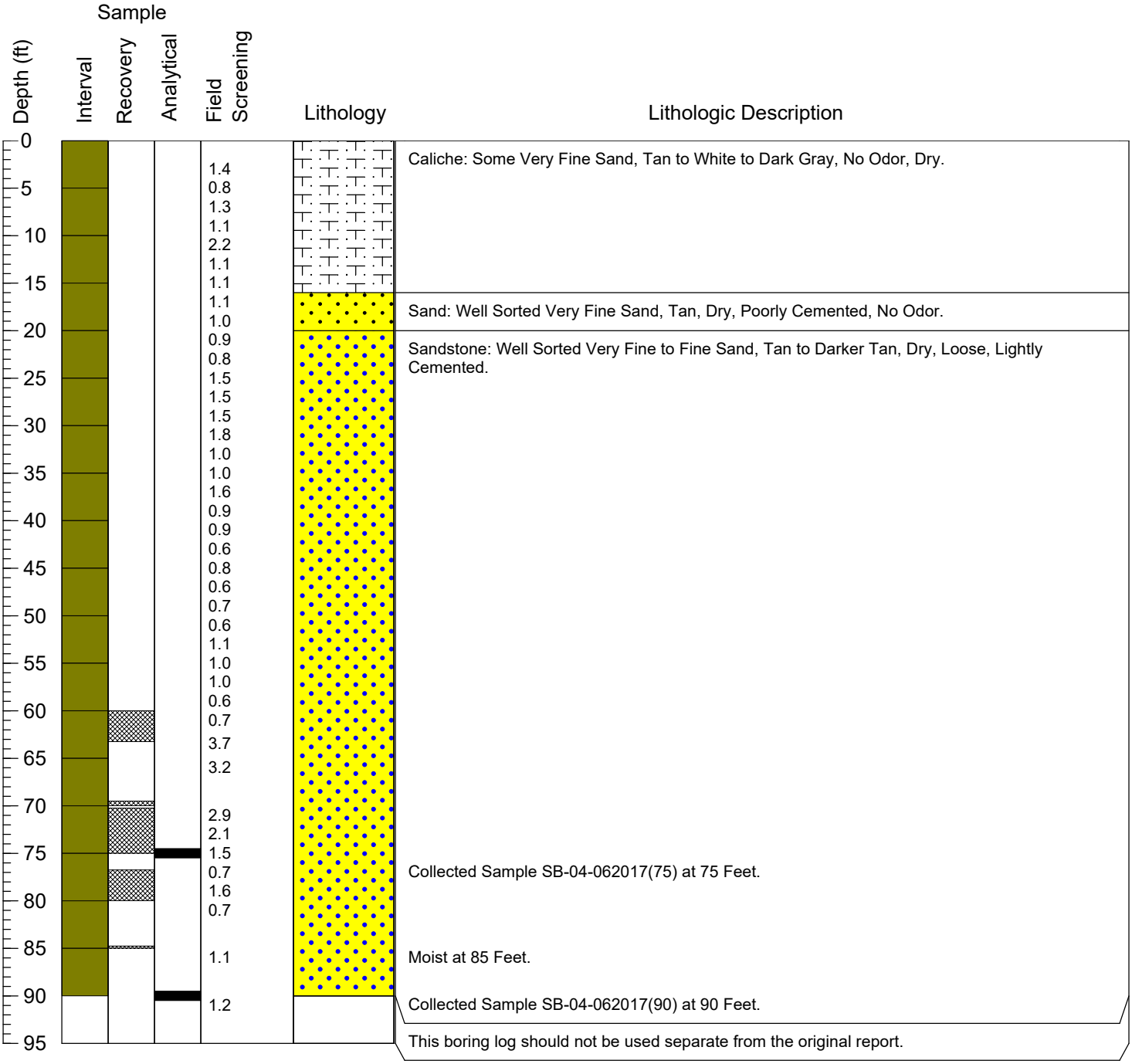


Lithologic Description
TopSoil: Tan to Dark Gray, Lightly Cemented, Dry.
Caliche: Tan, Dry.
Sand: Well Sorted Very Fine Sand, Tan to White, Dry, Loose, Well Cemented.
Sandstone: Well Sorted Very Fine Sand, Tan, Dry (Slightly Moist at 26 to 28 Feet), Loose, Well Cemented.
Collected Sample SB-03-062017(75) at 75 Feet.
Moist at 85 Feet.
Collected Sample SB-03-062017(90) at 90 Feet.
This boring log should not be used separate from the original report.

BORING LOG

SB-04-062017

Client: HollyFrontier Navajo Refining LLC Site: Navajo Lovington Refinery Address: 7406 South Main Street, Lovington, New Mexico 88260 Project: Asphalt Loading Rack Soil Investigation	TRC Project #: 274418 Start Date: 6/13/17 Finish Date: 6/13/17 Permit #: OSE L-14228
Drilling Company: HCI Drilling — Driller: Ken Cooper Drilling Method: Air Rotary Boring Diameter (in): 7-7/8 — Boring Depth (ft bgs): 90 Sampling Method: Continuous, core sampler and drill cuttings Grout: 3/8-inch Bentonite Chips and Powder	TRC Site Rep.: John P. O'Neal TRC Reviewer: Julie Speer X,Y Coord. System: Latitude, Longitude X-Coord.: 32.87512 Y-Coord.: -103.29633
Field Screening Parameter: Volatile Organic Compounds Meter: MiniRAE 3000 PID — Units: ppm	Elevation Datum: NAVD1988 Ground Elevation (ft): 3817.88

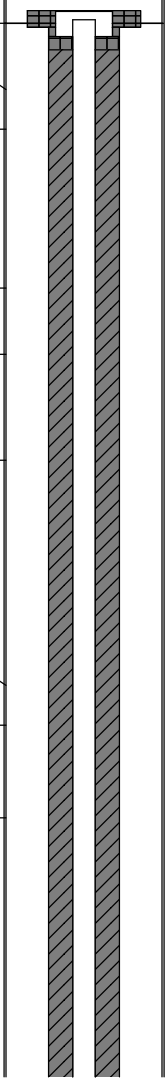


BORING LOG and WELL CONSTRUCTION

MW-31

Client: HollyFrontier Navajo Refining LLC	TRC Project #: 247359
Site: Navajo Lovington Refinery	Start Date: 12/17/2016
Address: 7406 South Main Street, Lovington, New Mexico 88260	Finish Date: 12/17/2016
Project: Asphalt Loading Rack Groundwater Investigation	Permit #: OSE L-14228
Drilling Company: HCI Drilling — Driller: Ken Cooper	TRC Site Rep.: John O'Neal
Drilling Method: Air Rotary	TRC Reviewer: Julie Speer
Boring Diameter (in): 7 — Boring Depth (ft bgs): 120	X-Y Coord. System: Latitude, Longitude
Sampling Method: Drill cuttings and split-spoon sampler (every 10 feet)	Latitude: 32.87548
Blow Count Method: Not Applicable	Longitude: -103.29668
Field Screening Parameter: Volatile Organic Compounds	Elevation Datum: NAVD1988
Meter: MiniRAE PID — Units: ppm	Ground Elevation (ft): 3818.90
Well Depth (ft bgs): 120.23 — Well Depth (ft toc): 120.50	Well Elevation (ft): 3819.17
Casing Length (ft): 100 — Screen Length (ft): 20	Well Measuring Point: Top of Casing
Surface Completion: Flush Mount Steel Cover and Concrete Pad	Depth to Water (ft toc): 105.11
Well Development: Pump and surge (28 gallons/ 11 well volumes)	Date/Time: 2/6/17; 1230

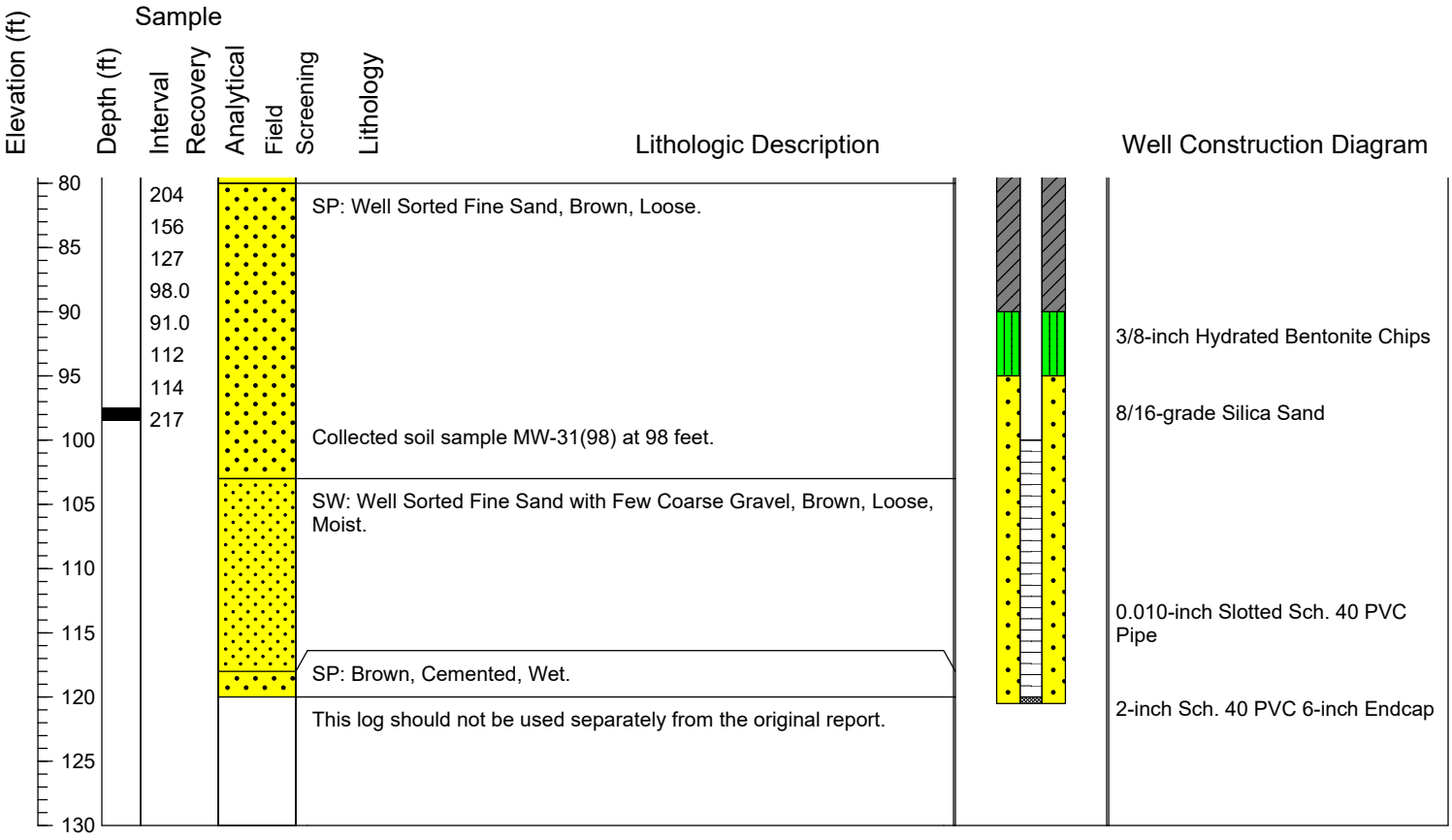
Depth (ft)	Sample: Analytical	Sample: Field Screening	Lithology	Lithologic Description
0		3.70		
		13.0		Caliche: Tan to White, Hard, Dry.
5		119		Sandstone: Fine Sand, Grey to Tan, Dry.
		15.7		
10		27.0		Sandstone: Fine Sand, Tan, Hard, Dry.
		27.0		
15		93.0		
		93.0		
20		91.9		
		107		SP: Well Sorted Fine Sand, Moderately Cemented, Tan, Dry.
25		97.3		
		94.0		Sandstone: Fine Sand, Tan, Cemented.
30		100		
		108.3		
35		78.4		
		53.7		SP: Well Sorted Fine Sand, Tan, Loose, Dry.
40		80.0		
		29.0		
45		7.2		
		4.7		
50		42.1		Sandstone: Fine Sand, Tan, Loose.
		23.3		
55		20.1		SP: Well Sorted Fine Sand, Light Brown, Loose, Dry.
		16.0		
60		10.3		
		13.2		SP: Well Sorted Fine Sand, Tan, Loose, Dry.
65		110.2		
		328		
70		345		
		302		
75	■	409		Collected soil sample MW-31(75) at 75 feet.
		200		
80				



Well Construction Diagram

- Flush Mount Steel Cover, Concrete Pad
- Note: Well pad modified during loading rack slab expansion, which altered the original ground surface and well pad elevations. Survey data collected after slab expansion and boring data corrected in reference to new elevations.
- 2-inch Sch. 40 PVC Riser Pipe
- Portland Cement and Bentonite Grout

TRC	**BORING LOG and WELL CONSTRUCTION**	**MW-31**
Client: HollyFrontier Navajo Refining LLC	Site: Navajo Lovington Refinery	Page 2 of 2

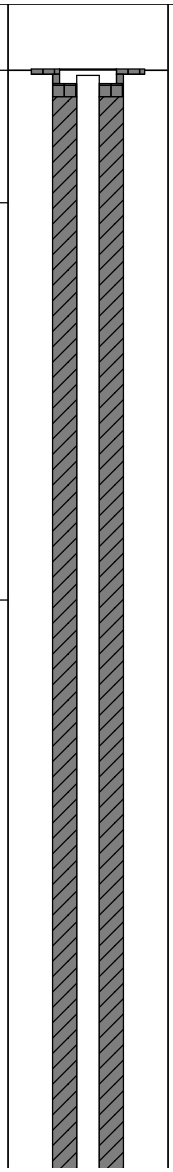


BORING LOG and WELL CONSTRUCTION

MW-32

Client: HollyFrontier Navajo Refining LLC	TRC Project #: 274418
Site: Navajo Lovington Refinery	Start Date: 6/14/17
Address: 7406 South Main Street, Lovington, New Mexico 88260	Finish Date: 6/14/17
Project: Asphalt Loading Rack Groundwater Investigation	Permit #: OSE L-14228
Drilling Company: HCI Drilling — Driller: Ken Cooper	TRC Site Rep.: John O'Neal
Drilling Method: Air Rotary	TRC Reviewer: Julie Speer
Boring Diameter (in): 7-7/8 — Boring Depth (ft bgs):117	Coord. System: Latitude, Longitude
Sampling Method: Drill Cuttings	Latitude: 32.87514
Blow Count Method: Not Applicable	Longitude:-103.29589
Field Screening Parameter: Volatile Organic Compounds	Elevation Datum: NAVD1988
Meter: MiniRAE 3000 PID — Units: ppm	Ground Elevation (ft): 3818.07
Well Depth (ft bgs): 116.11 — Well Depth (ft toc): 115.73	Well Elevation (ft): 3817.69
Casing Length (ft): 95.23 — Screen Length (ft): 20.00	Well Measuring Point: Top of Casing
Surface Completion: Flush Mount Steel Cover and Concrete Pad	Depth to Water (ft toc): 98.68
Well Development: Pump and Surge (36 gallons/13 well volumes)	Date/Time: 6/16/17; 08:10

Depth (ft)	Field Screening	Lithology	Lithologic Description
-5 to 0			
0 to 5	1.5		Caliche: Some Well Sorted Very Fine Sand, Tan to White, Hard, Dry.
5 to 10	2.2		
10 to 15	1.6, 1.3, 1.9		SP: Well Sorted Very Fine Sand, Tan, Loose, Lightly Cemented, Dry.
15 to 20	1.3, 1.3		
20 to 25	2.0, 1.0		
25 to 30	1.7, 1.7		
30 to 35	1.5, 1.6		
35 to 40	1.8, 0.8		
40 to 45	2.2, 2.0, 1.1, 1.1		Sandstone: Well Sorted Very Fine to Fine Sand, Tan to Dark Tan, Loosely Cemented, Dry.
45 to 50	0.8, 1.0		
50 to 55	1.4, 1.8		
55 to 60	1.3, 0.8		
60 to 65	0.8, 1.7		
65 to 70	1.4, 1.1		
70 to 75	1.6, 1.3		
75 to 80	1.6, 0.9, 2.9		
80	1.3, 1.7, 1.9		



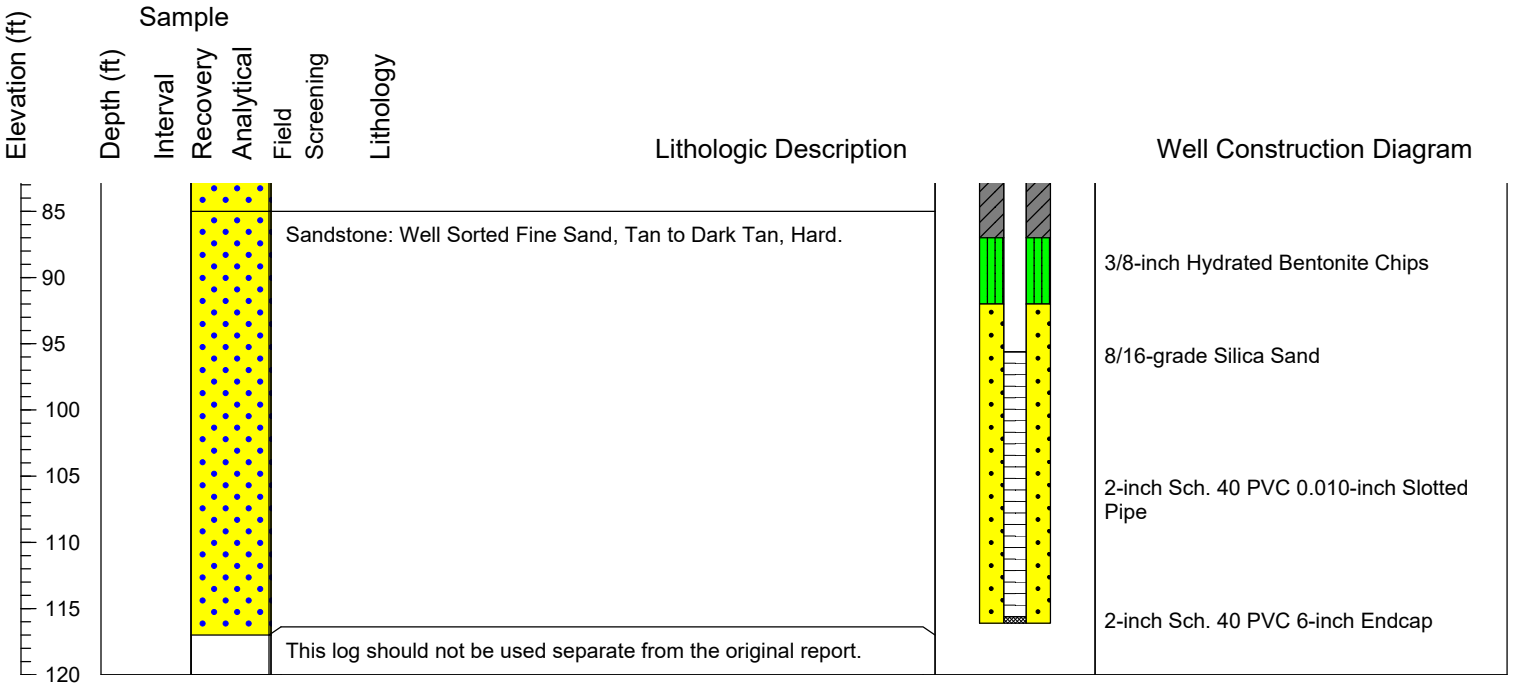
Well Construction Diagram

Fllush Mount Steel Cover, Concrete Pad

2-inch Sch. 40 PVC Riser Pipe

Bentonite/Portland Cement Grout

TRC	**BORING LOG and WELL CONSTRUCTION**	**MW-32**
Client: HollyFrontier Navajo Refining LLC	Site: Navajo Lovington Refinery	Page 2 of 2

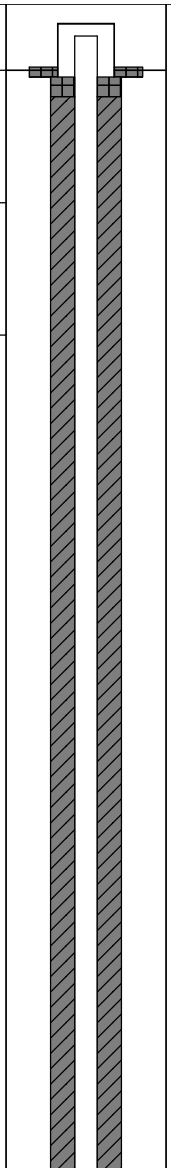


BORING LOG and WELL CONSTRUCTION

MW-33

Client: HollyFrontier Navajo Refining LLC Site: Navajo Lovington Refinery Address: 7406 South Main Street, Lovington, New Mexico 88260 Project: Asphalt Loading Rack Groundwater Investigation	TRC Project #: 274418 Start Date: 6/14/17 Finish Date: 6/14/17 Permit #: OSE L-14228
Drilling Company: HCI Drilling — Driller: Ken Cooper Drilling Method: Air Rotary Boring Diameter (in): 7 7/8 — Boring Depth (ft bgs): 117 Sampling Method: Drill Cuttings Blow Count Method: Not Applicable	TRC Site Rep.: John O'Neal TRC Reviewer: Julie Speer Coord. System: Latitude, Longitude Latitude: 32.87444 Longitude: -103.29685
Field Screening Parameter: Volatile Organic Compounds Meter: MiniRAE 3000 PID — Units: ppm Well Depth (ft bgs): 117.31 — Well Depth (ft toc): 119.90 Casing Length (ft): 99.40 — Screen Length (ft): 20.00 Surface Completion: Stickup Protective Steel Cover and Concrete Pad Well Development: Pump and Surge (36 gallons/10 well volumes)	Elevation Datum: NAVD1988 Ground Elevation (ft): 3817.09 Well Elevation (ft): 3819.68 Well Measuring Point: Top of Casing Depth to Water (ft toc): 97.70 Date/Time: 6/16/17; 07:50

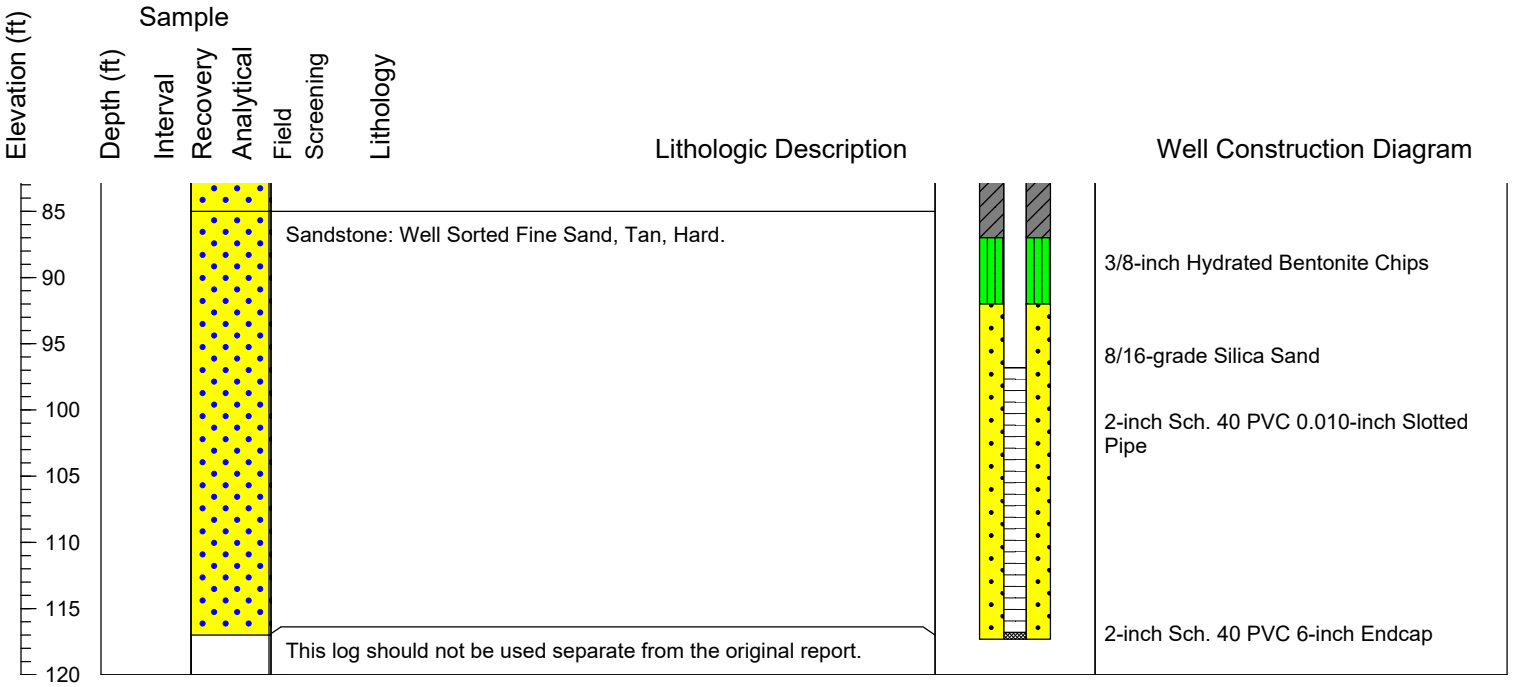
Depth (ft)	Field Screening	Lithology	Lithologic Description
-5 to 0			
0 to 5	1.3		Caliche: Well Sorted Very Fine Sand, Light Tan, Dry, Loose.
5 to 10	1.5		
10 to 15	1.8		Sand: Well Sorted Very Fine Sand, Tan, Dry, Loose, Lightly Cemented at 15 feet.
15 to 20	2.2, 0.9, 2.1		
20 to 25	1.3, 1.2, 1.3		Sandstone: Well Sorted Very Fine to Fine Sand, Tan, Dry, Loosely Cemented.
25 to 30	0.9, 0.8		
30 to 35	0.9, 0.7		
35 to 40	0.4, 1.1		
40 to 45	0.8, 0.7, 0.6		
45 to 50	1.4, 1.7		
50 to 55	1.3, 1.7		
55 to 60	1.5, 1.1, 1.2		
60 to 65	1.3, 1.3, 1.3		
65 to 70	1.2, 1.6		
70 to 75	0.9, 0.9		
75 to 80	0.7, 1.2, 1.8, 0.7		



Well Construction Diagram

- Stick Up Protective Casing with Concrete Pad
- 2-inch Sch. 40 PVC Riser Pipe
- Bentonite/Portland Cement Grout

TRC	**BORING LOG and WELL CONSTRUCTION**	**MW-33**
Client: HollyFrontier Navajo Refining LLC	Site: Navajo Lovington Refinery	Page 2 of 2



ATTACHMENT B

Laboratory Analytical Reports

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

December 15, 2016

JULIE SPEER

TRC SOLUTIONS

505 E. HARTLAND DRIVE, SUITE 250

AUSTIN, TX 78752

RE: NAVAJO

Enclosed are the results of analyses for samples received by the laboratory on 12/08/16 15:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: NAVAJO Project Number: NONE GIVEN Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 15-Dec-16 16:59

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-31 (75)	H602748-01	Soil	07-Dec-16 11:00	08-Dec-16 15:20
MW-31 (98)	H602748-02	Soil	07-Dec-16 11:05	08-Dec-16 15:20

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: NAVAJO Project Number: NONE GIVEN Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 15-Dec-16 16:59

MW-31 (75)

H602748-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
DRO >C10-C28	**1550**		10.0	mg/kg	1	6120901	MS	09-Dec-16	8015B	
Surrogate: 1-Chlorooctane			*76.9 %*	*35-147*		*6120901*	MS	*09-Dec-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*79.6 %*	*28-171*		*6120901*	MS	*09-Dec-16*	*8015B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**3.52**		0.040	mg/kg	40	6112906	MS	13-Dec-16	8270C	
2-Methylnaphthalene	**9.02**		0.800	mg/kg	800	6112906	MS	13-Dec-16	8270C	
1-Methylnaphthalene	**8.72**		0.400	mg/kg	800	6112906	MS	13-Dec-16	8270C	
Surrogate: Nitrobenzene-d5			*136 %*	*36.9-116*		*6112906*	MS	*13-Dec-16*	*8270C*	*S-04*
Surrogate: 2-Fluorobiphenyl			*88.2 %*	*29.5-132*		*6112906*	MS	*13-Dec-16*	*8270C*	
Surrogate: Terphenyl-dl4			*102 %*	*35.1-158*		*6112906*	MS	*13-Dec-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: NAVAJO Project Number: NONE GIVEN Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 15-Dec-16 16:59

MW-31 (98)

H602748-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
DRO >C10-C28	**2490**		10.0	mg/kg	1	6121203	MS	13-Dec-16	8015B	QM-07
Surrogate: 1-Chlorooctane			*115 %*	*35-147*		*6121203*	MS	*13-Dec-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*78.9 %*	*28-171*		*6121203*	MS	*13-Dec-16*	*8015B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**2.80**		0.040	mg/kg	40	6112906	MS	13-Dec-16	8270C	
2-Methylnaphthalene	**8.37**		0.800	mg/kg	800	6112906	MS	13-Dec-16	8270C	
1-Methylnaphthalene	**8.34**		0.400	mg/kg	800	6112906	MS	13-Dec-16	8270C	
Surrogate: Nitrobenzene-d5			*119 %*	*36.9-116*		*6112906*	MS	*13-Dec-16*	*8270C*	*S-04*
Surrogate: 2-Fluorobiphenyl			*92.7 %*	*29.5-132*		*6112906*	MS	*13-Dec-16*	*8270C*	
Surrogate: Terphenyl-dl4			*96.2 %*	*35.1-158*		*6112906*	MS	*13-Dec-16*	*8270C*	

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Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120901 - General Prep - Organics										
Blank (6120901-BLK1)				Prepared & Analyzed: 09-Dec-16						
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	*35.7*		mg/kg	*50.0*		*71.4*	*35-147*			
Surrogate: 1-Chlorooctadecane	*31.9*		mg/kg	*50.0*		*63.8*	*28-171*			
LCS (6120901-BS1)				Prepared & Analyzed: 09-Dec-16						
GRO C6-C10	190	10.0	mg/kg	200		95.0	76.7-115			
DRO >C10-C28	204	10.0	mg/kg	200		102	78.3-122			
Total TPH C6-C28	394	10.0	mg/kg	400		98.6	79.8-117			
Surrogate: 1-Chlorooctane	*37.3*		mg/kg	*50.0*		*74.5*	*35-147*			
Surrogate: 1-Chlorooctadecane	*33.5*		mg/kg	*50.0*		*67.0*	*28-171*			
LCS Dup (6120901-BSD1)				Prepared & Analyzed: 09-Dec-16						
GRO C6-C10	188	10.0	mg/kg	200		93.9	76.7-115	1.17	9.42	
DRO >C10-C28	205	10.0	mg/kg	200		103	78.3-122	0.506	13.2	
Total TPH C6-C28	393	10.0	mg/kg	400		98.3	79.8-117	0.297	10.7	
Surrogate: 1-Chlorooctane	*36.6*		mg/kg	*50.0*		*73.2*	*35-147*			
Surrogate: 1-Chlorooctadecane	*36.2*		mg/kg	*50.0*		*72.5*	*28-171*			
Batch 6121203 - General Prep - Organics										
Blank (6121203-BLK1)				Prepared: 12-Dec-16 Analyzed: 13-Dec-16						
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	*43.5*		mg/kg	*50.0*		*87.0*	*35-147*			
Surrogate: 1-Chlorooctadecane	*48.7*		mg/kg	*50.0*		*97.3*	*28-171*			

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Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: NAVAJO Project Number: NONE GIVEN Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 15-Dec-16 16:59

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6121203 - General Prep - Organics										
LCS (6121203-BS1)				Prepared: 12-Dec-16 Analyzed: 13-Dec-16						
GRO C6-C10	175	10.0	mg/kg	200		87.4	76.7-115			
DRO >C10-C28	177	10.0	mg/kg	200		88.3	78.3-122			
Total TPH C6-C28	351	10.0	mg/kg	400		87.9	79.8-117			
Surrogate: 1-Chlorooctane	*55.2*		mg/kg	*50.0*		*110*	*35-147*			
Surrogate: 1-Chlorooctadecane	*53.4*		mg/kg	*50.0*		*107*	*28-171*			
LCS Dup (6121203-BSD1)				Prepared: 12-Dec-16 Analyzed: 13-Dec-16						
GRO C6-C10	184	10.0	mg/kg	200		92.1	76.7-115	5.25	9.42	
DRO >C10-C28	194	10.0	mg/kg	200		97.1	78.3-122	9.51	13.2	
Total TPH C6-C28	379	10.0	mg/kg	400		94.6	79.8-117	7.41	10.7	
Surrogate: 1-Chlorooctane	*58.2*		mg/kg	*50.0*		*116*	*35-147*			
Surrogate: 1-Chlorooctadecane	*60.7*		mg/kg	*50.0*		*121*	*28-171*			

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Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: NAVAJO Project Number: NONE GIVEN Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 15-Dec-16 16:59

Semivolatile Organic Compounds by GCMS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6112906 - SW-846 3550										
Blank (6112906-BLK1)				Prepared: 29-Nov-16 Analyzed: 07-Dec-16						
Naphthalene	ND	0.040	mg/kg							
2-Methylnaphthalene	ND	0.040	mg/kg							
1-Methylnaphthalene	ND	0.020	mg/kg							
Acenaphthylene	ND	0.040	mg/kg							
Acenaphthene	ND	0.040	mg/kg							
Fluorene	ND	0.040	mg/kg							
Phenanthrene	ND	0.040	mg/kg							
Anthracene	ND	0.040	mg/kg							
Carbazole	ND	0.040	mg/kg							
Fluoranthene	ND	0.040	mg/kg							
Pyrene	ND	0.040	mg/kg							
Benzo[a]anthracene	ND	0.040	mg/kg							
Chrysene	ND	0.040	mg/kg							
Benzo[b]flouranthene	ND	0.040	mg/kg							
Benzo[k]flouranthene	ND	0.040	mg/kg							
Benzo[a]pyrene	ND	0.040	mg/kg							
Indeno[1,2,3-cd]pyrene	ND	0.040	mg/kg							
Dibenz[a,h]anthracene	ND	0.040	mg/kg							
Benzo[g,h,i]perylene	ND	0.040	mg/kg							
Surrogate: Nitrobenzene-d5	*2.20*		mg/kg	*2.00*		*110*	*36.9-116*			
Surrogate: 2-Fluorobiphenyl	*1.88*		mg/kg	*2.00*		*94.0*	*29.5-132*			
Surrogate: Terphenyl-dl4	*2.38*		mg/kg	*2.00*		*119*	*35.1-158*			
LCS (6112906-BS1)				Prepared: 29-Nov-16 Analyzed: 07-Dec-16						
Naphthalene	0.435	0.040	mg/kg	0.400		109	44.7-98			BS1
2-Methylnaphthalene	0.395	0.040	mg/kg	0.400		98.7	38.9-112			
Acenaphthylene	0.420	0.040	mg/kg	0.400		105	40.8-111			
Acenaphthene	0.428	0.040	mg/kg	0.400		107	38.4-113			
Fluorene	0.424	0.040	mg/kg	0.400		106	35.2-119			
Phenanthrene	0.439	0.040	mg/kg	0.400		110	38.1-123			
Anthracene	0.432	0.040	mg/kg	0.400		108	40.3-118			
Carbazole	0.421	0.040	mg/kg	0.400		105	33-126			

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Semivolatile Organic Compounds by GCMS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6112906 - SW-846 3550										
LCS (6112906-BS1)				Prepared: 29-Nov-16 Analyzed: 07-Dec-16						
Fluoranthene	0.448	0.040	mg/kg	0.400		112	32.8-127			
Pyrene	0.459	0.040	mg/kg	0.400		115	39.4-120			
Benzo[a]anthracene	0.463	0.040	mg/kg	0.400		116	43.9-111			BS1
Chrysene	0.456	0.040	mg/kg	0.400		114	44.4-111			BS1
Benzo[b]flouranthene	0.462	0.040	mg/kg	0.400		116	33.1-123			
Benzo[k]flouranthene	0.470	0.040	mg/kg	0.400		118	37.5-124			
Benzo[a]pyrene	0.448	0.040	mg/kg	0.400		112	41.6-117			
Indeno[1,2,3-cd]pyrene	0.445	0.040	mg/kg	0.400		111	35.7-115			
Dibenz[a,h]anthracene	0.449	0.040	mg/kg	0.400		112	40-113			
Benzo[g,h,i]perylene	0.439	0.040	mg/kg	0.400		110	31.4-115			
Surrogate: Nitrobenzene-d5	*2.96*		mg/kg	*2.00*		*148*	*36.9-116*			
Surrogate: 2-Fluorobiphenyl	*2.50*		mg/kg	*2.00*		*125*	*29.5-132*			
Surrogate: Terphenyl-dl4	*3.13*		mg/kg	*2.00*		*156*	*35.1-158*			
LCS Dup (6112906-BSD1)				Prepared: 29-Nov-16 Analyzed: 07-Dec-16						
Naphthalene	0.426	0.040	mg/kg	0.400		106	44.7-98	2.11	9.54	BS1
2-Methylnaphthalene	0.397	0.040	mg/kg	0.400		99.2	38.9-112	0.503	15.5	
Acenaphthylene	0.414	0.040	mg/kg	0.400		104	40.8-111	1.38	14.2	
Acenaphthene	0.417	0.040	mg/kg	0.400		104	38.4-113	2.77	9.34	
Fluorene	0.424	0.040	mg/kg	0.400		106	35.2-119	0.0566	12.6	
Phenanthrene	0.436	0.040	mg/kg	0.400		109	38.1-123	0.471	13.5	
Anthracene	0.431	0.040	mg/kg	0.400		108	40.3-118	0.378	18.3	
Carbazole	0.428	0.040	mg/kg	0.400		107	33-126	1.68	25.3	
Fluoranthene	0.466	0.040	mg/kg	0.400		116	32.8-127	3.91	19.6	
Pyrene	0.471	0.040	mg/kg	0.400		118	39.4-120	2.47	26.5	
Benzo[a]anthracene	0.462	0.040	mg/kg	0.400		115	43.9-111	0.156	4.96	BS1
Chrysene	0.460	0.040	mg/kg	0.400		115	44.4-111	0.847	4.96	BS1
Benzo[b]flouranthene	0.503	0.040	mg/kg	0.400		126	33.1-123	8.40	24.2	BS1
Benzo[k]flouranthene	0.482	0.040	mg/kg	0.400		121	37.5-124	2.53	23.1	
Benzo[a]pyrene	0.463	0.040	mg/kg	0.400		116	41.6-117	3.19	7.25	
Indeno[1,2,3-cd]pyrene	0.400	0.040	mg/kg	0.400		100	35.7-115	10.6	12.7	
Dibenz[a,h]anthracene	0.406	0.040	mg/kg	0.400		101	40-113	10.1	12.1	

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Semivolatile Organic Compounds by GCMS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6112906 - SW-846 3550										
LCS Dup (6112906-BSD1)				Prepared: 29-Nov-16 Analyzed: 07-Dec-16						
Benzo[g,h,i]perylene	0.386	0.040	mg/kg	0.400		96.6	31.4-115	12.7	12.4	QR-03
Surrogate: Nitrobenzene-d5	*2.85*		mg/kg	*2.00*		*143*	*36.9-116*			
Surrogate: 2-Fluorobiphenyl	*2.56*		mg/kg	*2.00*		*128*	*29.5-132*			
Surrogate: Terphenyl-dl4	*3.34*		mg/kg	*2.00*		*167*	*35.1-158*			

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Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside if QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
BS1	Blank spike recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	TRC	**BILL TO**	
Project Manager:	Julie Speer	P.O. #:	
Address:	505 E Huntland Dr. Ste 250	Company:	
City:	Austin State: TX Zip: 78752	Attn:	
Phone #:	512-684-3174 Fax #: 512-431-8124	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location:		Phone #:	
Sampler Name:	John P. O'Neal	Fax #:	

FOR LAB USE ONLY				MATRIX							PRESERV.			SAMPLING		ANALYSIS REQUEST												
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	TPH DRO 8015	Naphthalene, 1-Methylnaphthalene, 2-Methylnaphthalene (8270)												
H602748													2016															
1	MW-31 (75)	G	2			X					X		12/7	1100	X	X												
2	MW-31 (98)	G	2			X					X		12/7	1105	X	X												

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Relinquished By:	Date: 12/8/16	Received By:	Jodi Henson
	Time: 5:20		
Relinquished By:	Date:	Received By:	
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: #75 5.2°C

Sample Condition	CHECKED BY: (Initials)
Cool: ☑ Yes ☐ No	
Intact: ☑ Yes ☐ No	

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:
Julie Speer
John O'Neal - joneal@trcsolutions.com

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

December 17, 2016

JULIE SPEER

TRC SOLUTIONS

505 E. HARTLAND DRIVE, SUITE 250

AUSTIN, TX 78752

RE: NAVAJO

Enclosed are the results of analyses for samples received by the laboratory on 12/08/16 15:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: NAVAJO Project Number: NONE GIVEN Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 17-Dec-16 13:34

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-31	H602749-01	Water	07-Dec-16 15:45	08-Dec-16 15:25
MW-31 D	H602749-02	Water	07-Dec-16 15:50	08-Dec-16 15:25

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: NAVAJO Project Number: NONE GIVEN Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 17-Dec-16 13:34

MW-31

H602749-01 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Organic Compounds										
TPH 418.1	**584**		10.0	mg/L	1	6121702	CK	17-Dec-16	418.1	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**0.039**		0.001	mg/L	1.11	6112111	MS	12-Dec-16	8270C	
2-Methylnaphthalene	**0.051**		0.011	mg/L	11.1	6112111	MS	13-Dec-16	8270C	
1-Methylnaphthalene	**0.050**		0.006	mg/L	11.1	6112111	MS	13-Dec-16	8270C	
Surrogate: Nitrobenzene-d5			*142 %*	*40.9-93.2*		*6112111*	MS	*12-Dec-16*	*8270C*	*S-04*
Surrogate: 2-Fluorobiphenyl			*90.3 %*	*23-91.1*		*6112111*	MS	*12-Dec-16*	*8270C*	
Surrogate: Terphenyl-dl4			*119 %*	*42.4-126*		*6112111*	MS	*12-Dec-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: NAVAJO Project Number: NONE GIVEN Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 17-Dec-16 13:34

MW-31 D

H602749-02 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Organic Compounds										
TPH 418.1	**621**		10.0	mg/L	1	6121702	CK	17-Dec-16	418.1	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**0.031**		0.001	mg/L	1	6112111	MS	12-Dec-16	8270C	
2-Methylnaphthalene	**0.045**		0.010	mg/L	10	6112111	MS	13-Dec-16	8270C	
1-Methylnaphthalene	**0.045**		0.005	mg/L	10	6112111	MS	13-Dec-16	8270C	
Surrogate: Nitrobenzene-d5			*105 %*	*40.9-93.2*		*6112111*	MS	*12-Dec-16*	*8270C*	*S-04*
Surrogate: 2-Fluorobiphenyl			*87.5 %*	*23-91.1*		*6112111*	MS	*12-Dec-16*	*8270C*	
Surrogate: Terphenyl-dl4			*109 %*	*42.4-126*		*6112111*	MS	*12-Dec-16*	*8270C*	

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CARDINAL Laboratories

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Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: NAVAJO Project Number: NONE GIVEN Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 17-Dec-16 13:34

Organic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6121702 - Solvent Extraction										
Blank (6121702-BLK1)				Prepared & Analyzed: 17-Dec-16						
TPH 418.1	ND	10.0	mg/L							
LCS (6121702-BS1)				Prepared & Analyzed: 17-Dec-16						
TPH 418.1	249	10.0	mg/L	250		99.6	70-130			
LCS Dup (6121702-BSD1)				Prepared & Analyzed: 17-Dec-16						
TPH 418.1	231	10.0	mg/L	250		92.4	70-130	7.50	20	

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CARDINAL Laboratories

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Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: NAVAJO Project Number: NONE GIVEN Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 17-Dec-16 13:34

Semivolatile Organic Compounds by GCMS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6112111 - SW846-3510										
Blank (6112111-BLK1)				Prepared: 21-Nov-16 Analyzed: 22-Nov-16						
Naphthalene	ND	0.001	mg/L							
2-Methylnaphthalene	ND	0.001	mg/L							
1-Methylnaphthalene	ND	0.0005	mg/L							
Surrogate: Nitrobenzene-d5	*0.0526*		mg/L	*0.0500*		*105*	*40.9-93.2*			
Surrogate: 2-Fluorobiphenyl	*0.0469*		mg/L	*0.0500*		*93.8*	*23-91.1*			
Surrogate: Terphenyl-dl4	*0.0586*		mg/L	*0.0500*		*117*	*42.4-126*			
LCS (6112111-BS1)				Prepared: 21-Nov-16 Analyzed: 22-Nov-16						
Naphthalene	0.010	0.001	mg/L	0.0100		104	28.1-78.2			BS1
2-Methylnaphthalene	0.010	0.001	mg/L	0.0100		100	25.1-88.8			BS1
Surrogate: Nitrobenzene-d5	*0.0594*		mg/L	*0.0500*		*119*	*40.9-93.2*			
Surrogate: 2-Fluorobiphenyl	*0.0505*		mg/L	*0.0500*		*101*	*23-91.1*			
Surrogate: Terphenyl-dl4	*0.0611*		mg/L	*0.0500*		*122*	*42.4-126*			
LCS Dup (6112111-BSD1)				Prepared: 21-Nov-16 Analyzed: 22-Nov-16						
Naphthalene	0.010	0.001	mg/L	0.0100		104	28.1-78.2	0.0965	15.8	BS1
2-Methylnaphthalene	0.010	0.001	mg/L	0.0100		98.3	25.1-88.8	2.11	15.2	BS1
Surrogate: Nitrobenzene-d5	*0.0596*		mg/L	*0.0500*		*119*	*40.9-93.2*			
Surrogate: 2-Fluorobiphenyl	*0.0514*		mg/L	*0.0500*		*103*	*23-91.1*			
Surrogate: Terphenyl-dl4	*0.0614*		mg/L	*0.0500*		*123*	*42.4-126*			

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
BS1	Blank spike recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	TRC
Project Manager:	Julie Speer
Address:	505 E. Huntland Dr. Ste 250
City:	Austin State: TX Zip: 78752
Phone #:	512-684-3124 Fax #: 512-431-8184
Project #:	Project Owner:
Project Name:	
Project Location:	
Sampler Name:	

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State: Zip:	
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING DATE	TIME	TPH DRO 418.1	Naphthalene, 1-Methylnaphthalene, 1,2-Methylnaphthalene (8270)
H602749													2016			
1	MW-31		2	✓							✓		12/7	1445	✓	✓
2	MW-310		2	✓							✓		12/7	1550	✓	✓

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Relinquished By:	Date: 12/8/16	Received By:	
	Time: 3:25		
Relinquished By:	Date:	Received By:	
	Time:		

Phone Result:	☐ Yes	☐ No	Add'l Phone #:
Fax Result:	☐ Yes	☐ No	Add'l Fax #:
REMARKS:			

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: #75 5.2°C

Sample Condition		CHECKED BY: (Initials)
Cool	Intact	
☑ Yes ☐ No	☑ Yes ☐ No	

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

February 21, 2017

JULIE SPEER

TRC SOLUTIONS

505 E. HARTLAND DRIVE, SUITE 250

AUSTIN, TX 78752

RE: LOVINGTON 2017 GROUNDWATER MONITORING

Enclosed are the results of analyses for samples received by the laboratory on 02/10/17 8:36.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: LOVINGTON 2017 GROUNDWATER Project Number: 270076.0000 Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 21-Feb-17 08:24

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-31	H700346-01	Oil	09-Feb-17 12:20	10-Feb-17 08:36

Cardinal Laboratories

*=Accredited Analyte

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Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: LOVINGTON 2017 GROUNDWATER Project Number: 270076.0000 Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 21-Feb-17 08:24

MW-31

H700346-01 (Oil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Specific Gravity @ 60° F	**0.8317**		0.000	[blank]	1	7021506	AC	15-Feb-17	SM 2710F	
Miscellaneous Subcontracted Analyses										
API Gravity @ 60° F	**38.3**		0.00	@ 60°F	1	7022101	CK	17-Feb-17	D287	SUB_LS
Sulfur	**0.3090**		0.0001	%	1	7022101	CK	17-Feb-17	D4294	SUB_LS

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CARDINAL Laboratories

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Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: LOVINGTON 2017 GROUNDWATER Project Number: 270076.0000 Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 21-Feb-17 08:24

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7021506 - General Prep - Wet Chem										
Duplicate (7021506-DUP1)		**Source: H700346-01**		Prepared & Analyzed: 15-Feb-17						
Specific Gravity @ 60° F	0.8327	0.000	[blank]		0.8317			0.120	20	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

SUB_LS	Analysis subcontracted to Laboratory Services, Inc.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	TRC
Project Manager:	Julie Speer
Address:	505 East Huntland Dr.
City:	Austin State: TX Zip: 78752
Phone #:	(512) 684-3148 Fax #: 512-329-8750
Project #:	270076.0000 Project Owner:
Project Name:	Lovington ~~Gross~~ 2017 Groundwater Monitoring
Project Location:	Lovington, NM
Sampler Name:	Audrey Ejuri; John O'Neal

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

ANALYSIS REQUEST

Sulfur
Gravity
Extended Liquid Analysis

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER: Product	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME
H700346-1	MW-31	G	2						X		X		2/9/17	1220

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Relinquished By: Audrey Ejuri	Date: 2/10/17 Time: 8:30	Received By: Jodi Henson	
Relinquished By:	Date: Time:	Received By:	

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: #75 1.4°C

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No

CHECKED BY: (Initials) JH

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

jspeer@trcsolutions.com

+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

MITCHELL ANALYTICAL LAB
2638 FAUDREE
ODESSA, TEXAS 79765-8538
432.561.5579

SUMMARY OF CHROMATOGRAPHIC ANALYSIS

COMPANY:	Cardinal Laboratories	**Lab Ref #:**	17-FEB-93068
PRODUCER:	Cardinal	**SAMPLED BY:**	n.a.
LEASE:	H700346-01	**SAMPLE DATE**	2/9/17
STATION #:	MW-31		
DATE RUN:	2/16/2017		

COMPONENT	MOLE %	WEIGHT %	VOLUME %
HYDROGEN SULFIDE	0.0000	0.0000	0.0000
NITROGEN	0.0000	0.0000	0.0000
OXYGEN	0.0000	0.0000	0.0000
METHANE	0.0000	0.0000	0.0000
CARBON DIOXIDE	0.0000	0.0000	0.0000
ETHANE	0.0000	0.0000	0.0000
PROPANE	0.0000	0.0000	0.0000
ISO-BUTANE	0.0175	0.0055	0.0075
N-BUTANE	0.0187	0.0059	0.0078
ISO-PENTANE	0.1374	0.0537	0.0664
N-PENTANE (C-5)	0.3410	0.1333	0.1630
2,2 DIMETHYL BUTANE	0.0000	0.0000	0.0000
CYCLOPENTANE	0.0000	0.0000	0.0000
2-METHYLPENTANE	0.5946	0.2776	0.3258
3-METHYLPENTANE	0.4453	0.2079	0.2399
N-HEXANE (C-6)	1.0935	0.5105	0.5937
METHYLCYCLOPENTANE	0.9631	0.4391	0.4496
BENZENE	0.5705	0.2414	0.2111
CYCLOHEXANE	1.8731	0.8540	0.8415
2-METHYLHEXANE	0.2520	0.1368	0.1548
3-METHYLHEXANE	0.6792	0.3687	0.4108
DIMETHYLCYCLOPENTA	0.5918	0.3148	0.3214
HEPTANES	0.5871	0.3187	0.3575
N-HEPTANE (C-7)	1.3295	0.7217	0.8095
METHYLCYCLOHEXANE	2.3081	1.2025	1.1982
TOLUENE	1.8277	0.9123	0.8055
OCTANES	2.8126	1.7405	1.9006
N-OCTANE (C-8)	1.2346	0.7640	0.8343
ETHYL BENZENE	0.6475	0.3724	0.3288
P-M-XYLENE	1.6479	0.9478	0.8429
O-XYLENE	0.6485	0.3730	0.3254
NONANES	3.2265	2.2419	2.3976
N-NONANE (C-9)	1.4052	0.9764	1.0442

CALCULATED PARAMETERS

TOTAL ANALYSIS SUMMARY

AVE MOLE WT	184.5913
SP GRAV, 60F/60	0.8225
API GRAVITY	40.5
REL DENS, AIR=1	6.3733
VAPOR PRESS PSIA	0.51

HEXANES PLUS SUMMARY

AVE MOLE WT	185.1780
SP GRAV, 60F/60	0.8236
API GRAVITY	40.3
LBS/GAL	6.589
REL DENS, AIR=1	6.3935
VAPOR PRESS PSIA	0.41

BTEX SUMMARY

WT % BENZENE	0.2414
WT % TOLUENE	0.9123
WT % E BENZENE	0.3724
WT % XYLENES	1.3208

DECANES PLUS SUMMARY

AVE MOLE WT	212.0836
SP GRAV, 60F/60	0.8451
API GRAVITY	35.9
LBS/GAL	6.762
REL DENS, AIR=1	7.3225
VAPOR PRESS PSIA	0.010

CONTINUED ON NEXT PAGE

H700346-01

COMPONENT	MOLE %	WEIGHT %	VOLUME %
DECANES	5.8261	4.4907	4.7218
N-DECANE (C-10)	2.4296	1.8727	1.9691
UNDECANES	6.7119	5.6836	5.8933
N-UNDECANE (C-11)	2.6626	2.2547	2.3379
DODECANES	5.7512	5.3072	5.4425
N-DODECANE (C-12)	2.0079	1.8529	1.9001
TRIDECANES	5.1900	5.1835	5.2529
N-TRIDECANE (C-13)	1.8842	1.8818	1.9070
TETRADECANES	4.3351	4.6592	4.7119
N-TETRADECANE (C-14)	1.8961	2.0378	2.0609
PENTADECANES	4.4541	5.1256	5.1240
N-PENTADECANE (C-15)	1.6067	1.8489	1.8483
HEXADECANES	2.6068	3.1978	3.1761
N-HEXADECANE (C-16)	1.1758	1.4424	1.4326
HEPTADECANES	1.8015	2.3468	2.3237
N-HEPTADECANE (C-17)	0.9140	1.1907	1.1790
OCTADECANES	1.5174	2.0921	2.0655
N-OCTADECANE (C-18)	0.6968	0.9607	0.9485
NONADECANES	1.0411	1.5145	1.4856
N-NONADECANE (C-19)	0.5532	0.8048	0.7895
EICOSANES	0.4252	0.6508	0.6349
N-EICOSANES (C-20)	0.3306	0.5060	0.4937
HENEICOSANE + (C-21+)	18.9292	28.9744	27.6634
TOTALS	100.0000	100.0000	100.0000

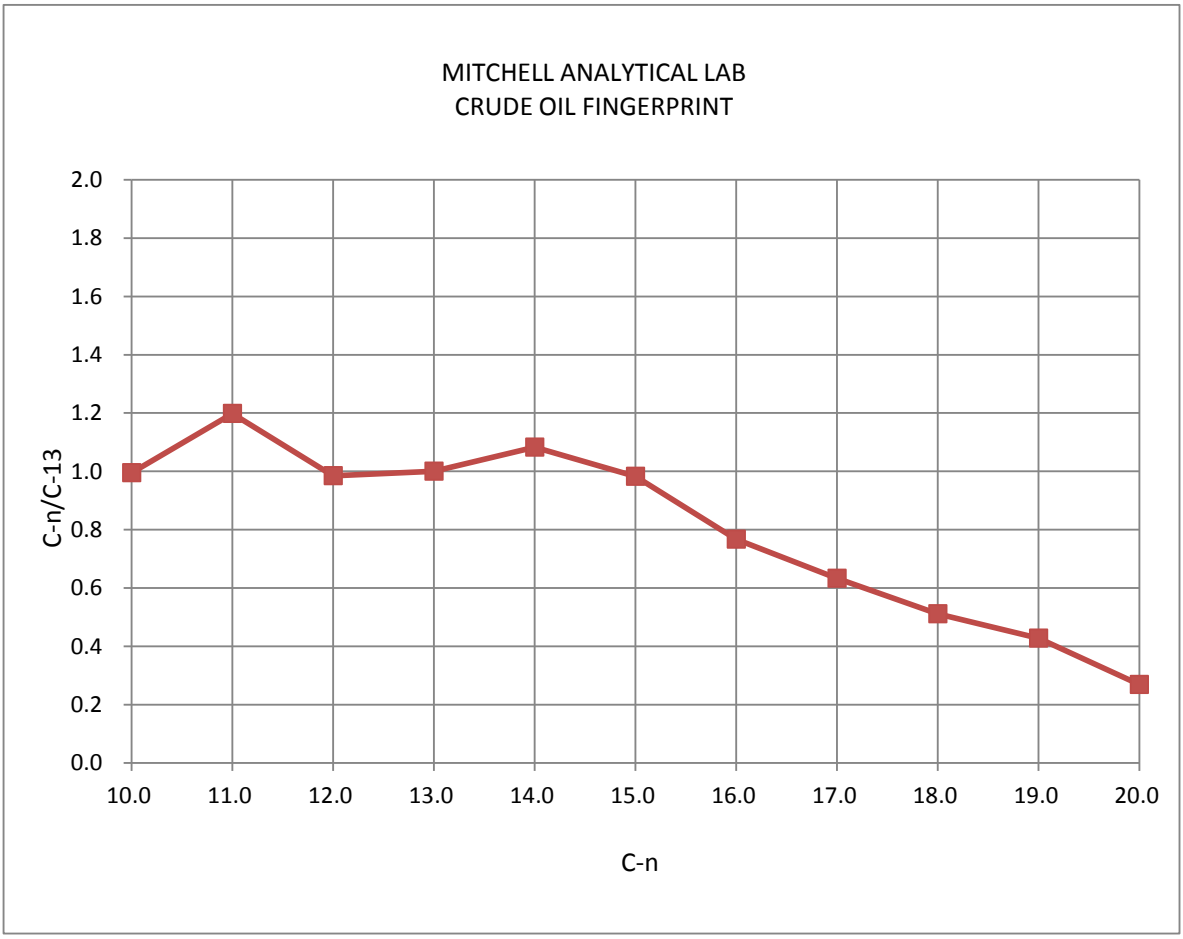
CRUDE OIL FINGERPRINT
C-n/C-13 RATIO SUMMARY

C-n	C-n/C-13
10.0	0.995
11.0	1.198
12.0	0.985
13.0	1.000
14.0	1.083
15.0	0.983
16.0	0.767
17.0	0.633
18.0	0.511
19.0	0.428
20.0	0.269

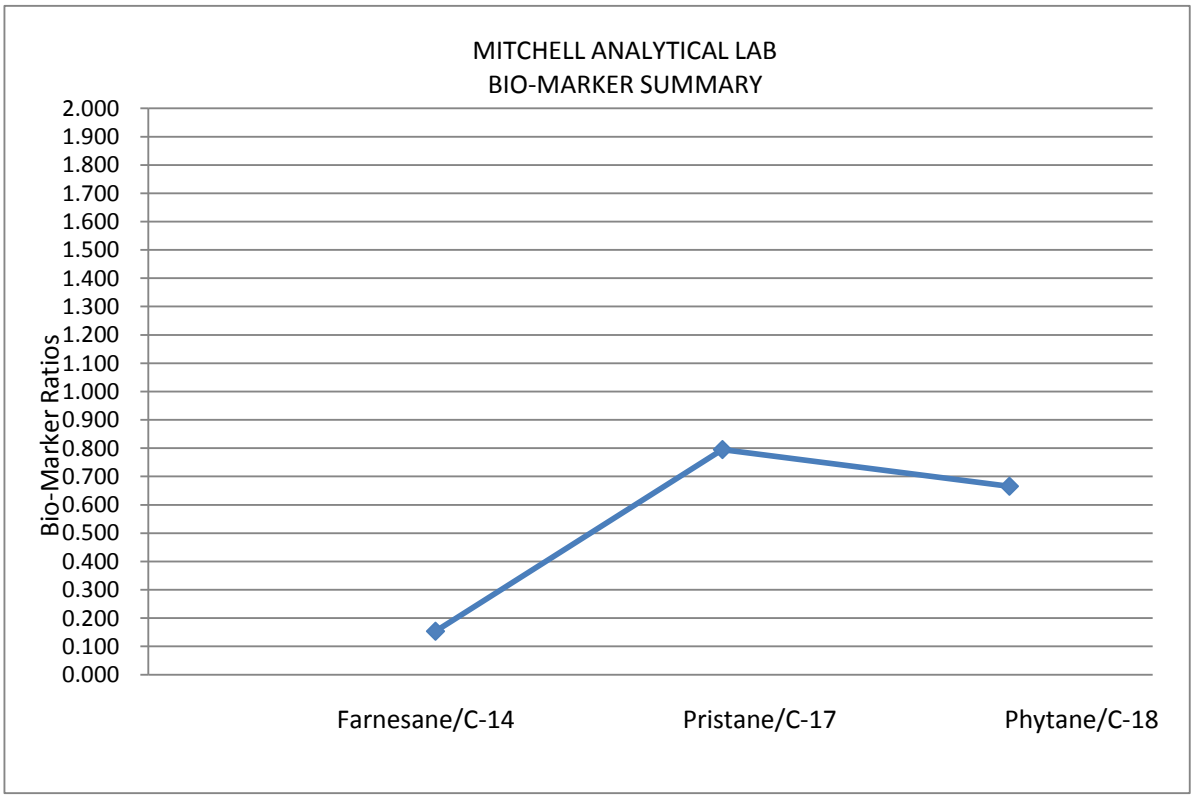
BIO-MARKER SUMMARY

Farnesane/C-14	0.153
Pristane/C-17	0.795
Phytane/C-18	0.665

Weight % Sulfur	n.a.
Gravity, API @ 60 F	40.3


MITCHELL ANALYTICAL LAB
CRUDE OIL FINGERPRINT
C-n/C-13
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
10.0
11.0
12.0
13.0
14.0
15.0
16.0
17.0
18.0
19.0
20.0
C-n

H700346-01


MITCHELL ANALYTICAL LAB
BIO-MARKER SUMMARY
Bio-Marker Ratios
2.000
1.900
1.800
1.700
1.600
1.500
1.400
1.300
1.200
1.100
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
Farnesane/C-14
Pristane/C-17
Phytane/C-18

Torkelson Geochemistry, Inc.
2528 South Columbia Place, Tulsa, Oklahoma 74114-3233
Voice 918-749-8441, Fax 918-749-6005

June 27, 2017

Julie Speer
TRC Environmental Corporation
505 E. Huntland Dr.
Suite 250
Austin, TX 78752

Subject: Hydrocarbon fingerprint analysis and evaluation of one product sample from the Loading Rack MW-31, Lovington, New Mexico site

Introduction

One product sample was submitted to Torkelson Geochemistry by TRC Environmental Corporation for hydrocarbon fingerprint (capillary gas chromatography) analysis and interpretation of results, see chain of Custody, Figure 1.

The following are my interpretations/opinions of the data. Please keep in mind that these interpretations are made without any hands on knowledge of the site or other analyses done on the sample. In addition, the petroleum in the sample has probably been altered/weathered which can make an accurate interpretation of product type somewhat more difficult since some of the key features of the product have been altered or removed by the evaporation, water washing and perhaps bacterial processes.

Discussion of Gas Chromatography Results

Sample MW-31 appears to be a mixture composed mostly if moderately weathered middle distillate, either diesel fuel or fuel oil and a much smaller amount of an unidentified gasoline range material. The gas chromatogram of product sample MW-31 (Figures 2 and 4) shows a series of peaks that starts at about isopentane (iC5) and continues to about nC29 and an unresolved hump that starts at about nC10, reaches a maximum at about nC16 of nC17 and continues to about nC26. This range of peaks includes the gasoline range from about nC4 to about nC14 and the middle distillate range from about nC8 to about nC25. The types of peaks, proportions of peaks and unresolved hump in the middle distillate range are typical of a moderately weathered middle distillate probably a diesel fuel or fuel oil. The most noticeable type of weathering of middle distillates is biodegradation which selectively reduces the size of the normal paraffin peaks (labeled nC8 to nC29) relative to other peaks such as the isoprenoid peaks (labeled IP13, IP14, IP15, IP16, IP18, Pristane and Phytane). Based on the degree of biodegradation and the technique first developed by Christensen and Larsen (1993) and later confirmed and expanded upon by Schmidt, Beckmann and Torkelson (1999) and Hurst and Schmidt (2005), sample MW-31 is estimated to have been released about 7 +/-2 years ago. The identity of the material in the gasoline range is not clear. The types of peaks present in the gasoline range are found in gasoline but the relative proportions are very different from typical gasoline. Most significant is the relatively large normal paraffin peaks (labeled nC4 to about nC8). The results of the sulfur analysis are in Attachment 1.

Please let me know if you have any questions regarding this preliminary interpretation.

Bruce Torkelson

Christensen, L. B. and Larsen, T. H., “Method for Determining the Age of Diesel Oil Spills in the Soil, Ground Water Monitoring and Remediation,” Vol.. 13, No. 4, pp. 1420-149 (1993).

Schmidt, G.W., Beckmann, D.D., and Torkelson, B.E., “Advances in Correlation and Age Dating of Petroleum Products Released to Soils and Groundwater”, proceedings of the IPEC meeting, Houston, TX, November, 1999.

Hurst, R.W. and Schmidt, G.W., “Age significance of nC17/Pr ratios in forensic investigations of refined product and crude oil releases”, Environmental Geosciences, Vol 12, No. 3, September 2005, pp. 177-192.

Torkelson Geochemistry, Inc.

2528 S. Columbia Place
Tulsa, OK 74114-3233
Phone: 918-749-8441
Fax: 918-749-6005
e-mail: BTorkelson@torkelsongeochemistry.com

CHAIN-OF-CUSTODY RECORD

Project: Loading Rack MW-31
Location: Lovington, NM

Proj. No.: 274418.0000
P.O.:
Sampled By: Audrey Eljuri

Report/Bill To: TRC Environmental Corp. c/o Julie Speer
Address: 505 E Huntland Dr., Suite 250
Austin, TX 78752

Phone: 512-684-3148
Fax: 512-329-5750
e-mail: jspeer@trcsolutions.com

Additional Instructions

Requested Turn-Around Time:

ITEM NO.	SAMPLE DESCRIPTION	DATE	MATRIX	LAB NO.	Total # OF Vials	PRESERVATIVES: None	ANALYSES REQUESTED: GC Characterization	Density	Viscosity	Water Surface Tension	NAPL Surface Tension	NAPL/Water Interfac. Tens.	Lead	Sulfur	REMARKS
1	MW-31	5/31/2017	Product		1	X	X								Collected at 11:58.
2															
3															
4															
5															
6															
7															
8															
9															
10															

RELINQUISHED BY	DATE	TIME	ACCEPTED BY	DATE	TIME
Audrey Eljuri	5/31/17	13:00	Andres Sandoval	5/31/17	3:30 p.m.
Andres Sandoval	6/1/17	10:00	Brian Fortner	6-5-17	1201

Figure 1, Chain of Custody.

Torkelson Geochemistry, Inc.
GC/FID

Loading Rack MW-31, Lovington, NM
Sample ID : MW-31
Acquired : Jun 08, 2017 18:35:30

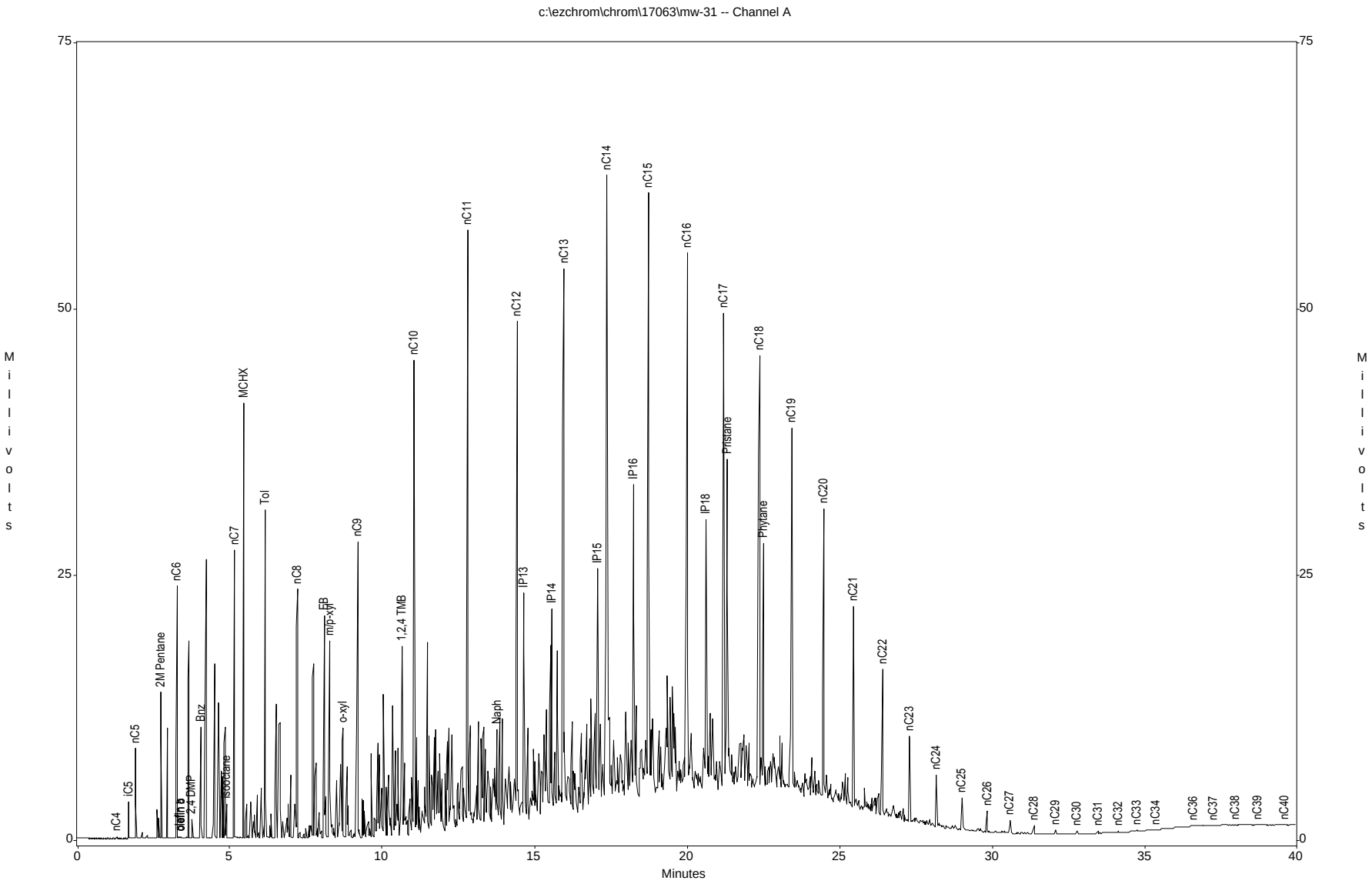


Figure 2, Gas chromatogram of extract from product sample MW-31.

Torkelson Geochemistry, Inc.
GC/FID

Loading Rack MW-31, Lovington, NM
Sample ID : Gas/Dies/Wax std
Acquired : Jun 08, 2017 13:23:35

c:\ezchrom\chrom\17063\gadiwax2.2 -- Channel A

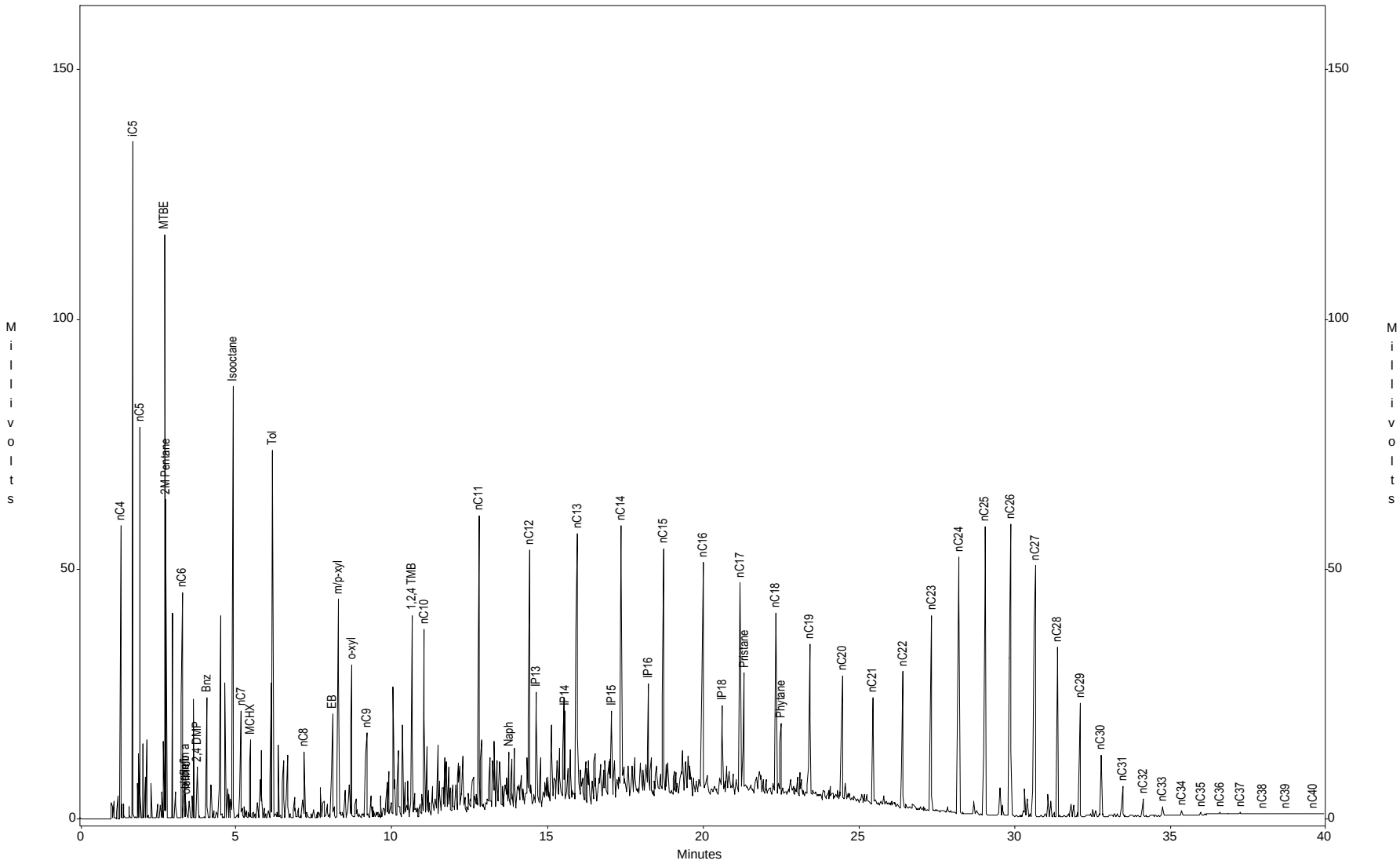
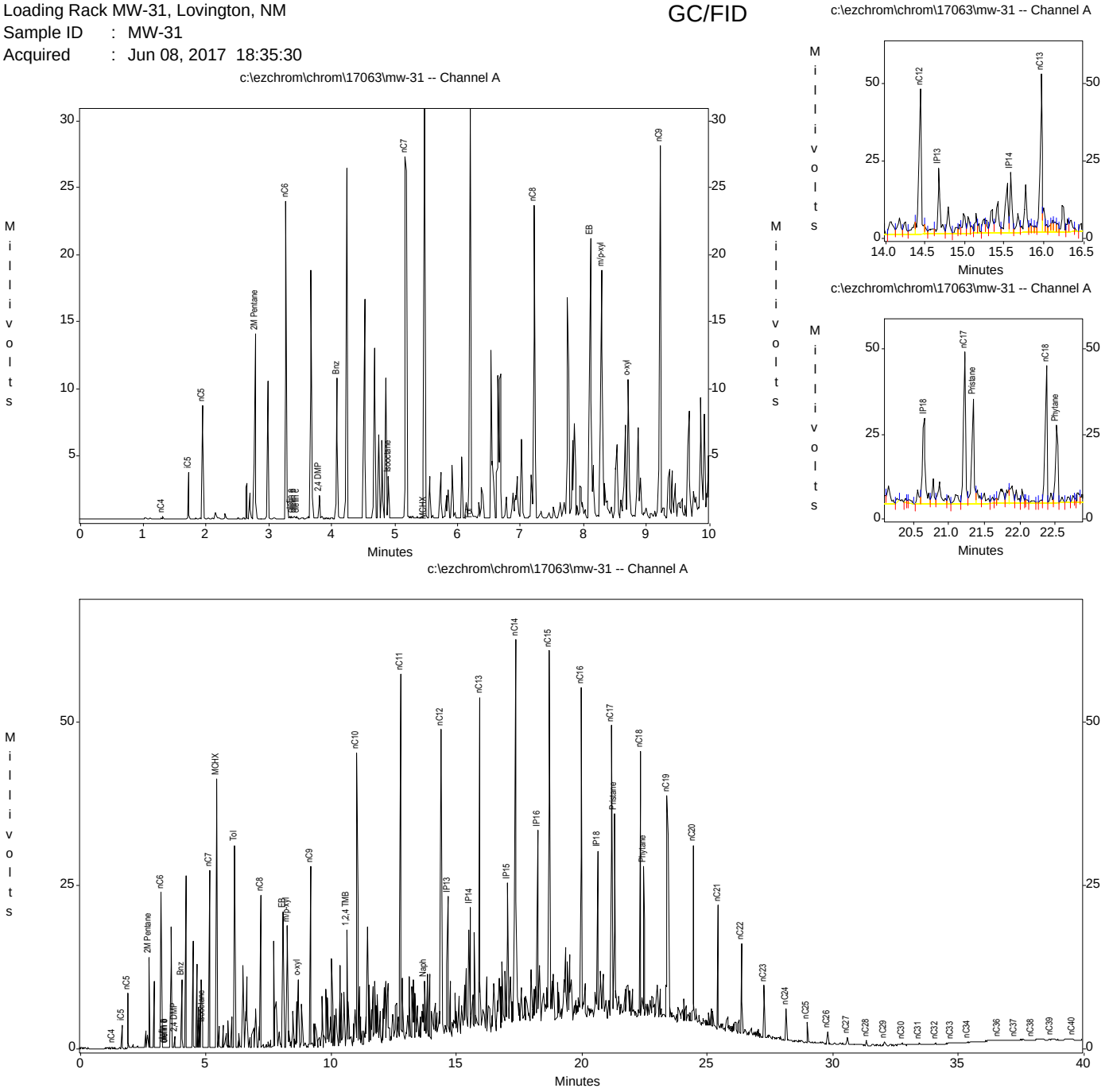


Figure 3, Gas chromatogram of laboratory standard (gasoline/diesel/wax mixture).

Torkelson Geochemistry, Inc.

GC/FID

Loading Rack MW-31, Lovington, NM
Sample ID : MW-31
Acquired : Jun 08, 2017 18:35:30



Channel A Results

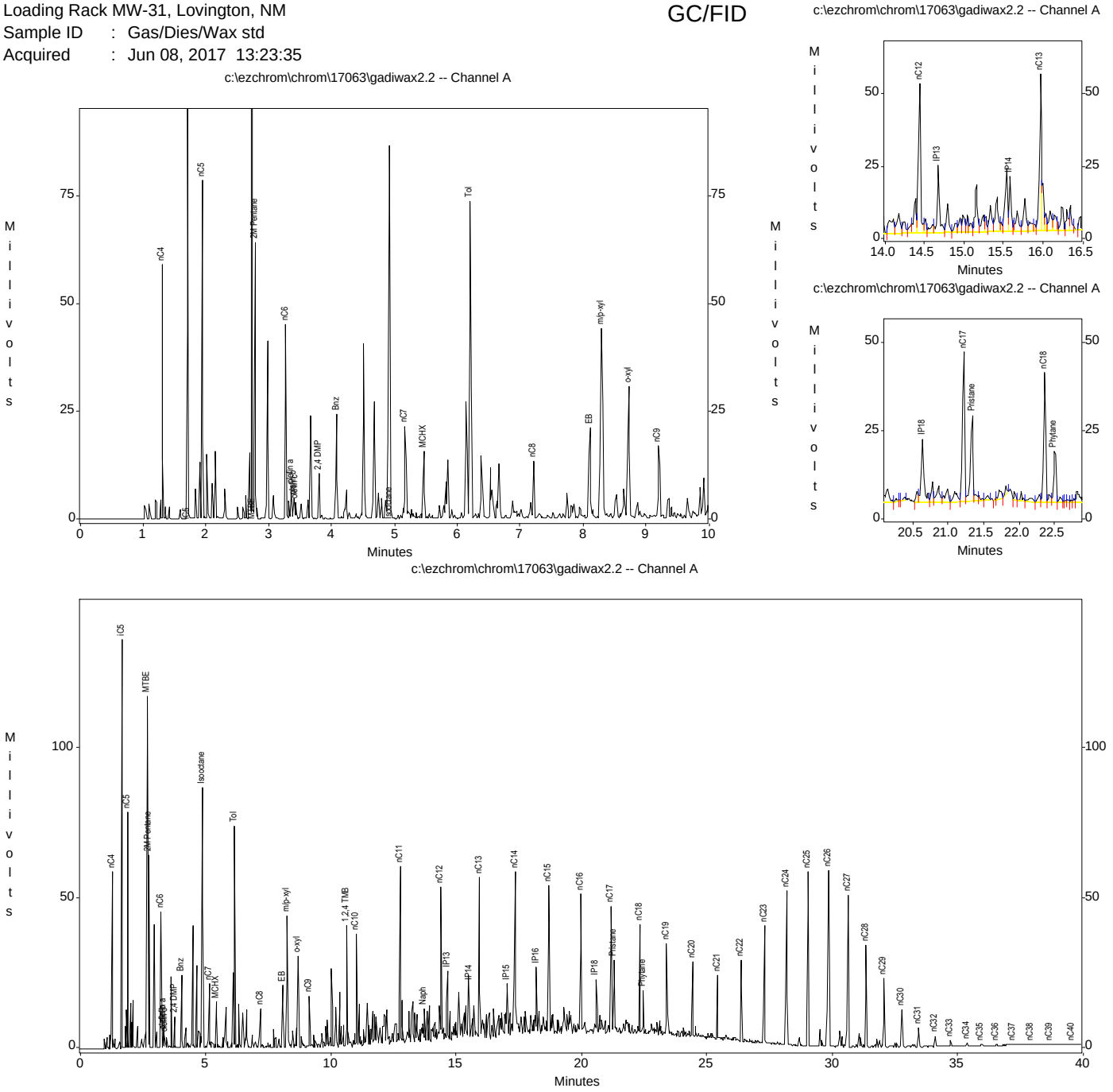
Peak	Area	Height
nC4	112	181
iC5	2345	3517
nC5	6080	8433
MTBE	0	0
2M Pentane	12186	13799
nC6	22335	23711
olefin a	229	189
olefin b	185	177
olefin c	142	125
2,4 DMP	1821	1756
Bnz	11631	10510
Isooctane	3633	3150
nC7	31433	27047
MCHX	51104	40962
Tol	38800	30870
nC8	29584	23368
EB	29835	20855
m/p-xyl	33199	18557
o-xyl	15036	10336
nC9	40970	27830
1,2,4 TMB	33951	17733
nC10	71135	44629
nC11	97726	56234
Naph	19699	8990
nC12	92882	47145
IP13	39798	21431
IP14	29720	19472
nC13	99690	51342
IP15	36720	21903
nC14	149353	58552
IP16	60626	29263
nC15	128551	56528
nC16	114990	50410
IP18	66279	25393
nC17	94518	44803
Pristane	71186	31098
nC18	79191	40577
Phytane	49241	23022
nC19	75757	33883
nC20	52443	27245
nC21	33316	18887
nC22	23088	13812
nC23	13289	8024
nC24	8184	4907
nC25	6505	3058
nC26	3331	1934
nC27	2316	1209
nC28	1430	747
nC29	938	475
nC30	631	288
nC31	487	173
nC32	391	115
nC33	86	60
nC34	225	27
nC35	0	0
nC36	91	39
nC37	35	18
nC38	48	18
nC39	86	20
nC40	89	23

Figure 4, Multipanel display of gas chromatogram of product sample MW-31.

Torkelson Geochemistry, Inc.

GC/FID

Loading Rack MW-31, Lovington, NM
Sample ID : Gas/Dies/Wax std
Acquired : Jun 08, 2017 13:23:35



Channel A Results

Peak	Area	Height
nC4	31517	58722
iC5	88771	135565
nC5	54345	78321
MTBE	115030	116990
2M Pentane	56751	63947
nC6	44316	45090
olefin a	8097	7230
olefin b	4630	4740
olefin c	4098	3675
2,4 DMP	10540	10327
Bnz	28841	24146
Isooctane	127463	86378
nC7	26458	21274
MCHX	19349	15531
Tol	115402	73605
nC8	16059	13133
EB	28712	20840
m/p-xyl	101920	43863
o-xyl	45721	30575
nC9	25872	16850
1,2,4 TMB	69878	40209
nC10	57651	37353
nC11	104857	59171
Naph	25241	11485
nC12	97432	51628
IP13	46009	23169
IP14	28356	18909
nC13	105735	54167
IP15	36121	17619
nC14	138339	54458
IP16	46812	22091
nC15	103805	49163
nC16	103925	46717
IP18	49602	17774
nC17	84271	41996
Pristane	51726	23949
nC18	68896	36464
Phytane	28561	14204
nC19	74317	30720
nC20	47615	24998
nC21	38721	21298
nC22	50339	27310
nC23	80586	39126
nC24	126395	51300
nC25	154245	57786
nC26	161128	58545
nC27	124842	50216
nC28	79451	34006
nC29	43860	22538
nC30	23197	12214
nC31	11228	6074
nC32	5862	3464
nC33	3131	1786
nC34	1778	976
nC35	987	521
nC36	496	276
nC37	306	144
nC38	242	85
nC39	147	49
nC40	152	36

Figure 5, Multipanel display of gas chromatogram of laboratory standard (gasoline/diesel/wax mixture).

Attachment 1

Sulfur Analysis Results

Green Country Testing, Inc.
6825 E 38th Street
Tulsa, OK 74145
TEL: 918-828-9977 FAX: 918-828-7756
Website: www.greencountrytesting.com

June 23, 2017

Bruce Torkelson
Torkelson Geochemistry
2528 South Columbia Place
Tulsa, OK 74114
TEL: (918) 749-8441
FAX: (918) 749-6005

RE: MW-31 17063 Order No.: 1706246

Dear Bruce Torkelson:

Green Country Testing, Inc. received 1 sample(s) on 6/15/2017 for the analyses presented in the following report.

In accordance with your instructions, Green Country Testing conducted the analysis shown on the following pages on samples submitted by your company. The results relate only to the items tested. Unless otherwise noted, all analysis were conducted using EPA approved methodologies. Test reports meet all the NELAC requirements. All relevant sampling information is on the attached chain-of-custody form. The initials SUB as the analyst designate any testing sub-contracted by Green Country Testing.

Certifications/Accreditation: OK - 7604 - AR - ADEQ - KS - E-10232 - LA - 4002

A scope of Certified/Accredited parameters is available upon request. If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Brian Duzan
Laboratory Director

. Original

J

Green Country Testing, Inc.
6825 E 38th Street
Tulsa, OK 74145
TEL: 918-828-9977 FAX: 918-828-7756
Website: www.greencountrytesting.com

Case Narrative

WO#: **1706246**
Date: **6/23/2017**

CLIENT: Torkelson Geochemistry
Project: MW-31 17063

1706246
SULFUR has been Sub Contracted.

Original

Green Country Testing, Inc.
6825 E 38th Street
Tulsa, OK 74145
TEL: 918-828-9977 FAX: 918-828-7756
Website: www.greencountrytesting.com

Analytical Report

(continuous)

WO#: **1706246**

Date Reported: **6/23/2017**

CLIENT: Torkelson Geochemistry **Lab Order:** 1706246

Project: MW-31 17063

Lab ID: 1706246-001 **Collection Date:** 5/3/2017

Client Sample ID: MW-31 17063 **Matrix:** OIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SULFUR - N				**ASTM-D2622**		Analyst: **SL**
Sulfur	0.355	0		wt%	1	6/22/2017

Qualifiers:

H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
M	Manual Integration used to determine area response
PL	Permit Limit
W	Sample container temperature is out of limit as specified at testcode

Original

ANALYTICAL REPORT

July 13, 2017

TRC Solutions - Austin, TX

Sample Delivery Group:	L916667
Samples Received:	06/16/2017
Project Number:	274418
Description:	Navajo Lovington Loading Rack Investigation

Report To: Julie Speer
505 E. Huntland Dr, Ste 250
Austin, TX 78752

Entire Report Reviewed By:

Chris McCord
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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MW-32 L916667-01 GW

Collected by: John Pioneer
Collected date/time: 06/15/17 11:40
Received date/time: 06/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG990619	1	06/21/17 17:45	06/21/17 17:45	ACG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991292	1	06/21/17 04:06	06/21/17 04:06	GLN
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG990767	1	06/19/17 16:26	06/20/17 12:58	LM
Semi Volatile Organic Compounds (GC/MS) by Method 8270 C	WG991166	1	06/21/17 13:42	06/22/17 13:06	ADF

MW-33 L916667-02 GW

Collected by: John Pioneer
Collected date/time: 06/15/17 10:25
Received date/time: 06/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG990619	1	06/21/17 18:07	06/21/17 18:07	ACG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991292	1	06/21/17 04:24	06/21/17 04:24	GLN
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG990767	1	06/19/17 16:26	06/20/17 13:14	LM
Semi Volatile Organic Compounds (GC/MS) by Method 8270 C	WG991166	1	06/21/17 13:42	06/22/17 13:30	ADF

DUP - 2 L916667-03 GW

Collected by: John Pioneer
Collected date/time: 06/15/17 11:45
Received date/time: 06/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG990619	1	06/21/17 18:29	06/21/17 18:29	ACG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991292	1	06/21/17 04:43	06/21/17 04:43	GLN
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG990767	1	06/19/17 16:26	06/20/17 13:31	LM
Semi Volatile Organic Compounds (GC/MS) by Method 8270 C	WG991166	1	06/21/17 13:42	06/22/17 13:53	ADF

TB-06-15-17 A L916667-04 GW

Collected by: John Pioneer
Collected date/time: 06/15/17 00:00
Received date/time: 06/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991292	1	06/20/17 23:34	06/20/17 23:34	GLN

EB-06-15-17 L916667-05 GW

Collected by: John Pioneer
Collected date/time: 06/15/17 12:30
Received date/time: 06/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG990619	1	06/21/17 18:51	06/21/17 18:51	ACG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991292	1	06/21/17 05:01	06/21/17 05:01	GLN
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG990767	1	06/19/17 16:26	06/20/17 13:47	LM
Semi Volatile Organic Compounds (GC/MS) by Method 8270 C	WG991166	1	06/21/17 13:42	06/22/17 14:17	ADF

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Technical Service Representative

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	06/21/2017 17:45	WG990619
(S) a,a,a-Trifluorotoluene(FID)	*98.9*		*77.0-122*		*06/21/2017 17:45*	WG990619

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		1.00	1	06/21/2017 04:06	WG991292
Benzene	ND		0.00100	1	06/21/2017 04:06	WG991292
Bromodichloromethane	ND		0.00125	1	06/21/2017 04:06	WG991292
Bromoform	ND		0.00100	1	06/21/2017 04:06	WG991292
Bromomethane	ND		0.00500	1	06/21/2017 04:06	WG991292
n-Butylbenzene	ND		0.00100	1	06/21/2017 04:06	WG991292
sec-Butylbenzene	ND		0.00100	1	06/21/2017 04:06	WG991292
tert-Butylbenzene	ND		0.00100	1	06/21/2017 04:06	WG991292
Carbon disulfide	ND		0.00100	1	06/21/2017 04:06	WG991292
Carbon tetrachloride	ND		0.00100	1	06/21/2017 04:06	WG991292
Chlorobenzene	ND		0.00100	1	06/21/2017 04:06	WG991292
Chlorodibromomethane	ND		0.00100	1	06/21/2017 04:06	WG991292
Chloroethane	ND		0.00500	1	06/21/2017 04:06	WG991292
Chloroform	ND		0.00500	1	06/21/2017 04:06	WG991292
Chloromethane	ND		0.00250	1	06/21/2017 04:06	WG991292
1,2-Dibromoethane	ND		0.00100	1	06/21/2017 04:06	WG991292
1,1-Dichloroethane	ND		0.00100	1	06/21/2017 04:06	WG991292
1,2-Dichloroethane	ND		0.00100	1	06/21/2017 04:06	WG991292
1,1-Dichloroethene	ND		0.00100	1	06/21/2017 04:06	WG991292
cis-1,2-Dichloroethene	ND		0.00100	1	06/21/2017 04:06	WG991292
trans-1,2-Dichloroethene	ND		0.00100	1	06/21/2017 04:06	WG991292
1,2-Dichloropropane	ND		0.00100	1	06/21/2017 04:06	WG991292
cis-1,3-Dichloropropene	ND		0.00100	1	06/21/2017 04:06	WG991292
trans-1,3-Dichloropropene	ND		0.00100	1	06/21/2017 04:06	WG991292
Ethylbenzene	ND		0.00100	1	06/21/2017 04:06	WG991292
Hexachloro-1,3-butadiene	ND		0.00100	1	06/21/2017 04:06	WG991292
2-Hexanone	ND		0.0100	1	06/21/2017 04:06	WG991292
Isopropylbenzene	ND		0.00100	1	06/21/2017 04:06	WG991292
p-Isopropyltoluene	ND		0.00100	1	06/21/2017 04:06	WG991292
2-Butanone (MEK)	ND		0.0100	1	06/21/2017 04:06	WG991292
Methylene Chloride	ND		0.00500	1	06/21/2017 04:06	WG991292
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	06/21/2017 04:06	WG991292
Methyl tert-butyl ether	ND		0.00100	1	06/21/2017 04:06	WG991292
Naphthalene	ND		0.00500	1	06/21/2017 04:06	WG991292
n-Propylbenzene	ND		0.00100	1	06/21/2017 04:06	WG991292
Styrene	ND		0.00100	1	06/21/2017 04:06	WG991292
1,1,2,2-Tetrachloroethane	ND		0.00100	1	06/21/2017 04:06	WG991292
Tetrachloroethene	ND		0.00100	1	06/21/2017 04:06	WG991292
Toluene	ND		0.00100	1	06/21/2017 04:06	WG991292
1,1,1-Trichloroethane	ND		0.00100	1	06/21/2017 04:06	WG991292
1,1,2-Trichloroethane	ND		0.00100	1	06/21/2017 04:06	WG991292
Trichloroethene	ND		0.00100	1	06/21/2017 04:06	WG991292
1,2,4-Trimethylbenzene	ND		0.00100	1	06/21/2017 04:06	WG991292
1,3,5-Trimethylbenzene	ND		0.00100	1	06/21/2017 04:06	WG991292
Vinyl chloride	ND		0.00100	1	06/21/2017 04:06	WG991292
Xylenes, Total	ND		0.00300	1	06/21/2017 04:06	WG991292
(S) Toluene-d8	*105*		*80.0-120*		*06/21/2017 04:06*	WG991292
(S) Dibromofluoromethane	*93.4*		*76.0-123*		*06/21/2017 04:06*	WG991292
(S) 4-Bromofluorobenzene	*97.4*		*80.0-120*		*06/21/2017 04:06*	WG991292

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	0.507		0.100	1	06/20/2017 12:58	WG990767
(S) o-Terphenyl	*81.2*		*31.0-160*		*06/20/2017 12:58*	WG990767

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	06/22/2017 13:06	WG991166
Acenaphthylene	ND		0.00100	1	06/22/2017 13:06	WG991166
Acetophenone	ND		0.0100	1	06/22/2017 13:06	WG991166
Anthracene	ND		0.00100	1	06/22/2017 13:06	WG991166
Atrazine	ND		0.0100	1	06/22/2017 13:06	WG991166
Benzo(a)anthracene	ND		0.00100	1	06/22/2017 13:06	WG991166
Benzaldehyde	ND		0.0100	1	06/22/2017 13:06	WG991166
Benzo(b)fluoranthene	ND		0.00100	1	06/22/2017 13:06	WG991166
Benzo(k)fluoranthene	ND		0.00100	1	06/22/2017 13:06	WG991166
Benzo(g,h,i)perylene	ND		0.00100	1	06/22/2017 13:06	WG991166
Benzo(a)pyrene	ND		0.000200	1	06/22/2017 13:06	WG991166
Biphenyl	ND		0.0100	1	06/22/2017 13:06	WG991166
Bis(2-chlorethoxy)methane	ND		0.0100	1	06/22/2017 13:06	WG991166
Bis(2-chloroethyl)ether	ND		0.0100	1	06/22/2017 13:06	WG991166
Bis(2-chloroisopropyl)ether	ND		0.0100	1	06/22/2017 13:06	WG991166
4-Bromophenyl-phenylether	ND		0.0100	1	06/22/2017 13:06	WG991166
2-Chloronaphthalene	ND		0.00100	1	06/22/2017 13:06	WG991166
4-Chlorophenyl-phenylether	ND		0.0100	1	06/22/2017 13:06	WG991166
Caprolactam	ND		0.0100	1	06/22/2017 13:06	WG991166
Carbazole	ND		0.0100	1	06/22/2017 13:06	WG991166
Chrysene	ND		0.00100	1	06/22/2017 13:06	WG991166
Dibenz(a,h)anthracene	ND		0.000200	1	06/22/2017 13:06	WG991166
Dibenzofuran	ND		0.0100	1	06/22/2017 13:06	WG991166
3,3-Dichlorobenzidine	ND	J4	0.0100	1	06/22/2017 13:06	WG991166
2,4-Dinitrotoluene	ND		0.0100	1	06/22/2017 13:06	WG991166
2,6-Dinitrotoluene	ND		0.0100	1	06/22/2017 13:06	WG991166
Fluoranthene	ND		0.00100	1	06/22/2017 13:06	WG991166
Fluorene	ND		0.00100	1	06/22/2017 13:06	WG991166
Hexachlorobenzene	ND		0.00100	1	06/22/2017 13:06	WG991166
Hexachloro-1,3-butadiene	ND		0.0100	1	06/22/2017 13:06	WG991166
Hexachlorocyclopentadiene	ND		0.0100	1	06/22/2017 13:06	WG991166
Hexachloroethane	ND		0.0100	1	06/22/2017 13:06	WG991166
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	06/22/2017 13:06	WG991166
Isophorone	ND		0.0100	1	06/22/2017 13:06	WG991166
1-Methylnaphthalene	ND		0.00100	1	06/22/2017 13:06	WG991166
2-Methylnaphthalene	ND		0.00100	1	06/22/2017 13:06	WG991166
Naphthalene	ND		0.00100	1	06/22/2017 13:06	WG991166
Nitrobenzene	ND		0.0100	1	06/22/2017 13:06	WG991166
n-Nitrosodiphenylamine	ND		0.0100	1	06/22/2017 13:06	WG991166
n-Nitrosodi-n-propylamine	ND		0.0100	1	06/22/2017 13:06	WG991166
Phenanthrene	ND		0.00100	1	06/22/2017 13:06	WG991166
Benzylbutyl phthalate	ND		0.00300	1	06/22/2017 13:06	WG991166
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	06/22/2017 13:06	WG991166
Di-n-butyl phthalate	ND		0.00300	1	06/22/2017 13:06	WG991166
Diethyl phthalate	ND		0.00300	1	06/22/2017 13:06	WG991166
Dimethyl phthalate	ND		0.00300	1	06/22/2017 13:06	WG991166
Di-n-octyl phthalate	ND		0.00300	1	06/22/2017 13:06	WG991166
Pyrene	ND		0.00100	1	06/22/2017 13:06	WG991166
1,2,4-Trichlorobenzene	ND		0.0100	1	06/22/2017 13:06	WG991166
4-Chloro-3-methylphenol	ND		0.0100	1	06/22/2017 13:06	WG991166

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
2-Chlorophenol	ND		0.0100	1	06/22/2017 13:06	WG991166
2,4-Dichlorophenol	ND		0.0100	1	06/22/2017 13:06	WG991166
2,4-Dimethylphenol	ND		0.0100	1	06/22/2017 13:06	WG991166
4,6-Dinitro-2-methylphenol	ND		0.0100	1	06/22/2017 13:06	WG991166
2,4-Dinitrophenol	ND		0.0100	1	06/22/2017 13:06	WG991166
2-Nitrophenol	ND		0.0100	1	06/22/2017 13:06	WG991166
2-Nitroaniline	ND		0.0100	1	06/22/2017 13:06	WG991166
2-Methylphenol	ND		0.0100	1	06/22/2017 13:06	WG991166
3&4-Methyl Phenol	ND		0.0100	1	06/22/2017 13:06	WG991166
3-Nitroaniline	ND		0.0100	1	06/22/2017 13:06	WG991166
4-Chloroaniline	ND		0.0100	1	06/22/2017 13:06	WG991166
4-Nitroaniline	ND		0.0100	1	06/22/2017 13:06	WG991166
4-Nitrophenol	ND		0.0100	1	06/22/2017 13:06	WG991166
Pentachlorophenol	ND		0.0100	1	06/22/2017 13:06	WG991166
Phenol	ND		0.0100	1	06/22/2017 13:06	WG991166
2,4,5-Trichlorophenol	ND		0.0100	1	06/22/2017 13:06	WG991166
2,4,6-Trichlorophenol	ND		0.0100	1	06/22/2017 13:06	WG991166
(S) 2-Fluorophenol	*29.2*		*10.0-120*		*06/22/2017 13:06*	WG991166
(S) Phenol-d5	*20.7*		*10.0-120*		*06/22/2017 13:06*	WG991166
(S) Nitrobenzene-d5	*62.4*		*10.0-126*		*06/22/2017 13:06*	WG991166
(S) 2-Fluorobiphenyl	*73.5*		*22.0-127*		*06/22/2017 13:06*	WG991166
(S) 2,4,6-Tribromophenol	*73.7*		*10.0-153*		*06/22/2017 13:06*	WG991166
(S) p-Terphenyl-d14	*96.5*		*29.0-141*		*06/22/2017 13:06*	WG991166

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.105	B	0.100	1	06/21/2017 18:07	WG990619
(S) a,a,a-Trifluorotoluene(FID)	*98.4*		*77.0-122*		*06/21/2017 18:07*	WG990619

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		1.00	1	06/21/2017 04:24	WG991292
Benzene	ND		0.00100	1	06/21/2017 04:24	WG991292
Bromodichloromethane	ND		0.00125	1	06/21/2017 04:24	WG991292
Bromoform	ND		0.00100	1	06/21/2017 04:24	WG991292
Bromomethane	ND		0.00500	1	06/21/2017 04:24	WG991292
n-Butylbenzene	ND		0.00100	1	06/21/2017 04:24	WG991292
sec-Butylbenzene	ND		0.00100	1	06/21/2017 04:24	WG991292
tert-Butylbenzene	ND		0.00100	1	06/21/2017 04:24	WG991292
Carbon disulfide	ND		0.00100	1	06/21/2017 04:24	WG991292
Carbon tetrachloride	ND		0.00100	1	06/21/2017 04:24	WG991292
Chlorobenzene	ND		0.00100	1	06/21/2017 04:24	WG991292
Chlorodibromomethane	ND		0.00100	1	06/21/2017 04:24	WG991292
Chloroethane	ND		0.00500	1	06/21/2017 04:24	WG991292
Chloroform	ND		0.00500	1	06/21/2017 04:24	WG991292
Chloromethane	ND		0.00250	1	06/21/2017 04:24	WG991292
1,2-Dibromoethane	ND		0.00100	1	06/21/2017 04:24	WG991292
1,1-Dichloroethane	ND		0.00100	1	06/21/2017 04:24	WG991292
1,2-Dichloroethane	ND		0.00100	1	06/21/2017 04:24	WG991292
1,1-Dichloroethene	ND		0.00100	1	06/21/2017 04:24	WG991292
cis-1,2-Dichloroethene	ND		0.00100	1	06/21/2017 04:24	WG991292
trans-1,2-Dichloroethene	ND		0.00100	1	06/21/2017 04:24	WG991292
1,2-Dichloropropane	ND		0.00100	1	06/21/2017 04:24	WG991292
cis-1,3-Dichloropropene	ND		0.00100	1	06/21/2017 04:24	WG991292
trans-1,3-Dichloropropene	ND		0.00100	1	06/21/2017 04:24	WG991292
Ethylbenzene	ND		0.00100	1	06/21/2017 04:24	WG991292
Hexachloro-1,3-butadiene	ND		0.00100	1	06/21/2017 04:24	WG991292
2-Hexanone	ND		0.0100	1	06/21/2017 04:24	WG991292
Isopropylbenzene	ND		0.00100	1	06/21/2017 04:24	WG991292
p-Isopropyltoluene	ND		0.00100	1	06/21/2017 04:24	WG991292
2-Butanone (MEK)	ND		0.0100	1	06/21/2017 04:24	WG991292
Methylene Chloride	ND		0.00500	1	06/21/2017 04:24	WG991292
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	06/21/2017 04:24	WG991292
Methyl tert-butyl ether	ND		0.00100	1	06/21/2017 04:24	WG991292
Naphthalene	ND		0.00500	1	06/21/2017 04:24	WG991292
n-Propylbenzene	ND		0.00100	1	06/21/2017 04:24	WG991292
Styrene	ND		0.00100	1	06/21/2017 04:24	WG991292
1,1,2,2-Tetrachloroethane	ND		0.00100	1	06/21/2017 04:24	WG991292
Tetrachloroethene	ND		0.00100	1	06/21/2017 04:24	WG991292
Toluene	ND		0.00100	1	06/21/2017 04:24	WG991292
1,1,1-Trichloroethane	ND		0.00100	1	06/21/2017 04:24	WG991292
1,1,2-Trichloroethane	ND		0.00100	1	06/21/2017 04:24	WG991292
Trichloroethene	ND		0.00100	1	06/21/2017 04:24	WG991292
1,2,4-Trimethylbenzene	ND		0.00100	1	06/21/2017 04:24	WG991292
1,3,5-Trimethylbenzene	ND		0.00100	1	06/21/2017 04:24	WG991292
Vinyl chloride	ND		0.00100	1	06/21/2017 04:24	WG991292
Xylenes, Total	ND		0.00300	1	06/21/2017 04:24	WG991292
(S) Toluene-d8	*104*		*80.0-120*		*06/21/2017 04:24*	WG991292
(S) Dibromofluoromethane	*94.7*		*76.0-123*		*06/21/2017 04:24*	WG991292
(S) 4-Bromofluorobenzene	*94.3*		*80.0-120*		*06/21/2017 04:24*	WG991292

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	3.14		0.100	1	06/20/2017 13:14	WG990767
(S) o-Terphenyl	*84.8*		*31.0-160*		*06/20/2017 13:14*	WG990767

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	06/22/2017 13:30	WG991166
Acenaphthylene	ND		0.00100	1	06/22/2017 13:30	WG991166
Acetophenone	ND		0.0100	1	06/22/2017 13:30	WG991166
Anthracene	ND		0.00100	1	06/22/2017 13:30	WG991166
Atrazine	ND		0.0100	1	06/22/2017 13:30	WG991166
Benzo(a)anthracene	ND		0.00100	1	06/22/2017 13:30	WG991166
Benzaldehyde	ND		0.0100	1	06/22/2017 13:30	WG991166
Benzo(b)fluoranthene	ND		0.00100	1	06/22/2017 13:30	WG991166
Benzo(k)fluoranthene	ND		0.00100	1	06/22/2017 13:30	WG991166
Benzo(g,h,i)perylene	ND		0.00100	1	06/22/2017 13:30	WG991166
Benzo(a)pyrene	ND		0.000200	1	06/22/2017 13:30	WG991166
Biphenyl	ND		0.0100	1	06/22/2017 13:30	WG991166
Bis(2-chlorethoxy)methane	ND		0.0100	1	06/22/2017 13:30	WG991166
Bis(2-chloroethyl)ether	ND		0.0100	1	06/22/2017 13:30	WG991166
Bis(2-chloroisopropyl)ether	ND		0.0100	1	06/22/2017 13:30	WG991166
4-Bromophenyl-phenylether	ND		0.0100	1	06/22/2017 13:30	WG991166
2-Chloronaphthalene	ND		0.00100	1	06/22/2017 13:30	WG991166
4-Chlorophenyl-phenylether	ND		0.0100	1	06/22/2017 13:30	WG991166
Caprolactam	ND		0.0100	1	06/22/2017 13:30	WG991166
Carbazole	ND		0.0100	1	06/22/2017 13:30	WG991166
Chrysene	ND		0.00100	1	06/22/2017 13:30	WG991166
Dibenz(a,h)anthracene	ND		0.000200	1	06/22/2017 13:30	WG991166
Dibenzofuran	ND		0.0100	1	06/22/2017 13:30	WG991166
3,3-Dichlorobenzidine	ND	J4	0.0100	1	06/22/2017 13:30	WG991166
2,4-Dinitrotoluene	ND		0.0100	1	06/22/2017 13:30	WG991166
2,6-Dinitrotoluene	ND		0.0100	1	06/22/2017 13:30	WG991166
Fluoranthene	ND		0.00100	1	06/22/2017 13:30	WG991166
Fluorene	ND		0.00100	1	06/22/2017 13:30	WG991166
Hexachlorobenzene	ND		0.00100	1	06/22/2017 13:30	WG991166
Hexachloro-1,3-butadiene	ND		0.0100	1	06/22/2017 13:30	WG991166
Hexachlorocyclopentadiene	ND		0.0100	1	06/22/2017 13:30	WG991166
Hexachloroethane	ND		0.0100	1	06/22/2017 13:30	WG991166
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	06/22/2017 13:30	WG991166
Isophorone	ND		0.0100	1	06/22/2017 13:30	WG991166
1-Methylnaphthalene	ND		0.00100	1	06/22/2017 13:30	WG991166
2-Methylnaphthalene	ND		0.00100	1	06/22/2017 13:30	WG991166
Naphthalene	ND		0.00100	1	06/22/2017 13:30	WG991166
Nitrobenzene	ND		0.0100	1	06/22/2017 13:30	WG991166
n-Nitrosodiphenylamine	ND		0.0100	1	06/22/2017 13:30	WG991166
n-Nitrosodi-n-propylamine	ND		0.0100	1	06/22/2017 13:30	WG991166
Phenanthrene	ND		0.00100	1	06/22/2017 13:30	WG991166
Benzylbutyl phthalate	ND		0.00300	1	06/22/2017 13:30	WG991166
Bis(2-ethylhexyl)phthalate	0.0228		0.00300	1	06/22/2017 13:30	WG991166
Di-n-butyl phthalate	ND		0.00300	1	06/22/2017 13:30	WG991166
Diethyl phthalate	0.00943		0.00300	1	06/22/2017 13:30	WG991166
Dimethyl phthalate	ND		0.00300	1	06/22/2017 13:30	WG991166
Di-n-octyl phthalate	ND		0.00300	1	06/22/2017 13:30	WG991166
Pyrene	ND		0.00100	1	06/22/2017 13:30	WG991166
1,2,4-Trichlorobenzene	ND		0.0100	1	06/22/2017 13:30	WG991166
4-Chloro-3-methylphenol	ND		0.0100	1	06/22/2017 13:30	WG991166

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
2-Chlorophenol	ND		0.0100	1	06/22/2017 13:30	WG991166
2,4-Dichlorophenol	ND		0.0100	1	06/22/2017 13:30	WG991166
2,4-Dimethylphenol	ND		0.0100	1	06/22/2017 13:30	WG991166
4,6-Dinitro-2-methylphenol	ND		0.0100	1	06/22/2017 13:30	WG991166
2,4-Dinitrophenol	ND		0.0100	1	06/22/2017 13:30	WG991166
2-Nitrophenol	ND		0.0100	1	06/22/2017 13:30	WG991166
2-Nitroaniline	ND		0.0100	1	06/22/2017 13:30	WG991166
2-Methylphenol	ND		0.0100	1	06/22/2017 13:30	WG991166
3&4-Methyl Phenol	ND		0.0100	1	06/22/2017 13:30	WG991166
3-Nitroaniline	ND		0.0100	1	06/22/2017 13:30	WG991166
4-Chloroaniline	ND		0.0100	1	06/22/2017 13:30	WG991166
4-Nitroaniline	ND		0.0100	1	06/22/2017 13:30	WG991166
4-Nitrophenol	ND		0.0100	1	06/22/2017 13:30	WG991166
Pentachlorophenol	ND		0.0100	1	06/22/2017 13:30	WG991166
Phenol	ND		0.0100	1	06/22/2017 13:30	WG991166
2,4,5-Trichlorophenol	ND		0.0100	1	06/22/2017 13:30	WG991166
2,4,6-Trichlorophenol	ND		0.0100	1	06/22/2017 13:30	WG991166
(S) 2-Fluorophenol	*40.3*		*10.0-120*		*06/22/2017 13:30*	WG991166
(S) Phenol-d5	*28.2*		*10.0-120*		*06/22/2017 13:30*	WG991166
(S) Nitrobenzene-d5	*88.8*		*10.0-126*		*06/22/2017 13:30*	WG991166
(S) 2-Fluorobiphenyl	*90.9*		*22.0-127*		*06/22/2017 13:30*	WG991166
(S) 2,4,6-Tribromophenol	*96.7*		*10.0-153*		*06/22/2017 13:30*	WG991166
(S) p-Terphenyl-d14	*104*		*29.0-141*		*06/22/2017 13:30*	WG991166

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	06/21/2017 18:29	WG990619
(S) a,a,a-Trifluorotoluene(FID)	*98.2*		*77.0-122*		*06/21/2017 18:29*	WG990619

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		1.00	1	06/21/2017 04:43	WG991292
Benzene	ND		0.00100	1	06/21/2017 04:43	WG991292
Bromodichloromethane	ND		0.00125	1	06/21/2017 04:43	WG991292
Bromoform	ND		0.00100	1	06/21/2017 04:43	WG991292
Bromomethane	ND		0.00500	1	06/21/2017 04:43	WG991292
n-Butylbenzene	ND		0.00100	1	06/21/2017 04:43	WG991292
sec-Butylbenzene	ND		0.00100	1	06/21/2017 04:43	WG991292
tert-Butylbenzene	ND		0.00100	1	06/21/2017 04:43	WG991292
Carbon disulfide	ND		0.00100	1	06/21/2017 04:43	WG991292
Carbon tetrachloride	ND		0.00100	1	06/21/2017 04:43	WG991292
Chlorobenzene	ND		0.00100	1	06/21/2017 04:43	WG991292
Chlorodibromomethane	ND		0.00100	1	06/21/2017 04:43	WG991292
Chloroethane	ND		0.00500	1	06/21/2017 04:43	WG991292
Chloroform	ND		0.00500	1	06/21/2017 04:43	WG991292
Chloromethane	ND		0.00250	1	06/21/2017 04:43	WG991292
1,2-Dibromoethane	ND		0.00100	1	06/21/2017 04:43	WG991292
1,1-Dichloroethane	ND		0.00100	1	06/21/2017 04:43	WG991292
1,2-Dichloroethane	ND		0.00100	1	06/21/2017 04:43	WG991292
1,1-Dichloroethene	ND		0.00100	1	06/21/2017 04:43	WG991292
cis-1,2-Dichloroethene	ND		0.00100	1	06/21/2017 04:43	WG991292
trans-1,2-Dichloroethene	ND		0.00100	1	06/21/2017 04:43	WG991292
1,2-Dichloropropane	ND		0.00100	1	06/21/2017 04:43	WG991292
cis-1,3-Dichloropropene	ND		0.00100	1	06/21/2017 04:43	WG991292
trans-1,3-Dichloropropene	ND		0.00100	1	06/21/2017 04:43	WG991292
Ethylbenzene	ND		0.00100	1	06/21/2017 04:43	WG991292
Hexachloro-1,3-butadiene	ND		0.00100	1	06/21/2017 04:43	WG991292
2-Hexanone	ND		0.0100	1	06/21/2017 04:43	WG991292
Isopropylbenzene	ND		0.00100	1	06/21/2017 04:43	WG991292
p-Isopropyltoluene	ND		0.00100	1	06/21/2017 04:43	WG991292
2-Butanone (MEK)	ND		0.0100	1	06/21/2017 04:43	WG991292
Methylene Chloride	ND		0.00500	1	06/21/2017 04:43	WG991292
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	06/21/2017 04:43	WG991292
Methyl tert-butyl ether	ND		0.00100	1	06/21/2017 04:43	WG991292
Naphthalene	ND		0.00500	1	06/21/2017 04:43	WG991292
n-Propylbenzene	ND		0.00100	1	06/21/2017 04:43	WG991292
Styrene	ND		0.00100	1	06/21/2017 04:43	WG991292
1,1,2,2-Tetrachloroethane	ND		0.00100	1	06/21/2017 04:43	WG991292
Tetrachloroethene	ND		0.00100	1	06/21/2017 04:43	WG991292
Toluene	ND		0.00100	1	06/21/2017 04:43	WG991292
1,1,1-Trichloroethane	ND		0.00100	1	06/21/2017 04:43	WG991292
1,1,2-Trichloroethane	ND		0.00100	1	06/21/2017 04:43	WG991292
Trichloroethene	ND		0.00100	1	06/21/2017 04:43	WG991292
1,2,4-Trimethylbenzene	ND		0.00100	1	06/21/2017 04:43	WG991292
1,3,5-Trimethylbenzene	ND		0.00100	1	06/21/2017 04:43	WG991292
Vinyl chloride	ND		0.00100	1	06/21/2017 04:43	WG991292
Xylenes, Total	ND		0.00300	1	06/21/2017 04:43	WG991292
(S) Toluene-d8	*104*		*80.0-120*		*06/21/2017 04:43*	WG991292
(S) Dibromofluoromethane	*95.7*		*76.0-123*		*06/21/2017 04:43*	WG991292
(S) 4-Bromofluorobenzene	*96.7*		*80.0-120*		*06/21/2017 04:43*	WG991292

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
TPH (GC/FID) High Fraction	0.427		0.100	1	06/20/2017 13:31	WG990767
(S) o-Terphenyl	*86.0*		*31.0-160*		*06/20/2017 13:31*	WG990767

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Acenaphthene	ND		0.00100	1	06/22/2017 13:53	WG991166
Acenaphthylene	ND		0.00100	1	06/22/2017 13:53	WG991166
Acetophenone	ND		0.0100	1	06/22/2017 13:53	WG991166
Anthracene	ND		0.00100	1	06/22/2017 13:53	WG991166
Atrazine	ND		0.0100	1	06/22/2017 13:53	WG991166
Benzo(a)anthracene	ND		0.00100	1	06/22/2017 13:53	WG991166
Benzaldehyde	ND		0.0100	1	06/22/2017 13:53	WG991166
Benzo(b)fluoranthene	ND		0.00100	1	06/22/2017 13:53	WG991166
Benzo(k)fluoranthene	ND		0.00100	1	06/22/2017 13:53	WG991166
Benzo(g,h,i)perylene	ND		0.00100	1	06/22/2017 13:53	WG991166
Benzo(a)pyrene	ND		0.000200	1	06/22/2017 13:53	WG991166
Biphenyl	ND		0.0100	1	06/22/2017 13:53	WG991166
Bis(2-chlorethoxy)methane	ND		0.0100	1	06/22/2017 13:53	WG991166
Bis(2-chloroethyl)ether	ND		0.0100	1	06/22/2017 13:53	WG991166
Bis(2-chloroisopropyl)ether	ND		0.0100	1	06/22/2017 13:53	WG991166
4-Bromophenyl-phenylether	ND		0.0100	1	06/22/2017 13:53	WG991166
2-Chloronaphthalene	ND		0.00100	1	06/22/2017 13:53	WG991166
4-Chlorophenyl-phenylether	ND		0.0100	1	06/22/2017 13:53	WG991166
Caprolactam	ND		0.0100	1	06/22/2017 13:53	WG991166
Carbazole	ND		0.0100	1	06/22/2017 13:53	WG991166
Chrysene	ND		0.00100	1	06/22/2017 13:53	WG991166
Dibenz(a,h)anthracene	ND		0.000200	1	06/22/2017 13:53	WG991166
Dibenzofuran	ND		0.0100	1	06/22/2017 13:53	WG991166
3,3-Dichlorobenzidine	ND	J4	0.0100	1	06/22/2017 13:53	WG991166
2,4-Dinitrotoluene	ND		0.0100	1	06/22/2017 13:53	WG991166
2,6-Dinitrotoluene	ND		0.0100	1	06/22/2017 13:53	WG991166
Fluoranthene	ND		0.00100	1	06/22/2017 13:53	WG991166
Fluorene	ND		0.00100	1	06/22/2017 13:53	WG991166
Hexachlorobenzene	ND		0.00100	1	06/22/2017 13:53	WG991166
Hexachloro-1,3-butadiene	ND		0.0100	1	06/22/2017 13:53	WG991166
Hexachlorocyclopentadiene	ND		0.0100	1	06/22/2017 13:53	WG991166
Hexachloroethane	ND		0.0100	1	06/22/2017 13:53	WG991166
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	06/22/2017 13:53	WG991166
Isophorone	ND		0.0100	1	06/22/2017 13:53	WG991166
1-Methylnaphthalene	ND		0.00100	1	06/22/2017 13:53	WG991166
2-Methylnaphthalene	ND		0.00100	1	06/22/2017 13:53	WG991166
Naphthalene	ND		0.00100	1	06/22/2017 13:53	WG991166
Nitrobenzene	ND		0.0100	1	06/22/2017 13:53	WG991166
n-Nitrosodiphenylamine	ND		0.0100	1	06/22/2017 13:53	WG991166
n-Nitrosodi-n-propylamine	ND		0.0100	1	06/22/2017 13:53	WG991166
Phenanthrene	ND		0.00100	1	06/22/2017 13:53	WG991166
Benzylbutyl phthalate	ND		0.00300	1	06/22/2017 13:53	WG991166
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	06/22/2017 13:53	WG991166
Di-n-butyl phthalate	ND		0.00300	1	06/22/2017 13:53	WG991166
Diethyl phthalate	ND		0.00300	1	06/22/2017 13:53	WG991166
Dimethyl phthalate	ND		0.00300	1	06/22/2017 13:53	WG991166
Di-n-octyl phthalate	ND		0.00300	1	06/22/2017 13:53	WG991166
Pyrene	ND		0.00100	1	06/22/2017 13:53	WG991166
1,2,4-Trichlorobenzene	ND		0.0100	1	06/22/2017 13:53	WG991166
4-Chloro-3-methylphenol	ND		0.0100	1	06/22/2017 13:53	WG991166

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
2-Chlorophenol	ND		0.0100	1	06/22/2017 13:53	WG991166
2,4-Dichlorophenol	ND		0.0100	1	06/22/2017 13:53	WG991166
2,4-Dimethylphenol	ND		0.0100	1	06/22/2017 13:53	WG991166
4,6-Dinitro-2-methylphenol	ND		0.0100	1	06/22/2017 13:53	WG991166
2,4-Dinitrophenol	ND		0.0100	1	06/22/2017 13:53	WG991166
2-Nitrophenol	ND		0.0100	1	06/22/2017 13:53	WG991166
2-Nitroaniline	ND		0.0100	1	06/22/2017 13:53	WG991166
2-Methylphenol	ND		0.0100	1	06/22/2017 13:53	WG991166
3&4-Methyl Phenol	ND		0.0100	1	06/22/2017 13:53	WG991166
3-Nitroaniline	ND		0.0100	1	06/22/2017 13:53	WG991166
4-Chloroaniline	ND		0.0100	1	06/22/2017 13:53	WG991166
4-Nitroaniline	ND		0.0100	1	06/22/2017 13:53	WG991166
4-Nitrophenol	ND		0.0100	1	06/22/2017 13:53	WG991166
Pentachlorophenol	ND		0.0100	1	06/22/2017 13:53	WG991166
Phenol	ND		0.0100	1	06/22/2017 13:53	WG991166
2,4,5-Trichlorophenol	ND		0.0100	1	06/22/2017 13:53	WG991166
2,4,6-Trichlorophenol	ND		0.0100	1	06/22/2017 13:53	WG991166
(S) 2-Fluorophenol	*35.2*		*10.0-120*		*06/22/2017 13:53*	WG991166
(S) Phenol-d5	*24.3*		*10.0-120*		*06/22/2017 13:53*	WG991166
(S) Nitrobenzene-d5	*65.3*		*10.0-126*		*06/22/2017 13:53*	WG991166
(S) 2-Fluorobiphenyl	*78.8*		*22.0-127*		*06/22/2017 13:53*	WG991166
(S) 2,4,6-Tribromophenol	*85.9*		*10.0-153*		*06/22/2017 13:53*	WG991166
(S) p-Terphenyl-d14	*98.7*		*29.0-141*		*06/22/2017 13:53*	WG991166

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		1.00	1	06/20/2017 23:34	WG991292
Benzene	ND		0.00100	1	06/20/2017 23:34	WG991292
Bromodichloromethane	ND		0.00125	1	06/20/2017 23:34	WG991292
Bromoform	ND		0.00100	1	06/20/2017 23:34	WG991292
Bromomethane	ND		0.00500	1	06/20/2017 23:34	WG991292
n-Butylbenzene	ND		0.00100	1	06/20/2017 23:34	WG991292
sec-Butylbenzene	ND		0.00100	1	06/20/2017 23:34	WG991292
tert-Butylbenzene	ND		0.00100	1	06/20/2017 23:34	WG991292
Carbon disulfide	ND		0.00100	1	06/20/2017 23:34	WG991292
Carbon tetrachloride	ND		0.00100	1	06/20/2017 23:34	WG991292
Chlorobenzene	ND		0.00100	1	06/20/2017 23:34	WG991292
Chlorodibromomethane	ND		0.00100	1	06/20/2017 23:34	WG991292
Chloroethane	ND		0.00500	1	06/20/2017 23:34	WG991292
Chloroform	ND		0.00500	1	06/20/2017 23:34	WG991292
Chloromethane	ND		0.00250	1	06/20/2017 23:34	WG991292
1,2-Dibromoethane	ND		0.00100	1	06/20/2017 23:34	WG991292
1,1-Dichloroethane	ND		0.00100	1	06/20/2017 23:34	WG991292
1,2-Dichloroethane	ND		0.00100	1	06/20/2017 23:34	WG991292
1,1-Dichloroethene	ND		0.00100	1	06/20/2017 23:34	WG991292
cis-1,2-Dichloroethene	ND		0.00100	1	06/20/2017 23:34	WG991292
trans-1,2-Dichloroethene	ND		0.00100	1	06/20/2017 23:34	WG991292
1,2-Dichloropropane	ND		0.00100	1	06/20/2017 23:34	WG991292
cis-1,3-Dichloropropene	ND		0.00100	1	06/20/2017 23:34	WG991292
trans-1,3-Dichloropropene	ND		0.00100	1	06/20/2017 23:34	WG991292
Ethylbenzene	ND		0.00100	1	06/20/2017 23:34	WG991292
Hexachloro-1,3-butadiene	ND		0.00100	1	06/20/2017 23:34	WG991292
2-Hexanone	ND		0.0100	1	06/20/2017 23:34	WG991292
Isopropylbenzene	ND		0.00100	1	06/20/2017 23:34	WG991292
p-Isopropyltoluene	ND		0.00100	1	06/20/2017 23:34	WG991292
2-Butanone (MEK)	ND		0.0100	1	06/20/2017 23:34	WG991292
Methylene Chloride	ND		0.00500	1	06/20/2017 23:34	WG991292
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	06/20/2017 23:34	WG991292
Methyl tert-butyl ether	ND		0.00100	1	06/20/2017 23:34	WG991292
Naphthalene	ND		0.00500	1	06/20/2017 23:34	WG991292
n-Propylbenzene	ND		0.00100	1	06/20/2017 23:34	WG991292
Styrene	ND		0.00100	1	06/20/2017 23:34	WG991292
1,1,2,2-Tetrachloroethane	ND		0.00100	1	06/20/2017 23:34	WG991292
Tetrachloroethene	ND		0.00100	1	06/20/2017 23:34	WG991292
Toluene	ND		0.00100	1	06/20/2017 23:34	WG991292
1,1,1-Trichloroethane	ND		0.00100	1	06/20/2017 23:34	WG991292
1,1,2-Trichloroethane	ND		0.00100	1	06/20/2017 23:34	WG991292
Trichloroethene	ND		0.00100	1	06/20/2017 23:34	WG991292
1,2,4-Trimethylbenzene	ND		0.00100	1	06/20/2017 23:34	WG991292
1,3,5-Trimethylbenzene	ND		0.00100	1	06/20/2017 23:34	WG991292
Vinyl chloride	ND		0.00100	1	06/20/2017 23:34	WG991292
Xylenes, Total	ND		0.00300	1	06/20/2017 23:34	WG991292
(S) Toluene-d8	*107*		*80.0-120*		*06/20/2017 23:34*	WG991292
(S) Dibromofluoromethane	*93.2*		*76.0-123*		*06/20/2017 23:34*	WG991292
(S) 4-Bromofluorobenzene	*97.4*		*80.0-120*		*06/20/2017 23:34*	WG991292

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	06/21/2017 18:51	WG990619
(S) a,a,a-Trifluorotoluene(FID)	*98.6*		*77.0-122*		*06/21/2017 18:51*	WG990619

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		1.00	1	06/21/2017 05:01	WG991292
Benzene	ND		0.00100	1	06/21/2017 05:01	WG991292
Bromodichloromethane	ND		0.00125	1	06/21/2017 05:01	WG991292
Bromoform	ND		0.00100	1	06/21/2017 05:01	WG991292
Bromomethane	ND		0.00500	1	06/21/2017 05:01	WG991292
n-Butylbenzene	ND		0.00100	1	06/21/2017 05:01	WG991292
sec-Butylbenzene	ND		0.00100	1	06/21/2017 05:01	WG991292
tert-Butylbenzene	ND		0.00100	1	06/21/2017 05:01	WG991292
Carbon disulfide	ND		0.00100	1	06/21/2017 05:01	WG991292
Carbon tetrachloride	ND		0.00100	1	06/21/2017 05:01	WG991292
Chlorobenzene	ND		0.00100	1	06/21/2017 05:01	WG991292
Chlorodibromomethane	ND		0.00100	1	06/21/2017 05:01	WG991292
Chloroethane	ND		0.00500	1	06/21/2017 05:01	WG991292
Chloroform	ND		0.00500	1	06/21/2017 05:01	WG991292
Chloromethane	ND		0.00250	1	06/21/2017 05:01	WG991292
1,2-Dibromoethane	ND		0.00100	1	06/21/2017 05:01	WG991292
1,1-Dichloroethane	ND		0.00100	1	06/21/2017 05:01	WG991292
1,2-Dichloroethane	ND		0.00100	1	06/21/2017 05:01	WG991292
1,1-Dichloroethene	ND		0.00100	1	06/21/2017 05:01	WG991292
cis-1,2-Dichloroethene	ND		0.00100	1	06/21/2017 05:01	WG991292
trans-1,2-Dichloroethene	ND		0.00100	1	06/21/2017 05:01	WG991292
1,2-Dichloropropane	ND		0.00100	1	06/21/2017 05:01	WG991292
cis-1,3-Dichloropropene	ND		0.00100	1	06/21/2017 05:01	WG991292
trans-1,3-Dichloropropene	ND		0.00100	1	06/21/2017 05:01	WG991292
Ethylbenzene	ND		0.00100	1	06/21/2017 05:01	WG991292
Hexachloro-1,3-butadiene	ND		0.00100	1	06/21/2017 05:01	WG991292
2-Hexanone	ND		0.0100	1	06/21/2017 05:01	WG991292
Isopropylbenzene	ND		0.00100	1	06/21/2017 05:01	WG991292
p-Isopropyltoluene	ND		0.00100	1	06/21/2017 05:01	WG991292
2-Butanone (MEK)	ND		0.0100	1	06/21/2017 05:01	WG991292
Methylene Chloride	ND		0.00500	1	06/21/2017 05:01	WG991292
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	06/21/2017 05:01	WG991292
Methyl tert-butyl ether	ND		0.00100	1	06/21/2017 05:01	WG991292
Naphthalene	ND		0.00500	1	06/21/2017 05:01	WG991292
n-Propylbenzene	ND		0.00100	1	06/21/2017 05:01	WG991292
Styrene	ND		0.00100	1	06/21/2017 05:01	WG991292
1,1,2,2-Tetrachloroethane	ND		0.00100	1	06/21/2017 05:01	WG991292
Tetrachloroethene	ND		0.00100	1	06/21/2017 05:01	WG991292
Toluene	ND		0.00100	1	06/21/2017 05:01	WG991292
1,1,1-Trichloroethane	ND		0.00100	1	06/21/2017 05:01	WG991292
1,1,2-Trichloroethane	ND		0.00100	1	06/21/2017 05:01	WG991292
Trichloroethene	ND		0.00100	1	06/21/2017 05:01	WG991292
1,2,4-Trimethylbenzene	ND		0.00100	1	06/21/2017 05:01	WG991292
1,3,5-Trimethylbenzene	ND		0.00100	1	06/21/2017 05:01	WG991292
Vinyl chloride	ND		0.00100	1	06/21/2017 05:01	WG991292
Xylenes, Total	ND		0.00300	1	06/21/2017 05:01	WG991292
(S) Toluene-d8	*105*		*80.0-120*		*06/21/2017 05:01*	WG991292
(S) Dibromofluoromethane	*93.4*		*76.0-123*		*06/21/2017 05:01*	WG991292
(S) 4-Bromofluorobenzene	*99.0*		*80.0-120*		*06/21/2017 05:01*	WG991292

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		0.100	1	06/20/2017 13:47	WG990767
(S) o-Terphenyl	*83.6*		*31.0-160*		*06/20/2017 13:47*	WG990767

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	06/22/2017 14:17	WG991166
Acenaphthylene	ND		0.00100	1	06/22/2017 14:17	WG991166
Acetophenone	ND		0.0100	1	06/22/2017 14:17	WG991166
Anthracene	ND		0.00100	1	06/22/2017 14:17	WG991166
Atrazine	ND		0.0100	1	06/22/2017 14:17	WG991166
Benzo(a)anthracene	ND		0.00100	1	06/22/2017 14:17	WG991166
Benzaldehyde	ND		0.0100	1	06/22/2017 14:17	WG991166
Benzo(b)fluoranthene	ND		0.00100	1	06/22/2017 14:17	WG991166
Benzo(k)fluoranthene	ND		0.00100	1	06/22/2017 14:17	WG991166
Benzo(g,h,i)perylene	ND		0.00100	1	06/22/2017 14:17	WG991166
Benzo(a)pyrene	ND		0.000200	1	06/22/2017 14:17	WG991166
Biphenyl	ND		0.0100	1	06/22/2017 14:17	WG991166
Bis(2-chlorethoxy)methane	ND		0.0100	1	06/22/2017 14:17	WG991166
Bis(2-chloroethyl)ether	ND		0.0100	1	06/22/2017 14:17	WG991166
Bis(2-chloroisopropyl)ether	ND		0.0100	1	06/22/2017 14:17	WG991166
4-Bromophenyl-phenylether	ND		0.0100	1	06/22/2017 14:17	WG991166
2-Chloronaphthalene	ND		0.00100	1	06/22/2017 14:17	WG991166
4-Chlorophenyl-phenylether	ND		0.0100	1	06/22/2017 14:17	WG991166
Caprolactam	ND		0.0100	1	06/22/2017 14:17	WG991166
Carbazole	ND		0.0100	1	06/22/2017 14:17	WG991166
Chrysene	ND		0.00100	1	06/22/2017 14:17	WG991166
Dibenz(a,h)anthracene	ND		0.000200	1	06/22/2017 14:17	WG991166
Dibenzofuran	ND		0.0100	1	06/22/2017 14:17	WG991166
3,3-Dichlorobenzidine	ND	J4	0.0100	1	06/22/2017 14:17	WG991166
2,4-Dinitrotoluene	ND		0.0100	1	06/22/2017 14:17	WG991166
2,6-Dinitrotoluene	ND		0.0100	1	06/22/2017 14:17	WG991166
Fluoranthene	ND		0.00100	1	06/22/2017 14:17	WG991166
Fluorene	ND		0.00100	1	06/22/2017 14:17	WG991166
Hexachlorobenzene	ND		0.00100	1	06/22/2017 14:17	WG991166
Hexachloro-1,3-butadiene	ND		0.0100	1	06/22/2017 14:17	WG991166
Hexachlorocyclopentadiene	ND		0.0100	1	06/22/2017 14:17	WG991166
Hexachloroethane	ND		0.0100	1	06/22/2017 14:17	WG991166
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	06/22/2017 14:17	WG991166
Isophorone	ND		0.0100	1	06/22/2017 14:17	WG991166
1-Methylnaphthalene	ND		0.00100	1	06/22/2017 14:17	WG991166
2-Methylnaphthalene	ND		0.00100	1	06/22/2017 14:17	WG991166
Naphthalene	ND		0.00100	1	06/22/2017 14:17	WG991166
Nitrobenzene	ND		0.0100	1	06/22/2017 14:17	WG991166
n-Nitrosodiphenylamine	ND		0.0100	1	06/22/2017 14:17	WG991166
n-Nitrosodi-n-propylamine	ND		0.0100	1	06/22/2017 14:17	WG991166
Phenanthrene	ND		0.00100	1	06/22/2017 14:17	WG991166
Benzylbutyl phthalate	ND		0.00300	1	06/22/2017 14:17	WG991166
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	06/22/2017 14:17	WG991166
Di-n-butyl phthalate	ND		0.00300	1	06/22/2017 14:17	WG991166
Diethyl phthalate	ND		0.00300	1	06/22/2017 14:17	WG991166
Dimethyl phthalate	ND		0.00300	1	06/22/2017 14:17	WG991166
Di-n-octyl phthalate	ND		0.00300	1	06/22/2017 14:17	WG991166
Pyrene	ND		0.00100	1	06/22/2017 14:17	WG991166
1,2,4-Trichlorobenzene	ND		0.0100	1	06/22/2017 14:17	WG991166
4-Chloro-3-methylphenol	ND		0.0100	1	06/22/2017 14:17	WG991166

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
2-Chlorophenol	ND		0.0100	1	06/22/2017 14:17	WG991166
2,4-Dichlorophenol	ND		0.0100	1	06/22/2017 14:17	WG991166
2,4-Dimethylphenol	ND		0.0100	1	06/22/2017 14:17	WG991166
4,6-Dinitro-2-methylphenol	ND		0.0100	1	06/22/2017 14:17	WG991166
2,4-Dinitrophenol	ND		0.0100	1	06/22/2017 14:17	WG991166
2-Nitrophenol	ND		0.0100	1	06/22/2017 14:17	WG991166
2-Nitroaniline	ND		0.0100	1	06/22/2017 14:17	WG991166
2-Methylphenol	ND		0.0100	1	06/22/2017 14:17	WG991166
3&4-Methyl Phenol	ND		0.0100	1	06/22/2017 14:17	WG991166
3-Nitroaniline	ND		0.0100	1	06/22/2017 14:17	WG991166
4-Chloroaniline	ND		0.0100	1	06/22/2017 14:17	WG991166
4-Nitroaniline	ND		0.0100	1	06/22/2017 14:17	WG991166
4-Nitrophenol	ND		0.0100	1	06/22/2017 14:17	WG991166
Pentachlorophenol	ND		0.0100	1	06/22/2017 14:17	WG991166
Phenol	ND		0.0100	1	06/22/2017 14:17	WG991166
2,4,5-Trichlorophenol	ND		0.0100	1	06/22/2017 14:17	WG991166
2,4,6-Trichlorophenol	ND		0.0100	1	06/22/2017 14:17	WG991166
(S) 2-Fluorophenol	*35.7*		*10.0-120*		*06/22/2017 14:17*	WG991166
(S) Phenol-d5	*25.0*		*10.0-120*		*06/22/2017 14:17*	WG991166
(S) Nitrobenzene-d5	*59.9*		*10.0-126*		*06/22/2017 14:17*	WG991166
(S) 2-Fluorobiphenyl	*65.0*		*22.0-127*		*06/22/2017 14:17*	WG991166
(S) 2,4,6-Tribromophenol	*72.9*		*10.0-153*		*06/22/2017 14:17*	WG991166
(S) p-Terphenyl-d14	*99.7*		*29.0-141*		*06/22/2017 14:17*	WG991166

Method Blank (MB)

(MB) R3228540-3 06/21/17 12:38

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TPH (GC/FID) Low Fraction	0.0677	J	0.0314	0.100
(S) a,a,a-Trifluorotoluene(FID)	*98.7*			*77.0-122*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3228540-1 06/21/17 11:31 • (LCSD) R3228540-2 06/21/17 11:54

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	6.02	5.93	109	108	71.0-136			1.44	20
(S) a,a,a-Trifluorotoluene(FID)				*106*	*105*	*77.0-122*				

L916659-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916659-01 06/21/17 13:48 • (MS) R3228540-4 06/21/17 14:10 • (MSD) R3228540-5 06/21/17 14:32

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	0.0444	6.68	7.47	121	135	1	18.0-160			11.2	20
(S) a,a,a-Trifluorotoluene(FID)					*101*	*103*		*77.0-122*				

Method Blank (MB)

(MB) R3227382-3 06/20/17 21:52

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	1.00
Benzene	U		0.000331	0.00100
Bromodichloromethane	U		0.000380	0.00125
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
n-Butylbenzene	U		0.000361	0.00100
sec-Butylbenzene	U		0.000365	0.00100
tert-Butylbenzene	U		0.000399	0.00100
Carbon disulfide	U		0.000275	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
1,2-Dibromoethane	U		0.000381	0.00100
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
Ethylbenzene	U		0.000384	0.00100
Hexachloro-1,3-butadiene	U		0.000256	0.00100
2-Hexanone	U		0.00382	0.0100
Isopropylbenzene	U		0.000326	0.00100
p-Isopropyltoluene	U		0.000350	0.00100
2-Butanone (MEK)	U		0.00393	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100
Methyl tert-butyl ether	U		0.000367	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000349	0.00100
Styrene	U		0.000307	0.00100
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100

Method Blank (MB)

(MB) R3227382-3 06/20/17 21:52

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	U		0.000398	0.00100
1,2,4-Trimethylbenzene	U		0.000373	0.00100
1,3,5-Trimethylbenzene	U		0.000387	0.00100
Vinyl chloride	U		0.000259	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*107*			*80.0-120*
(S) Dibromofluoromethane	*92.7*			*76.0-123*
(S) 4-Bromofluorobenzene	*99.1*			*80.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3227382-1 06/20/17 20:58 • (LCSD) R3227382-2 06/20/17 21:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.0905	0.0925	72.4	74.0	10.0-160			2.23	23
Benzene	0.0250	0.0214	0.0208	85.8	83.2	69.0-123			3.09	20
Bromodichloromethane	0.0250	0.0223	0.0222	89.1	88.6	76.0-120			0.480	20
Bromoform	0.0250	0.0241	0.0253	96.4	101	67.0-132			4.73	20
Bromomethane	0.0250	0.0224	0.0227	89.5	90.9	18.0-160			1.56	20
n-Butylbenzene	0.0250	0.0236	0.0231	94.4	92.5	72.0-126			2.09	20
sec-Butylbenzene	0.0250	0.0233	0.0227	93.1	90.9	74.0-121			2.40	20
tert-Butylbenzene	0.0250	0.0236	0.0234	94.3	93.7	75.0-122			0.590	20
Carbon disulfide	0.0250	0.0206	0.0195	82.3	78.0	55.0-127			5.37	20
Carbon tetrachloride	0.0250	0.0225	0.0215	90.0	85.9	63.0-122			4.73	20
Chlorobenzene	0.0250	0.0244	0.0247	97.7	98.8	79.0-121			1.05	20
Chlorodibromomethane	0.0250	0.0247	0.0251	98.7	101	75.0-125			1.78	20
Chloroethane	0.0250	0.0229	0.0222	91.6	88.8	47.0-152			3.13	20
Chloroform	0.0250	0.0210	0.0206	84.0	82.4	72.0-121			1.97	20
Chloromethane	0.0250	0.0198	0.0191	79.1	76.5	48.0-139			3.28	20
1,2-Dibromoethane	0.0250	0.0245	0.0253	98.2	101	77.0-123			2.96	20
1,1-Dichloroethane	0.0250	0.0220	0.0215	88.0	86.2	70.0-126			2.05	20
1,2-Dichloroethane	0.0250	0.0226	0.0221	90.4	88.4	67.0-126			2.26	20
1,1-Dichloroethene	0.0250	0.0221	0.0214	88.2	85.6	64.0-129			3.01	20
cis-1,2-Dichloroethene	0.0250	0.0215	0.0205	86.2	81.8	73.0-120			5.17	20
trans-1,2-Dichloroethene	0.0250	0.0209	0.0201	83.8	80.4	71.0-121			4.04	20
1,2-Dichloropropane	0.0250	0.0228	0.0223	91.2	89.4	75.0-125			2.00	20
cis-1,3-Dichloropropene	0.0250	0.0242	0.0246	96.6	98.5	79.0-123			1.96	20
trans-1,3-Dichloropropene	0.0250	0.0249	0.0254	99.5	101	74.0-127			1.92	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3227382-1 06/20/17 20:58 • (LCSD) R3227382-2 06/20/17 21:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	0.0250	0.0242	0.0240	96.6	96.1	77.0-120			0.540	20
Hexachloro-1,3-butadiene	0.0250	0.0241	0.0237	96.6	94.8	64.0-131			1.83	20
2-Hexanone	0.125	0.112	0.117	89.4	93.8	58.0-147			4.80	20
Isopropylbenzene	0.0250	0.0233	0.0226	93.4	90.4	75.0-120			3.26	20
p-Isopropyltoluene	0.0250	0.0240	0.0235	96.0	94.1	74.0-126			1.96	20
2-Butanone (MEK)	0.125	0.103	0.102	82.7	81.7	37.0-158			1.19	20
Methylene Chloride	0.0250	0.0205	0.0205	82.0	82.1	66.0-121			0.110	20
4-Methyl-2-pentanone (MIBK)	0.125	0.121	0.123	96.8	98.6	59.0-143			1.84	20
Methyl tert-butyl ether	0.0250	0.0227	0.0226	90.9	90.3	64.0-123			0.690	20
Naphthalene	0.0250	0.0244	0.0246	97.5	98.4	62.0-128			0.880	20
n-Propylbenzene	0.0250	0.0237	0.0230	94.8	92.2	79.0-120			2.84	20
Styrene	0.0250	0.0238	0.0239	95.4	95.5	78.0-124			0.120	20
1,1,2,2-Tetrachloroethane	0.0250	0.0229	0.0232	91.4	92.8	71.0-122			1.46	20
Tetrachloroethene	0.0250	0.0249	0.0244	99.5	97.5	70.0-127			1.98	20
Toluene	0.0250	0.0227	0.0227	90.7	90.8	77.0-120			0.0800	20
1,1,1-Trichloroethane	0.0250	0.0213	0.0212	85.3	84.9	68.0-122			0.450	20
1,1,2-Trichloroethane	0.0250	0.0230	0.0240	91.9	96.0	78.0-120			4.30	20
Trichloroethene	0.0250	0.0239	0.0236	95.6	94.3	78.0-120			1.41	20
1,2,4-Trimethylbenzene	0.0250	0.0227	0.0227	90.9	90.8	75.0-120			0.0300	20
1,3,5-Trimethylbenzene	0.0250	0.0230	0.0227	91.8	90.9	75.0-120			0.970	20
Vinyl chloride	0.0250	0.0221	0.0213	88.6	85.4	64.0-133			3.67	20
Xylenes, Total	0.0750	0.0717	0.0719	95.6	95.9	77.0-120			0.280	20
(S) Toluene-d8				*103*	*105*	*80.0-120*				
(S) Dibromofluoromethane				*94.0*	*93.9*	*76.0-123*				
(S) 4-Bromofluorobenzene				*97.6*	*98.8*	*80.0-120*				

Method Blank (MB)

(MB) R3227499-1 06/20/17 10:46

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TPH (GC/FID) High Fraction	U		0.0247	0.100
(S) o-Terphenyl	*76.8*			*31.0-160*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3227499-2 06/20/17 11:02 • (LCSD) R3227499-3 06/20/17 11:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	1.50	1.42	1.42	94.4	94.8	50.0-150			0.440	20
(S) o-Terphenyl				*80.6*	*85.2*	*31.0-160*				

Method Blank (MB)

(MB) R3228314-3 06/22/17 06:28

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acenaphthene	U		0.000316	0.00100
Acenaphthylene	U		0.000309	0.00100
Acetophenone	U		0.00247	0.0100
Anthracene	U		0.000291	0.00100
Benzo(a)anthracene	U		0.0000510	0.00100
Atrazine	U		0.000260	0.0100
Benzo(b)fluoranthene	U		0.0000896	0.00100
Benzaldehyde	U		0.00140	0.0100
Benzo(k)fluoranthene	U		0.000355	0.00100
Benzo(g,h,i)perylene	U		0.00000227	0.00100
Benzo(a)pyrene	U		0.0000381	0.000200
Bis(2-chlorethoxy)methane	U		0.000329	0.0100
Bis(2-chloroethyl)ether	U		0.00162	0.0100
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100
4-Bromophenyl-phenylether	U		0.000335	0.0100
Biphenyl	U		0.000325	0.0100
2-Chloronaphthalene	U		0.000330	0.00100
4-Chlorophenyl-phenylether	U		0.000303	0.0100
Chrysene	U		0.000332	0.00100
Dibenz(a,h)anthracene	U		0.0000644	0.000200
Caprolactam	U		0.00259	0.0100
Carbazole	U		0.000260	0.0100
4-Chloroaniline	U		0.000382	0.0100
3,3-Dichlorobenzidine	U		0.00202	0.0100
2,4-Dinitrotoluene	U		0.00165	0.0100
2,6-Dinitrotoluene	U		0.000279	0.0100
Fluoranthene	U		0.000310	0.00100
Dibenzofuran	U		0.000338	0.0100
Fluorene	U		0.000323	0.00100
Hexachlorobenzene	U		0.000341	0.00100
Hexachloro-1,3-butadiene	U		0.000329	0.0100
Hexachlorocyclopentadiene	U		0.00233	0.0100
Hexachloroethane	U		0.000365	0.0100
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100
Isophorone	U		0.000272	0.0100
Naphthalene	U		0.000372	0.00100
Nitrobenzene	U		0.000367	0.0100
n-Nitrosodiphenylamine	U		0.000304	0.0100
n-Nitrosodi-n-propylamine	U		0.000403	0.0100
Phenanthrene	U		0.000366	0.00100

Method Blank (MB)

(MB) R3228314-3 06/22/17 06:28

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzylbutyl phthalate	U		0.000275	0.00300
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300
Di-n-butyl phthalate	U		0.000266	0.00300
1-Methylnaphthalene	U		0.000332	0.00100
Diethyl phthalate	U		0.000282	0.00300
2-Methylnaphthalene	U		0.000311	0.00100
Dimethyl phthalate	U		0.000283	0.00300
Di-n-octyl phthalate	U		0.000278	0.00300
2-Nitroaniline	U		0.00190	0.0100
Pyrene	U		0.000330	0.00100
1,2,4-Trichlorobenzene	U		0.000355	0.0100
3-Nitroaniline	U		0.000308	0.0100
4-Nitroaniline	U		0.000349	0.0100
4-Chloro-3-methylphenol	U		0.000263	0.0100
2-Chlorophenol	U		0.000283	0.0100
2-Nitrophenol	U		0.000320	0.0100
4-Nitrophenol	U		0.00201	0.0100
Pentachlorophenol	U		0.000313	0.0100
Phenol	U		0.000334	0.0100
2,4,6-Trichlorophenol	U		0.000297	0.0100
2,4-Dichlorophenol	U		0.000284	0.0100
2,4-Dimethylphenol	U		0.000624	0.0100
2-Methylphenol	U		0.000312	0.0100
3&4-Methyl Phenol	U		0.000266	0.0100
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100
2,4-Dinitrophenol	U		0.00325	0.0100
2,4,5-Trichlorophenol	U		0.000236	0.0100
(S) Nitrobenzene-d5	*50.5*			*10.0-126*
(S) 2-Fluorobiphenyl	*57.8*			*22.0-127*
(S) p-Terphenyl-d14	*93.2*			*29.0-141*
(S) Phenol-d5	*24.7*			*10.0-120*
(S) 2-Fluorophenol	*35.3*			*10.0-120*
(S) 2,4,6-Tribromophenol	*59.1*			*10.0-153*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3228314-1 06/22/17 05:41 • (LCSD) R3228314-2 06/22/17 06:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0500	0.0386	0.0393	77.2	78.7	42.0-120			1.98	22
Acenaphthylene	0.0500	0.0454	0.0457	90.9	91.3	43.0-120			0.500	22
Anthracene	0.0500	0.0424	0.0420	84.8	84.0	44.0-120			1.02	20
Benzo(a)anthracene	0.0500	0.0418	0.0423	83.5	84.7	44.0-120			1.38	20
Benzo(b)fluoranthene	0.0500	0.0447	0.0424	89.5	84.9	40.0-120			5.25	21
Benzo(k)fluoranthene	0.0500	0.0419	0.0441	83.7	88.3	41.0-120			5.28	22
Benzo(g,h,i)perylene	0.0500	0.0462	0.0471	92.5	94.2	45.0-121			1.80	20
Benzo(a)pyrene	0.0500	0.0437	0.0435	87.5	87.0	41.0-120			0.500	20
Bis(2-chlorethoxy)methane	0.0500	0.0326	0.0317	65.1	63.3	36.0-120			2.86	25
Bis(2-chloroethyl)ether	0.0500	0.0310	0.0251	62.1	50.1	24.0-120			21.3	29
Bis(2-chloroisopropyl)ether	0.0500	0.0330	0.0280	66.0	55.9	32.0-120			16.5	29
4-Bromophenyl-phenylether	0.0500	0.0413	0.0413	82.6	82.6	42.0-121			0.0500	21
2-Chloronaphthalene	0.0500	0.0388	0.0377	77.6	75.4	37.0-120			2.79	24
4-Chlorophenyl-phenylether	0.0500	0.0395	0.0400	79.0	80.0	44.0-120			1.21	21
Chrysene	0.0500	0.0435	0.0435	87.0	87.1	45.0-120			0.110	20
Dibenz(a,h)anthracene	0.0500	0.0451	0.0457	90.3	91.3	44.0-121			1.14	21
3,3-Dichlorobenzidine	0.0500	0.0853	0.0847	171	169	29.0-153	J4	J4	0.720	23
2,4-Dinitrotoluene	0.0500	0.0445	0.0437	89.0	87.5	47.0-127			1.76	21
2,6-Dinitrotoluene	0.0500	0.0447	0.0441	89.4	88.2	42.0-120			1.32	22
Fluoranthene	0.0500	0.0429	0.0419	85.9	83.9	46.0-121			2.34	20
Acetophenone	0.0500	0.0356	0.0314	71.1	62.8	28.0-120			12.4	27
Fluorene	0.0500	0.0421	0.0421	84.2	84.3	45.0-120			0.110	21
Hexachlorobenzene	0.0500	0.0422	0.0415	84.4	82.9	41.0-124			1.70	21
Hexachloro-1,3-butadiene	0.0500	0.0313	0.0267	62.6	53.3	26.0-120			15.9	31
Hexachlorocyclopentadiene	0.0500	0.0410	0.0368	82.0	73.7	10.0-120			10.7	31
Atrazine	0.0500	0.0461	0.0461	92.2	92.2	45.0-123			0.0300	27
Hexachloroethane	0.0500	0.0299	0.0218	59.7	43.7	22.0-120			31.1	34
Benzaldehyde	0.0500	0.0234	0.0204	46.8	40.9	10.0-138			13.6	40
Indeno(1,2,3-cd)pyrene	0.0500	0.0466	0.0473	93.2	94.7	45.0-123			1.55	21
Isophorone	0.0500	0.0360	0.0352	71.9	70.4	37.0-120			2.12	24
Naphthalene	0.0500	0.0297	0.0262	59.4	52.5	33.0-120			12.4	28
Nitrobenzene	0.0500	0.0324	0.0283	64.8	56.6	31.0-120			13.4	28
n-Nitrosodiphenylamine	0.0500	0.0426	0.0415	85.1	82.9	44.0-120			2.65	21
n-Nitrosodi-n-propylamine	0.0500	0.0371	0.0340	74.2	68.1	29.0-120			8.61	27
Biphenyl	0.0500	0.0387	0.0384	77.4	76.7	37.0-120			0.900	27
Phenanthrene	0.0500	0.0405	0.0398	81.0	79.6	42.0-120			1.70	20
Benzylbutyl phthalate	0.0500	0.0447	0.0456	89.5	91.1	36.0-123			1.79	22
Bis(2-ethylhexyl)phthalate	0.0500	0.0455	0.0456	91.0	91.2	37.0-121			0.260	21
Di-n-butyl phthalate	0.0500	0.0435	0.0426	87.0	85.2	43.0-122			2.10	21
Diethyl phthalate	0.0500	0.0460	0.0446	91.9	89.3	48.0-123			2.94	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3228314-1 06/22/17 05:41 • (LCSD) R3228314-2 06/22/17 06:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Caprolactam	0.0500	0.0165	0.0148	33.0	29.6	10.0-120			10.8	31
Dimethyl phthalate	0.0500	0.0423	0.0425	84.6	85.0	47.0-120			0.380	20
Carbazole	0.0500	0.0528	0.0515	106	103	45.0-121			2.45	22
Di-n-octyl phthalate	0.0500	0.0405	0.0407	81.1	81.4	38.0-120			0.400	22
4-Chloroaniline	0.0500	0.0331	0.0318	66.1	63.5	23.0-120			4.00	28
Pyrene	0.0500	0.0437	0.0434	87.5	86.7	43.0-120			0.830	21
1,2,4-Trichlorobenzene	0.0500	0.0310	0.0266	62.1	53.1	29.0-120			15.5	29
Dibenzofuran	0.0500	0.0399	0.0407	79.7	81.5	42.0-120			2.16	21
4-Chloro-3-methylphenol	0.0500	0.0359	0.0344	71.7	68.8	39.0-120			4.12	22
2-Chlorophenol	0.0500	0.0322	0.0245	64.5	49.0	28.0-120			27.3	29
2,4-Dichlorophenol	0.0500	0.0327	0.0302	65.4	60.4	37.0-120			7.90	26
2,4-Dimethylphenol	0.0500	0.0339	0.0315	67.9	62.9	35.0-120			7.58	25
4,6-Dinitro-2-methylphenol	0.0500	0.0393	0.0396	78.7	79.1	34.0-125			0.590	27
2,4-Dinitrophenol	0.0500	0.0329	0.0282	65.9	56.4	10.0-120			15.6	40
2-Nitrophenol	0.0500	0.0359	0.0317	71.8	63.5	35.0-120			12.2	28
1-Methylnaphthalene	0.0500	0.0333	0.0322	66.6	64.3	33.0-120			3.42	23
4-Nitrophenol	0.0500	0.0233	0.0209	46.7	41.9	10.0-120			10.8	35
2-Methylnaphthalene	0.0500	0.0318	0.0308	63.6	61.6	35.0-120			3.24	25
Pentachlorophenol	0.0500	0.0325	0.0342	65.0	68.4	20.0-126			5.03	32
Phenol	0.0500	0.0177	0.0132	35.4	26.3	10.0-120			29.2	34
2-Nitroaniline	0.0500	0.0455	0.0455	91.1	91.0	43.0-120			0.0600	23
2,4,6-Trichlorophenol	0.0500	0.0436	0.0430	87.1	86.0	40.0-122			1.23	24
3-Nitroaniline	0.0500	0.0465	0.0458	93.1	91.6	35.0-123			1.54	25
4-Nitroaniline	0.0500	0.0641	0.0547	128	109	23.0-160			15.8	26
2-Methylphenol	0.0500	0.0320	0.0254	64.0	50.8	26.0-120			23.0	27
3&4-Methyl Phenol	0.0500	0.0359	0.0298	71.9	59.6	27.0-120			18.7	28
2,4,5-Trichlorophenol	0.0500	0.0446	0.0444	89.2	88.7	44.0-124			0.540	24
(S) Nitrobenzene-d5				*65.1*	*57.8*	*10.0-126*				
(S) 2-Fluorobiphenyl				*83.0*	*81.8*	*22.0-127*				
(S) p-Terphenyl-d14				*98.1*	*98.9*	*29.0-141*				
(S) Phenol-d5				*35.6*	*27.1*	*10.0-120*				
(S) 2-Fluorophenol				*50.8*	*36.8*	*10.0-120*				
(S) 2,4,6-Tribromophenol				*91.8*	*91.2*	*10.0-153*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660
Alaska	UST-080
Arizona	AZ0612
Arkansas	88-0469
California	01157CA
Colorado	TN00003
Conneticut	PH-0197
Florida	E87487
Georgia	NELAP
Georgia [1]	923
Idaho	TN00003
Illinois	200008
Indiana	C-TN-01
Iowa	364
Kansas	E-10277
Kentucky [1]	90010
Kentucky [2]	16
Louisiana	AI30792
Maine	TN0002
Maryland	324
Massachusetts	M-TN003
Michigan	9958
Minnesota	047-999-395
Mississippi	TN00003
Missouri	340
Montana	CERT0086
Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico	TN00003
New York	11742
North Carolina	Env375
North Carolina [1]	DW21704
North Carolina [2]	41
North Dakota	R-140
Ohio–VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	221
South Carolina	84004
South Dakota	n/a
Tennessee [1 4]	2006
Texas	T 104704245-07-TX
Texas [5]	LAB0152
Utah	6157585858
Vermont	VT2006
Virginia	109
Washington	C1915
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

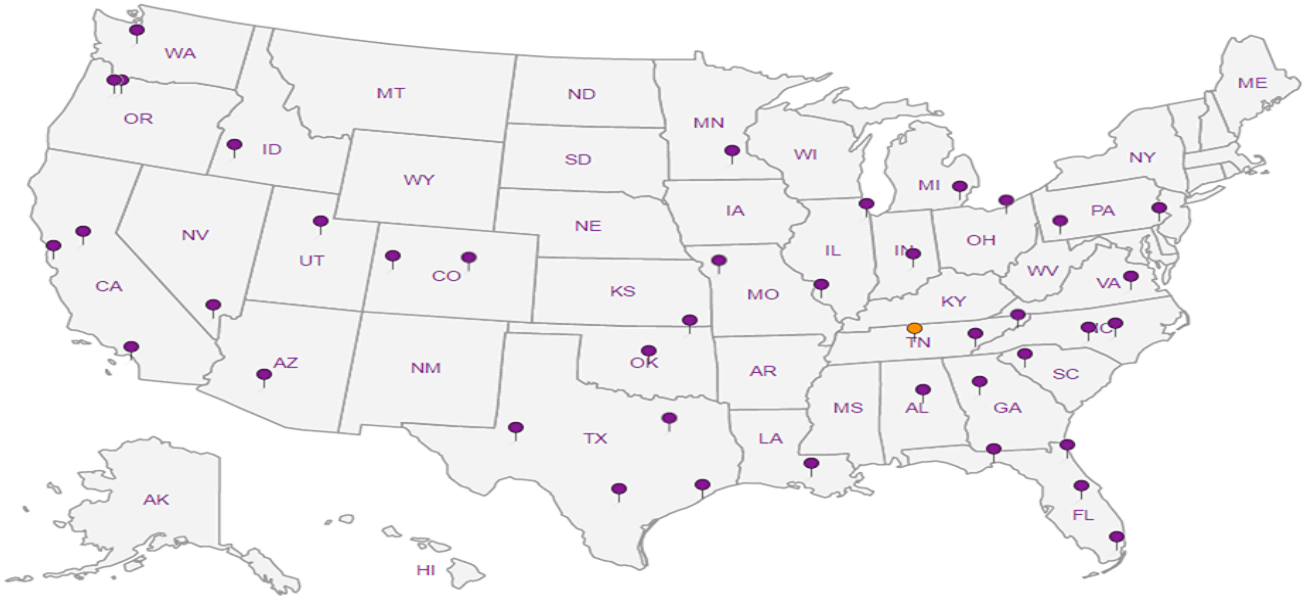
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01
A2LA – ISO 17025 [5]	1461.02
Canada	1461.01
EPA–Crypto	TN00003
AIHA-LAP,LLC	100789
DOD	1461.01
USDA	S-67674

[1.] Drinking Water [2.] Underground Storage Tanks [3.] Aquatic Toxicity [4.] Chemical/Microbiological [5.] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



TRC Solutions - Austin, TX

505 E. Huntland Drive, Suite 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Report to: **Julie Speer**

Email To: **jspeer@trcsolutions.com**

Project Description:

City/State Collected: NM

Phone: **512-684-3176**
Fax:

Client Project #

Lab Project # **TRCATX-LOVINGTON NAV**

Collected by (print): John Pickard

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

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L# 916667
M094

Acctnum: **TRCATX**
Template: **T124508**
Prelogin: **P605513**
TSR: **526 - Chris McCord**
PB: AG 6-7-17
Shipped Via: **FedEx Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date 2017	Time	No. of Cntrs	8270TX 100ml Amb NoPres	DROLVI 40mlAmb-HCl-BT	GRO 40mlAmb HCl	V8260 40mlAmb-HCl	Remarks	Sample # (lab only)
MW-32	G	GW	-	12/15	1410	8	✓	✓	✓	✓		-01
MW-33	G	GW	-	12/15	1025	8	✓	✓	✓	✓		02
DUP #2	G	GW	-	12/15	1145	8	✓	✓	✓	✓		03
TB-06-15-17 A	-	GW	-	-	-	1				✓		04
EB-06-15-17 ✓	G	GW	-	12/15	1230	8	✓	✓	✓	✓		05
		GW										

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: NOTE: 1 Trip Blank for Soils & Water

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	6/15/17	1630		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.1° °C Bottles Received: TDU 32
				If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 6-16-17 Time: 845
				Hold: Condition: NCF / OK

ANALYTICAL REPORT

July 20, 2017

TRC Solutions - Austin, TX

Sample Delivery Group:	L916656
Samples Received:	06/16/2017
Project Number:	274418
Description:	Navajo Lovington Loading Rack Investigation

Report To: Julie Speer
505 E. Huntland Dr, Ste 250
Austin, TX 78752

Entire Report Reviewed By:

Chris McCord
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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SB-04-062017 (75) L916656-01 Solid

Collected by: John Pioneer
Collected date/time: 06/13/17 16:00
Received date/time: 06/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG990847	1	06/20/17 16:13	06/20/17 16:26	KDW
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG992491	1	06/23/17 11:54	06/27/17 12:31	LRL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG992357	1	06/23/17 11:54	06/23/17 17:59	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG991127	1	06/22/17 23:07	06/23/17 22:35	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG990755	1	06/22/17 09:59	06/23/17 17:45	ADF

DUP 1 L916656-02 Solid

Collected by: John Pioneer
Collected date/time: 06/13/17 16:05
Received date/time: 06/16/17 08:45

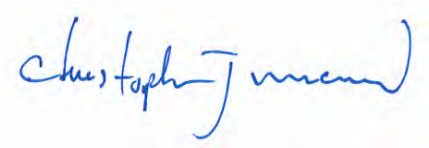
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG990847	1	06/20/17 16:13	06/20/17 16:26	KDW
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG992491	1	06/23/17 11:54	06/24/17 10:30	DWR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG992357	1	06/23/17 11:54	06/23/17 18:34	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG991127	1	06/22/17 23:07	06/23/17 22:46	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG990755	1	06/22/17 09:59	06/23/17 18:08	ADF

SB-04-062017 (90) L916656-03 Solid

Collected by: John Pioneer
Collected date/time: 06/13/17 16:15
Received date/time: 06/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG990847	1	06/20/17 16:13	06/20/17 16:26	KDW
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG992491	1	06/23/17 11:54	06/24/17 10:51	DWR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG992357	1	06/23/17 11:54	06/23/17 18:51	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG991127	1	06/22/17 23:07	06/23/17 22:57	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG990755	1	06/22/17 09:59	06/23/17 18:32	ADF

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.4		1	06/20/2017 16:26	WG990847

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.140	J3	0.114	1	06/27/2017 12:31	WG992491
(S) a,a,a-Trifluorotoluene(FID)	*90.5*		*77.0-120*		*06/27/2017 12:31*	WG992491

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND	J3	0.0572	1	06/23/2017 17:59	WG992357
Benzene	ND		0.00114	1	06/23/2017 17:59	WG992357
Bromodichloromethane	ND		0.00114	1	06/23/2017 17:59	WG992357
Bromoform	ND		0.00114	1	06/23/2017 17:59	WG992357
Bromomethane	ND		0.00572	1	06/23/2017 17:59	WG992357
n-Butylbenzene	ND		0.00114	1	06/23/2017 17:59	WG992357
sec-Butylbenzene	ND		0.00114	1	06/23/2017 17:59	WG992357
tert-Butylbenzene	ND		0.00114	1	06/23/2017 17:59	WG992357
Carbon disulfide	ND		0.00114	1	06/23/2017 17:59	WG992357
Carbon tetrachloride	ND		0.00114	1	06/23/2017 17:59	WG992357
Chlorobenzene	ND		0.00114	1	06/23/2017 17:59	WG992357
Chlorodibromomethane	ND		0.00114	1	06/23/2017 17:59	WG992357
Chloroethane	ND		0.00572	1	06/23/2017 17:59	WG992357
Chloroform	ND		0.00572	1	06/23/2017 17:59	WG992357
Chloromethane	ND		0.00286	1	06/23/2017 17:59	WG992357
1,2-Dibromoethane	ND		0.00114	1	06/23/2017 17:59	WG992357
1,1-Dichloroethane	ND		0.00114	1	06/23/2017 17:59	WG992357
1,2-Dichloroethane	ND		0.00114	1	06/23/2017 17:59	WG992357
1,1-Dichloroethene	ND		0.00114	1	06/23/2017 17:59	WG992357
cis-1,2-Dichloroethene	ND		0.00114	1	06/23/2017 17:59	WG992357
trans-1,2-Dichloroethene	ND		0.00114	1	06/23/2017 17:59	WG992357
1,2-Dichloropropane	ND		0.00114	1	06/23/2017 17:59	WG992357
cis-1,3-Dichloropropene	ND		0.00114	1	06/23/2017 17:59	WG992357
trans-1,3-Dichloropropene	ND		0.00114	1	06/23/2017 17:59	WG992357
Ethylbenzene	ND		0.00114	1	06/23/2017 17:59	WG992357
Hexachloro-1,3-butadiene	ND		0.00114	1	06/23/2017 17:59	WG992357
2-Hexanone	ND		0.0114	1	06/23/2017 17:59	WG992357
Isopropylbenzene	ND		0.00114	1	06/23/2017 17:59	WG992357
p-Isopropyltoluene	ND		0.00114	1	06/23/2017 17:59	WG992357
2-Butanone (MEK)	ND		0.0114	1	06/23/2017 17:59	WG992357
Methylene Chloride	ND		0.00572	1	06/23/2017 17:59	WG992357
4-Methyl-2-pentanone (MIBK)	ND		0.0114	1	06/23/2017 17:59	WG992357
Methyl tert-butyl ether	ND		0.00114	1	06/23/2017 17:59	WG992357
Naphthalene	ND		0.00572	1	06/23/2017 17:59	WG992357
n-Propylbenzene	ND		0.00114	1	06/23/2017 17:59	WG992357
Styrene	ND		0.00114	1	06/23/2017 17:59	WG992357
1,1,2,2-Tetrachloroethane	ND		0.00114	1	06/23/2017 17:59	WG992357
Tetrachloroethene	ND		0.00114	1	06/23/2017 17:59	WG992357
Toluene	ND		0.00572	1	06/23/2017 17:59	WG992357
1,1,1-Trichloroethane	ND		0.00114	1	06/23/2017 17:59	WG992357
1,1,2-Trichloroethane	ND		0.00114	1	06/23/2017 17:59	WG992357
Trichloroethene	ND		0.00114	1	06/23/2017 17:59	WG992357
1,2,4-Trimethylbenzene	ND		0.00114	1	06/23/2017 17:59	WG992357
1,3,5-Trimethylbenzene	ND		0.00114	1	06/23/2017 17:59	WG992357

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Vinyl chloride	ND		0.00114	1	06/23/2017 17:59	WG992357
Xylenes, Total	ND		0.00343	1	06/23/2017 17:59	WG992357
(S) Toluene-d8	*99.7*		*80.0-120*		*06/23/2017 17:59*	WG992357
(S) Dibromofluoromethane	*93.3*		*74.0-131*		*06/23/2017 17:59*	WG992357
(S) 4-Bromofluorobenzene	*106*		*64.0-132*		*06/23/2017 17:59*	WG992357

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.57	1	06/23/2017 22:35	WG991127
(S) o-Terphenyl	*63.7*		*18.0-148*		*06/23/2017 22:35*	WG991127

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0377	1	06/23/2017 17:45	WG990755
Acenaphthylene	ND		0.0377	1	06/23/2017 17:45	WG990755
Acetophenone	ND		0.381	1	06/23/2017 17:45	WG990755
Anthracene	ND		0.0377	1	06/23/2017 17:45	WG990755
Atrazine	ND		0.381	1	06/23/2017 17:45	WG990755
Benzaldehyde	ND		0.381	1	06/23/2017 17:45	WG990755
Benzo(a)anthracene	ND		0.0377	1	06/23/2017 17:45	WG990755
Benzo(b)fluoranthene	ND		0.0377	1	06/23/2017 17:45	WG990755
Benzo(k)fluoranthene	ND		0.0377	1	06/23/2017 17:45	WG990755
Benzo(g,h,i)perylene	ND		0.0377	1	06/23/2017 17:45	WG990755
Benzo(a)pyrene	ND		0.0377	1	06/23/2017 17:45	WG990755
Biphenyl	ND		0.381	1	06/23/2017 17:45	WG990755
Bis(2-chlorethoxy)methane	ND		0.381	1	06/23/2017 17:45	WG990755
Bis(2-chloroethyl)ether	ND		0.381	1	06/23/2017 17:45	WG990755
Bis(2-chloroisopropyl)ether	ND		0.381	1	06/23/2017 17:45	WG990755
4-Bromophenyl-phenylether	ND		0.381	1	06/23/2017 17:45	WG990755
Caprolactam	ND		0.381	1	06/23/2017 17:45	WG990755
Carbazole	ND		0.381	1	06/23/2017 17:45	WG990755
4-Chloroaniline	ND		0.381	1	06/23/2017 17:45	WG990755
2-Chloronaphthalene	ND		0.0377	1	06/23/2017 17:45	WG990755
4-Chlorophenyl-phenylether	ND		0.381	1	06/23/2017 17:45	WG990755
Chrysene	ND		0.0377	1	06/23/2017 17:45	WG990755
Dibenz(a,h)anthracene	ND		0.0377	1	06/23/2017 17:45	WG990755
Dibenzofuran	ND		0.381	1	06/23/2017 17:45	WG990755
3,3-Dichlorobenzidine	ND		0.381	1	06/23/2017 17:45	WG990755
2,4-Dinitrotoluene	ND		0.381	1	06/23/2017 17:45	WG990755
2,6-Dinitrotoluene	ND		0.381	1	06/23/2017 17:45	WG990755
Fluoranthene	ND		0.0377	1	06/23/2017 17:45	WG990755
Fluorene	ND		0.0377	1	06/23/2017 17:45	WG990755
Hexachlorobenzene	ND		0.381	1	06/23/2017 17:45	WG990755
Hexachloro-1,3-butadiene	ND		0.381	1	06/23/2017 17:45	WG990755
Hexachlorocyclopentadiene	ND		0.381	1	06/23/2017 17:45	WG990755
Hexachloroethane	ND		0.381	1	06/23/2017 17:45	WG990755
Indeno(1,2,3-cd)pyrene	ND		0.0377	1	06/23/2017 17:45	WG990755
Isophorone	ND		0.381	1	06/23/2017 17:45	WG990755
1-Methylnaphthalene	ND		0.0377	1	06/23/2017 17:45	WG990755
2-Methylnaphthalene	ND		0.0377	1	06/23/2017 17:45	WG990755
Naphthalene	ND		0.0377	1	06/23/2017 17:45	WG990755
2-Nitroaniline	ND		0.381	1	06/23/2017 17:45	WG990755
3-Nitroaniline	ND		0.381	1	06/23/2017 17:45	WG990755

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Nitroaniline	ND		0.381	1	06/23/2017 17:45	WG990755
Nitrobenzene	ND		0.381	1	06/23/2017 17:45	WG990755
n-Nitrosodiphenylamine	ND		0.381	1	06/23/2017 17:45	WG990755
n-Nitrosodi-n-propylamine	ND		0.381	1	06/23/2017 17:45	WG990755
Phenanthrene	ND		0.0377	1	06/23/2017 17:45	WG990755
Benzylbutyl phthalate	ND		0.381	1	06/23/2017 17:45	WG990755
Bis(2-ethylhexyl)phthalate	ND		0.381	1	06/23/2017 17:45	WG990755
Di-n-butyl phthalate	ND		0.381	1	06/23/2017 17:45	WG990755
Diethyl phthalate	ND		0.381	1	06/23/2017 17:45	WG990755
Dimethyl phthalate	ND		0.381	1	06/23/2017 17:45	WG990755
Di-n-octyl phthalate	ND		0.381	1	06/23/2017 17:45	WG990755
Pyrene	ND		0.0377	1	06/23/2017 17:45	WG990755
1,2,4-Trichlorobenzene	ND		0.381	1	06/23/2017 17:45	WG990755
4-Chloro-3-methylphenol	ND		0.381	1	06/23/2017 17:45	WG990755
2-Chlorophenol	ND		0.381	1	06/23/2017 17:45	WG990755
2-Methylphenol	ND		0.381	1	06/23/2017 17:45	WG990755
3&4-Methyl Phenol	ND		0.381	1	06/23/2017 17:45	WG990755
2,4-Dichlorophenol	ND		0.381	1	06/23/2017 17:45	WG990755
2,4-Dimethylphenol	ND		0.381	1	06/23/2017 17:45	WG990755
4,6-Dinitro-2-methylphenol	ND		0.381	1	06/23/2017 17:45	WG990755
2,4-Dinitrophenol	ND		0.381	1	06/23/2017 17:45	WG990755
2-Nitrophenol	ND		0.381	1	06/23/2017 17:45	WG990755
4-Nitrophenol	ND		0.381	1	06/23/2017 17:45	WG990755
Pentachlorophenol	ND		0.381	1	06/23/2017 17:45	WG990755
Phenol	ND		0.381	1	06/23/2017 17:45	WG990755
2,4,5-Trichlorophenol	ND		0.381	1	06/23/2017 17:45	WG990755
2,4,6-Trichlorophenol	ND		0.381	1	06/23/2017 17:45	WG990755
(S) 2-Fluorophenol	*51.9*		*20.0-120*		*06/23/2017 17:45*	WG990755
(S) Phenol-d5	*45.1*		*20.0-120*		*06/23/2017 17:45*	WG990755
(S) Nitrobenzene-d5	*37.3*		*18.0-125*		*06/23/2017 17:45*	WG990755
(S) 2-Fluorobiphenyl	*43.6*		*28.0-120*		*06/23/2017 17:45*	WG990755
(S) 2,4,6-Tribromophenol	*50.2*		*17.0-137*		*06/23/2017 17:45*	WG990755
(S) p-Terphenyl-d14	*47.0*		*13.0-131*		*06/23/2017 17:45*	WG990755

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	76.4		1	06/20/2017 16:26	WG990847

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	ND	J3	0.131	1	06/24/2017 10:30	WG992491
(S) a,a,a-Trifluorotoluene(FID)	*96.9*		*77.0-120*		*06/24/2017 10:30*	WG992491

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND	J3	0.0654	1	06/23/2017 18:34	WG992357
Benzene	ND		0.00131	1	06/23/2017 18:34	WG992357
Bromodichloromethane	ND		0.00131	1	06/23/2017 18:34	WG992357
Bromoform	ND		0.00131	1	06/23/2017 18:34	WG992357
Bromomethane	ND		0.00654	1	06/23/2017 18:34	WG992357
n-Butylbenzene	ND		0.00131	1	06/23/2017 18:34	WG992357
sec-Butylbenzene	ND		0.00131	1	06/23/2017 18:34	WG992357
tert-Butylbenzene	ND		0.00131	1	06/23/2017 18:34	WG992357
Carbon disulfide	ND		0.00131	1	06/23/2017 18:34	WG992357
Carbon tetrachloride	ND		0.00131	1	06/23/2017 18:34	WG992357
Chlorobenzene	ND		0.00131	1	06/23/2017 18:34	WG992357
Chlorodibromomethane	ND		0.00131	1	06/23/2017 18:34	WG992357
Chloroethane	ND		0.00654	1	06/23/2017 18:34	WG992357
Chloroform	ND		0.00654	1	06/23/2017 18:34	WG992357
Chloromethane	ND		0.00327	1	06/23/2017 18:34	WG992357
1,2-Dibromoethane	ND		0.00131	1	06/23/2017 18:34	WG992357
1,1-Dichloroethane	ND		0.00131	1	06/23/2017 18:34	WG992357
1,2-Dichloroethane	ND		0.00131	1	06/23/2017 18:34	WG992357
1,1-Dichloroethene	ND		0.00131	1	06/23/2017 18:34	WG992357
cis-1,2-Dichloroethene	ND		0.00131	1	06/23/2017 18:34	WG992357
trans-1,2-Dichloroethene	ND		0.00131	1	06/23/2017 18:34	WG992357
1,2-Dichloropropane	ND		0.00131	1	06/23/2017 18:34	WG992357
cis-1,3-Dichloropropene	ND		0.00131	1	06/23/2017 18:34	WG992357
trans-1,3-Dichloropropene	ND		0.00131	1	06/23/2017 18:34	WG992357
Ethylbenzene	ND		0.00131	1	06/23/2017 18:34	WG992357
Hexachloro-1,3-butadiene	ND		0.00131	1	06/23/2017 18:34	WG992357
2-Hexanone	ND		0.0131	1	06/23/2017 18:34	WG992357
Isopropylbenzene	ND		0.00131	1	06/23/2017 18:34	WG992357
p-Isopropyltoluene	ND		0.00131	1	06/23/2017 18:34	WG992357
2-Butanone (MEK)	ND		0.0131	1	06/23/2017 18:34	WG992357
Methylene Chloride	ND		0.00654	1	06/23/2017 18:34	WG992357
4-Methyl-2-pentanone (MIBK)	ND		0.0131	1	06/23/2017 18:34	WG992357
Methyl tert-butyl ether	ND		0.00131	1	06/23/2017 18:34	WG992357
Naphthalene	ND		0.00654	1	06/23/2017 18:34	WG992357
n-Propylbenzene	ND		0.00131	1	06/23/2017 18:34	WG992357
Styrene	ND		0.00131	1	06/23/2017 18:34	WG992357
1,1,2,2-Tetrachloroethane	ND		0.00131	1	06/23/2017 18:34	WG992357
Tetrachloroethene	ND		0.00131	1	06/23/2017 18:34	WG992357
Toluene	ND		0.00654	1	06/23/2017 18:34	WG992357
1,1,1-Trichloroethane	ND		0.00131	1	06/23/2017 18:34	WG992357
1,1,2-Trichloroethane	ND		0.00131	1	06/23/2017 18:34	WG992357
Trichloroethene	ND		0.00131	1	06/23/2017 18:34	WG992357
1,2,4-Trimethylbenzene	ND		0.00131	1	06/23/2017 18:34	WG992357
1,3,5-Trimethylbenzene	ND		0.00131	1	06/23/2017 18:34	WG992357

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Vinyl chloride	ND		0.00131	1	06/23/2017 18:34	WG992357
Xylenes, Total	ND		0.00393	1	06/23/2017 18:34	WG992357
(S) Toluene-d8	*99.9*		*80.0-120*		*06/23/2017 18:34*	WG992357
(S) Dibromofluoromethane	*95.4*		*74.0-131*		*06/23/2017 18:34*	WG992357
(S) 4-Bromofluorobenzene	*101*		*64.0-132*		*06/23/2017 18:34*	WG992357

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		5.23	1	06/23/2017 22:46	WG991127
(S) o-Terphenyl	*64.5*		*18.0-148*		*06/23/2017 22:46*	WG991127

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0432	1	06/23/2017 18:08	WG990755
Acenaphthylene	ND		0.0432	1	06/23/2017 18:08	WG990755
Acetophenone	ND		0.436	1	06/23/2017 18:08	WG990755
Anthracene	ND		0.0432	1	06/23/2017 18:08	WG990755
Atrazine	ND		0.436	1	06/23/2017 18:08	WG990755
Benzaldehyde	ND		0.436	1	06/23/2017 18:08	WG990755
Benzo(a)anthracene	ND		0.0432	1	06/23/2017 18:08	WG990755
Benzo(b)fluoranthene	ND		0.0432	1	06/23/2017 18:08	WG990755
Benzo(k)fluoranthene	ND		0.0432	1	06/23/2017 18:08	WG990755
Benzo(g,h,i)perylene	ND		0.0432	1	06/23/2017 18:08	WG990755
Benzo(a)pyrene	ND		0.0432	1	06/23/2017 18:08	WG990755
Biphenyl	ND		0.436	1	06/23/2017 18:08	WG990755
Bis(2-chlorethoxy)methane	ND		0.436	1	06/23/2017 18:08	WG990755
Bis(2-chloroethyl)ether	ND		0.436	1	06/23/2017 18:08	WG990755
Bis(2-chloroisopropyl)ether	ND		0.436	1	06/23/2017 18:08	WG990755
4-Bromophenyl-phenylether	ND		0.436	1	06/23/2017 18:08	WG990755
Caprolactam	ND		0.436	1	06/23/2017 18:08	WG990755
Carbazole	ND		0.436	1	06/23/2017 18:08	WG990755
4-Chloroaniline	ND		0.436	1	06/23/2017 18:08	WG990755
2-Chloronaphthalene	ND		0.0432	1	06/23/2017 18:08	WG990755
4-Chlorophenyl-phenylether	ND		0.436	1	06/23/2017 18:08	WG990755
Chrysene	ND		0.0432	1	06/23/2017 18:08	WG990755
Dibenz(a,h)anthracene	ND		0.0432	1	06/23/2017 18:08	WG990755
Dibenzofuran	ND		0.436	1	06/23/2017 18:08	WG990755
3,3-Dichlorobenzidine	ND		0.436	1	06/23/2017 18:08	WG990755
2,4-Dinitrotoluene	ND		0.436	1	06/23/2017 18:08	WG990755
2,6-Dinitrotoluene	ND		0.436	1	06/23/2017 18:08	WG990755
Fluoranthene	ND		0.0432	1	06/23/2017 18:08	WG990755
Fluorene	ND		0.0432	1	06/23/2017 18:08	WG990755
Hexachlorobenzene	ND		0.436	1	06/23/2017 18:08	WG990755
Hexachloro-1,3-butadiene	ND		0.436	1	06/23/2017 18:08	WG990755
Hexachlorocyclopentadiene	ND		0.436	1	06/23/2017 18:08	WG990755
Hexachloroethane	ND		0.436	1	06/23/2017 18:08	WG990755
Indeno(1,2,3-cd)pyrene	ND		0.0432	1	06/23/2017 18:08	WG990755
Isophorone	ND		0.436	1	06/23/2017 18:08	WG990755
1-Methylnaphthalene	ND		0.0432	1	06/23/2017 18:08	WG990755
2-Methylnaphthalene	ND		0.0432	1	06/23/2017 18:08	WG990755
Naphthalene	ND		0.0432	1	06/23/2017 18:08	WG990755
2-Nitroaniline	ND		0.436	1	06/23/2017 18:08	WG990755
3-Nitroaniline	ND		0.436	1	06/23/2017 18:08	WG990755

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Nitroaniline	ND		0.436	1	06/23/2017 18:08	WG990755
Nitrobenzene	ND		0.436	1	06/23/2017 18:08	WG990755
n-Nitrosodiphenylamine	ND		0.436	1	06/23/2017 18:08	WG990755
n-Nitrosodi-n-propylamine	ND		0.436	1	06/23/2017 18:08	WG990755
Phenanthrene	ND		0.0432	1	06/23/2017 18:08	WG990755
Benzylbutyl phthalate	ND		0.436	1	06/23/2017 18:08	WG990755
Bis(2-ethylhexyl)phthalate	ND		0.436	1	06/23/2017 18:08	WG990755
Di-n-butyl phthalate	ND		0.436	1	06/23/2017 18:08	WG990755
Diethyl phthalate	ND		0.436	1	06/23/2017 18:08	WG990755
Dimethyl phthalate	ND		0.436	1	06/23/2017 18:08	WG990755
Di-n-octyl phthalate	ND		0.436	1	06/23/2017 18:08	WG990755
Pyrene	ND		0.0432	1	06/23/2017 18:08	WG990755
1,2,4-Trichlorobenzene	ND		0.436	1	06/23/2017 18:08	WG990755
4-Chloro-3-methylphenol	ND		0.436	1	06/23/2017 18:08	WG990755
2-Chlorophenol	ND		0.436	1	06/23/2017 18:08	WG990755
2-Methylphenol	ND		0.436	1	06/23/2017 18:08	WG990755
3&4-Methyl Phenol	ND		0.436	1	06/23/2017 18:08	WG990755
2,4-Dichlorophenol	ND		0.436	1	06/23/2017 18:08	WG990755
2,4-Dimethylphenol	ND		0.436	1	06/23/2017 18:08	WG990755
4,6-Dinitro-2-methylphenol	ND		0.436	1	06/23/2017 18:08	WG990755
2,4-Dinitrophenol	ND		0.436	1	06/23/2017 18:08	WG990755
2-Nitrophenol	ND		0.436	1	06/23/2017 18:08	WG990755
4-Nitrophenol	ND		0.436	1	06/23/2017 18:08	WG990755
Pentachlorophenol	ND		0.436	1	06/23/2017 18:08	WG990755
Phenol	ND		0.436	1	06/23/2017 18:08	WG990755
2,4,5-Trichlorophenol	ND		0.436	1	06/23/2017 18:08	WG990755
2,4,6-Trichlorophenol	ND		0.436	1	06/23/2017 18:08	WG990755
(S) 2-Fluorophenol	*63.1*		*20.0-120*		*06/23/2017 18:08*	WG990755
(S) Phenol-d5	*53.8*		*20.0-120*		*06/23/2017 18:08*	WG990755
(S) Nitrobenzene-d5	*45.4*		*18.0-125*		*06/23/2017 18:08*	WG990755
(S) 2-Fluorobiphenyl	*52.7*		*28.0-120*		*06/23/2017 18:08*	WG990755
(S) 2,4,6-Tribromophenol	*56.8*		*17.0-137*		*06/23/2017 18:08*	WG990755
(S) p-Terphenyl-d14	*53.9*		*13.0-131*		*06/23/2017 18:08*	WG990755

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.8		1	06/20/2017 16:26	WG990847

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	ND	J3	0.127	1	06/24/2017 10:51	WG992491
(S) a,a,a-Trifluorotoluene(FID)	*97.1*		*77.0-120*		*06/24/2017 10:51*	WG992491

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND	J3	0.0634	1	06/23/2017 18:51	WG992357
Benzene	ND		0.00127	1	06/23/2017 18:51	WG992357
Bromodichloromethane	ND		0.00127	1	06/23/2017 18:51	WG992357
Bromoform	ND		0.00127	1	06/23/2017 18:51	WG992357
Bromomethane	ND		0.00634	1	06/23/2017 18:51	WG992357
n-Butylbenzene	ND		0.00127	1	06/23/2017 18:51	WG992357
sec-Butylbenzene	ND		0.00127	1	06/23/2017 18:51	WG992357
tert-Butylbenzene	ND		0.00127	1	06/23/2017 18:51	WG992357
Carbon disulfide	ND		0.00127	1	06/23/2017 18:51	WG992357
Carbon tetrachloride	ND		0.00127	1	06/23/2017 18:51	WG992357
Chlorobenzene	ND		0.00127	1	06/23/2017 18:51	WG992357
Chlorodibromomethane	ND		0.00127	1	06/23/2017 18:51	WG992357
Chloroethane	ND		0.00634	1	06/23/2017 18:51	WG992357
Chloroform	ND		0.00634	1	06/23/2017 18:51	WG992357
Chloromethane	ND		0.00317	1	06/23/2017 18:51	WG992357
1,2-Dibromoethane	ND		0.00127	1	06/23/2017 18:51	WG992357
1,1-Dichloroethane	ND		0.00127	1	06/23/2017 18:51	WG992357
1,2-Dichloroethane	ND		0.00127	1	06/23/2017 18:51	WG992357
1,1-Dichloroethene	ND		0.00127	1	06/23/2017 18:51	WG992357
cis-1,2-Dichloroethene	ND		0.00127	1	06/23/2017 18:51	WG992357
trans-1,2-Dichloroethene	ND		0.00127	1	06/23/2017 18:51	WG992357
1,2-Dichloropropane	ND		0.00127	1	06/23/2017 18:51	WG992357
cis-1,3-Dichloropropene	ND		0.00127	1	06/23/2017 18:51	WG992357
trans-1,3-Dichloropropene	ND		0.00127	1	06/23/2017 18:51	WG992357
Ethylbenzene	ND		0.00127	1	06/23/2017 18:51	WG992357
Hexachloro-1,3-butadiene	ND		0.00127	1	06/23/2017 18:51	WG992357
2-Hexanone	ND		0.0127	1	06/23/2017 18:51	WG992357
Isopropylbenzene	ND		0.00127	1	06/23/2017 18:51	WG992357
p-Isopropyltoluene	ND		0.00127	1	06/23/2017 18:51	WG992357
2-Butanone (MEK)	ND		0.0127	1	06/23/2017 18:51	WG992357
Methylene Chloride	ND		0.00634	1	06/23/2017 18:51	WG992357
4-Methyl-2-pentanone (MIBK)	ND		0.0127	1	06/23/2017 18:51	WG992357
Methyl tert-butyl ether	ND		0.00127	1	06/23/2017 18:51	WG992357
Naphthalene	ND		0.00634	1	06/23/2017 18:51	WG992357
n-Propylbenzene	ND		0.00127	1	06/23/2017 18:51	WG992357
Styrene	ND		0.00127	1	06/23/2017 18:51	WG992357
1,1,2,2-Tetrachloroethane	ND		0.00127	1	06/23/2017 18:51	WG992357
Tetrachloroethene	ND		0.00127	1	06/23/2017 18:51	WG992357
Toluene	ND		0.00634	1	06/23/2017 18:51	WG992357
1,1,1-Trichloroethane	ND		0.00127	1	06/23/2017 18:51	WG992357
1,1,2-Trichloroethane	ND		0.00127	1	06/23/2017 18:51	WG992357
Trichloroethene	ND		0.00127	1	06/23/2017 18:51	WG992357
1,2,4-Trimethylbenzene	ND		0.00127	1	06/23/2017 18:51	WG992357
1,3,5-Trimethylbenzene	ND		0.00127	1	06/23/2017 18:51	WG992357

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Vinyl chloride	ND		0.00127	1	06/23/2017 18:51	WG992357
Xylenes, Total	ND		0.00381	1	06/23/2017 18:51	WG992357
(S) Toluene-d8	*101*		*80.0-120*		*06/23/2017 18:51*	WG992357
(S) Dibromofluoromethane	*94.8*		*74.0-131*		*06/23/2017 18:51*	WG992357
(S) 4-Bromofluorobenzene	*102*		*64.0-132*		*06/23/2017 18:51*	WG992357

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		5.07	1	06/23/2017 22:57	WG991127
(S) o-Terphenyl	*63.8*		*18.0-148*		*06/23/2017 22:57*	WG991127

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0419	1	06/23/2017 18:32	WG990755
Acenaphthylene	ND		0.0419	1	06/23/2017 18:32	WG990755
Acetophenone	ND		0.422	1	06/23/2017 18:32	WG990755
Anthracene	ND		0.0419	1	06/23/2017 18:32	WG990755
Atrazine	ND		0.422	1	06/23/2017 18:32	WG990755
Benzaldehyde	ND		0.422	1	06/23/2017 18:32	WG990755
Benzo(a)anthracene	ND		0.0419	1	06/23/2017 18:32	WG990755
Benzo(b)fluoranthene	ND		0.0419	1	06/23/2017 18:32	WG990755
Benzo(k)fluoranthene	ND		0.0419	1	06/23/2017 18:32	WG990755
Benzo(g,h,i)perylene	ND		0.0419	1	06/23/2017 18:32	WG990755
Benzo(a)pyrene	ND		0.0419	1	06/23/2017 18:32	WG990755
Biphenyl	ND		0.422	1	06/23/2017 18:32	WG990755
Bis(2-chlorethoxy)methane	ND		0.422	1	06/23/2017 18:32	WG990755
Bis(2-chloroethyl)ether	ND		0.422	1	06/23/2017 18:32	WG990755
Bis(2-chloroisopropyl)ether	ND		0.422	1	06/23/2017 18:32	WG990755
4-Bromophenyl-phenylether	ND		0.422	1	06/23/2017 18:32	WG990755
Caprolactam	ND		0.422	1	06/23/2017 18:32	WG990755
Carbazole	ND		0.422	1	06/23/2017 18:32	WG990755
4-Chloroaniline	ND		0.422	1	06/23/2017 18:32	WG990755
2-Chloronaphthalene	ND		0.0419	1	06/23/2017 18:32	WG990755
4-Chlorophenyl-phenylether	ND		0.422	1	06/23/2017 18:32	WG990755
Chrysene	ND		0.0419	1	06/23/2017 18:32	WG990755
Dibenz(a,h)anthracene	ND		0.0419	1	06/23/2017 18:32	WG990755
Dibenzofuran	ND		0.422	1	06/23/2017 18:32	WG990755
3,3-Dichlorobenzidine	ND		0.422	1	06/23/2017 18:32	WG990755
2,4-Dinitrotoluene	ND		0.422	1	06/23/2017 18:32	WG990755
2,6-Dinitrotoluene	ND		0.422	1	06/23/2017 18:32	WG990755
Fluoranthene	ND		0.0419	1	06/23/2017 18:32	WG990755
Fluorene	ND		0.0419	1	06/23/2017 18:32	WG990755
Hexachlorobenzene	ND		0.422	1	06/23/2017 18:32	WG990755
Hexachloro-1,3-butadiene	ND		0.422	1	06/23/2017 18:32	WG990755
Hexachlorocyclopentadiene	ND		0.422	1	06/23/2017 18:32	WG990755
Hexachloroethane	ND		0.422	1	06/23/2017 18:32	WG990755
Indeno(1,2,3-cd)pyrene	ND		0.0419	1	06/23/2017 18:32	WG990755
Isophorone	ND		0.422	1	06/23/2017 18:32	WG990755
1-Methylnaphthalene	ND		0.0419	1	06/23/2017 18:32	WG990755
2-Methylnaphthalene	ND		0.0419	1	06/23/2017 18:32	WG990755
Naphthalene	ND		0.0419	1	06/23/2017 18:32	WG990755
2-Nitroaniline	ND		0.422	1	06/23/2017 18:32	WG990755
3-Nitroaniline	ND		0.422	1	06/23/2017 18:32	WG990755

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Nitroaniline	ND		0.422	1	06/23/2017 18:32	WG990755
Nitrobenzene	ND		0.422	1	06/23/2017 18:32	WG990755
n-Nitrosodiphenylamine	ND		0.422	1	06/23/2017 18:32	WG990755
n-Nitrosodi-n-propylamine	ND		0.422	1	06/23/2017 18:32	WG990755
Phenanthrene	ND		0.0419	1	06/23/2017 18:32	WG990755
Benzylbutyl phthalate	ND		0.422	1	06/23/2017 18:32	WG990755
Bis(2-ethylhexyl)phthalate	ND		0.422	1	06/23/2017 18:32	WG990755
Di-n-butyl phthalate	ND		0.422	1	06/23/2017 18:32	WG990755
Diethyl phthalate	ND		0.422	1	06/23/2017 18:32	WG990755
Dimethyl phthalate	ND		0.422	1	06/23/2017 18:32	WG990755
Di-n-octyl phthalate	ND		0.422	1	06/23/2017 18:32	WG990755
Pyrene	ND		0.0419	1	06/23/2017 18:32	WG990755
1,2,4-Trichlorobenzene	ND		0.422	1	06/23/2017 18:32	WG990755
4-Chloro-3-methylphenol	ND		0.422	1	06/23/2017 18:32	WG990755
2-Chlorophenol	ND		0.422	1	06/23/2017 18:32	WG990755
2-Methylphenol	ND		0.422	1	06/23/2017 18:32	WG990755
3&4-Methyl Phenol	ND		0.422	1	06/23/2017 18:32	WG990755
2,4-Dichlorophenol	ND		0.422	1	06/23/2017 18:32	WG990755
2,4-Dimethylphenol	ND		0.422	1	06/23/2017 18:32	WG990755
4,6-Dinitro-2-methylphenol	ND		0.422	1	06/23/2017 18:32	WG990755
2,4-Dinitrophenol	ND		0.422	1	06/23/2017 18:32	WG990755
2-Nitrophenol	ND		0.422	1	06/23/2017 18:32	WG990755
4-Nitrophenol	ND		0.422	1	06/23/2017 18:32	WG990755
Pentachlorophenol	ND		0.422	1	06/23/2017 18:32	WG990755
Phenol	ND		0.422	1	06/23/2017 18:32	WG990755
2,4,5-Trichlorophenol	ND		0.422	1	06/23/2017 18:32	WG990755
2,4,6-Trichlorophenol	ND		0.422	1	06/23/2017 18:32	WG990755
(S) 2-Fluorophenol	*51.4*		*20.0-120*		*06/23/2017 18:32*	WG990755
(S) Phenol-d5	*47.8*		*20.0-120*		*06/23/2017 18:32*	WG990755
(S) Nitrobenzene-d5	*40.3*		*18.0-125*		*06/23/2017 18:32*	WG990755
(S) 2-Fluorobiphenyl	*50.9*		*28.0-120*		*06/23/2017 18:32*	WG990755
(S) 2,4,6-Tribromophenol	*57.1*		*17.0-137*		*06/23/2017 18:32*	WG990755
(S) p-Terphenyl-d14	*53.8*		*13.0-131*		*06/23/2017 18:32*	WG990755

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3227310-1 06/20/17 16:26

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000100			

L916675-01 Original Sample (OS) • Duplicate (DUP)

(OS) L916675-01 06/20/17 16:26 • (DUP) R3227310-3 06/20/17 16:26

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	75.9	76.6	1	0.952		5

Laboratory Control Sample (LCS)

(LCS) R3227310-2 06/20/17 16:26

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3228782-3 06/24/17 09:07

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*98.2*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3228782-1 06/24/17 08:04 • (LCSD) R3228782-2 06/24/17 08:25

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
TPH (GC/FID) Low Fraction	5.50	4.40	5.55	80.1	101	70.0-136		J3	23.0	20
(S) a,a,a-Trifluorotoluene(FID)				*102*	*102*	*77.0-120*				

L916675-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916675-01 06/24/17 11:12 • (MS) R3228782-4 06/24/17 16:47 • (MSD) R3228782-5 06/24/17 17:08

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
TPH (GC/FID) Low Fraction	7.25	ND	5.75	5.86	79.3	80.9	1	10.0-147			1.99	30
(S) a,a,a-Trifluorotoluene(FID)					*98.8*	*98.1*		*77.0-120*				

Method Blank (MB)

(MB) R3228652-3 06/23/17 13:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0100	0.0500
Benzene	U		0.000270	0.00100
Bromodichloromethane	U		0.000254	0.00100
Bromoform	U		0.000424	0.00100
Bromomethane	U		0.00134	0.00500
n-Butylbenzene	U		0.000258	0.00100
sec-Butylbenzene	U		0.000201	0.00100
tert-Butylbenzene	U		0.000206	0.00100
Carbon disulfide	U		0.000221	0.00100
Carbon tetrachloride	U		0.000328	0.00100
Chlorobenzene	U		0.000212	0.00100
Chlorodibromomethane	U		0.000373	0.00100
Chloroethane	U		0.000946	0.00500
Chloroform	U		0.000229	0.00500
Chloromethane	U		0.000375	0.00250
1,2-Dibromoethane	U		0.000343	0.00100
1,1-Dichloroethane	U		0.000199	0.00100
1,2-Dichloroethane	U		0.000265	0.00100
1,1-Dichloroethene	U		0.000303	0.00100
cis-1,2-Dichloroethene	U		0.000235	0.00100
trans-1,2-Dichloroethene	U		0.000264	0.00100
1,2-Dichloropropane	U		0.000358	0.00100
cis-1,3-Dichloropropene	U		0.000262	0.00100
trans-1,3-Dichloropropene	U		0.000267	0.00100
Ethylbenzene	U		0.000297	0.00100
Hexachloro-1,3-butadiene	U		0.000342	0.00100
2-Hexanone	U		0.00137	0.0100
Isopropylbenzene	U		0.000243	0.00100
p-Isopropyltoluene	U		0.000204	0.00100
2-Butanone (MEK)	U		0.00468	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00188	0.0100
Methyl tert-butyl ether	U		0.000212	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000206	0.00100
Styrene	U		0.000234	0.00100
1,1,2,2-Tetrachloroethane	U		0.000365	0.00100
Tetrachloroethene	U		0.000276	0.00100
Toluene	U		0.000434	0.00500
1,1,1-Trichloroethane	U		0.000286	0.00100

Method Blank (MB)

(MB) R3228652-3 06/23/17 13:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
1,1,2-Trichloroethane	U		0.000277	0.00100
Trichloroethene	U		0.000279	0.00100
1,2,4-Trimethylbenzene	0.000330	J	0.000211	0.00100
1,3,5-Trimethylbenzene	U		0.000266	0.00100
Vinyl chloride	U		0.000291	0.00100
Xylenes, Total	U		0.000698	0.00300
(S) Toluene-d8	*100*			*80.0-120*
(S) Dibromofluoromethane	*89.5*			*74.0-131*
(S) 4-Bromofluorobenzene	*101*			*64.0-132*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3228652-1 06/23/17 12:12 • (LCSD) R3228652-2 06/23/17 12:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.0644	0.0509	51.5	40.7	11.0-160		J3	23.4	23
Benzene	0.0250	0.0201	0.0198	80.2	79.4	71.0-124			1.07	20
Bromodichloromethane	0.0250	0.0220	0.0216	87.9	86.5	75.0-120			1.51	20
Bromoform	0.0250	0.0244	0.0266	97.5	106	65.0-133			8.68	20
Bromomethane	0.0250	0.0289	0.0271	116	108	26.0-160			6.41	20
n-Butylbenzene	0.0250	0.0207	0.0197	82.8	78.6	73.0-126			5.14	20
sec-Butylbenzene	0.0250	0.0260	0.0255	104	102	75.0-121			1.92	20
tert-Butylbenzene	0.0250	0.0270	0.0269	108	107	74.0-122			0.410	20
Carbon disulfide	0.0250	0.0213	0.0211	85.2	84.6	53.0-130			0.690	20
Carbon tetrachloride	0.0250	0.0248	0.0246	99.4	98.4	66.0-123			0.990	20
Chlorobenzene	0.0250	0.0274	0.0280	109	112	79.0-121			2.30	20
Chlorodibromomethane	0.0250	0.0249	0.0265	99.6	106	74.0-128			6.09	20
Chloroethane	0.0250	0.0257	0.0246	103	98.5	51.0-147			4.06	20
Chloroform	0.0250	0.0218	0.0213	87.4	85.3	73.0-123			2.43	20
Chloromethane	0.0250	0.0177	0.0172	70.8	68.7	51.0-138			3.03	20
1,2-Dibromoethane	0.0250	0.0255	0.0275	102	110	78.0-122			7.56	20
1,1-Dichloroethane	0.0250	0.0192	0.0192	77.0	76.9	70.0-128			0.120	20
1,2-Dichloroethane	0.0250	0.0224	0.0217	89.6	86.8	69.0-128			3.17	20
1,1-Dichloroethene	0.0250	0.0243	0.0250	97.3	100	63.0-131			2.87	20
cis-1,2-Dichloroethene	0.0250	0.0214	0.0211	85.8	84.4	74.0-123			1.67	20
trans-1,2-Dichloroethene	0.0250	0.0216	0.0211	86.3	84.3	72.0-122			2.37	20
1,2-Dichloropropane	0.0250	0.0215	0.0205	86.1	82.1	75.0-126			4.72	20
cis-1,3-Dichloropropene	0.0250	0.0216	0.0209	86.5	83.5	80.0-125			3.49	20
trans-1,3-Dichloropropene	0.0250	0.0230	0.0226	92.0	90.5	75.0-129			1.69	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3228652-1 06/23/17 12:12 • (LCSD) R3228652-2 06/23/17 12:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	0.0250	0.0256	0.0263	103	105	77.0-120			2.55	20
Hexachloro-1,3-butadiene	0.0250	0.0223	0.0226	89.1	90.4	68.0-128			1.40	20
2-Hexanone	0.125	0.0861	0.0911	68.9	72.9	61.0-143			5.71	20
Isopropylbenzene	0.0250	0.0257	0.0268	103	107	75.0-120			3.87	20
p-Isopropyltoluene	0.0250	0.0266	0.0264	106	106	74.0-125			0.550	20
2-Butanone (MEK)	0.125	0.0754	0.0670	60.3	53.6	37.0-159			11.7	20
Methylene Chloride	0.0250	0.0199	0.0188	79.5	75.3	67.0-123			5.44	20
4-Methyl-2-pentanone (MIBK)	0.125	0.0912	0.0860	72.9	68.8	60.0-144			5.87	20
Methyl tert-butyl ether	0.0250	0.0214	0.0203	85.5	81.3	66.0-125			4.97	20
Naphthalene	0.0250	0.0210	0.0205	84.2	81.9	64.0-125			2.75	20
n-Propylbenzene	0.0250	0.0252	0.0257	101	103	78.0-120			2.04	20
Styrene	0.0250	0.0264	0.0271	106	109	78.0-124			2.67	20
1,1,2,2-Tetrachloroethane	0.0250	0.0222	0.0230	88.6	92.0	73.0-120			3.68	20
Tetrachloroethene	0.0250	0.0301	0.0317	120	127	70.0-127			5.12	20
Toluene	0.0250	0.0231	0.0226	92.2	90.4	77.0-120			2.03	20
1,1,1-Trichloroethane	0.0250	0.0243	0.0236	97.0	94.4	69.0-125			2.80	20
1,1,2-Trichloroethane	0.0250	0.0242	0.0265	96.6	106	78.0-120			9.27	20
Trichloroethene	0.0250	0.0265	0.0262	106	105	79.0-120			1.22	20
1,2,4-Trimethylbenzene	0.0250	0.0261	0.0259	104	104	75.0-120			0.820	20
1,3,5-Trimethylbenzene	0.0250	0.0262	0.0266	105	107	75.0-120			1.80	20
Vinyl chloride	0.0250	0.0198	0.0193	79.4	77.3	63.0-134			2.71	20
Xylenes, Total	0.0750	0.0782	0.0801	104	107	77.0-120			2.40	20
(S) Toluene-d8				*101*	*99.4*	*80.0-120*				
(S) Dibromofluoromethane				*92.0*	*92.3*	*74.0-131*				
(S) 4-Bromofluorobenzene				*101*	*106*	*64.0-132*				

L916660-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916660-01 06/23/17 19:09 • (MS) R3228652-4 06/23/17 20:01 • (MSD) R3228652-5 06/23/17 20:18

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.0542	0.0648	0.0586	8.47	3.51	1	10.0-160	J6	J6	10.0	36
Benzene	0.0250	0.00193	0.0194	0.0185	69.9	66.2	1	13.0-146			4.93	27
Bromodichloromethane	0.0250	ND	0.0208	0.0200	83.2	80.1	1	15.0-142			3.82	28
Bromoform	0.0250	ND	0.0192	0.0195	76.8	77.8	1	10.0-147			1.32	31
Bromomethane	0.0250	ND	0.0242	0.0246	96.8	98.6	1	10.0-160			1.80	32
n-Butylbenzene	0.0250	ND	0.0120	0.00950	47.9	38.0	1	10.0-154			23.0	37
sec-Butylbenzene	0.0250	ND	0.0169	0.0141	67.4	56.3	1	10.0-151			17.9	36
tert-Butylbenzene	0.0250	ND	0.0197	0.0171	77.9	67.4	1	10.0-152			14.2	35

L916660-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916660-01 06/23/17 19:09 • (MS) R3228652-4 06/23/17 20:01 • (MSD) R3228652-5 06/23/17 20:18

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon disulfide	0.0250		0.0157	0.0143	54.5	49.2	1	10.0-141			8.92	30
Carbon tetrachloride	0.0250	ND	0.0239	0.0220	95.5	87.9	1	13.0-140			8.29	30
Chlorobenzene	0.0250	ND	0.0229	0.0218	91.6	87.2	1	10.0-149			4.92	31
Chlorodibromomethane	0.0250	ND	0.0220	0.0224	88.1	89.6	1	12.0-147			1.77	29
Chloroethane	0.0250	ND	0.0240	0.0230	95.9	92.2	1	10.0-159			3.94	33
Chloroform	0.0250	ND	0.0219	0.0212	87.6	84.8	1	18.0-148			3.29	28
Chloromethane	0.0250	ND	0.0144	0.0137	50.9	48.1	1	10.0-146			4.94	29
1,2-Dibromoethane	0.0250	ND	0.0231	0.0229	92.5	91.5	1	14.0-145			1.07	28
1,1-Dichloroethane	0.0250	ND	0.0200	0.0187	80.0	74.7	1	19.0-148			6.88	28
1,2-Dichloroethane	0.0250	ND	0.0226	0.0220	90.3	88.1	1	17.0-147			2.47	27
1,1-Dichloroethene	0.0250	ND	0.0265	0.0251	106	100	1	10.0-150			5.50	31
cis-1,2-Dichloroethene	0.0250	ND	0.0214	0.0205	85.7	82.0	1	16.0-145			4.46	28
trans-1,2-Dichloroethene	0.0250	ND	0.0210	0.0201	84.0	80.3	1	11.0-142			4.55	29
1,2-Dichloropropane	0.0250	0.00162	0.0205	0.0196	75.5	72.1	1	17.0-148			4.28	28
cis-1,3-Dichloropropene	0.0250	ND	0.0193	0.0178	77.0	71.1	1	13.0-150			8.06	28
trans-1,3-Dichloropropene	0.0250	ND	0.0196	0.0189	75.8	73.0	1	10.0-152			3.56	29
Ethylbenzene	0.0250	0.00170	0.0215	0.0204	79.2	74.9	1	10.0-147			5.14	31
Hexachloro-1,3-butadiene	0.0250	ND	0.00996	0.00599	39.8	24.0	1	10.0-154		J3	49.8	40
2-Hexanone	0.125		0.0802	0.0786	61.7	60.4	1	12.0-158			2.05	30
Isopropylbenzene	0.0250	ND	0.0200	0.0185	79.9	74.0	1	10.0-147			7.71	33
p-Isopropyltoluene	0.0250	ND	0.0168	0.0147	67.1	58.7	1	10.0-156			13.4	37
2-Butanone (MEK)	0.125	ND	0.0769	0.0712	57.6	53.0	1	10.0-160			7.76	33
Methylene Chloride	0.0250	ND	0.0201	0.0190	80.5	76.1	1	16.0-139			5.65	29
4-Methyl-2-pentanone (MIBK)	0.125	ND	0.0870	0.0853	69.6	68.2	1	12.0-160			1.93	32
Methyl tert-butyl ether	0.0250	ND	0.0204	0.0200	81.5	80.1	1	21.0-145			1.82	29
Naphthalene	0.0250	ND	0.0109	0.0118	43.7	47.1	1	10.0-153			7.49	36
n-Propylbenzene	0.0250	ND	0.0183	0.0166	71.9	65.1	1	10.0-151			9.77	34
Styrene	0.0250	ND	0.0209	0.0198	83.4	79.2	1	10.0-155			5.23	34
1,1,2,2-Tetrachloroethane	0.0250	ND	0.0193	0.0195	77.3	78.1	1	10.0-155			1.05	31
Tetrachloroethene	0.0250	0.00132	0.0245	0.0233	92.9	87.8	1	10.0-144			5.34	32
Toluene	0.0250	0.00639	0.0213	0.0198	59.7	53.5	1	10.0-144			7.56	28
1,1,1-Trichloroethane	0.0250	ND	0.0246	0.0232	98.4	92.7	1	18.0-145			5.95	29
1,1,2-Trichloroethane	0.0250	ND	0.0229	0.0225	90.4	88.8	1	12.0-151			1.80	28
Trichloroethene	0.0250	ND	0.0251	0.0236	100	94.4	1	11.0-148			6.11	29
1,2,4-Trimethylbenzene	0.0250	0.00191	0.0180	0.0171	64.4	60.6	1	10.0-151			5.40	34
1,3,5-Trimethylbenzene	0.0250	ND	0.0189	0.0169	71.7	63.8	1	10.0-150			11.1	33
Vinyl chloride	0.0250	ND	0.0188	0.0180	75.3	72.2	1	10.0-150			4.22	29
Xylenes, Total	0.0750	ND	0.0644	0.0609	85.9	81.2	1	10.0-150			5.59	31
(S) Toluene-d8					*100*	*99.4*		*80.0-120*				
(S) Dibromofluoromethane					*92.3*	*91.5*		*74.0-131*				

L916660-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916660-01 06/23/17 19:09 • (MS) R3228652-4 06/23/17 20:01 • (MSD) R3228652-5 06/23/17 20:18

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
(S) 4-Bromofluorobenzene					*97.7*	*101*		*64.0-132*				

Method Blank (MB)

(MB) R3228712-1 06/23/17 19:52

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	*71.3*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3228712-2 06/23/17 20:03 • (LCSD) R3228712-3 06/23/17 20:13

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
TPH (GC/FID) High Fraction	60.0	38.7	41.6	64.5	69.4	50.0-150			7.28	20
(S) o-Terphenyl				*73.1*	*72.4*	*18.0-148*				

L916656-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916656-03 06/23/17 22:57 • (MS) R3228712-4 06/23/17 23:08 • (MSD) R3228712-5 06/23/17 23:19

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
TPH (GC/FID) High Fraction	76.1	ND	46.5	45.5	59.2	57.9	1	50.0-150			2.21	20
(S) o-Terphenyl					*67.7*	*69.4*		*18.0-148*				

Method Blank (MB)

(MB) R3228278-3 06/23/17 10:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00642	0.0330
Acenaphthylene	U		0.00671	0.0330
Acetophenone	U		0.0752	0.333
Anthracene	U		0.00632	0.0330
Atrazine	U		0.0938	0.333
Benzaldehyde	U		0.0532	0.333
Benzo(a)anthracene	U		0.00428	0.0330
Benzo(b)fluoranthene	U		0.00695	0.0330
Benzo(k)fluoranthene	U		0.00582	0.0330
Benzo(g,h,i)perylene	U		0.00721	0.0330
Benzo(a)pyrene	U		0.00548	0.0330
Biphenyl	U		0.00588	0.333
Bis(2-chlorethoxy)methane	U		0.00770	0.333
Bis(2-chloroethyl)ether	U		0.00896	0.333
Bis(2-chloroisopropyl)ether	U		0.00760	0.333
4-Bromophenyl-phenylether	U		0.0114	0.333
Caprolactam	U		0.104	0.333
Carbazole	U		0.00524	0.333
4-Chloroaniline	U		0.0352	0.333
2-Chloronaphthalene	U		0.00639	0.0330
4-Chlorophenyl-phenylether	U		0.00627	0.333
Chrysene	U		0.00555	0.0330
Dibenz(a,h)anthracene	U		0.00821	0.0330
Dibenzofuran	U		0.00518	0.333
3,3-Dichlorobenzidine	U		0.0794	0.333
2,4-Dinitrotoluene	U		0.00607	0.333
2,6-Dinitrotoluene	U		0.00737	0.333
Fluoranthene	U		0.00496	0.0330
Fluorene	U		0.00682	0.0330
Hexachlorobenzene	U		0.00856	0.333
Hexachloro-1,3-butadiene	U		0.0100	0.333
Hexachlorocyclopentadiene	U		0.0587	0.333
Hexachloroethane	U		0.0134	0.333
Indeno(1,2,3-cd)pyrene	U		0.00772	0.0330
Isophorone	U		0.00522	0.333
1-Methylnaphthalene	U		0.0110	0.0330
2-Methylnaphthalene	U		0.00861	0.0330
Naphthalene	U		0.00889	0.0330
2-Nitroaniline	U		0.00755	0.333
3-Nitroaniline	U		0.00850	0.333

Method Blank (MB)

(MB) R3228278-3 06/23/17 10:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
4-Nitroaniline	U		0.00639	0.333
Nitrobenzene	U		0.00695	0.333
n-Nitrosodiphenylamine	U		0.00594	0.333
n-Nitrosodi-n-propylamine	U		0.00906	0.333
Phenanthrene	U		0.00528	0.0330
Benzylbutyl phthalate	U		0.0103	0.333
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333
Di-n-butyl phthalate	U		0.0109	0.333
Diethyl phthalate	U		0.00691	0.333
Dimethyl phthalate	U		0.00540	0.333
Di-n-octyl phthalate	U		0.00907	0.333
Pyrene	U		0.0123	0.0330
1,2,4-Trichlorobenzene	U		0.00876	0.333
4-Chloro-3-methylphenol	U		0.00477	0.333
2-Chlorophenol	U		0.00831	0.333
2-Methylphenol	U		0.00986	0.333
3&4-Methyl Phenol	U		0.00783	0.333
2,4-Dichlorophenol	U		0.00746	0.333
2,4-Dimethylphenol	U		0.0471	0.333
4,6-Dinitro-2-methylphenol	U		0.124	0.333
2,4-Dinitrophenol	U		0.0980	0.333
2-Nitrophenol	U		0.0130	0.333
4-Nitrophenol	U		0.0525	0.333
Pentachlorophenol	U		0.0480	0.333
Phenol	U		0.00695	0.333
2,4,5-Trichlorophenol	U		0.0104	0.333
2,4,6-Trichlorophenol	U		0.00779	0.333
(S) Nitrobenzene-d5	*58.3*			*18.0-125*
(S) 2-Fluorobiphenyl	*62.6*			*28.0-120*
(S) p-Terphenyl-d14	*70.9*			*13.0-131*
(S) Phenol-d5	*61.0*			*20.0-120*
(S) 2-Fluorophenol	*66.9*			*20.0-120*
(S) 2,4,6-Tribromophenol	*68.7*			*17.0-137*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3228278-1 06/23/17 10:09 • (LCSD) R3228278-2 06/23/17 10:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.667	0.445	0.451	66.7	67.6	47.0-120			1.32	21
Acenaphthylene	0.667	0.488	0.483	73.1	72.5	48.0-120			0.910	21
Acetophenone	0.667	0.425	0.452	63.8	67.7	30.0-120			5.97	26
Anthracene	0.667	0.455	0.455	68.3	68.2	46.0-120			0.0900	20
Atrazine	0.667	0.567	0.538	85.0	80.7	43.0-127			5.19	22
Benzaldehyde	0.667	0.320	0.401	48.0	60.1	10.0-120			22.5	40
Benzo(a)anthracene	0.667	0.445	0.444	66.7	66.5	46.0-120			0.300	20
Benzo(b)fluoranthene	0.667	0.453	0.444	67.9	66.5	45.0-120			2.15	22
Benzo(k)fluoranthene	0.667	0.470	0.471	70.4	70.6	45.0-120			0.300	23
Benzo(g,h,i)perylene	0.667	0.479	0.482	71.8	72.3	48.0-120			0.690	21
Benzo(a)pyrene	0.667	0.474	0.457	71.1	68.5	46.0-120			3.74	21
Biphenyl	0.667	0.444	0.453	66.5	68.0	42.0-120			2.14	23
Bis(2-chlorethoxy)methane	0.667	0.351	0.365	52.7	54.7	41.0-120			3.66	22
Bis(2-chloroethyl)ether	0.667	0.394	0.420	59.0	63.0	28.0-120			6.46	28
Bis(2-chloroisopropyl)ether	0.667	0.371	0.403	55.6	60.5	40.0-120			8.36	27
4-Bromophenyl-phenylether	0.667	0.470	0.465	70.5	69.7	45.0-120			1.06	20
Caprolactam	0.667	0.449	0.462	67.4	69.3	41.0-136			2.78	22
Carbazole	0.667	0.465	0.466	69.7	69.9	41.0-120			0.280	20
4-Chloroaniline	0.667	0.309	0.314	46.3	47.1	27.0-120			1.66	25
2-Chloronaphthalene	0.667	0.443	0.446	66.4	66.8	43.0-120			0.630	22
4-Chlorophenyl-phenylether	0.667	0.480	0.460	72.0	68.9	46.0-120			4.33	21
Chrysene	0.667	0.457	0.458	68.5	68.7	46.0-120			0.320	20
Dibenz(a,h)anthracene	0.667	0.482	0.477	72.3	71.5	47.0-120			1.13	22
Dibenzofuran	0.667	0.454	0.455	68.0	68.2	43.0-120			0.280	21
3,3-Dichlorobenzidine	0.667	0.792	0.803	119	120	20.0-130			1.37	24
2,4-Dinitrotoluene	0.667	0.534	0.524	80.0	78.5	48.0-122			1.93	21
2,6-Dinitrotoluene	0.667	0.475	0.456	71.2	68.3	46.0-120			4.19	21
Fluoranthene	0.667	0.472	0.463	70.8	69.4	46.0-120			2.01	20
Fluorene	0.667	0.487	0.472	73.0	70.8	47.0-120			3.07	20
Hexachlorobenzene	0.667	0.470	0.465	70.4	69.8	42.0-120			0.960	20
Hexachloro-1,3-butadiene	0.667	0.360	0.386	54.0	57.9	36.0-120			6.99	26
Hexachlorocyclopentadiene	0.667	0.342	0.369	51.3	55.4	20.0-124			7.68	26
Hexachloroethane	0.667	0.361	0.378	54.2	56.7	32.0-120			4.58	31
Indeno(1,2,3-cd)pyrene	0.667	0.482	0.479	72.2	71.9	48.0-120			0.520	21
Isophorone	0.667	0.369	0.388	55.3	58.1	42.0-120			5.07	21
1-Methylnaphthalene	0.667	0.354	0.361	53.1	54.2	40.0-120			1.95	20
2-Methylnaphthalene	0.667	0.341	0.360	51.1	53.9	43.0-120			5.38	22
Naphthalene	0.667	0.338	0.355	50.7	53.3	41.0-120			4.94	24
2-Nitroaniline	0.667	0.484	0.486	72.6	72.8	46.0-125			0.250	21
3-Nitroaniline	0.667	0.416	0.412	62.4	61.8	37.0-120			1.06	22

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3228278-1 06/23/17 10:09 • (LCSD) R3228278-2 06/23/17 10:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Nitroaniline	0.667	0.540	0.519	81.0	77.7	31.0-127			4.07	26
Nitrobenzene	0.667	0.349	0.380	52.3	56.9	36.0-120			8.42	24
n-Nitrosodiphenylamine	0.667	0.450	0.449	67.5	67.3	42.0-120			0.290	20
n-Nitrosodi-n-propylamine	0.667	0.394	0.423	59.1	63.5	39.0-120			7.08	23
Phenanthrene	0.667	0.447	0.453	67.0	67.9	45.0-120			1.32	20
Benzylbutyl phthalate	0.667	0.470	0.466	70.5	69.9	41.0-123			0.880	20
Bis(2-ethylhexyl)phthalate	0.667	0.467	0.456	70.0	68.4	41.0-124			2.30	20
Di-n-butyl phthalate	0.667	0.475	0.475	71.3	71.3	44.0-120			0.0200	20
Diethyl phthalate	0.667	0.521	0.496	78.1	74.4	46.0-120			4.80	20
Dimethyl phthalate	0.667	0.514	0.496	77.1	74.3	47.0-120			3.65	21
Di-n-octyl phthalate	0.667	0.460	0.456	69.0	68.4	40.0-123			0.840	21
Pyrene	0.667	0.459	0.462	68.7	69.3	45.0-120			0.840	21
1,2,4-Trichlorobenzene	0.667	0.359	0.365	53.8	54.7	40.0-120			1.63	25
4-Chloro-3-methylphenol	0.667	0.408	0.399	61.2	59.8	46.0-120			2.42	20
2-Chlorophenol	0.667	0.431	0.456	64.6	68.4	37.0-120			5.82	27
2-Methylphenol	0.667	0.442	0.443	66.2	66.4	41.0-120			0.290	24
3&4-Methyl Phenol	0.667	0.473	0.493	70.9	73.9	47.0-120			4.03	24
2,4-Dichlorophenol	0.667	0.397	0.409	59.6	61.3	45.0-120			2.90	21
2,4-Dimethylphenol	0.667	0.368	0.375	55.1	56.2	40.0-120			1.86	22
4,6-Dinitro-2-methylphenol	0.667	0.424	0.410	63.6	61.5	34.0-120			3.26	23
2,4-Dinitrophenol	0.667	0.285	0.244	42.7	36.6	10.0-120			15.4	30
2-Nitrophenol	0.667	0.360	0.382	53.9	57.3	42.0-120			6.15	24
4-Nitrophenol	0.667	0.493	0.445	73.9	66.8	40.0-120			10.1	21
Pentachlorophenol	0.667	0.456	0.452	68.3	67.8	33.0-122			0.760	22
Phenol	0.667	0.422	0.452	63.3	67.8	38.0-120			6.87	25
2,4,5-Trichlorophenol	0.667	0.479	0.452	71.8	67.8	44.0-120			5.74	22
2,4,6-Trichlorophenol	0.667	0.488	0.485	73.1	72.7	47.0-120			0.500	22
(S) Nitrobenzene-d5				*56.6*	*60.0*	*18.0-125*				
(S) 2-Fluorobiphenyl				*71.7*	*72.5*	*28.0-120*				
(S) p-Terphenyl-d14				*78.8*	*76.3*	*13.0-131*				
(S) Phenol-d5				*64.7*	*68.4*	*20.0-120*				
(S) 2-Fluorophenol				*73.1*	*76.1*	*20.0-120*				
(S) 2,4,6-Tribromophenol				*78.5*	*77.5*	*17.0-137*				

L916697-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916697-11 06/23/17 19:43 • (MS) R3228278-4 06/23/17 20:06 • (MSD) R3228278-5 06/23/17 20:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.667	ND	0.406	0.368	60.9	55.2	1	37.0-120			9.96	23
Acenaphthylene	0.667	ND	0.441	0.399	66.1	59.8	1	41.0-120			10.0	22
Acetophenone	0.667	ND	0.408	0.391	61.2	58.6	1	24.0-120			4.29	21
Anthracene	0.667	ND	0.402	0.380	60.3	57.0	1	30.0-123			5.63	25
Atrazine	0.667	ND	0.487	0.443	73.0	66.4	1	42.0-126			9.47	21
Benzaldehyde	0.667	ND	0.953	0.742	143	111	1	10.0-126	J5		24.9	32
Benzo(a)anthracene	0.667	ND	0.396	0.359	59.3	53.9	1	21.0-123			9.58	26
Benzo(b)fluoranthene	0.667	ND	0.482	0.442	72.2	66.3	1	20.0-127			8.65	29
Benzo(k)fluoranthene	0.667	ND	0.503	0.457	75.4	68.6	1	22.0-123			9.52	28
Benzo(g,h,i)perylene	0.667	ND	0.182	0.151	27.3	22.7	1	10.0-120			18.5	32
Benzo(a)pyrene	0.667	ND	0.436	0.390	65.3	58.5	1	23.0-120			11.1	27
Biphenyl	0.667	ND	0.417	0.379	62.5	56.7	1	37.0-120			9.57	21
Bis(2-chlorethoxy)methane	0.667	ND	0.326	0.305	48.8	45.8	1	37.0-120			6.36	22
Bis(2-chloroethyl)ether	0.667	ND	0.383	0.365	57.4	54.7	1	26.0-120			4.84	27
Bis(2-chloroisopropyl)ether	0.667	ND	0.366	0.345	54.9	51.8	1	35.0-120			5.79	25
4-Bromophenyl-phenylether	0.667	ND	0.415	0.380	62.2	56.9	1	34.0-120			8.81	23
Caprolactam	0.667	ND	0.391	0.371	58.6	55.7	1	27.0-151			5.10	22
Carbazole	0.667	ND	0.418	0.388	62.6	58.2	1	38.0-120			7.31	21
4-Chloroaniline	0.667	ND	0.362	0.345	54.3	51.7	1	21.0-120			4.95	27
2-Chloronaphthalene	0.667	ND	0.398	0.367	59.7	55.1	1	40.0-120			7.98	22
4-Chlorophenyl-phenylether	0.667	ND	0.419	0.389	62.8	58.3	1	37.0-120			7.44	23
Chrysene	0.667	ND	0.407	0.377	61.0	56.5	1	19.0-127			7.60	27
Dibenz(a,h)anthracene	0.667	ND	0.240	0.208	35.9	31.2	1	10.0-120			14.2	28
Dibenzofuran	0.667	ND	0.406	0.367	60.9	55.0	1	30.0-120			10.2	22
3,3-Dichlorobenzidine	0.667	ND	0.814	0.721	122	108	1	10.0-142			12.1	30
2,4-Dinitrotoluene	0.667	ND	0.319	0.315	47.9	47.2	1	37.0-129			1.30	24
2,6-Dinitrotoluene	0.667	ND	0.335	0.312	50.3	46.7	1	40.0-120			7.35	23
Fluoranthene	0.667	ND	0.442	0.430	66.3	64.5	1	20.0-133			2.84	28
Fluorene	0.667	ND	0.435	0.401	65.2	60.1	1	35.0-120			8.16	23
Hexachlorobenzene	0.667	ND	0.416	0.387	62.4	58.0	1	33.0-120			7.31	24
Hexachloro-1,3-butadiene	0.667	ND	0.361	0.334	54.1	50.1	1	33.0-120			7.59	25
Hexachlorocyclopentadiene	0.667	ND	ND	ND	0.000	0.000	1	10.0-120	J6	J6	0.000	33
Hexachloroethane	0.667	ND	0.263	0.242	39.5	36.3	1	21.0-120			8.39	30
Indeno(1,2,3-cd)pyrene	0.667	ND	0.228	0.200	34.2	29.9	1	10.0-120			13.3	30
Isophorone	0.667	ND	0.351	0.331	52.6	49.7	1	38.0-120			5.63	22
1-Methylnaphthalene	0.667		0.340	0.318	50.9	47.7	1	44.0-120			6.45	20
2-Methylnaphthalene	0.667	ND	0.336	0.308	50.3	46.1	1	35.0-120			8.79	23
Naphthalene	0.667	ND	0.327	0.309	49.0	46.3	1	37.0-120			5.76	25
2-Nitroaniline	0.667	ND	0.392	0.371	58.8	55.6	1	42.0-125			5.57	22
3-Nitroaniline	0.667	ND	0.389	0.365	58.3	54.7	1	29.0-120			6.27	25

L916697-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916697-11 06/23/17 19:43 • (MS) R3228278-4 06/23/17 20:06 • (MSD) R3228278-5 06/23/17 20:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
4-Nitroaniline	0.667	ND	0.434	0.407	65.0	61.0	1	27.0-130			6.44	27
Nitrobenzene	0.667	ND	0.338	0.320	50.6	48.0	1	32.0-120			5.30	24
n-Nitrosodiphenylamine	0.667	ND	0.398	0.369	59.7	55.3	1	20.0-125			7.60	25
n-Nitrosodi-n-propylamine	0.667	ND	0.368	0.348	55.2	52.1	1	34.0-120			5.74	23
Phenanthrene	0.667	ND	0.407	0.388	61.0	58.2	1	24.0-124			4.84	25
Benzylbutyl phthalate	0.667	ND	0.389	0.366	58.3	54.9	1	18.0-130			6.17	27
Bis(2-ethylhexyl)phthalate	0.667	ND	0.405	0.365	58.8	52.7	1	19.0-127			10.6	28
Di-n-butyl phthalate	0.667	ND	0.420	0.385	63.0	57.8	1	29.0-120			8.59	26
Diethyl phthalate	0.667	ND	0.452	0.421	67.7	63.1	1	42.0-121			7.01	23
Dimethyl phthalate	0.667	ND	0.447	0.410	67.0	61.4	1	42.0-120			8.71	23
Di-n-octyl phthalate	0.667	ND	0.401	0.371	60.1	55.7	1	21.0-122			7.59	27
Pyrene	0.667	ND	0.388	0.376	58.1	56.4	1	19.0-127			2.99	29
1,2,4-Trichlorobenzene	0.667	ND	0.343	0.317	51.4	47.6	1	39.0-120			7.76	25
4-Chloro-3-methylphenol	0.667	ND	0.366	0.347	54.9	52.0	1	37.0-121			5.43	23
2-Chlorophenol	0.667	ND	0.415	0.406	62.2	60.9	1	34.0-120			2.17	25
2-Methylphenol	0.667	ND	0.442	0.429	66.3	64.2	1	34.0-120			3.15	26
3&4-Methyl Phenol	0.667	ND	0.493	0.461	73.9	69.1	1	35.0-120			6.79	25
2,4-Dichlorophenol	0.667	ND	0.362	0.346	54.3	51.9	1	41.0-120			4.40	22
2,4-Dimethylphenol	0.667	ND	0.353	0.328	52.9	49.2	1	27.0-120			7.17	25
4,6-Dinitro-2-methylphenol	0.667	ND	ND	ND	0.000	0.000	1	10.0-131	J6	J6	0.000	29
2,4-Dinitrophenol	0.667	ND	ND	ND	0.000	0.000	1	10.0-142	J6	J6	0.000	30
2-Nitrophenol	0.667	ND	0.195	0.182	29.3	27.3	1	34.0-124	J6	J6	6.90	27
4-Nitrophenol	0.667	ND	0.395	0.350	59.2	52.5	1	26.0-133			12.1	25
Pentachlorophenol	0.667	ND	0.356	0.317	53.3	47.5	1	15.0-152			11.5	26
Phenol	0.667	ND	0.444	0.422	66.5	63.3	1	33.0-120			4.88	24
2,4,5-Trichlorophenol	0.667	ND	0.426	0.381	63.8	57.1	1	40.0-126			11.1	24
2,4,6-Trichlorophenol	0.667	ND	0.414	0.374	62.1	56.1	1	40.0-125			10.3	24
(S) Nitrobenzene-d5					*55.5*	*49.2*		*18.0-125*				
(S) 2-Fluorobiphenyl					*65.1*	*57.3*		*28.0-120*				
(S) p-Terphenyl-d14					*62.9*	*58.9*		*13.0-131*				
(S) Phenol-d5					*61.3*	*56.9*		*20.0-120*				
(S) 2-Fluorophenol					*68.5*	*67.3*		*20.0-120*				
(S) 2,4,6-Tribromophenol					*69.6*	*62.9*		*17.0-137*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL (dry)	Reported Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660
Alaska	UST-080
Arizona	AZ0612
Arkansas	88-0469
California	01157CA
Colorado	TN00003
Conneticut	PH-0197
Florida	E87487
Georgia	NELAP
Georgia [1]	923
Idaho	TN00003
Illinois	200008
Indiana	C-TN-01
Iowa	364
Kansas	E-10277
Kentucky [1]	90010
Kentucky [2]	16
Louisiana	AI30792
Maine	TN0002
Maryland	324
Massachusetts	M-TN003
Michigan	9958
Minnesota	047-999-395
Mississippi	TN00003
Missouri	340
Montana	CERT0086
Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico	TN00003
New York	11742
North Carolina	Env375
North Carolina [1]	DW21704
North Carolina [2]	41
North Dakota	R-140
Ohio–VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	221
South Carolina	84004
South Dakota	n/a
Tennessee [1 4]	2006
Texas	T 104704245-07-TX
Texas [5]	LAB0152
Utah	6157585858
Vermont	VT2006
Virginia	109
Washington	C1915
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

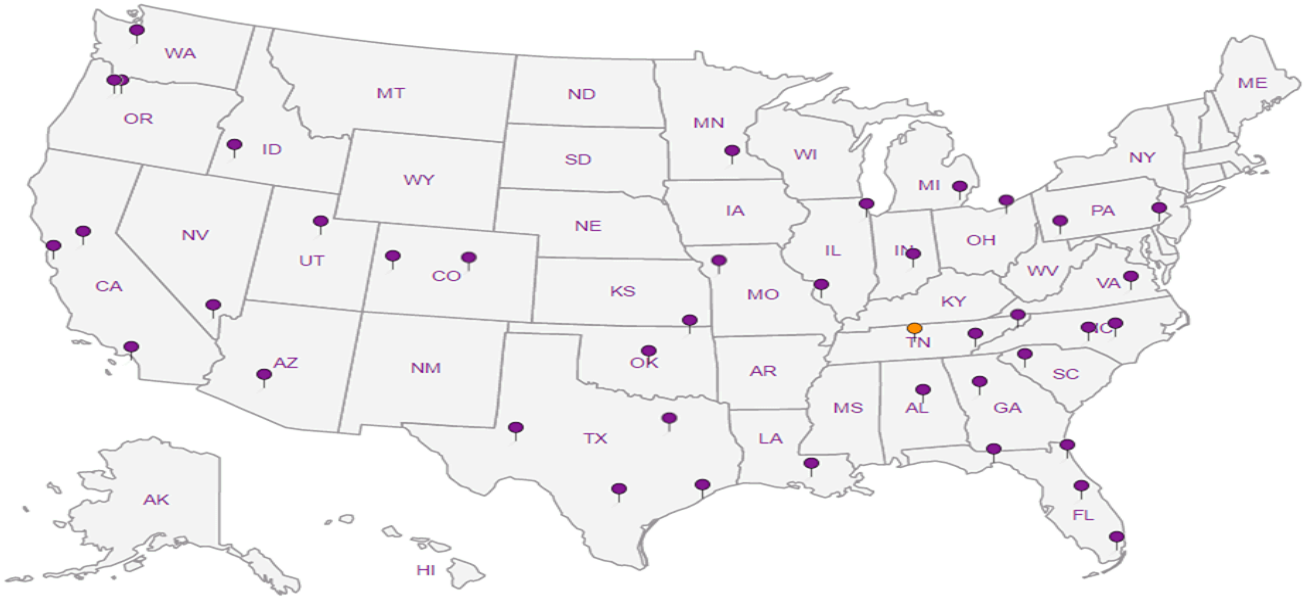
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01
A2LA – ISO 17025 [5]	1461.02
Canada	1461.01
EPA–Crypto	TN00003
AIHA-LAP,LLC	100789
DOD	1461.01
USDA	S-67674

[1.] Drinking Water [2.] Underground Storage Tanks [3.] Aquatic Toxicity [4.] Chemical/Microbiological [5.] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



TRC Solutions - Austin, TX
505 E. Huntland Drive, Suite 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: Julie Speer

Email To: jspeer@trcsolutions.com

Project Description:

City/State Collected: NM

Phone: 512-684-3176
Fax:

Client Project #

Lab Project # TRCATX-LOVINGTON NAV

Collected by (print): John P. O'Neal

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date 2017	Time	No. of Cntrs	DRO,SV8270TCL 4ozClr-NoPres	Total Solids 2ozClr-NoPres	V8260,GRO 2ozClr-NoPres								Remarks	Sample # (lab only)
SB-04-062017 (75)	G	SS	75	6/13	1600	3	✓	✓	✓									-01
DUP #1	G	SS	-	6/13	1605	3	✓	✓	✓									02
SB-04-062017 (90)	G	SS	90	6/13	1615	3	✓	✓	✓									03
~~TRIP~~ JPO 6/14/17		SS																
~~TRIP Blank~~ JPO 6/14/17		SS	—	—	—				✓									
~~FB-062017~~ JPO 6/14/17		SS					✓	✓	✓	JPO	6/15/17							
TB-06-15-17-A							✓	✓	✓									

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ___

Remarks: * NOTE - TRIP Blank for SOILS & WATER

pH ___ Temp ___
Flow ___ Other ___

Samples returned via:
__ UPS __ FedEx __ Courier __ ___

Tracking #

Relinquished by: (Signature) — Date: 6/15/17 — Time: 1630 — Received by: (Signature)

Relinquished by: (Signature) — Date: — Time: — Received by: (Signature)

Relinquished by: (Signature) — Date: — Time: — Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 2.9°C Bottles Received: 9

Date: 6-16-17 Time: 845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Chain of Custody Page ___ of ___

ESC LABS
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L916656
M095

Acctnum: TRCATX
Template: T124507
Prelogin: P605512
TSR: 526 - Chris McCord
PB: 6-7-17
Shipped Via: FedEX Ground

ANALYTICAL REPORT

July 20, 2017

TRC Solutions - Austin, TX

Sample Delivery Group:	L915938
Samples Received:	06/14/2017
Project Number:	274418
Description:	Navajo Lovington Loading Rack Investigation

Report To: Julie Speer
505 E. Huntland Dr, Ste 250
Austin, TX 78752

Entire Report Reviewed By:

Chris McCord
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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SB-01-062017 (75) L915938-01 Solid

Collected by: JRO | Collected date/time: 06/12/17 13:50 | Received date/time: 06/14/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG989678	1	06/19/17 09:47	06/19/17 10:00	MLW
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG991360	1	06/20/17 22:10	06/22/17 02:52	LRL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991430	1	06/20/17 22:10	06/21/17 16:16	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG990474	1	06/21/17 05:09	06/22/17 08:23	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG990754	1	06/19/17 19:23	06/20/17 11:32	ADF

SB-01-062017 (100) L915938-02 Solid

Collected by: JRO | Collected date/time: 06/12/17 13:55 | Received date/time: 06/14/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG989678	1	06/19/17 09:47	06/19/17 10:00	MLW
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG991360	1	06/20/17 22:10	06/21/17 17:51	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991430	1	06/20/17 22:10	06/21/17 16:56	GLN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991430	1	06/20/17 22:10	06/23/17 18:47	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG990474	1	06/21/17 05:09	06/22/17 08:40	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG990754	1	06/19/17 19:23	06/20/17 11:55	ADF

SB-02-062017 (75) L915938-03 Solid

Collected by: JRO | Collected date/time: 06/12/17 10:30 | Received date/time: 06/14/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG989678	1	06/19/17 09:47	06/19/17 10:00	MLW
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG991360	1	06/20/17 22:10	06/21/17 18:13	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991430	1	06/20/17 22:10	06/21/17 17:16	GLN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991430	1	06/20/17 22:10	06/23/17 19:09	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG990474	1	06/21/17 05:09	06/22/17 08:57	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG990754	1	06/19/17 19:23	06/20/17 12:19	ADF

SB-02-062017 (95) L915938-04 Solid

Collected by: JRO | Collected date/time: 06/12/17 10:40 | Received date/time: 06/14/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG989678	1	06/19/17 09:47	06/19/17 10:00	MLW
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG991360	1	06/20/17 22:10	06/21/17 18:35	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991430	1	06/20/17 22:10	06/21/17 17:36	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG990474	1	06/21/17 05:09	06/22/17 09:11	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG990754	1	06/19/17 19:23	06/20/17 12:43	ADF

SB-03-062017 (75) L915938-05 Solid

Collected by: JRO | Collected date/time: 06/12/17 13:30 | Received date/time: 06/14/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG989678	1	06/19/17 09:47	06/19/17 10:00	MLW
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG991360	1	06/20/17 22:10	06/21/17 18:57	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991430	1	06/20/17 22:10	06/21/17 17:56	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG990474	1	06/21/17 05:09	06/22/17 09:26	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG990754	1	06/19/17 19:23	06/20/17 13:06	ADF

SB-03-062017 (90) L915938-06 Solid

Collected by: JRO
Collected date/time: 06/12/17 13:40
Received date/time: 06/14/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG989678	1	06/19/17 09:47	06/19/17 10:00	MLW
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG991360	1	06/20/17 22:10	06/21/17 19:19	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG991430	1	06/20/17 22:10	06/21/17 18:17	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG990474	1	06/21/17 05:09	06/22/17 12:25	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG990754	1	06/19/17 19:23	06/20/17 13:30	ADF

TB-06-13-17-A L915938-07 GW

Collected by: JRO
Collected date/time: 06/12/17 00:00
Received date/time: 06/14/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG989953	1	06/16/17 12:00	06/16/17 12:00	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG990045	1	06/16/17 13:41	06/16/17 13:41	GLN

All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Technical Service Representative

Sample Handling and Receiving

The analysis for 2-Chloroethyl Vinyl Ether was conducted from a chemically preserved container.

ESC Sample ID	Project Sample ID	Method
L915938-07	TB-06-13-17-A	8260B

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.0		1	06/19/2017 10:00	WG989678

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	ND		0.128	1	06/22/2017 02:52	WG991360
(S) a,a,a-Trifluorotoluene(FID)	*99.6*		*77.0-120*		*06/22/2017 02:52*	WG991360

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	0.118	J4	0.0641	1	06/21/2017 16:16	WG991430
Benzene	ND		0.00128	1	06/21/2017 16:16	WG991430
Bromodichloromethane	ND		0.00128	1	06/21/2017 16:16	WG991430
Bromoform	ND		0.00128	1	06/21/2017 16:16	WG991430
Bromomethane	ND		0.00641	1	06/21/2017 16:16	WG991430
n-Butylbenzene	ND		0.00128	1	06/21/2017 16:16	WG991430
sec-Butylbenzene	ND		0.00128	1	06/21/2017 16:16	WG991430
tert-Butylbenzene	ND		0.00128	1	06/21/2017 16:16	WG991430
Carbon disulfide	ND		0.00128	1	06/21/2017 16:16	WG991430
Carbon tetrachloride	ND		0.00128	1	06/21/2017 16:16	WG991430
Chlorobenzene	ND		0.00128	1	06/21/2017 16:16	WG991430
Chlorodibromomethane	ND		0.00128	1	06/21/2017 16:16	WG991430
Chloroethane	ND		0.00641	1	06/21/2017 16:16	WG991430
Chloroform	ND		0.00641	1	06/21/2017 16:16	WG991430
Chloromethane	ND		0.00321	1	06/21/2017 16:16	WG991430
1,2-Dibromoethane	ND		0.00128	1	06/21/2017 16:16	WG991430
1,1-Dichloroethane	ND		0.00128	1	06/21/2017 16:16	WG991430
1,2-Dichloroethane	ND		0.00128	1	06/21/2017 16:16	WG991430
1,1-Dichloroethene	ND		0.00128	1	06/21/2017 16:16	WG991430
cis-1,2-Dichloroethene	ND		0.00128	1	06/21/2017 16:16	WG991430
trans-1,2-Dichloroethene	ND		0.00128	1	06/21/2017 16:16	WG991430
1,2-Dichloropropane	ND		0.00128	1	06/21/2017 16:16	WG991430
cis-1,3-Dichloropropene	ND		0.00128	1	06/21/2017 16:16	WG991430
trans-1,3-Dichloropropene	ND		0.00128	1	06/21/2017 16:16	WG991430
Ethylbenzene	ND		0.00128	1	06/21/2017 16:16	WG991430
Hexachloro-1,3-butadiene	ND		0.00128	1	06/21/2017 16:16	WG991430
2-Hexanone	ND		0.0128	1	06/21/2017 16:16	WG991430
Isopropylbenzene	ND		0.00128	1	06/21/2017 16:16	WG991430
p-Isopropyltoluene	ND		0.00128	1	06/21/2017 16:16	WG991430
2-Butanone (MEK)	ND		0.0128	1	06/21/2017 16:16	WG991430
Methylene Chloride	ND		0.00641	1	06/21/2017 16:16	WG991430
4-Methyl-2-pentanone (MIBK)	ND		0.0128	1	06/21/2017 16:16	WG991430
Methyl tert-butyl ether	ND		0.00128	1	06/21/2017 16:16	WG991430
Naphthalene	ND		0.00641	1	06/21/2017 16:16	WG991430
n-Propylbenzene	ND		0.00128	1	06/21/2017 16:16	WG991430
Styrene	ND		0.00128	1	06/21/2017 16:16	WG991430
1,1,2,2-Tetrachloroethane	ND		0.00128	1	06/21/2017 16:16	WG991430
Tetrachloroethene	ND		0.00128	1	06/21/2017 16:16	WG991430
Toluene	ND		0.00641	1	06/21/2017 16:16	WG991430
1,1,1-Trichloroethane	ND		0.00128	1	06/21/2017 16:16	WG991430
1,1,2-Trichloroethane	ND		0.00128	1	06/21/2017 16:16	WG991430
Trichloroethene	ND		0.00128	1	06/21/2017 16:16	WG991430
1,2,4-Trimethylbenzene	ND		0.00128	1	06/21/2017 16:16	WG991430
1,3,5-Trimethylbenzene	ND		0.00128	1	06/21/2017 16:16	WG991430

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Vinyl chloride	ND		0.00128	1	06/21/2017 16:16	WG991430
Xylenes, Total	ND		0.00385	1	06/21/2017 16:16	WG991430
(S) Toluene-d8	*103*		*80.0-120*		*06/21/2017 16:16*	WG991430
(S) Dibromofluoromethane	*116*		*74.0-131*		*06/21/2017 16:16*	WG991430
(S) 4-Bromofluorobenzene	*105*		*64.0-132*		*06/21/2017 16:16*	WG991430

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		5.13	1	06/22/2017 08:23	WG990474
(S) o-Terphenyl	*78.0*		*18.0-148*		*06/22/2017 08:23*	WG990474

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0423	1	06/20/2017 11:32	WG990754
Acenaphthylene	ND		0.0423	1	06/20/2017 11:32	WG990754
Acetophenone	ND		0.427	1	06/20/2017 11:32	WG990754
Anthracene	ND		0.0423	1	06/20/2017 11:32	WG990754
Atrazine	ND		0.427	1	06/20/2017 11:32	WG990754
Benzaldehyde	ND		0.427	1	06/20/2017 11:32	WG990754
Benzo(a)anthracene	ND		0.0423	1	06/20/2017 11:32	WG990754
Benzo(b)fluoranthene	ND		0.0423	1	06/20/2017 11:32	WG990754
Benzo(k)fluoranthene	ND		0.0423	1	06/20/2017 11:32	WG990754
Benzo(g,h,i)perylene	ND		0.0423	1	06/20/2017 11:32	WG990754
Benzo(a)pyrene	ND		0.0423	1	06/20/2017 11:32	WG990754
Biphenyl	ND		0.427	1	06/20/2017 11:32	WG990754
Bis(2-chlorethoxy)methane	ND		0.427	1	06/20/2017 11:32	WG990754
Bis(2-chloroethyl)ether	ND		0.427	1	06/20/2017 11:32	WG990754
Bis(2-chloroisopropyl)ether	ND		0.427	1	06/20/2017 11:32	WG990754
4-Bromophenyl-phenylether	ND		0.427	1	06/20/2017 11:32	WG990754
Caprolactam	ND		0.427	1	06/20/2017 11:32	WG990754
Carbazole	ND		0.427	1	06/20/2017 11:32	WG990754
4-Chloroaniline	ND		0.427	1	06/20/2017 11:32	WG990754
2-Chloronaphthalene	ND		0.0423	1	06/20/2017 11:32	WG990754
4-Chlorophenyl-phenylether	ND		0.427	1	06/20/2017 11:32	WG990754
Chrysene	ND		0.0423	1	06/20/2017 11:32	WG990754
Dibenz(a,h)anthracene	ND		0.0423	1	06/20/2017 11:32	WG990754
Dibenzofuran	ND		0.427	1	06/20/2017 11:32	WG990754
3,3-Dichlorobenzidine	ND		0.427	1	06/20/2017 11:32	WG990754
2,4-Dinitrotoluene	ND		0.427	1	06/20/2017 11:32	WG990754
2,6-Dinitrotoluene	ND	J3	0.427	1	06/20/2017 11:32	WG990754
Fluoranthene	ND	J3	0.0423	1	06/20/2017 11:32	WG990754
Fluorene	ND		0.0423	1	06/20/2017 11:32	WG990754
Hexachlorobenzene	ND		0.427	1	06/20/2017 11:32	WG990754
Hexachloro-1,3-butadiene	ND		0.427	1	06/20/2017 11:32	WG990754
Hexachlorocyclopentadiene	ND		0.427	1	06/20/2017 11:32	WG990754
Hexachloroethane	ND		0.427	1	06/20/2017 11:32	WG990754
Indeno(1,2,3-cd)pyrene	ND		0.0423	1	06/20/2017 11:32	WG990754
Isophorone	ND		0.427	1	06/20/2017 11:32	WG990754
1-Methylnaphthalene	ND		0.0423	1	06/20/2017 11:32	WG990754
2-Methylnaphthalene	ND		0.0423	1	06/20/2017 11:32	WG990754
Naphthalene	ND		0.0423	1	06/20/2017 11:32	WG990754
2-Nitroaniline	ND	J3	0.427	1	06/20/2017 11:32	WG990754
3-Nitroaniline	ND		0.427	1	06/20/2017 11:32	WG990754

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Nitroaniline	ND		0.427	1	06/20/2017 11:32	WG990754
Nitrobenzene	ND		0.427	1	06/20/2017 11:32	WG990754
n-Nitrosodiphenylamine	ND		0.427	1	06/20/2017 11:32	WG990754
n-Nitrosodi-n-propylamine	ND		0.427	1	06/20/2017 11:32	WG990754
Phenanthrene	ND		0.0423	1	06/20/2017 11:32	WG990754
Benzylbutyl phthalate	ND		0.427	1	06/20/2017 11:32	WG990754
Bis(2-ethylhexyl)phthalate	ND		0.427	1	06/20/2017 11:32	WG990754
Di-n-butyl phthalate	ND		0.427	1	06/20/2017 11:32	WG990754
Diethyl phthalate	ND		0.427	1	06/20/2017 11:32	WG990754
Dimethyl phthalate	ND		0.427	1	06/20/2017 11:32	WG990754
Di-n-octyl phthalate	ND		0.427	1	06/20/2017 11:32	WG990754
Pyrene	ND		0.0423	1	06/20/2017 11:32	WG990754
1,2,4-Trichlorobenzene	ND		0.427	1	06/20/2017 11:32	WG990754
4-Chloro-3-methylphenol	ND		0.427	1	06/20/2017 11:32	WG990754
2-Chlorophenol	ND		0.427	1	06/20/2017 11:32	WG990754
2-Methylphenol	ND		0.427	1	06/20/2017 11:32	WG990754
3&4-Methyl Phenol	ND		0.427	1	06/20/2017 11:32	WG990754
2,4-Dichlorophenol	ND		0.427	1	06/20/2017 11:32	WG990754
2,4-Dimethylphenol	ND		0.427	1	06/20/2017 11:32	WG990754
4,6-Dinitro-2-methylphenol	ND		0.427	1	06/20/2017 11:32	WG990754
2,4-Dinitrophenol	ND	J3	0.427	1	06/20/2017 11:32	WG990754
2-Nitrophenol	ND		0.427	1	06/20/2017 11:32	WG990754
4-Nitrophenol	ND	J3	0.427	1	06/20/2017 11:32	WG990754
Pentachlorophenol	ND		0.427	1	06/20/2017 11:32	WG990754
Phenol	ND		0.427	1	06/20/2017 11:32	WG990754
2,4,5-Trichlorophenol	ND	J3	0.427	1	06/20/2017 11:32	WG990754
2,4,6-Trichlorophenol	ND		0.427	1	06/20/2017 11:32	WG990754
(S) 2-Fluorophenol	*44.1*		*20.0-120*		*06/20/2017 11:32*	WG990754
(S) Phenol-d5	*45.8*		*20.0-120*		*06/20/2017 11:32*	WG990754
(S) Nitrobenzene-d5	*38.2*		*18.0-125*		*06/20/2017 11:32*	WG990754
(S) 2-Fluorobiphenyl	*48.5*		*28.0-120*		*06/20/2017 11:32*	WG990754
(S) 2,4,6-Tribromophenol	*62.4*		*17.0-137*		*06/20/2017 11:32*	WG990754
(S) p-Terphenyl-d14	*63.0*		*13.0-131*		*06/20/2017 11:32*	WG990754

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.3		1	06/19/2017 10:00	WG989678

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	ND		0.106	1	06/21/2017 17:51	WG991360
(S) a,a,a-Trifluorotoluene(FID)	*96.7*		*77.0-120*		*06/21/2017 17:51*	WG991360

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	0.0986	J4	0.0530	1	06/21/2017 16:56	WG991430
Benzene	ND		0.00106	1	06/21/2017 16:56	WG991430
Bromodichloromethane	ND		0.00106	1	06/21/2017 16:56	WG991430
Bromoform	ND		0.00106	1	06/21/2017 16:56	WG991430
Bromomethane	ND		0.00530	1	06/21/2017 16:56	WG991430
n-Butylbenzene	ND		0.00106	1	06/21/2017 16:56	WG991430
sec-Butylbenzene	ND		0.00106	1	06/21/2017 16:56	WG991430
tert-Butylbenzene	ND		0.00106	1	06/21/2017 16:56	WG991430
Carbon disulfide	ND		0.00106	1	06/21/2017 16:56	WG991430
Carbon tetrachloride	ND		0.00106	1	06/21/2017 16:56	WG991430
Chlorobenzene	ND		0.00106	1	06/21/2017 16:56	WG991430
Chlorodibromomethane	ND		0.00106	1	06/21/2017 16:56	WG991430
Chloroethane	ND		0.00530	1	06/21/2017 16:56	WG991430
Chloroform	ND		0.00530	1	06/21/2017 16:56	WG991430
Chloromethane	ND		0.00265	1	06/21/2017 16:56	WG991430
1,2-Dibromoethane	ND		0.00106	1	06/21/2017 16:56	WG991430
1,1-Dichloroethane	ND		0.00106	1	06/21/2017 16:56	WG991430
1,2-Dichloroethane	ND		0.00106	1	06/21/2017 16:56	WG991430
1,1-Dichloroethene	ND		0.00106	1	06/21/2017 16:56	WG991430
cis-1,2-Dichloroethene	ND		0.00106	1	06/21/2017 16:56	WG991430
trans-1,2-Dichloroethene	ND		0.00106	1	06/21/2017 16:56	WG991430
1,2-Dichloropropane	ND		0.00106	1	06/21/2017 16:56	WG991430
cis-1,3-Dichloropropene	ND		0.00106	1	06/21/2017 16:56	WG991430
trans-1,3-Dichloropropene	ND		0.00106	1	06/21/2017 16:56	WG991430
Ethylbenzene	ND		0.00106	1	06/21/2017 16:56	WG991430
Hexachloro-1,3-butadiene	ND		0.00106	1	06/21/2017 16:56	WG991430
2-Hexanone	ND		0.0106	1	06/21/2017 16:56	WG991430
Isopropylbenzene	ND		0.00106	1	06/21/2017 16:56	WG991430
p-Isopropyltoluene	ND		0.00106	1	06/21/2017 16:56	WG991430
2-Butanone (MEK)	ND		0.0106	1	06/21/2017 16:56	WG991430
Methylene Chloride	ND		0.00530	1	06/21/2017 16:56	WG991430
4-Methyl-2-pentanone (MIBK)	ND		0.0106	1	06/21/2017 16:56	WG991430
Methyl tert-butyl ether	ND		0.00106	1	06/21/2017 16:56	WG991430
Naphthalene	ND		0.00530	1	06/21/2017 16:56	WG991430
n-Propylbenzene	ND		0.00106	1	06/21/2017 16:56	WG991430
Styrene	ND		0.00106	1	06/21/2017 16:56	WG991430
1,1,2,2-Tetrachloroethane	ND		0.00106	1	06/21/2017 16:56	WG991430
Tetrachloroethene	ND		0.00106	1	06/23/2017 18:47	WG991430
Toluene	ND		0.00530	1	06/21/2017 16:56	WG991430
1,1,1-Trichloroethane	ND		0.00106	1	06/21/2017 16:56	WG991430
1,1,2-Trichloroethane	ND		0.00106	1	06/21/2017 16:56	WG991430
Trichloroethene	ND		0.00106	1	06/21/2017 16:56	WG991430
1,2,4-Trimethylbenzene	ND		0.00106	1	06/21/2017 16:56	WG991430
1,3,5-Trimethylbenzene	ND		0.00106	1	06/21/2017 16:56	WG991430

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Vinyl chloride	ND		0.00106	1	06/21/2017 16:56	WG991430
Xylenes, Total	ND		0.00318	1	06/21/2017 16:56	WG991430
(S) Toluene-d8	*104*		*80.0-120*		*06/21/2017 16:56*	WG991430
(S) Toluene-d8	*101*		*80.0-120*		*06/23/2017 18:47*	WG991430
(S) Dibromofluoromethane	*115*		*74.0-131*		*06/23/2017 18:47*	WG991430
(S) Dibromofluoromethane	*119*		*74.0-131*		*06/21/2017 16:56*	WG991430
(S) 4-Bromofluorobenzene	*90.4*		*64.0-132*		*06/23/2017 18:47*	WG991430
(S) 4-Bromofluorobenzene	*99.1*		*64.0-132*		*06/21/2017 16:56*	WG991430

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	6.70		4.24	1	06/22/2017 08:40	WG990474
(S) o-Terphenyl	*85.7*		*18.0-148*		*06/22/2017 08:40*	WG990474

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0350	1	06/20/2017 11:55	WG990754
Acenaphthylene	ND		0.0350	1	06/20/2017 11:55	WG990754
Acetophenone	ND		0.353	1	06/20/2017 11:55	WG990754
Anthracene	ND		0.0350	1	06/20/2017 11:55	WG990754
Atrazine	ND		0.353	1	06/20/2017 11:55	WG990754
Benzaldehyde	ND		0.353	1	06/20/2017 11:55	WG990754
Benzo(a)anthracene	ND		0.0350	1	06/20/2017 11:55	WG990754
Benzo(b)fluoranthene	ND		0.0350	1	06/20/2017 11:55	WG990754
Benzo(k)fluoranthene	ND		0.0350	1	06/20/2017 11:55	WG990754
Benzo(g,h,i)perylene	ND		0.0350	1	06/20/2017 11:55	WG990754
Benzo(a)pyrene	ND		0.0350	1	06/20/2017 11:55	WG990754
Biphenyl	ND		0.353	1	06/20/2017 11:55	WG990754
Bis(2-chlorethoxy)methane	ND		0.353	1	06/20/2017 11:55	WG990754
Bis(2-chloroethyl)ether	ND		0.353	1	06/20/2017 11:55	WG990754
Bis(2-chloroisopropyl)ether	ND		0.353	1	06/20/2017 11:55	WG990754
4-Bromophenyl-phenylether	ND		0.353	1	06/20/2017 11:55	WG990754
Caprolactam	ND		0.353	1	06/20/2017 11:55	WG990754
Carbazole	ND		0.353	1	06/20/2017 11:55	WG990754
4-Chloroaniline	ND		0.353	1	06/20/2017 11:55	WG990754
2-Chloronaphthalene	ND		0.0350	1	06/20/2017 11:55	WG990754
4-Chlorophenyl-phenylether	ND		0.353	1	06/20/2017 11:55	WG990754
Chrysene	ND		0.0350	1	06/20/2017 11:55	WG990754
Dibenz(a,h)anthracene	ND		0.0350	1	06/20/2017 11:55	WG990754
Dibenzofuran	ND		0.353	1	06/20/2017 11:55	WG990754
3,3-Dichlorobenzidine	ND		0.353	1	06/20/2017 11:55	WG990754
2,4-Dinitrotoluene	ND		0.353	1	06/20/2017 11:55	WG990754
2,6-Dinitrotoluene	ND	J3	0.353	1	06/20/2017 11:55	WG990754
Fluoranthene	ND	J3	0.0350	1	06/20/2017 11:55	WG990754
Fluorene	ND		0.0350	1	06/20/2017 11:55	WG990754
Hexachlorobenzene	ND		0.353	1	06/20/2017 11:55	WG990754
Hexachloro-1,3-butadiene	ND		0.353	1	06/20/2017 11:55	WG990754
Hexachlorocyclopentadiene	ND		0.353	1	06/20/2017 11:55	WG990754
Hexachloroethane	ND		0.353	1	06/20/2017 11:55	WG990754
Indeno(1,2,3-cd)pyrene	ND		0.0350	1	06/20/2017 11:55	WG990754
Isophorone	ND		0.353	1	06/20/2017 11:55	WG990754
1-Methylnaphthalene	ND		0.0350	1	06/20/2017 11:55	WG990754
2-Methylnaphthalene	ND		0.0350	1	06/20/2017 11:55	WG990754

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0350	1	06/20/2017 11:55	WG990754
2-Nitroaniline	ND	J3	0.353	1	06/20/2017 11:55	WG990754
3-Nitroaniline	ND		0.353	1	06/20/2017 11:55	WG990754
4-Nitroaniline	ND		0.353	1	06/20/2017 11:55	WG990754
Nitrobenzene	ND		0.353	1	06/20/2017 11:55	WG990754
n-Nitrosodiphenylamine	ND		0.353	1	06/20/2017 11:55	WG990754
n-Nitrosodi-n-propylamine	ND		0.353	1	06/20/2017 11:55	WG990754
Phenanthrene	ND		0.0350	1	06/20/2017 11:55	WG990754
Benzylbutyl phthalate	ND		0.353	1	06/20/2017 11:55	WG990754
Bis(2-ethylhexyl)phthalate	ND		0.353	1	06/20/2017 11:55	WG990754
Di-n-butyl phthalate	ND		0.353	1	06/20/2017 11:55	WG990754
Diethyl phthalate	ND		0.353	1	06/20/2017 11:55	WG990754
Dimethyl phthalate	ND		0.353	1	06/20/2017 11:55	WG990754
Di-n-octyl phthalate	ND		0.353	1	06/20/2017 11:55	WG990754
Pyrene	ND		0.0350	1	06/20/2017 11:55	WG990754
1,2,4-Trichlorobenzene	ND		0.353	1	06/20/2017 11:55	WG990754
4-Chloro-3-methylphenol	ND		0.353	1	06/20/2017 11:55	WG990754
2-Chlorophenol	ND		0.353	1	06/20/2017 11:55	WG990754
2-Methylphenol	ND		0.353	1	06/20/2017 11:55	WG990754
3&4-Methyl Phenol	ND		0.353	1	06/20/2017 11:55	WG990754
2,4-Dichlorophenol	ND		0.353	1	06/20/2017 11:55	WG990754
2,4-Dimethylphenol	ND		0.353	1	06/20/2017 11:55	WG990754
4,6-Dinitro-2-methylphenol	ND		0.353	1	06/20/2017 11:55	WG990754
2,4-Dinitrophenol	ND	J3	0.353	1	06/20/2017 11:55	WG990754
2-Nitrophenol	ND		0.353	1	06/20/2017 11:55	WG990754
4-Nitrophenol	ND	J3	0.353	1	06/20/2017 11:55	WG990754
Pentachlorophenol	ND		0.353	1	06/20/2017 11:55	WG990754
Phenol	ND		0.353	1	06/20/2017 11:55	WG990754
2,4,5-Trichlorophenol	ND	J3	0.353	1	06/20/2017 11:55	WG990754
2,4,6-Trichlorophenol	ND		0.353	1	06/20/2017 11:55	WG990754
(S) 2-Fluorophenol	*67.8*		*20.0-120*		*06/20/2017 11:55*	WG990754
(S) Phenol-d5	*63.3*		*20.0-120*		*06/20/2017 11:55*	WG990754
(S) Nitrobenzene-d5	*63.2*		*18.0-125*		*06/20/2017 11:55*	WG990754
(S) 2-Fluorobiphenyl	*66.5*		*28.0-120*		*06/20/2017 11:55*	WG990754
(S) 2,4,6-Tribromophenol	*70.4*		*17.0-137*		*06/20/2017 11:55*	WG990754
(S) p-Terphenyl-d14	*70.5*		*13.0-131*		*06/20/2017 11:55*	WG990754

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.0		1	06/19/2017 10:00	WG989678

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	ND		0.128	1	06/21/2017 18:13	WG991360
(S) a,a,a-Trifluorotoluene(FID)	*96.9*		*77.0-120*		*06/21/2017 18:13*	WG991360

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	0.126	J4	0.0641	1	06/21/2017 17:16	WG991430
Benzene	ND		0.00128	1	06/21/2017 17:16	WG991430
Bromodichloromethane	ND		0.00128	1	06/21/2017 17:16	WG991430
Bromoform	ND		0.00128	1	06/21/2017 17:16	WG991430
Bromomethane	ND		0.00641	1	06/21/2017 17:16	WG991430
n-Butylbenzene	ND		0.00128	1	06/21/2017 17:16	WG991430
sec-Butylbenzene	ND		0.00128	1	06/21/2017 17:16	WG991430
tert-Butylbenzene	ND		0.00128	1	06/21/2017 17:16	WG991430
Carbon disulfide	ND		0.00128	1	06/21/2017 17:16	WG991430
Carbon tetrachloride	ND		0.00128	1	06/21/2017 17:16	WG991430
Chlorobenzene	ND		0.00128	1	06/21/2017 17:16	WG991430
Chlorodibromomethane	ND		0.00128	1	06/21/2017 17:16	WG991430
Chloroethane	ND		0.00641	1	06/21/2017 17:16	WG991430
Chloroform	ND		0.00641	1	06/21/2017 17:16	WG991430
Chloromethane	ND		0.00320	1	06/21/2017 17:16	WG991430
1,2-Dibromoethane	ND		0.00128	1	06/21/2017 17:16	WG991430
1,1-Dichloroethane	ND		0.00128	1	06/21/2017 17:16	WG991430
1,2-Dichloroethane	ND		0.00128	1	06/21/2017 17:16	WG991430
1,1-Dichloroethene	ND		0.00128	1	06/21/2017 17:16	WG991430
cis-1,2-Dichloroethene	ND		0.00128	1	06/21/2017 17:16	WG991430
trans-1,2-Dichloroethene	ND		0.00128	1	06/21/2017 17:16	WG991430
1,2-Dichloropropane	ND		0.00128	1	06/21/2017 17:16	WG991430
cis-1,3-Dichloropropene	ND		0.00128	1	06/21/2017 17:16	WG991430
trans-1,3-Dichloropropene	ND		0.00128	1	06/21/2017 17:16	WG991430
Ethylbenzene	ND		0.00128	1	06/21/2017 17:16	WG991430
Hexachloro-1,3-butadiene	ND		0.00128	1	06/21/2017 17:16	WG991430
2-Hexanone	ND		0.0128	1	06/21/2017 17:16	WG991430
Isopropylbenzene	ND		0.00128	1	06/21/2017 17:16	WG991430
p-Isopropyltoluene	ND		0.00128	1	06/21/2017 17:16	WG991430
2-Butanone (MEK)	ND		0.0128	1	06/21/2017 17:16	WG991430
Methylene Chloride	ND		0.00641	1	06/21/2017 17:16	WG991430
4-Methyl-2-pentanone (MIBK)	ND		0.0128	1	06/21/2017 17:16	WG991430
Methyl tert-butyl ether	ND		0.00128	1	06/21/2017 17:16	WG991430
Naphthalene	ND		0.00641	1	06/21/2017 17:16	WG991430
n-Propylbenzene	ND		0.00128	1	06/21/2017 17:16	WG991430
Styrene	ND		0.00128	1	06/21/2017 17:16	WG991430
1,1,2,2-Tetrachloroethane	ND		0.00128	1	06/21/2017 17:16	WG991430
Tetrachloroethene	ND		0.00128	1	06/23/2017 19:09	WG991430
Toluene	ND		0.00641	1	06/21/2017 17:16	WG991430
1,1,1-Trichloroethane	ND		0.00128	1	06/21/2017 17:16	WG991430
1,1,2-Trichloroethane	ND		0.00128	1	06/21/2017 17:16	WG991430
Trichloroethene	ND		0.00128	1	06/21/2017 17:16	WG991430
1,2,4-Trimethylbenzene	ND		0.00128	1	06/21/2017 17:16	WG991430
1,3,5-Trimethylbenzene	ND		0.00128	1	06/21/2017 17:16	WG991430

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Vinyl chloride	ND		0.00128	1	06/21/2017 17:16	WG991430
Xylenes, Total	ND		0.00385	1	06/21/2017 17:16	WG991430
(S) Toluene-d8	*106*		*80.0-120*		*06/21/2017 17:16*	WG991430
(S) Toluene-d8	*101*		*80.0-120*		*06/23/2017 19:09*	WG991430
(S) Dibromofluoromethane	*117*		*74.0-131*		*06/21/2017 17:16*	WG991430
(S) Dibromofluoromethane	*114*		*74.0-131*		*06/23/2017 19:09*	WG991430
(S) 4-Bromofluorobenzene	*101*		*64.0-132*		*06/21/2017 17:16*	WG991430
(S) 4-Bromofluorobenzene	*90.5*		*64.0-132*		*06/23/2017 19:09*	WG991430

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	8.00		5.13	1	06/22/2017 08:57	WG990474
(S) o-Terphenyl	*79.6*		*18.0-148*		*06/22/2017 08:57*	WG990474

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0423	1	06/20/2017 12:19	WG990754
Acenaphthylene	ND		0.0423	1	06/20/2017 12:19	WG990754
Acetophenone	ND		0.427	1	06/20/2017 12:19	WG990754
Anthracene	ND		0.0423	1	06/20/2017 12:19	WG990754
Atrazine	ND		0.427	1	06/20/2017 12:19	WG990754
Benzaldehyde	ND		0.427	1	06/20/2017 12:19	WG990754
Benzo(a)anthracene	ND		0.0423	1	06/20/2017 12:19	WG990754
Benzo(b)fluoranthene	ND		0.0423	1	06/20/2017 12:19	WG990754
Benzo(k)fluoranthene	ND		0.0423	1	06/20/2017 12:19	WG990754
Benzo(g,h,i)perylene	ND		0.0423	1	06/20/2017 12:19	WG990754
Benzo(a)pyrene	ND		0.0423	1	06/20/2017 12:19	WG990754
Biphenyl	ND		0.427	1	06/20/2017 12:19	WG990754
Bis(2-chlorethoxy)methane	ND		0.427	1	06/20/2017 12:19	WG990754
Bis(2-chloroethyl)ether	ND		0.427	1	06/20/2017 12:19	WG990754
Bis(2-chloroisopropyl)ether	ND		0.427	1	06/20/2017 12:19	WG990754
4-Bromophenyl-phenylether	ND		0.427	1	06/20/2017 12:19	WG990754
Caprolactam	ND		0.427	1	06/20/2017 12:19	WG990754
Carbazole	ND		0.427	1	06/20/2017 12:19	WG990754
4-Chloroaniline	ND		0.427	1	06/20/2017 12:19	WG990754
2-Chloronaphthalene	ND		0.0423	1	06/20/2017 12:19	WG990754
4-Chlorophenyl-phenylether	ND		0.427	1	06/20/2017 12:19	WG990754
Chrysene	ND		0.0423	1	06/20/2017 12:19	WG990754
Dibenz(a,h)anthracene	ND		0.0423	1	06/20/2017 12:19	WG990754
Dibenzofuran	ND		0.427	1	06/20/2017 12:19	WG990754
3,3-Dichlorobenzidine	ND		0.427	1	06/20/2017 12:19	WG990754
2,4-Dinitrotoluene	ND		0.427	1	06/20/2017 12:19	WG990754
2,6-Dinitrotoluene	ND	J3	0.427	1	06/20/2017 12:19	WG990754
Fluoranthene	ND	J3	0.0423	1	06/20/2017 12:19	WG990754
Fluorene	ND		0.0423	1	06/20/2017 12:19	WG990754
Hexachlorobenzene	ND		0.427	1	06/20/2017 12:19	WG990754
Hexachloro-1,3-butadiene	ND		0.427	1	06/20/2017 12:19	WG990754
Hexachlorocyclopentadiene	ND		0.427	1	06/20/2017 12:19	WG990754
Hexachloroethane	ND		0.427	1	06/20/2017 12:19	WG990754
Indeno(1,2,3-cd)pyrene	ND		0.0423	1	06/20/2017 12:19	WG990754
Isophorone	ND		0.427	1	06/20/2017 12:19	WG990754
1-Methylnaphthalene	ND		0.0423	1	06/20/2017 12:19	WG990754
2-Methylnaphthalene	ND		0.0423	1	06/20/2017 12:19	WG990754

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0423	1	06/20/2017 12:19	WG990754
2-Nitroaniline	ND	J3	0.427	1	06/20/2017 12:19	WG990754
3-Nitroaniline	ND		0.427	1	06/20/2017 12:19	WG990754
4-Nitroaniline	ND		0.427	1	06/20/2017 12:19	WG990754
Nitrobenzene	ND		0.427	1	06/20/2017 12:19	WG990754
n-Nitrosodiphenylamine	ND		0.427	1	06/20/2017 12:19	WG990754
n-Nitrosodi-n-propylamine	ND		0.427	1	06/20/2017 12:19	WG990754
Phenanthrene	ND		0.0423	1	06/20/2017 12:19	WG990754
Benzylbutyl phthalate	ND		0.427	1	06/20/2017 12:19	WG990754
Bis(2-ethylhexyl)phthalate	ND		0.427	1	06/20/2017 12:19	WG990754
Di-n-butyl phthalate	ND		0.427	1	06/20/2017 12:19	WG990754
Diethyl phthalate	ND		0.427	1	06/20/2017 12:19	WG990754
Dimethyl phthalate	ND		0.427	1	06/20/2017 12:19	WG990754
Di-n-octyl phthalate	ND		0.427	1	06/20/2017 12:19	WG990754
Pyrene	ND		0.0423	1	06/20/2017 12:19	WG990754
1,2,4-Trichlorobenzene	ND		0.427	1	06/20/2017 12:19	WG990754
4-Chloro-3-methylphenol	ND		0.427	1	06/20/2017 12:19	WG990754
2-Chlorophenol	ND		0.427	1	06/20/2017 12:19	WG990754
2-Methylphenol	ND		0.427	1	06/20/2017 12:19	WG990754
3&4-Methyl Phenol	ND		0.427	1	06/20/2017 12:19	WG990754
2,4-Dichlorophenol	ND		0.427	1	06/20/2017 12:19	WG990754
2,4-Dimethylphenol	ND		0.427	1	06/20/2017 12:19	WG990754
4,6-Dinitro-2-methylphenol	ND		0.427	1	06/20/2017 12:19	WG990754
2,4-Dinitrophenol	ND	J3	0.427	1	06/20/2017 12:19	WG990754
2-Nitrophenol	ND		0.427	1	06/20/2017 12:19	WG990754
4-Nitrophenol	ND	J3	0.427	1	06/20/2017 12:19	WG990754
Pentachlorophenol	ND		0.427	1	06/20/2017 12:19	WG990754
Phenol	ND		0.427	1	06/20/2017 12:19	WG990754
2,4,5-Trichlorophenol	ND	J3	0.427	1	06/20/2017 12:19	WG990754
2,4,6-Trichlorophenol	ND		0.427	1	06/20/2017 12:19	WG990754
(S) 2-Fluorophenol	*67.0*		*20.0-120*		*06/20/2017 12:19*	WG990754
(S) Phenol-d5	*60.6*		*20.0-120*		*06/20/2017 12:19*	WG990754
(S) Nitrobenzene-d5	*61.9*		*18.0-125*		*06/20/2017 12:19*	WG990754
(S) 2-Fluorobiphenyl	*61.4*		*28.0-120*		*06/20/2017 12:19*	WG990754
(S) 2,4,6-Tribromophenol	*69.3*		*17.0-137*		*06/20/2017 12:19*	WG990754
(S) p-Terphenyl-d14	*68.7*		*13.0-131*		*06/20/2017 12:19*	WG990754

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.0		1	06/19/2017 10:00	WG989678

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	ND		0.121	1	06/21/2017 18:35	WG991360
(S) a,a,a-Trifluorotoluene(FID)	*96.6*		*77.0-120*		*06/21/2017 18:35*	WG991360

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	0.105	J4	0.0603	1	06/21/2017 17:36	WG991430
Benzene	ND		0.00121	1	06/21/2017 17:36	WG991430
Bromodichloromethane	ND		0.00121	1	06/21/2017 17:36	WG991430
Bromoform	ND		0.00121	1	06/21/2017 17:36	WG991430
Bromomethane	ND		0.00603	1	06/21/2017 17:36	WG991430
n-Butylbenzene	ND		0.00121	1	06/21/2017 17:36	WG991430
sec-Butylbenzene	ND		0.00121	1	06/21/2017 17:36	WG991430
tert-Butylbenzene	ND		0.00121	1	06/21/2017 17:36	WG991430
Carbon disulfide	ND		0.00121	1	06/21/2017 17:36	WG991430
Carbon tetrachloride	ND		0.00121	1	06/21/2017 17:36	WG991430
Chlorobenzene	ND		0.00121	1	06/21/2017 17:36	WG991430
Chlorodibromomethane	ND		0.00121	1	06/21/2017 17:36	WG991430
Chloroethane	ND		0.00603	1	06/21/2017 17:36	WG991430
Chloroform	ND		0.00603	1	06/21/2017 17:36	WG991430
Chloromethane	ND		0.00301	1	06/21/2017 17:36	WG991430
1,2-Dibromoethane	ND		0.00121	1	06/21/2017 17:36	WG991430
1,1-Dichloroethane	ND		0.00121	1	06/21/2017 17:36	WG991430
1,2-Dichloroethane	ND		0.00121	1	06/21/2017 17:36	WG991430
1,1-Dichloroethene	ND		0.00121	1	06/21/2017 17:36	WG991430
cis-1,2-Dichloroethene	ND		0.00121	1	06/21/2017 17:36	WG991430
trans-1,2-Dichloroethene	ND		0.00121	1	06/21/2017 17:36	WG991430
1,2-Dichloropropane	ND		0.00121	1	06/21/2017 17:36	WG991430
cis-1,3-Dichloropropene	ND		0.00121	1	06/21/2017 17:36	WG991430
trans-1,3-Dichloropropene	ND		0.00121	1	06/21/2017 17:36	WG991430
Ethylbenzene	ND		0.00121	1	06/21/2017 17:36	WG991430
Hexachloro-1,3-butadiene	ND		0.00121	1	06/21/2017 17:36	WG991430
2-Hexanone	ND		0.0121	1	06/21/2017 17:36	WG991430
Isopropylbenzene	ND		0.00121	1	06/21/2017 17:36	WG991430
p-Isopropyltoluene	ND		0.00121	1	06/21/2017 17:36	WG991430
2-Butanone (MEK)	ND		0.0121	1	06/21/2017 17:36	WG991430
Methylene Chloride	ND		0.00603	1	06/21/2017 17:36	WG991430
4-Methyl-2-pentanone (MIBK)	ND		0.0121	1	06/21/2017 17:36	WG991430
Methyl tert-butyl ether	ND		0.00121	1	06/21/2017 17:36	WG991430
Naphthalene	ND		0.00603	1	06/21/2017 17:36	WG991430
n-Propylbenzene	ND		0.00121	1	06/21/2017 17:36	WG991430
Styrene	ND		0.00121	1	06/21/2017 17:36	WG991430
1,1,2,2-Tetrachloroethane	ND		0.00121	1	06/21/2017 17:36	WG991430
Tetrachloroethene	ND		0.00121	1	06/21/2017 17:36	WG991430
Toluene	ND		0.00603	1	06/21/2017 17:36	WG991430
1,1,1-Trichloroethane	ND		0.00121	1	06/21/2017 17:36	WG991430
1,1,2-Trichloroethane	ND		0.00121	1	06/21/2017 17:36	WG991430
Trichloroethene	ND		0.00121	1	06/21/2017 17:36	WG991430
1,2,4-Trimethylbenzene	ND		0.00121	1	06/21/2017 17:36	WG991430
1,3,5-Trimethylbenzene	ND		0.00121	1	06/21/2017 17:36	WG991430

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Vinyl chloride	ND		0.00121	1	06/21/2017 17:36	WG991430
Xylenes, Total	ND		0.00362	1	06/21/2017 17:36	WG991430
(S) Toluene-d8	*105*		*80.0-120*		*06/21/2017 17:36*	WG991430
(S) Dibromofluoromethane	*117*		*74.0-131*		*06/21/2017 17:36*	WG991430
(S) 4-Bromofluorobenzene	*101*		*64.0-132*		*06/21/2017 17:36*	WG991430

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	5.37		4.82	1	06/22/2017 09:11	WG990474
(S) o-Terphenyl	*80.6*		*18.0-148*		*06/22/2017 09:11*	WG990474

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0398	1	06/20/2017 12:43	WG990754
Acenaphthylene	ND		0.0398	1	06/20/2017 12:43	WG990754
Acetophenone	ND		0.401	1	06/20/2017 12:43	WG990754
Anthracene	ND		0.0398	1	06/20/2017 12:43	WG990754
Atrazine	ND		0.401	1	06/20/2017 12:43	WG990754
Benzaldehyde	ND		0.401	1	06/20/2017 12:43	WG990754
Benzo(a)anthracene	ND		0.0398	1	06/20/2017 12:43	WG990754
Benzo(b)fluoranthene	ND		0.0398	1	06/20/2017 12:43	WG990754
Benzo(k)fluoranthene	ND		0.0398	1	06/20/2017 12:43	WG990754
Benzo(g,h,i)perylene	ND		0.0398	1	06/20/2017 12:43	WG990754
Benzo(a)pyrene	ND		0.0398	1	06/20/2017 12:43	WG990754
Biphenyl	ND		0.401	1	06/20/2017 12:43	WG990754
Bis(2-chlorethoxy)methane	ND		0.401	1	06/20/2017 12:43	WG990754
Bis(2-chloroethyl)ether	ND		0.401	1	06/20/2017 12:43	WG990754
Bis(2-chloroisopropyl)ether	ND		0.401	1	06/20/2017 12:43	WG990754
4-Bromophenyl-phenylether	ND		0.401	1	06/20/2017 12:43	WG990754
Caprolactam	ND		0.401	1	06/20/2017 12:43	WG990754
Carbazole	ND		0.401	1	06/20/2017 12:43	WG990754
4-Chloroaniline	ND		0.401	1	06/20/2017 12:43	WG990754
2-Chloronaphthalene	ND		0.0398	1	06/20/2017 12:43	WG990754
4-Chlorophenyl-phenylether	ND		0.401	1	06/20/2017 12:43	WG990754
Chrysene	ND		0.0398	1	06/20/2017 12:43	WG990754
Dibenz(a,h)anthracene	ND		0.0398	1	06/20/2017 12:43	WG990754
Dibenzofuran	ND		0.401	1	06/20/2017 12:43	WG990754
3,3-Dichlorobenzidine	ND		0.401	1	06/20/2017 12:43	WG990754
2,4-Dinitrotoluene	ND		0.401	1	06/20/2017 12:43	WG990754
2,6-Dinitrotoluene	ND	J3	0.401	1	06/20/2017 12:43	WG990754
Fluoranthene	ND	J3	0.0398	1	06/20/2017 12:43	WG990754
Fluorene	ND		0.0398	1	06/20/2017 12:43	WG990754
Hexachlorobenzene	ND		0.401	1	06/20/2017 12:43	WG990754
Hexachloro-1,3-butadiene	ND		0.401	1	06/20/2017 12:43	WG990754
Hexachlorocyclopentadiene	ND		0.401	1	06/20/2017 12:43	WG990754
Hexachloroethane	ND		0.401	1	06/20/2017 12:43	WG990754
Indeno(1,2,3-cd)pyrene	ND		0.0398	1	06/20/2017 12:43	WG990754
Isophorone	ND		0.401	1	06/20/2017 12:43	WG990754
1-Methylnaphthalene	ND		0.0398	1	06/20/2017 12:43	WG990754
2-Methylnaphthalene	ND		0.0398	1	06/20/2017 12:43	WG990754
Naphthalene	ND		0.0398	1	06/20/2017 12:43	WG990754
2-Nitroaniline	ND	J3	0.401	1	06/20/2017 12:43	WG990754
3-Nitroaniline	ND		0.401	1	06/20/2017 12:43	WG990754

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Nitroaniline	ND		0.401	1	06/20/2017 12:43	WG990754
Nitrobenzene	ND		0.401	1	06/20/2017 12:43	WG990754
n-Nitrosodiphenylamine	ND		0.401	1	06/20/2017 12:43	WG990754
n-Nitrosodi-n-propylamine	ND		0.401	1	06/20/2017 12:43	WG990754
Phenanthrene	ND		0.0398	1	06/20/2017 12:43	WG990754
Benzylbutyl phthalate	ND		0.401	1	06/20/2017 12:43	WG990754
Bis(2-ethylhexyl)phthalate	ND		0.401	1	06/20/2017 12:43	WG990754
Di-n-butyl phthalate	ND		0.401	1	06/20/2017 12:43	WG990754
Diethyl phthalate	ND		0.401	1	06/20/2017 12:43	WG990754
Dimethyl phthalate	ND		0.401	1	06/20/2017 12:43	WG990754
Di-n-octyl phthalate	ND		0.401	1	06/20/2017 12:43	WG990754
Pyrene	ND		0.0398	1	06/20/2017 12:43	WG990754
1,2,4-Trichlorobenzene	ND		0.401	1	06/20/2017 12:43	WG990754
4-Chloro-3-methylphenol	ND		0.401	1	06/20/2017 12:43	WG990754
2-Chlorophenol	ND		0.401	1	06/20/2017 12:43	WG990754
2-Methylphenol	ND		0.401	1	06/20/2017 12:43	WG990754
3&4-Methyl Phenol	ND		0.401	1	06/20/2017 12:43	WG990754
2,4-Dichlorophenol	ND		0.401	1	06/20/2017 12:43	WG990754
2,4-Dimethylphenol	ND		0.401	1	06/20/2017 12:43	WG990754
4,6-Dinitro-2-methylphenol	ND		0.401	1	06/20/2017 12:43	WG990754
2,4-Dinitrophenol	ND	J3	0.401	1	06/20/2017 12:43	WG990754
2-Nitrophenol	ND		0.401	1	06/20/2017 12:43	WG990754
4-Nitrophenol	ND	J3	0.401	1	06/20/2017 12:43	WG990754
Pentachlorophenol	ND		0.401	1	06/20/2017 12:43	WG990754
Phenol	ND		0.401	1	06/20/2017 12:43	WG990754
2,4,5-Trichlorophenol	ND	J3	0.401	1	06/20/2017 12:43	WG990754
2,4,6-Trichlorophenol	ND		0.401	1	06/20/2017 12:43	WG990754
(S) 2-Fluorophenol	*65.8*		*20.0-120*		*06/20/2017 12:43*	WG990754
(S) Phenol-d5	*61.8*		*20.0-120*		*06/20/2017 12:43*	WG990754
(S) Nitrobenzene-d5	*57.4*		*18.0-125*		*06/20/2017 12:43*	WG990754
(S) 2-Fluorobiphenyl	*60.8*		*28.0-120*		*06/20/2017 12:43*	WG990754
(S) 2,4,6-Tribromophenol	*71.2*		*17.0-137*		*06/20/2017 12:43*	WG990754
(S) p-Terphenyl-d14	*68.3*		*13.0-131*		*06/20/2017 12:43*	WG990754

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.2		1	06/19/2017 10:00	WG989678

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	ND		0.105	1	06/21/2017 18:57	WG991360
(S) a,a,a-Trifluorotoluene(FID)	*96.9*		*77.0-120*		*06/21/2017 18:57*	WG991360

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	0.104	J4	0.0525	1	06/21/2017 17:56	WG991430
Benzene	ND		0.00105	1	06/21/2017 17:56	WG991430
Bromodichloromethane	ND		0.00105	1	06/21/2017 17:56	WG991430
Bromoform	ND		0.00105	1	06/21/2017 17:56	WG991430
Bromomethane	ND		0.00525	1	06/21/2017 17:56	WG991430
n-Butylbenzene	ND		0.00105	1	06/21/2017 17:56	WG991430
sec-Butylbenzene	ND		0.00105	1	06/21/2017 17:56	WG991430
tert-Butylbenzene	ND		0.00105	1	06/21/2017 17:56	WG991430
Carbon disulfide	ND		0.00105	1	06/21/2017 17:56	WG991430
Carbon tetrachloride	ND		0.00105	1	06/21/2017 17:56	WG991430
Chlorobenzene	ND		0.00105	1	06/21/2017 17:56	WG991430
Chlorodibromomethane	ND		0.00105	1	06/21/2017 17:56	WG991430
Chloroethane	ND		0.00525	1	06/21/2017 17:56	WG991430
Chloroform	ND		0.00525	1	06/21/2017 17:56	WG991430
Chloromethane	ND		0.00263	1	06/21/2017 17:56	WG991430
1,2-Dibromoethane	ND		0.00105	1	06/21/2017 17:56	WG991430
1,1-Dichloroethane	ND		0.00105	1	06/21/2017 17:56	WG991430
1,2-Dichloroethane	ND		0.00105	1	06/21/2017 17:56	WG991430
1,1-Dichloroethene	ND		0.00105	1	06/21/2017 17:56	WG991430
cis-1,2-Dichloroethene	ND		0.00105	1	06/21/2017 17:56	WG991430
trans-1,2-Dichloroethene	ND		0.00105	1	06/21/2017 17:56	WG991430
1,2-Dichloropropane	ND		0.00105	1	06/21/2017 17:56	WG991430
cis-1,3-Dichloropropene	ND		0.00105	1	06/21/2017 17:56	WG991430
trans-1,3-Dichloropropene	ND		0.00105	1	06/21/2017 17:56	WG991430
Ethylbenzene	ND		0.00105	1	06/21/2017 17:56	WG991430
Hexachloro-1,3-butadiene	ND		0.00105	1	06/21/2017 17:56	WG991430
2-Hexanone	ND		0.0105	1	06/21/2017 17:56	WG991430
Isopropylbenzene	ND		0.00105	1	06/21/2017 17:56	WG991430
p-Isopropyltoluene	ND		0.00105	1	06/21/2017 17:56	WG991430
2-Butanone (MEK)	ND		0.0105	1	06/21/2017 17:56	WG991430
Methylene Chloride	ND		0.00525	1	06/21/2017 17:56	WG991430
4-Methyl-2-pentanone (MIBK)	ND		0.0105	1	06/21/2017 17:56	WG991430
Methyl tert-butyl ether	ND		0.00105	1	06/21/2017 17:56	WG991430
Naphthalene	ND		0.00525	1	06/21/2017 17:56	WG991430
n-Propylbenzene	ND		0.00105	1	06/21/2017 17:56	WG991430
Styrene	ND		0.00105	1	06/21/2017 17:56	WG991430
1,1,2,2-Tetrachloroethane	ND		0.00105	1	06/21/2017 17:56	WG991430
Tetrachloroethene	ND		0.00105	1	06/21/2017 17:56	WG991430
Toluene	ND		0.00525	1	06/21/2017 17:56	WG991430
1,1,1-Trichloroethane	ND		0.00105	1	06/21/2017 17:56	WG991430
1,1,2-Trichloroethane	ND		0.00105	1	06/21/2017 17:56	WG991430
Trichloroethene	ND		0.00105	1	06/21/2017 17:56	WG991430
1,2,4-Trimethylbenzene	ND		0.00105	1	06/21/2017 17:56	WG991430
1,3,5-Trimethylbenzene	ND		0.00105	1	06/21/2017 17:56	WG991430

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Vinyl chloride	ND		0.00105	1	06/21/2017 17:56	WG991430
Xylenes, Total	ND		0.00315	1	06/21/2017 17:56	WG991430
(S) Toluene-d8	*104*		*80.0-120*		*06/21/2017 17:56*	WG991430
(S) Dibromofluoromethane	*120*		*74.0-131*		*06/21/2017 17:56*	WG991430
(S) 4-Bromofluorobenzene	*99.0*		*64.0-132*		*06/21/2017 17:56*	WG991430

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	4.26		4.20	1	06/22/2017 09:26	WG990474
(S) o-Terphenyl	*74.1*		*18.0-148*		*06/22/2017 09:26*	WG990474

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0347	1	06/20/2017 13:06	WG990754
Acenaphthylene	ND		0.0347	1	06/20/2017 13:06	WG990754
Acetophenone	ND		0.350	1	06/20/2017 13:06	WG990754
Anthracene	ND		0.0347	1	06/20/2017 13:06	WG990754
Atrazine	ND		0.350	1	06/20/2017 13:06	WG990754
Benzaldehyde	ND		0.350	1	06/20/2017 13:06	WG990754
Benzo(a)anthracene	ND		0.0347	1	06/20/2017 13:06	WG990754
Benzo(b)fluoranthene	ND		0.0347	1	06/20/2017 13:06	WG990754
Benzo(k)fluoranthene	ND		0.0347	1	06/20/2017 13:06	WG990754
Benzo(g,h,i)perylene	ND		0.0347	1	06/20/2017 13:06	WG990754
Benzo(a)pyrene	ND		0.0347	1	06/20/2017 13:06	WG990754
Biphenyl	ND		0.350	1	06/20/2017 13:06	WG990754
Bis(2-chlorethoxy)methane	ND		0.350	1	06/20/2017 13:06	WG990754
Bis(2-chloroethyl)ether	ND		0.350	1	06/20/2017 13:06	WG990754
Bis(2-chloroisopropyl)ether	ND		0.350	1	06/20/2017 13:06	WG990754
4-Bromophenyl-phenylether	ND		0.350	1	06/20/2017 13:06	WG990754
Caprolactam	ND		0.350	1	06/20/2017 13:06	WG990754
Carbazole	ND		0.350	1	06/20/2017 13:06	WG990754
4-Chloroaniline	ND		0.350	1	06/20/2017 13:06	WG990754
2-Chloronaphthalene	ND		0.0347	1	06/20/2017 13:06	WG990754
4-Chlorophenyl-phenylether	ND		0.350	1	06/20/2017 13:06	WG990754
Chrysene	ND		0.0347	1	06/20/2017 13:06	WG990754
Dibenz(a,h)anthracene	ND		0.0347	1	06/20/2017 13:06	WG990754
Dibenzofuran	ND		0.350	1	06/20/2017 13:06	WG990754
3,3-Dichlorobenzidine	ND		0.350	1	06/20/2017 13:06	WG990754
2,4-Dinitrotoluene	ND		0.350	1	06/20/2017 13:06	WG990754
2,6-Dinitrotoluene	ND	J3	0.350	1	06/20/2017 13:06	WG990754
Fluoranthene	ND	J3	0.0347	1	06/20/2017 13:06	WG990754
Fluorene	ND		0.0347	1	06/20/2017 13:06	WG990754
Hexachlorobenzene	ND		0.350	1	06/20/2017 13:06	WG990754
Hexachloro-1,3-butadiene	ND		0.350	1	06/20/2017 13:06	WG990754
Hexachlorocyclopentadiene	ND		0.350	1	06/20/2017 13:06	WG990754
Hexachloroethane	ND		0.350	1	06/20/2017 13:06	WG990754
Indeno(1,2,3-cd)pyrene	ND		0.0347	1	06/20/2017 13:06	WG990754
Isophorone	ND		0.350	1	06/20/2017 13:06	WG990754
1-Methylnaphthalene	ND		0.0347	1	06/20/2017 13:06	WG990754
2-Methylnaphthalene	ND		0.0347	1	06/20/2017 13:06	WG990754
Naphthalene	ND		0.0347	1	06/20/2017 13:06	WG990754
2-Nitroaniline	ND	J3	0.350	1	06/20/2017 13:06	WG990754
3-Nitroaniline	ND		0.350	1	06/20/2017 13:06	WG990754

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Nitroaniline	ND		0.350	1	06/20/2017 13:06	WG990754
Nitrobenzene	ND		0.350	1	06/20/2017 13:06	WG990754
n-Nitrosodiphenylamine	ND		0.350	1	06/20/2017 13:06	WG990754
n-Nitrosodi-n-propylamine	ND		0.350	1	06/20/2017 13:06	WG990754
Phenanthrene	ND		0.0347	1	06/20/2017 13:06	WG990754
Benzylbutyl phthalate	ND		0.350	1	06/20/2017 13:06	WG990754
Bis(2-ethylhexyl)phthalate	ND		0.350	1	06/20/2017 13:06	WG990754
Di-n-butyl phthalate	ND		0.350	1	06/20/2017 13:06	WG990754
Diethyl phthalate	ND		0.350	1	06/20/2017 13:06	WG990754
Dimethyl phthalate	ND		0.350	1	06/20/2017 13:06	WG990754
Di-n-octyl phthalate	ND		0.350	1	06/20/2017 13:06	WG990754
Pyrene	ND		0.0347	1	06/20/2017 13:06	WG990754
1,2,4-Trichlorobenzene	ND		0.350	1	06/20/2017 13:06	WG990754
4-Chloro-3-methylphenol	ND		0.350	1	06/20/2017 13:06	WG990754
2-Chlorophenol	ND		0.350	1	06/20/2017 13:06	WG990754
2-Methylphenol	ND		0.350	1	06/20/2017 13:06	WG990754
3&4-Methyl Phenol	ND		0.350	1	06/20/2017 13:06	WG990754
2,4-Dichlorophenol	ND		0.350	1	06/20/2017 13:06	WG990754
2,4-Dimethylphenol	ND		0.350	1	06/20/2017 13:06	WG990754
4,6-Dinitro-2-methylphenol	ND		0.350	1	06/20/2017 13:06	WG990754
2,4-Dinitrophenol	ND	J3	0.350	1	06/20/2017 13:06	WG990754
2-Nitrophenol	ND		0.350	1	06/20/2017 13:06	WG990754
4-Nitrophenol	ND	J3	0.350	1	06/20/2017 13:06	WG990754
Pentachlorophenol	ND		0.350	1	06/20/2017 13:06	WG990754
Phenol	ND		0.350	1	06/20/2017 13:06	WG990754
2,4,5-Trichlorophenol	ND	J3	0.350	1	06/20/2017 13:06	WG990754
2,4,6-Trichlorophenol	ND		0.350	1	06/20/2017 13:06	WG990754
(S) 2-Fluorophenol	*72.3*		*20.0-120*		*06/20/2017 13:06*	WG990754
(S) Phenol-d5	*63.4*		*20.0-120*		*06/20/2017 13:06*	WG990754
(S) Nitrobenzene-d5	*60.7*		*18.0-125*		*06/20/2017 13:06*	WG990754
(S) 2-Fluorobiphenyl	*62.4*		*28.0-120*		*06/20/2017 13:06*	WG990754
(S) 2,4,6-Tribromophenol	*68.3*		*17.0-137*		*06/20/2017 13:06*	WG990754
(S) p-Terphenyl-d14	*67.4*		*13.0-131*		*06/20/2017 13:06*	WG990754

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.6		1	06/19/2017 10:00	WG989678

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	ND		0.126	1	06/21/2017 19:19	WG991360
(S) a,a,a-Trifluorotoluene(FID)	*96.9*		*77.0-120*		*06/21/2017 19:19*	WG991360

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	0.125	J4	0.0628	1	06/21/2017 18:17	WG991430
Benzene	ND		0.00126	1	06/21/2017 18:17	WG991430
Bromodichloromethane	ND		0.00126	1	06/21/2017 18:17	WG991430
Bromoform	ND		0.00126	1	06/21/2017 18:17	WG991430
Bromomethane	ND		0.00628	1	06/21/2017 18:17	WG991430
n-Butylbenzene	ND		0.00126	1	06/21/2017 18:17	WG991430
sec-Butylbenzene	ND		0.00126	1	06/21/2017 18:17	WG991430
tert-Butylbenzene	ND		0.00126	1	06/21/2017 18:17	WG991430
Carbon disulfide	ND		0.00126	1	06/21/2017 18:17	WG991430
Carbon tetrachloride	ND		0.00126	1	06/21/2017 18:17	WG991430
Chlorobenzene	ND		0.00126	1	06/21/2017 18:17	WG991430
Chlorodibromomethane	ND		0.00126	1	06/21/2017 18:17	WG991430
Chloroethane	ND		0.00628	1	06/21/2017 18:17	WG991430
Chloroform	ND		0.00628	1	06/21/2017 18:17	WG991430
Chloromethane	ND		0.00314	1	06/21/2017 18:17	WG991430
1,2-Dibromoethane	ND		0.00126	1	06/21/2017 18:17	WG991430
1,1-Dichloroethane	ND		0.00126	1	06/21/2017 18:17	WG991430
1,2-Dichloroethane	ND		0.00126	1	06/21/2017 18:17	WG991430
1,1-Dichloroethene	ND		0.00126	1	06/21/2017 18:17	WG991430
cis-1,2-Dichloroethene	ND		0.00126	1	06/21/2017 18:17	WG991430
trans-1,2-Dichloroethene	ND		0.00126	1	06/21/2017 18:17	WG991430
1,2-Dichloropropane	ND		0.00126	1	06/21/2017 18:17	WG991430
cis-1,3-Dichloropropene	ND		0.00126	1	06/21/2017 18:17	WG991430
trans-1,3-Dichloropropene	ND		0.00126	1	06/21/2017 18:17	WG991430
Ethylbenzene	ND		0.00126	1	06/21/2017 18:17	WG991430
Hexachloro-1,3-butadiene	ND		0.00126	1	06/21/2017 18:17	WG991430
2-Hexanone	ND		0.0126	1	06/21/2017 18:17	WG991430
Isopropylbenzene	ND		0.00126	1	06/21/2017 18:17	WG991430
p-Isopropyltoluene	ND		0.00126	1	06/21/2017 18:17	WG991430
2-Butanone (MEK)	ND		0.0126	1	06/21/2017 18:17	WG991430
Methylene Chloride	ND		0.00628	1	06/21/2017 18:17	WG991430
4-Methyl-2-pentanone (MIBK)	ND		0.0126	1	06/21/2017 18:17	WG991430
Methyl tert-butyl ether	ND		0.00126	1	06/21/2017 18:17	WG991430
Naphthalene	ND		0.00628	1	06/21/2017 18:17	WG991430
n-Propylbenzene	ND		0.00126	1	06/21/2017 18:17	WG991430
Styrene	ND		0.00126	1	06/21/2017 18:17	WG991430
1,1,2,2-Tetrachloroethane	ND		0.00126	1	06/21/2017 18:17	WG991430
Tetrachloroethene	ND		0.00126	1	06/21/2017 18:17	WG991430
Toluene	ND		0.00628	1	06/21/2017 18:17	WG991430
1,1,1-Trichloroethane	ND		0.00126	1	06/21/2017 18:17	WG991430
1,1,2-Trichloroethane	ND		0.00126	1	06/21/2017 18:17	WG991430
Trichloroethene	ND		0.00126	1	06/21/2017 18:17	WG991430
1,2,4-Trimethylbenzene	ND		0.00126	1	06/21/2017 18:17	WG991430
1,3,5-Trimethylbenzene	ND		0.00126	1	06/21/2017 18:17	WG991430

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Vinyl chloride	ND		0.00126	1	06/21/2017 18:17	WG991430
Xylenes, Total	ND		0.00377	1	06/21/2017 18:17	WG991430
(S) Toluene-d8	*103*		*80.0-120*		*06/21/2017 18:17*	WG991430
(S) Dibromofluoromethane	*119*		*74.0-131*		*06/21/2017 18:17*	WG991430
(S) 4-Bromofluorobenzene	*101*		*64.0-132*		*06/21/2017 18:17*	WG991430

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		5.03	1	06/22/2017 12:25	WG990474
(S) o-Terphenyl	*67.2*		*18.0-148*		*06/22/2017 12:25*	WG990474

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0415	1	06/20/2017 13:30	WG990754
Acenaphthylene	ND		0.0415	1	06/20/2017 13:30	WG990754
Acetophenone	ND		0.419	1	06/20/2017 13:30	WG990754
Anthracene	ND		0.0415	1	06/20/2017 13:30	WG990754
Atrazine	ND		0.419	1	06/20/2017 13:30	WG990754
Benzaldehyde	ND		0.419	1	06/20/2017 13:30	WG990754
Benzo(a)anthracene	ND		0.0415	1	06/20/2017 13:30	WG990754
Benzo(b)fluoranthene	ND		0.0415	1	06/20/2017 13:30	WG990754
Benzo(k)fluoranthene	ND		0.0415	1	06/20/2017 13:30	WG990754
Benzo(g,h,i)perylene	ND		0.0415	1	06/20/2017 13:30	WG990754
Benzo(a)pyrene	ND		0.0415	1	06/20/2017 13:30	WG990754
Biphenyl	ND		0.419	1	06/20/2017 13:30	WG990754
Bis(2-chlorethoxy)methane	ND		0.419	1	06/20/2017 13:30	WG990754
Bis(2-chloroethyl)ether	ND		0.419	1	06/20/2017 13:30	WG990754
Bis(2-chloroisopropyl)ether	ND		0.419	1	06/20/2017 13:30	WG990754
4-Bromophenyl-phenylether	ND		0.419	1	06/20/2017 13:30	WG990754
Caprolactam	ND		0.419	1	06/20/2017 13:30	WG990754
Carbazole	ND		0.419	1	06/20/2017 13:30	WG990754
4-Chloroaniline	ND		0.419	1	06/20/2017 13:30	WG990754
2-Chloronaphthalene	ND		0.0415	1	06/20/2017 13:30	WG990754
4-Chlorophenyl-phenylether	ND		0.419	1	06/20/2017 13:30	WG990754
Chrysene	ND		0.0415	1	06/20/2017 13:30	WG990754
Dibenz(a,h)anthracene	ND		0.0415	1	06/20/2017 13:30	WG990754
Dibenzofuran	ND		0.419	1	06/20/2017 13:30	WG990754
3,3-Dichlorobenzidine	ND		0.419	1	06/20/2017 13:30	WG990754
2,4-Dinitrotoluene	ND		0.419	1	06/20/2017 13:30	WG990754
2,6-Dinitrotoluene	ND	J3	0.419	1	06/20/2017 13:30	WG990754
Fluoranthene	ND	J3	0.0415	1	06/20/2017 13:30	WG990754
Fluorene	ND		0.0415	1	06/20/2017 13:30	WG990754
Hexachlorobenzene	ND		0.419	1	06/20/2017 13:30	WG990754
Hexachloro-1,3-butadiene	ND		0.419	1	06/20/2017 13:30	WG990754
Hexachlorocyclopentadiene	ND		0.419	1	06/20/2017 13:30	WG990754
Hexachloroethane	ND		0.419	1	06/20/2017 13:30	WG990754
Indeno(1,2,3-cd)pyrene	ND		0.0415	1	06/20/2017 13:30	WG990754
Isophorone	ND		0.419	1	06/20/2017 13:30	WG990754
1-Methylnaphthalene	ND		0.0415	1	06/20/2017 13:30	WG990754
2-Methylnaphthalene	ND		0.0415	1	06/20/2017 13:30	WG990754
Naphthalene	ND		0.0415	1	06/20/2017 13:30	WG990754
2-Nitroaniline	ND	J3	0.419	1	06/20/2017 13:30	WG990754
3-Nitroaniline	ND		0.419	1	06/20/2017 13:30	WG990754

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Nitroaniline	ND		0.419	1	06/20/2017 13:30	WG990754
Nitrobenzene	ND		0.419	1	06/20/2017 13:30	WG990754
n-Nitrosodiphenylamine	ND		0.419	1	06/20/2017 13:30	WG990754
n-Nitrosodi-n-propylamine	ND		0.419	1	06/20/2017 13:30	WG990754
Phenanthrene	ND		0.0415	1	06/20/2017 13:30	WG990754
Benzylbutyl phthalate	ND		0.419	1	06/20/2017 13:30	WG990754
Bis(2-ethylhexyl)phthalate	ND		0.419	1	06/20/2017 13:30	WG990754
Di-n-butyl phthalate	ND		0.419	1	06/20/2017 13:30	WG990754
Diethyl phthalate	ND		0.419	1	06/20/2017 13:30	WG990754
Dimethyl phthalate	ND		0.419	1	06/20/2017 13:30	WG990754
Di-n-octyl phthalate	ND		0.419	1	06/20/2017 13:30	WG990754
Pyrene	ND		0.0415	1	06/20/2017 13:30	WG990754
1,2,4-Trichlorobenzene	ND		0.419	1	06/20/2017 13:30	WG990754
4-Chloro-3-methylphenol	ND		0.419	1	06/20/2017 13:30	WG990754
2-Chlorophenol	ND		0.419	1	06/20/2017 13:30	WG990754
2-Methylphenol	ND		0.419	1	06/20/2017 13:30	WG990754
3&4-Methyl Phenol	ND		0.419	1	06/20/2017 13:30	WG990754
2,4-Dichlorophenol	ND		0.419	1	06/20/2017 13:30	WG990754
2,4-Dimethylphenol	ND		0.419	1	06/20/2017 13:30	WG990754
4,6-Dinitro-2-methylphenol	ND		0.419	1	06/20/2017 13:30	WG990754
2,4-Dinitrophenol	ND	J3	0.419	1	06/20/2017 13:30	WG990754
2-Nitrophenol	ND		0.419	1	06/20/2017 13:30	WG990754
4-Nitrophenol	ND	J3	0.419	1	06/20/2017 13:30	WG990754
Pentachlorophenol	ND		0.419	1	06/20/2017 13:30	WG990754
Phenol	ND		0.419	1	06/20/2017 13:30	WG990754
2,4,5-Trichlorophenol	ND	J3	0.419	1	06/20/2017 13:30	WG990754
2,4,6-Trichlorophenol	ND		0.419	1	06/20/2017 13:30	WG990754
(S) 2-Fluorophenol	*73.5*		*20.0-120*		*06/20/2017 13:30*	WG990754
(S) Phenol-d5	*66.8*		*20.0-120*		*06/20/2017 13:30*	WG990754
(S) Nitrobenzene-d5	*68.3*		*18.0-125*		*06/20/2017 13:30*	WG990754
(S) 2-Fluorobiphenyl	*67.3*		*28.0-120*		*06/20/2017 13:30*	WG990754
(S) 2,4,6-Tribromophenol	*74.7*		*17.0-137*		*06/20/2017 13:30*	WG990754
(S) p-Terphenyl-d14	*67.5*		*13.0-131*		*06/20/2017 13:30*	WG990754

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	06/16/2017 12:00	WG989953
(S) a,a,a-Trifluorotoluene(FID)	*100*		*77.0-122*		*06/16/2017 12:00*	WG989953

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND	J3	1.00	1	06/16/2017 13:41	WG990045
Benzene	ND		0.00100	1	06/16/2017 13:41	WG990045
Bromodichloromethane	ND		0.00125	1	06/16/2017 13:41	WG990045
Bromoform	ND		0.00100	1	06/16/2017 13:41	WG990045
Bromomethane	ND		0.00500	1	06/16/2017 13:41	WG990045
n-Butylbenzene	ND		0.00100	1	06/16/2017 13:41	WG990045
sec-Butylbenzene	ND		0.00100	1	06/16/2017 13:41	WG990045
tert-Butylbenzene	ND		0.00100	1	06/16/2017 13:41	WG990045
Carbon disulfide	ND		0.00100	1	06/16/2017 13:41	WG990045
Carbon tetrachloride	ND		0.00100	1	06/16/2017 13:41	WG990045
Chlorobenzene	ND		0.00100	1	06/16/2017 13:41	WG990045
Chlorodibromomethane	ND		0.00100	1	06/16/2017 13:41	WG990045
Chloroethane	ND		0.00500	1	06/16/2017 13:41	WG990045
Chloroform	ND		0.00500	1	06/16/2017 13:41	WG990045
Chloromethane	ND		0.00250	1	06/16/2017 13:41	WG990045
1,2-Dibromoethane	ND		0.00100	1	06/16/2017 13:41	WG990045
1,1-Dichloroethane	ND		0.00100	1	06/16/2017 13:41	WG990045
1,2-Dichloroethane	ND		0.00100	1	06/16/2017 13:41	WG990045
1,1-Dichloroethene	ND		0.00100	1	06/16/2017 13:41	WG990045
cis-1,2-Dichloroethene	ND		0.00100	1	06/16/2017 13:41	WG990045
trans-1,2-Dichloroethene	ND		0.00100	1	06/16/2017 13:41	WG990045
1,2-Dichloropropane	ND		0.00100	1	06/16/2017 13:41	WG990045
cis-1,3-Dichloropropene	ND		0.00100	1	06/16/2017 13:41	WG990045
trans-1,3-Dichloropropene	ND		0.00100	1	06/16/2017 13:41	WG990045
Ethylbenzene	ND		0.00100	1	06/16/2017 13:41	WG990045
Hexachloro-1,3-butadiene	ND		0.00100	1	06/16/2017 13:41	WG990045
2-Hexanone	ND		0.0100	1	06/16/2017 13:41	WG990045
Isopropylbenzene	ND		0.00100	1	06/16/2017 13:41	WG990045
p-Isopropyltoluene	ND		0.00100	1	06/16/2017 13:41	WG990045
2-Butanone (MEK)	ND	J3	0.0100	1	06/16/2017 13:41	WG990045
Methylene Chloride	ND		0.00500	1	06/16/2017 13:41	WG990045
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	06/16/2017 13:41	WG990045
Methyl tert-butyl ether	ND		0.00100	1	06/16/2017 13:41	WG990045
Naphthalene	ND		0.00500	1	06/16/2017 13:41	WG990045
n-Propylbenzene	ND		0.00100	1	06/16/2017 13:41	WG990045
Styrene	ND		0.00100	1	06/16/2017 13:41	WG990045
1,1,2,2-Tetrachloroethane	ND		0.00100	1	06/16/2017 13:41	WG990045
Tetrachloroethene	ND		0.00100	1	06/16/2017 13:41	WG990045
Toluene	ND		0.00100	1	06/16/2017 13:41	WG990045
1,1,1-Trichloroethane	ND		0.00100	1	06/16/2017 13:41	WG990045
1,1,2-Trichloroethane	ND		0.00100	1	06/16/2017 13:41	WG990045
Trichloroethene	ND		0.00100	1	06/16/2017 13:41	WG990045
1,2,4-Trimethylbenzene	ND		0.00100	1	06/16/2017 13:41	WG990045
1,3,5-Trimethylbenzene	ND		0.00100	1	06/16/2017 13:41	WG990045
Vinyl chloride	ND		0.00100	1	06/16/2017 13:41	WG990045
Xylenes, Total	ND		0.00300	1	06/16/2017 13:41	WG990045
(S) Toluene-d8	*103*		*80.0-120*		*06/16/2017 13:41*	WG990045
(S) Dibromofluoromethane	*94.5*		*76.0-123*		*06/16/2017 13:41*	WG990045
(S) 4-Bromofluorobenzene	*80.1*		*80.0-120*		*06/16/2017 13:41*	WG990045

Method Blank (MB)

(MB) R3226925-1 06/19/17 10:00

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00150			

L915915-01 Original Sample (OS) • Duplicate (DUP)

(OS) L915915-01 06/19/17 10:00 • (DUP) R3226925-3 06/19/17 10:00

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	93.5	92.5	1	1.03		5

Laboratory Control Sample (LCS)

(LCS) R3226925-2 06/19/17 10:00

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3226859-3 06/16/17 11:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
TPH (GC/FID) Low Fraction	U		0.0314	0.100
(S) a,a,a-Trifluorotoluene(FID)	*99.6*			*77.0-122*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3226859-1 06/16/17 10:16 • (LCSD) R3226859-2 06/16/17 10:37

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
TPH (GC/FID) Low Fraction	5.50	5.66	5.72	103	104	71.0-136			1.04	20
(S) a,a,a-Trifluorotoluene(FID)				*105*	*105*	*77.0-122*				

L915737-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L915737-01 06/16/17 12:21 • (MS) R3226859-4 06/16/17 12:42 • (MSD) R3226859-5 06/16/17 13:03

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
TPH (GC/FID) Low Fraction	5.50	0.456	31.4	31.5	113	113	5	18.0-160			0.140	20
(S) a,a,a-Trifluorotoluene(FID)					*103*	*102*		*77.0-122*				

Method Blank (MB)

(MB) R3227637-3 06/21/17 10:45

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*99.0*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3227637-1 06/21/17 09:39 • (LCSD) R3227637-2 06/21/17 10:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.13	5.24	93.3	95.3	70.0-136			2.17	20
(S) a,a,a-Trifluorotoluene(FID)				*107*	*108*	*77.0-120*				

L915570-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L915570-02 06/21/17 13:01 • (MS) R3227637-4 06/21/17 13:23 • (MSD) R3227637-5 06/21/17 13:46

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	31.7	170	173	101	103	25	10.0-147			1.37	30
(S) a,a,a-Trifluorotoluene(FID)					*106*	*106*		*77.0-120*				

Method Blank (MB)

(MB) R3226587-3 06/16/17 11:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	1.00
Benzene	U		0.000331	0.00100
Bromodichloromethane	U		0.000380	0.00125
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
n-Butylbenzene	U		0.000361	0.00100
sec-Butylbenzene	U		0.000365	0.00100
tert-Butylbenzene	U		0.000399	0.00100
Carbon disulfide	U		0.000275	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
1,2-Dibromoethane	U		0.000381	0.00100
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
Ethylbenzene	U		0.000384	0.00100
Hexachloro-1,3-butadiene	U		0.000256	0.00100
2-Hexanone	U		0.00382	0.0100
Isopropylbenzene	U		0.000326	0.00100
p-Isopropyltoluene	U		0.000350	0.00100
2-Butanone (MEK)	U		0.00393	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100
Methyl tert-butyl ether	U		0.000367	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000349	0.00100
Styrene	U		0.000307	0.00100
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100

Method Blank (MB)

(MB) R3226587-3 06/16/17 11:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	U		0.000398	0.00100
1,2,4-Trimethylbenzene	U		0.000373	0.00100
1,3,5-Trimethylbenzene	U		0.000387	0.00100
Vinyl chloride	U		0.000259	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*101*			*80.0-120*
(S) Dibromofluoromethane	*95.4*			*76.0-123*
(S) 4-Bromofluorobenzene	*82.9*			*80.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3226587-1 06/16/17 10:44 • (LCSD) R3226587-2 06/16/17 11:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.0471	0.0604	37.7	48.3	10.0-160		J3	24.8	23
Benzene	0.0250	0.0254	0.0259	102	104	69.0-123			2.04	20
Bromodichloromethane	0.0250	0.0236	0.0234	94.4	93.7	76.0-120			0.710	20
Bromoform	0.0250	0.0168	0.0172	67.3	68.8	67.0-132			2.15	20
Bromomethane	0.0250	0.0298	0.0310	119	124	18.0-160			4.18	20
n-Butylbenzene	0.0250	0.0285	0.0288	114	115	72.0-126			1.26	20
sec-Butylbenzene	0.0250	0.0282	0.0283	113	113	74.0-121			0.250	20
tert-Butylbenzene	0.0250	0.0278	0.0278	111	111	75.0-122			0.0400	20
Carbon disulfide	0.0250	0.0263	0.0273	105	109	55.0-127			3.61	20
Carbon tetrachloride	0.0250	0.0226	0.0238	90.3	95.3	63.0-122			5.40	20
Chlorobenzene	0.0250	0.0237	0.0231	94.7	92.5	79.0-121			2.37	20
Chlorodibromomethane	0.0250	0.0212	0.0217	84.6	87.0	75.0-125			2.74	20
Chloroethane	0.0250	0.0263	0.0263	105	105	47.0-152			0.0700	20
Chloroform	0.0250	0.0243	0.0252	97.3	101	72.0-121			3.63	20
Chloromethane	0.0250	0.0218	0.0240	87.1	96.0	48.0-139			9.63	20
1,2-Dibromoethane	0.0250	0.0206	0.0214	82.3	85.7	77.0-123			4.07	20
1,1-Dichloroethane	0.0250	0.0259	0.0266	104	106	70.0-126			2.47	20
1,2-Dichloroethane	0.0250	0.0257	0.0255	103	102	67.0-126			0.570	20
1,1-Dichloroethene	0.0250	0.0252	0.0255	101	102	64.0-129			1.19	20
cis-1,2-Dichloroethene	0.0250	0.0221	0.0236	88.4	94.3	73.0-120			6.57	20
trans-1,2-Dichloroethene	0.0250	0.0235	0.0245	94.1	98.0	71.0-121			4.04	20
1,2-Dichloropropane	0.0250	0.0266	0.0261	106	104	75.0-125			1.81	20
cis-1,3-Dichloropropene	0.0250	0.0240	0.0236	96.1	94.6	79.0-123			1.58	20
trans-1,3-Dichloropropene	0.0250	0.0220	0.0213	88.0	85.0	74.0-127			3.41	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3226587-1 06/16/17 10:44 • (LCSD) R3226587-2 06/16/17 11:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	0.0250	0.0226	0.0232	90.3	92.7	77.0-120			2.68	20
Hexachloro-1,3-butadiene	0.0250	0.0264	0.0264	105	106	64.0-131			0.0900	20
2-Hexanone	0.125	0.0881	0.0911	70.5	72.8	58.0-147			3.33	20
Isopropylbenzene	0.0250	0.0240	0.0250	96.1	99.9	75.0-120			3.89	20
p-Isopropyltoluene	0.0250	0.0268	0.0272	107	109	74.0-126			1.55	20
2-Butanone (MEK)	0.125	0.0720	0.130	57.6	104	37.0-158		J3	57.3	20
Methylene Chloride	0.0250	0.0238	0.0249	95.2	99.5	66.0-121			4.36	20
4-Methyl-2-pentanone (MIBK)	0.125	0.106	0.113	84.8	90.4	59.0-143			6.41	20
Methyl tert-butyl ether	0.0250	0.0227	0.0247	90.8	98.7	64.0-123			8.28	20
Naphthalene	0.0250	0.0197	0.0217	79.0	86.7	62.0-128			9.26	20
n-Propylbenzene	0.0250	0.0254	0.0263	101	105	79.0-120			3.50	20
Styrene	0.0250	0.0209	0.0211	83.6	84.3	78.0-124			0.800	20
1,1,2,2-Tetrachloroethane	0.0250	0.0203	0.0208	81.4	83.4	71.0-122			2.47	20
Tetrachloroethene	0.0250	0.0221	0.0219	88.3	87.6	70.0-127			0.880	20
Toluene	0.0250	0.0229	0.0235	91.8	93.8	77.0-120			2.19	20
1,1,1-Trichloroethane	0.0250	0.0237	0.0248	94.7	99.4	68.0-122			4.85	20
1,1,2-Trichloroethane	0.0250	0.0206	0.0210	82.4	83.9	78.0-120			1.91	20
Trichloroethene	0.0250	0.0243	0.0249	97.0	99.7	78.0-120			2.76	20
1,2,4-Trimethylbenzene	0.0250	0.0268	0.0265	107	106	75.0-120			0.830	20
1,3,5-Trimethylbenzene	0.0250	0.0261	0.0270	105	108	75.0-120			3.13	20
Vinyl chloride	0.0250	0.0256	0.0271	102	108	64.0-133			5.68	20
Xylenes, Total	0.0750	0.0721	0.0737	96.1	98.3	77.0-120			2.19	20
(S) Toluene-d8				*100*	*100*	*80.0-120*				
(S) Dibromofluoromethane				*93.7*	*97.7*	*76.0-123*				
(S) 4-Bromofluorobenzene				*95.0*	*98.4*	*80.0-120*				

L916435-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916435-01 06/16/17 20:46 • (MS) R3226587-4 06/16/17 21:01 • (MSD) R3226587-5 06/16/17 21:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	U	0.0370	0.0384	29.6	30.7	1	10.0-139			3.67	25
Benzene	0.0250	U	0.0124	0.00864	49.8	34.6	1	34.0-147		J3	36.0	20
Bromodichloromethane	0.0250	U	0.0127	0.00889	51.0	35.5	1	52.0-135	J6	J3 J6	35.6	20
Bromoform	0.0250	U	0.00834	0.00688	33.4	27.5	1	50.0-146	J6	J6	19.2	20
Bromomethane	0.0250	U	0.0111	0.00892	44.6	35.7	1	10.0-160			22.2	23
n-Butylbenzene	0.0250	U	0.0130	0.00890	51.9	35.6	1	50.0-144		J3 J6	37.2	20
sec-Butylbenzene	0.0250	U	0.0131	0.00885	52.2	35.4	1	48.0-143		J3 J6	38.3	20
tert-Butylbenzene	0.0250	U	0.0131	0.00862	52.3	34.5	1	50.0-142		J3 J6	41.0	20

L916435-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916435-01 06/16/17 20:46 • (MS) R3226587-4 06/16/17 21:01 • (MSD) R3226587-5 06/16/17 21:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon disulfide	0.0250	U	0.00605	0.00449	24.2	17.9	1	10.0-147		J3	29.6	20
Carbon tetrachloride	0.0250	U	0.0109	0.00776	43.5	31.0	1	41.0-138		J3 J6	33.5	20
Chlorobenzene	0.0250	U	0.0118	0.00816	47.2	32.6	1	52.0-141	J6	J3 J6	36.5	20
Chlorodibromomethane	0.0250	U	0.0111	0.00746	44.5	29.8	1	54.0-142	J6	J3 J6	39.5	20
Chloroethane	0.0250	U	0.0112	0.00875	44.6	35.0	1	23.0-160		J3	24.2	20
Chloroform	0.0250	U	0.0123	0.00878	49.3	35.1	1	50.0-139	J6	J3 J6	33.7	20
Chloromethane	0.0250	U	0.00742	0.00511	29.7	20.4	1	14.0-151		J3	37.0	20
1,2-Dibromoethane	0.0250	U	0.0113	0.00780	45.2	31.2	1	54.0-140	J6	J3 J6	36.8	20
1,1-Dichloroethane	0.0250	U	0.0134	0.00943	53.7	37.7	1	47.0-143		J3 J6	34.9	20
1,2-Dichloroethane	0.0250	U	0.0129	0.00818	51.7	32.7	1	47.0-141		J3 J6	45.0	20
1,1-Dichloroethene	0.0250	U	0.0110	0.00765	44.0	30.6	1	31.0-148		J3 J6	35.9	20
cis-1,2-Dichloroethene	0.0250	0.00433	0.0162	0.0109	47.6	26.4	1	43.0-142		J3 J6	39.2	20
trans-1,2-Dichloroethene	0.0250	U	0.0103	0.00735	41.3	29.4	1	36.0-141		J3 J6	33.7	20
1,2-Dichloropropane	0.0250	U	0.0138	0.00979	55.1	39.1	1	51.0-141		J3 J6	33.8	20
cis-1,3-Dichloropropene	0.0250	U	0.0125	0.00811	49.9	32.4	1	53.0-139	J6	J3 J6	42.4	20
trans-1,3-Dichloropropene	0.0250	U	0.0114	0.00765	45.5	30.6	1	51.0-143	J6	J3 J6	39.2	20
Ethylbenzene	0.0250	U	0.0107	0.00715	43.0	28.6	1	42.0-147		J3 J6	40.1	20
Hexachloro-1,3-butadiene	0.0250	U	0.0115	0.00807	46.0	32.3	1	44.0-146		J3 J6	35.1	21
2-Hexanone	0.125	U	0.0550	0.0423	44.0	33.8	1	36.0-145		J3 J6	26.2	23
Isopropylbenzene	0.0250	U	0.00936	0.00646	37.5	25.9	1	48.0-141	J6	J3 J6	36.6	20
p-Isopropyltoluene	0.0250	U	0.0124	0.00832	49.5	33.3	1	49.0-146		J3 J6	39.2	20
2-Butanone (MEK)	0.125	U	0.0344	0.0290	27.5	23.2	1	12.0-149			17.0	24
Methylene Chloride	0.0250	U	0.0115	0.00832	46.0	33.3	1	42.0-135		J3 J6	32.0	20
4-Methyl-2-pentanone (MIBK)	0.125	U	0.0535	0.0392	42.8	31.3	1	44.0-160	J6	J3 J6	31.0	22
Methyl tert-butyl ether	0.0250	0.000387	0.0117	0.00891	45.1	34.1	1	42.0-142		J3 J6	26.7	20
Naphthalene	0.0250	U	0.00872	0.00627	34.9	25.1	1	42.0-146	J6	J3 J6	32.7	24
n-Propylbenzene	0.0250	U	0.00927	0.00628	37.1	25.1	1	47.0-144	J6	J3 J6	38.5	20
Styrene	0.0250	U	0.00956	0.00655	38.3	26.2	1	47.0-147	J6	J3 J6	37.4	20
1,1,2,2-Tetrachloroethane	0.0250	U	0.00904	0.00658	36.2	26.3	1	46.0-149	J6	J3 J6	31.5	20
Tetrachloroethene	0.0250	0.00175	0.0121	0.00819	41.2	25.8	1	38.0-147		J3 J6	38.2	20
Toluene	0.0250	U	0.0115	0.00786	46.1	31.4	1	42.0-141		J3 J6	37.8	20
1,1,1-Trichloroethane	0.0250	U	0.0121	0.00838	48.2	33.5	1	46.0-140		J3 J6	35.9	20
1,1,2-Trichloroethane	0.0250	U	0.0119	0.00803	47.6	32.1	1	54.0-139	J6	J3 J6	38.8	20
Trichloroethene	0.0250	0.00104	0.0121	0.00870	44.3	30.6	1	32.0-156		J3 J6	32.8	20
1,2,4-Trimethylbenzene	0.0250	U	0.0126	0.00852	50.2	34.1	1	41.0-146		J3 J6	38.3	20
1,3,5-Trimethylbenzene	0.0250	U	0.0118	0.00764	47.0	30.6	1	44.0-143		J3 J6	42.4	20
Vinyl chloride	0.0250	0.00162	0.0110	0.00757	37.6	23.8	1	24.0-153		J3 J6	37.3	20
Xylenes, Total	0.0750	U	0.0335	0.0237	44.7	31.5	1	41.0-148	J6	J3 J6	34.4	20
(S) Toluene-d8					*101*	*100*		*80.0-120*				
(S) Dibromofluoromethane					*93.3*	*96.3*		*76.0-123*				

L916435-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916435-01 06/16/17 20:46 • (MS) R3226587-4 06/16/17 21:01 • (MSD) R3226587-5 06/16/17 21:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
(S) 4-Bromofluorobenzene					*76.9*	*75.0*		*80.0-120*	J2	J2		

Method Blank (MB)

(MB) R3227572-3 06/21/17 12:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0100	0.0500
Benzene	U		0.000270	0.00100
Bromodichloromethane	U		0.000254	0.00100
Bromoform	U		0.000424	0.00100
Bromomethane	U		0.00134	0.00500
n-Butylbenzene	U		0.000258	0.00100
sec-Butylbenzene	U		0.000201	0.00100
tert-Butylbenzene	U		0.000206	0.00100
Carbon disulfide	U		0.000221	0.00100
Carbon tetrachloride	U		0.000328	0.00100
Chlorobenzene	U		0.000212	0.00100
Chlorodibromomethane	U		0.000373	0.00100
Chloroethane	U		0.000946	0.00500
Chloroform	U		0.000229	0.00500
Chloromethane	U		0.000375	0.00250
1,2-Dibromoethane	U		0.000343	0.00100
1,1-Dichloroethane	U		0.000199	0.00100
1,2-Dichloroethane	U		0.000265	0.00100
1,1-Dichloroethene	U		0.000303	0.00100
cis-1,2-Dichloroethene	U		0.000235	0.00100
trans-1,2-Dichloroethene	U		0.000264	0.00100
1,2-Dichloropropane	U		0.000358	0.00100
cis-1,3-Dichloropropene	U		0.000262	0.00100
trans-1,3-Dichloropropene	U		0.000267	0.00100
Ethylbenzene	U		0.000297	0.00100
Hexachloro-1,3-butadiene	U		0.000342	0.00100
2-Hexanone	U		0.00137	0.0100
Isopropylbenzene	U		0.000243	0.00100
p-Isopropyltoluene	U		0.000204	0.00100
2-Butanone (MEK)	U		0.00468	0.0100
Methylene Chloride	0.00246	J	0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00188	0.0100
Methyl tert-butyl ether	U		0.000212	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000206	0.00100
Styrene	U		0.000234	0.00100
1,1,2,2-Tetrachloroethane	U		0.000365	0.00100
Tetrachloroethene	U		0.000276	0.00100
Toluene	U		0.000434	0.00500
1,1,1-Trichloroethane	U		0.000286	0.00100

Method Blank (MB)

(MB) R3227572-3 06/21/17 12:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
1,1,2-Trichloroethane	U		0.000277	0.00100
Trichloroethene	U		0.000279	0.00100
1,2,4-Trimethylbenzene	U		0.000211	0.00100
1,3,5-Trimethylbenzene	U		0.000266	0.00100
Vinyl chloride	U		0.000291	0.00100
Xylenes, Total	U		0.000698	0.00300
(S) Toluene-d8	*104*			*80.0-120*
(S) Dibromofluoromethane	*109*			*74.0-131*
(S) 4-Bromofluorobenzene	*100*			*64.0-132*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3227572-1 06/21/17 11:10 • (LCSD) R3227572-2 06/21/17 11:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.198	0.219	159	175	11.0-160		J4	10.0	23
Benzene	0.0250	0.0238	0.0247	95.1	98.6	71.0-124			3.68	20
Bromodichloromethane	0.0250	0.0255	0.0265	102	106	75.0-120			3.97	20
Bromoform	0.0250	0.0269	0.0269	108	108	65.0-133			0.000	20
Bromomethane	0.0250	0.0256	0.0270	102	108	26.0-160			5.32	20
n-Butylbenzene	0.0250	0.0229	0.0227	91.8	90.9	73.0-126			0.880	20
sec-Butylbenzene	0.0250	0.0230	0.0235	91.8	94.0	75.0-121			2.29	20
tert-Butylbenzene	0.0250	0.0231	0.0240	92.5	95.8	74.0-122			3.58	20
Carbon disulfide	0.0250	0.0220	0.0233	88.1	93.3	53.0-130			5.72	20
Carbon tetrachloride	0.0250	0.0233	0.0246	93.1	98.4	66.0-123			5.56	20
Chlorobenzene	0.0250	0.0231	0.0238	92.4	95.1	79.0-121			2.89	20
Chlorodibromomethane	0.0250	0.0251	0.0254	100	102	74.0-128			1.16	20
Chloroethane	0.0250	0.0260	0.0275	104	110	51.0-147			5.88	20
Chloroform	0.0250	0.0244	0.0257	97.4	103	73.0-123			5.45	20
Chloromethane	0.0250	0.0191	0.0201	76.2	80.5	51.0-138			5.44	20
1,2-Dibromoethane	0.0250	0.0249	0.0252	99.6	101	78.0-122			1.26	20
1,1-Dichloroethane	0.0250	0.0243	0.0253	97.0	101	70.0-128			4.29	20
1,2-Dichloroethane	0.0250	0.0281	0.0289	112	116	69.0-128			2.86	20
1,1-Dichloroethene	0.0250	0.0232	0.0244	93.0	97.8	63.0-131			5.05	20
cis-1,2-Dichloroethene	0.0250	0.0236	0.0250	94.4	100	74.0-123			5.81	20
trans-1,2-Dichloroethene	0.0250	0.0224	0.0235	89.6	94.1	72.0-122			4.82	20
1,2-Dichloropropane	0.0250	0.0246	0.0252	98.5	101	75.0-126			2.42	20
cis-1,3-Dichloropropene	0.0250	0.0241	0.0242	96.3	96.9	80.0-125			0.590	20
trans-1,3-Dichloropropene	0.0250	0.0257	0.0255	103	102	75.0-129			1.10	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3227572-1 06/21/17 11:10 • (LCSD) R3227572-2 06/21/17 11:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	0.0250	0.0221	0.0225	88.5	89.9	77.0-120			1.67	20
Hexachloro-1,3-butadiene	0.0250	0.0218	0.0224	87.3	89.5	68.0-128			2.48	20
2-Hexanone	0.125	0.138	0.142	110	114	61.0-143			3.02	20
Isopropylbenzene	0.0250	0.0227	0.0233	90.8	93.0	75.0-120			2.46	20
p-Isopropyltoluene	0.0250	0.0226	0.0229	90.4	91.6	74.0-125			1.33	20
2-Butanone (MEK)	0.125	0.134	0.142	107	114	37.0-159			6.12	20
Methylene Chloride	0.0250	0.0229	0.0240	91.4	96.1	67.0-123			4.99	20
4-Methyl-2-pentanone (MIBK)	0.125	0.140	0.137	112	110	60.0-144			1.70	20
Methyl tert-butyl ether	0.0250	0.0259	0.0266	104	106	66.0-125			2.72	20
Naphthalene	0.0250	0.0244	0.0250	97.6	100	64.0-125			2.43	20
n-Propylbenzene	0.0250	0.0232	0.0234	92.8	93.6	78.0-120			0.840	20
Styrene	0.0250	0.0230	0.0236	92.2	94.2	78.0-124			2.18	20
1,1,2,2-Tetrachloroethane	0.0250	0.0256	0.0249	102	99.8	73.0-120			2.48	20
Tetrachloroethene	0.0250	0.0216	0.0222	86.5	88.7	70.0-127			2.44	20
Toluene	0.0250	0.0234	0.0234	93.6	93.5	77.0-120			0.110	20
1,1,1-Trichloroethane	0.0250	0.0242	0.0256	97.0	102	69.0-125			5.40	20
1,1,2-Trichloroethane	0.0250	0.0251	0.0256	101	103	78.0-120			1.98	20
Trichloroethene	0.0250	0.0228	0.0235	91.2	94.0	79.0-120			2.94	20
1,2,4-Trimethylbenzene	0.0250	0.0235	0.0235	93.8	94.1	75.0-120			0.290	20
1,3,5-Trimethylbenzene	0.0250	0.0234	0.0238	93.4	95.2	75.0-120			1.93	20
Vinyl chloride	0.0250	0.0189	0.0197	75.7	78.9	63.0-134			4.21	20
Xylenes, Total	0.0750	0.0687	0.0690	91.6	92.0	77.0-120			0.440	20
(S) Toluene-d8				*102*	*103*	*80.0-120*				
(S) Dibromofluoromethane				*104*	*107*	*74.0-131*				
(S) 4-Bromofluorobenzene				*96.7*	*98.0*	*64.0-132*				

L916045-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916045-03 06/21/17 18:57 • (MS) R3227572-4 06/21/17 14:13 • (MSD) R3227572-5 06/21/17 14:33

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	ND	2.07	2.47	147	176	11.25	10.0-160		J5	17.6	36
Benzene	0.0250	ND	0.252	0.271	89.5	96.2	11.25	13.0-146			7.24	27
Bromodichloromethane	0.0250	ND	0.260	0.286	92.3	102	11.25	15.0-142			9.82	28
Bromoform	0.0250	ND	0.224	0.269	79.6	95.6	11.25	10.0-147			18.3	31
Bromomethane	0.0250	ND	0.116	0.117	41.1	41.7	11.25	10.0-160			1.28	32
n-Butylbenzene	0.0250	ND	0.295	0.305	105	109	11.25	10.0-154			3.37	37
sec-Butylbenzene	0.0250	ND	0.274	0.315	97.5	112	11.25	10.0-151			13.8	36
tert-Butylbenzene	0.0250	ND	0.281	0.336	100	120	11.25	10.0-152			17.8	35

L916045-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916045-03 06/21/17 18:57 • (MS) R3227572-4 06/21/17 14:13 • (MSD) R3227572-5 06/21/17 14:33

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon disulfide	0.0250	ND	0.0875	0.0967	31.1	34.4	11.25	10.0-141			9.96	30
Carbon tetrachloride	0.0250	ND	0.252	0.272	89.4	96.6	11.25	13.0-140			7.76	30
Chlorobenzene	0.0250	ND	0.271	0.294	96.3	105	11.25	10.0-149			8.15	31
Chlorodibromomethane	0.0250	ND	0.244	0.272	86.9	96.6	11.25	12.0-147			10.7	29
Chloroethane	0.0250	ND	0.0537	0.0502	19.1	17.8	11.25	10.0-159			6.71	33
Chloroform	0.0250	ND	0.280	0.301	99.5	107	11.25	18.0-148			7.26	28
Chloromethane	0.0250	ND	0.106	0.142	37.8	50.3	11.25	10.0-146			28.4	29
1,2-Dibromoethane	0.0250	ND	0.245	0.280	87.1	99.6	11.25	14.0-145			13.4	28
1,1-Dichloroethane	0.0250	ND	0.270	0.285	95.9	101	11.25	19.0-148			5.33	28
1,2-Dichloroethane	0.0250	ND	0.284	0.312	101	111	11.25	17.0-147			9.26	27
1,1-Dichloroethene	0.0250	ND	0.230	0.247	81.8	87.9	11.25	10.0-150			7.27	31
cis-1,2-Dichloroethene	0.0250	ND	0.261	0.281	92.8	99.8	11.25	16.0-145			7.33	28
trans-1,2-Dichloroethene	0.0250	ND	0.218	0.226	77.5	80.3	11.25	11.0-142			3.54	29
1,2-Dichloropropane	0.0250	ND	0.271	0.299	96.4	106	11.25	17.0-148			9.94	28
cis-1,3-Dichloropropene	0.0250	ND	0.271	0.306	96.5	109	11.25	13.0-150			12.0	28
trans-1,3-Dichloropropene	0.0250	ND	0.263	0.302	93.7	107	11.25	10.0-152			13.7	29
Ethylbenzene	0.0250	ND	0.264	0.290	94.0	103	11.25	10.0-147			9.14	31
Hexachloro-1,3-butadiene	0.0250	ND	0.227	0.237	80.6	84.1	11.25	10.0-154			4.28	40
2-Hexanone	0.125		1.48	1.78	105	126	11.25	12.0-158			18.4	30
Isopropylbenzene	0.0250	ND	0.280	0.316	99.7	112	11.25	10.0-147			11.9	33
p-Isopropyltoluene	0.0250	ND	0.277	0.325	98.5	116	11.25	10.0-156			16.0	37
2-Butanone (MEK)	0.125	ND	1.36	1.65	96.7	117	11.25	10.0-160			19.4	33
Methylene Chloride	0.0250	ND	0.222	0.241	79.0	85.8	11.25	16.0-139			8.25	29
4-Methyl-2-pentanone (MIBK)	0.125	ND	1.29	1.58	91.9	112	11.25	12.0-160			19.8	32
Methyl tert-butyl ether	0.0250	0.406	0.258	0.285	0.000	0.000	11.25	21.0-145	J6	J6	9.95	29
Naphthalene	0.0250	ND	0.262	0.320	93.2	114	11.25	10.0-153			19.8	36
n-Propylbenzene	0.0250	ND	0.286	0.324	102	115	11.25	10.0-151			12.5	34
Styrene	0.0250	ND	0.278	0.311	98.7	111	11.25	10.0-155			11.3	34
1,1,2,2-Tetrachloroethane	0.0250	ND	0.253	0.306	89.9	109	11.25	10.0-155			19.0	31
Tetrachloroethene	0.0250	ND	0.249	0.258	88.6	91.6	11.25	10.0-144			3.27	32
Toluene	0.0250	ND	0.265	0.290	91.1	100	11.25	10.0-144			9.13	28
1,1,1-Trichloroethane	0.0250	ND	0.285	0.316	101	112	11.25	18.0-145			10.1	29
1,1,2-Trichloroethane	0.0250	ND	0.265	0.302	94.3	107	11.25	12.0-151			13.0	28
Trichloroethene	0.0250	ND	0.253	0.267	90.0	94.9	11.25	11.0-148			5.34	29
1,2,4-Trimethylbenzene	0.0250	ND	0.278	0.331	97.9	117	11.25	10.0-151			17.5	34
1,3,5-Trimethylbenzene	0.0250	ND	0.278	0.325	98.8	116	11.25	10.0-150			15.8	33
Vinyl chloride	0.0250	ND	0.138	0.186	49.2	66.2	11.25	10.0-150		J3	29.4	29
Xylenes, Total	0.0750	ND	0.813	0.900	95.1	105	11.25	10.0-150			10.2	31
(S) Toluene-d8					*102*	*106*		*80.0-120*				
(S) Dibromofluoromethane					*99.1*	*101*		*74.0-131*				

L916045-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916045-03 06/21/17 18:57 • (MS) R3227572-4 06/21/17 14:13 • (MSD) R3227572-5 06/21/17 14:33

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
(S) 4-Bromofluorobenzene					*93.3*	*101*		*64.0-132*				

Method Blank (MB)

(MB) R3227774-1 06/21/17 15:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	*61.6*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3227774-2 06/21/17 16:12 • (LCSD) R3227774-3 06/21/17 16:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	60.0	42.6	42.0	71.1	70.1	50.0-150			1.40	20
(S) o-Terphenyl				*65.7*	*65.4*	*18.0-148*				

Method Blank (MB)

(MB) R3227975-3 06/20/17 11:08

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00642	0.0330
Acenaphthylene	U		0.00671	0.0330
Acetophenone	U		0.0752	0.333
Anthracene	U		0.00632	0.0330
Atrazine	U		0.0938	0.333
Benzaldehyde	U		0.0532	0.333
Benzo(a)anthracene	U		0.00428	0.0330
Benzo(b)fluoranthene	U		0.00695	0.0330
Benzo(k)fluoranthene	U		0.00582	0.0330
Benzo(g,h,i)perylene	U		0.00721	0.0330
Benzo(a)pyrene	U		0.00548	0.0330
Biphenyl	U		0.00588	0.333
Bis(2-chlorethoxy)methane	U		0.00770	0.333
Bis(2-chloroethyl)ether	U		0.00896	0.333
Bis(2-chloroisopropyl)ether	U		0.00760	0.333
4-Bromophenyl-phenylether	U		0.0114	0.333
Caprolactam	U		0.104	0.333
Carbazole	U		0.00524	0.333
4-Chloroaniline	U		0.0352	0.333
2-Chloronaphthalene	U		0.00639	0.0330
4-Chlorophenyl-phenylether	U		0.00627	0.333
Chrysene	U		0.00555	0.0330
Dibenz(a,h)anthracene	U		0.00821	0.0330
Dibenzofuran	U		0.00518	0.333
3,3-Dichlorobenzidine	U		0.0794	0.333
2,4-Dinitrotoluene	U		0.00607	0.333
2,6-Dinitrotoluene	U		0.00737	0.333
Fluoranthene	U		0.00496	0.0330
Fluorene	U		0.00682	0.0330
Hexachlorobenzene	U		0.00856	0.333
Hexachloro-1,3-butadiene	U		0.0100	0.333
Hexachlorocyclopentadiene	U		0.0587	0.333
Hexachloroethane	U		0.0134	0.333
Indeno(1,2,3-cd)pyrene	U		0.00772	0.0330
Isophorone	U		0.00522	0.333
1-Methylnaphthalene	U		0.0110	0.0330
2-Methylnaphthalene	U		0.00861	0.0330
Naphthalene	U		0.00889	0.0330
2-Nitroaniline	U		0.00755	0.333
3-Nitroaniline	U		0.00850	0.333

Method Blank (MB)

(MB) R3227975-3 06/20/17 11:08

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
4-Nitroaniline	U		0.00639	0.333
Nitrobenzene	U		0.00695	0.333
n-Nitrosodiphenylamine	U		0.00594	0.333
n-Nitrosodi-n-propylamine	U		0.00906	0.333
Phenanthrene	U		0.00528	0.0330
Benzylbutyl phthalate	U		0.0103	0.333
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333
Di-n-butyl phthalate	U		0.0109	0.333
Diethyl phthalate	U		0.00691	0.333
Dimethyl phthalate	U		0.00540	0.333
Di-n-octyl phthalate	U		0.00907	0.333
Pyrene	U		0.0123	0.0330
1,2,4-Trichlorobenzene	U		0.00876	0.333
4-Chloro-3-methylphenol	U		0.00477	0.333
2-Chlorophenol	U		0.00831	0.333
2-Methylphenol	U		0.00986	0.333
3&4-Methyl Phenol	U		0.00783	0.333
2,4-Dichlorophenol	U		0.00746	0.333
2,4-Dimethylphenol	U		0.0471	0.333
4,6-Dinitro-2-methylphenol	U		0.124	0.333
2,4-Dinitrophenol	U		0.0980	0.333
2-Nitrophenol	U		0.0130	0.333
4-Nitrophenol	U		0.0525	0.333
Pentachlorophenol	U		0.0480	0.333
Phenol	U		0.00695	0.333
2,4,5-Trichlorophenol	U		0.0104	0.333
2,4,6-Trichlorophenol	U		0.00779	0.333
(S) Nitrobenzene-d5	*63.5*			*18.0-125*
(S) 2-Fluorobiphenyl	*63.5*			*28.0-120*
(S) p-Terphenyl-d14	*78.6*			*13.0-131*
(S) Phenol-d5	*59.8*			*20.0-120*
(S) 2-Fluorophenol	*65.3*			*20.0-120*
(S) 2,4,6-Tribromophenol	*67.8*			*17.0-137*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3227975-1 06/20/17 10:21 • (LCSD) R3227975-2 06/20/17 10:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.667	0.366	0.435	54.9	65.2	47.0-120			17.2	21
Acenaphthylene	0.667	0.400	0.465	60.0	69.8	48.0-120			15.1	21
Acetophenone	0.667	0.361	0.410	54.0	61.5	30.0-120			13.0	26
Anthracene	0.667	0.380	0.458	56.9	68.7	46.0-120			18.7	20
Atrazine	0.667	0.474	0.566	71.0	84.8	43.0-127			17.7	22
Benzaldehyde	0.667	0.224	0.232	33.5	34.7	10.0-120			3.56	40
Benzo(a)anthracene	0.667	0.386	0.438	57.8	65.7	46.0-120			12.7	20
Benzo(b)fluoranthene	0.667	0.381	0.440	57.1	66.0	45.0-120			14.3	22
Benzo(k)fluoranthene	0.667	0.379	0.454	56.8	68.1	45.0-120			18.1	23
Benzo(g,h,i)perylene	0.667	0.402	0.468	60.3	70.2	48.0-120			15.2	21
Benzo(a)pyrene	0.667	0.386	0.451	57.9	67.6	46.0-120			15.5	21
Biphenyl	0.667	0.372	0.436	55.7	65.4	42.0-120			15.9	23
Bis(2-chlorethoxy)methane	0.667	0.305	0.346	45.7	51.9	41.0-120			12.8	22
Bis(2-chloroethyl)ether	0.667	0.339	0.369	50.9	55.3	28.0-120			8.24	28
Bis(2-chloroisopropyl)ether	0.667	0.313	0.365	46.9	54.7	40.0-120			15.3	27
4-Bromophenyl-phenylether	0.667	0.385	0.460	57.7	68.9	45.0-120			17.7	20
Caprolactam	0.667	0.396	0.479	59.4	71.8	41.0-136			18.9	22
Carbazole	0.667	0.388	0.457	58.2	68.5	41.0-120			16.4	20
4-Chloroaniline	0.667	0.292	0.315	43.7	47.2	27.0-120			7.65	25
2-Chloronaphthalene	0.667	0.369	0.426	55.3	63.8	43.0-120			14.3	22
4-Chlorophenyl-phenylether	0.667	0.389	0.463	58.3	69.3	46.0-120			17.2	21
Chrysene	0.667	0.387	0.438	58.0	65.7	46.0-120			12.5	20
Dibenz(a,h)anthracene	0.667	0.400	0.465	60.0	69.8	47.0-120			15.1	22
Dibenzofuran	0.667	0.371	0.439	55.6	65.9	43.0-120			16.9	21
3,3-Dichlorobenzidine	0.667	0.743	0.826	111	124	20.0-130			10.6	24
2,4-Dinitrotoluene	0.667	0.424	0.523	63.6	78.4	48.0-122			20.8	21
2,6-Dinitrotoluene	0.667	0.374	0.474	56.1	71.0	46.0-120		J3	23.4	21
Fluoranthene	0.667	0.384	0.470	57.6	70.5	46.0-120		J3	20.1	20
Fluorene	0.667	0.394	0.470	59.1	70.5	47.0-120			17.5	20
Hexachlorobenzene	0.667	0.397	0.472	59.6	70.8	42.0-120			17.2	20
Hexachloro-1,3-butadiene	0.667	0.324	0.351	48.5	52.6	36.0-120			8.07	26
Hexachlorocyclopentadiene	0.667	0.294	0.329	44.1	49.3	20.0-124			11.0	26
Hexachloroethane	0.667	0.305	0.333	45.7	49.9	32.0-120			8.78	31
Indeno(1,2,3-cd)pyrene	0.667	0.400	0.458	60.0	68.6	48.0-120			13.4	21
Isophorone	0.667	0.322	0.360	48.2	54.0	42.0-120			11.3	21
1-Methylnaphthalene	0.667	0.303	0.344	45.4	51.5	40.0-120			12.5	20
2-Methylnaphthalene	0.667	0.304	0.343	45.5	51.4	43.0-120			12.1	22
Naphthalene	0.667	0.294	0.322	44.1	48.3	41.0-120			9.17	24
2-Nitroaniline	0.667	0.391	0.494	58.7	74.1	46.0-125		J3	23.2	21
3-Nitroaniline	0.667	0.358	0.424	53.7	63.5	37.0-120			16.8	22

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3227975-1 06/20/17 10:21 • (LCSD) R3227975-2 06/20/17 10:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Nitroaniline	0.667	0.419	0.516	62.8	77.3	31.0-127			20.8	26
Nitrobenzene	0.667	0.305	0.336	45.8	50.3	36.0-120			9.53	24
n-Nitrosodiphenylamine	0.667	0.372	0.453	55.8	67.9	42.0-120			19.5	20
n-Nitrosodi-n-propylamine	0.667	0.334	0.386	50.1	57.9	39.0-120			14.3	23
Phenanthrene	0.667	0.372	0.448	55.8	67.2	45.0-120			18.6	20
Benzylbutyl phthalate	0.667	0.386	0.453	57.9	67.9	41.0-123			15.9	20
Bis(2-ethylhexyl)phthalate	0.667	0.395	0.454	59.3	68.0	41.0-124			13.8	20
Di-n-butyl phthalate	0.667	0.396	0.477	59.3	71.4	44.0-120			18.5	20
Diethyl phthalate	0.667	0.411	0.483	61.7	72.5	46.0-120			16.1	20
Dimethyl phthalate	0.667	0.404	0.480	60.6	72.0	47.0-120			17.1	21
Di-n-octyl phthalate	0.667	0.388	0.445	58.2	66.8	40.0-123			13.7	21
Pyrene	0.667	0.384	0.444	57.6	66.6	45.0-120			14.4	21
1,2,4-Trichlorobenzene	0.667	0.308	0.330	46.2	49.4	40.0-120			6.71	25
4-Chloro-3-methylphenol	0.667	0.334	0.397	50.0	59.5	46.0-120			17.3	20
2-Chlorophenol	0.667	0.355	0.414	53.2	62.1	37.0-120			15.3	27
2-Methylphenol	0.667	0.370	0.436	55.4	65.4	41.0-120			16.5	24
3&4-Methyl Phenol	0.667	0.397	0.479	59.5	71.8	47.0-120			18.7	24
2,4-Dichlorophenol	0.667	0.323	0.380	48.4	57.0	45.0-120			16.3	21
2,4-Dimethylphenol	0.667	0.333	0.377	49.9	56.6	40.0-120			12.5	22
4,6-Dinitro-2-methylphenol	0.667	0.278	0.349	41.7	52.3	34.0-120			22.7	23
2,4-Dinitrophenol	0.667	0.135	0.204	20.3	30.6	10.0-120		J3	40.7	30
2-Nitrophenol	0.667	0.302	0.336	45.2	50.4	42.0-120			10.8	24
4-Nitrophenol	0.667	0.377	0.469	56.5	70.3	40.0-120		J3	21.7	21
Pentachlorophenol	0.667	0.343	0.422	51.4	63.2	33.0-122			20.6	22
Phenol	0.667	0.354	0.415	53.0	62.2	38.0-120			15.9	25
2,4,5-Trichlorophenol	0.667	0.346	0.432	51.8	64.8	44.0-120		J3	22.2	22
2,4,6-Trichlorophenol	0.667	0.382	0.445	57.2	66.7	47.0-120			15.3	22
(S) Nitrobenzene-d5				*50.2*	*53.1*	*18.0-125*				
(S) 2-Fluorobiphenyl				*60.7*	*66.3*	*28.0-120*				
(S) p-Terphenyl-d14				*66.3*	*74.6*	*13.0-131*				
(S) Phenol-d5				*55.4*	*61.9*	*20.0-120*				
(S) 2-Fluorophenol				*62.7*	*68.0*	*20.0-120*				
(S) 2,4,6-Tribromophenol				*63.4*	*75.5*	*17.0-137*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL (dry)	Reported Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

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***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

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Massachusetts	M-TN003
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Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	221
South Carolina	84004
South Dakota	n/a
Tennessee [1 4]	2006
Texas	T 104704245-07-TX
Texas [5]	LAB0152
Utah	6157585858
Vermont	VT2006
Virginia	109
Washington	C1915
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

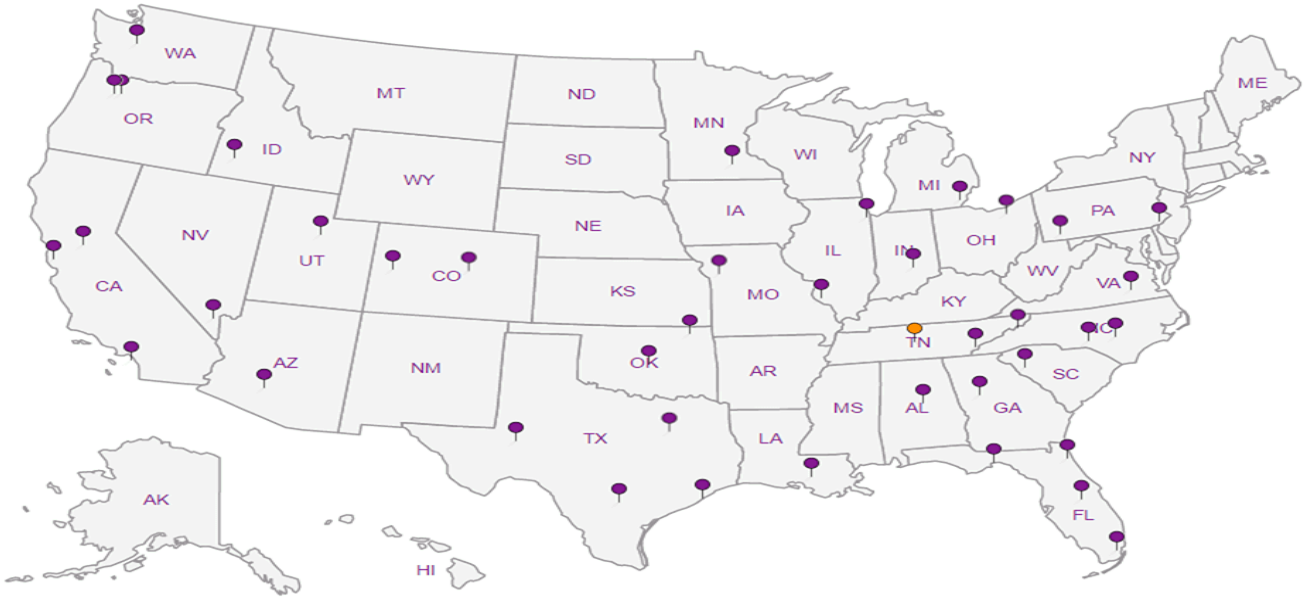
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01
A2LA – ISO 17025 [5]	1461.02
Canada	1461.01
EPA–Crypto	TN00003
AIHA-LAP,LLC	100789
DOD	1461.01
USDA	S-67674

[1.] Drinking Water [2.] Underground Storage Tanks [3.] Aquatic Toxicity [4.] Chemical/Microbiological [5.] Mold [n/a] Accreditation not applicable

Our Locations

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Windsor, CT 06095

Pres Chk

Email To: jspeer@trcsolutions.com

Report to: Julie Speer

Project Description: Lovington Lea Refinery
City/State Collected: Lovington NM

Phone: 512-684-3176
Fax:

Client Project # 274418

Lab Project # TRCATX-LOVINGTON NAV

Collected by (print): JRO

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	DRO,SV8270TCL 4ozClr-NoPres	Total Solids 2ozClr-NoPres	V8260,GRO 2ozClr-NoPres	Remarks	Sample # (lab only)
SB-01-062017 (75)	G	SS	75'	6/12/17	1350	3	✓	✓	✓		01
SB-01-062017 (105)	G	SS	105'	6/12/17	1355	3	✓	✓	✓		02
SB-02-062017 (75)	G	SS	75	6/13/17	1030	3	✓	✓	✓		03
SB-02-062017 (95)	G	SS	95	6/13/17	1040	3	✓	✓	✓		04
SB-03-062017 (75)	G	SS	75	6/13/17	1330	3	✓	✓	✓		05
SB-03-062017 (90)	G	SS	90	6/13/17	1340	3	✓	✓	✓		06
TRIP Blank	G	SS	—	—	—	1			✓		07
		SS									
		SS									
		SS									

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 916578
D105

Acctnum: TRCATX
Template: T124507
Prelogin: P605512
TSR: 526 - Chris McCord
PB: 6-7-17
Shipped Via: FedEX Ground

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

pH ___ Temp ___
Flow ___ Other ___

Samples returned via: __ UPS __ FedEx __ Courier __

Tracking # 7384 4199 8924

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Trip Blank Received: Yes / No
HCl / MeoH
TBR

Temp: 1.4 °C Bottles Received: 18

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	6/12/17	1400	Received by: (Signature)
Relinquished by: (Signature)	1530	6/13/17	Received for lab by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Date: 6-14-17 Time: 0845

ATTACHMENT C

LNAPL Bail-Down Test Results and Analyses, MW-31

API LNAPL Transmissivity Workbook

Calculation of LNAPL Transmissivity from Baildown Test Data

STEP 1: RESET OUTPUT SUMMARY

STEP 2: ENTER DATA & VIEW FIGURES

STEP 3: CHOOSE WELL CONDITIONS

STEP 4: LNAPL TRANSMISSIVITY SUMMARY

Mean LNAPL Transmissivity (ft^2/d)

0.05

Standard Deviation (ft^2/d)

0.01

Coefficient of Variation

0.13

Well Designation:	MW-31	Beckett and Lyverse (2002)
Date:	12-Jun-17	

Ground Surface Elev (ft msl)	3818.9	Enter These Data
Top of Casing Elev (ft msl)	3819.2	
Well Casing Radius, r_c (ft):	0.083	r_{e1}
Well Radius, r_w (ft):	0.292	
LNAPL Specific Yield, S_y:	0.175	
LNAPL Density Ratio, ρ_r:	0.832	
Top of Screen (ft bgs):	100.0	
Bottom of Screen (ft bgs):	120.0	
LNAPL Baildown Vol. (gal.):	2.5	
Effective Radius, r_{e3} (ft):	0.144	Calculated Parameters
Effective Radius, r_{e2} (ft):	0.131	
Initial Casing LNAPL Vol. (gal.):	0.62	
Initial Filter LNAPL Vol. (gal.):	0.97	

Drawdown Adjustment (ft)
0

Enter Data Here

	Time (min)	DTP (ft btoc)	DTW (ft btoc)	DTP (ft bgs)	DTW (ft bgs)	Water Table Depth (ft)	LNAPL Drawdown s_n (ft)	Average Time (min)	LNAPL Discharge Q_n (ft^3/d)	s_n (ft)	b_n (ft)	r_e (ft)	DTP (ft bgs)	DTW (ft bgs)	LNAPL Volume (gallons)	Ave. r_e (ft)
Initial Fluid Levels:	0	99.50	103.28	99.23	103.01	99.87					3.78					
Enter Test Data:	0.0	99.96	100.80	99.69	100.53	99.83	0.46				0.84				0	0.131
	0.5	99.99	100.80	99.72	100.53	99.86	0.49	0.3	-4.755	0.47	0.81	0.131	99.70	100.53	-0.01	0
	1.0	99.98	100.80	99.71	100.53	99.85	0.48	0.8	1.553	0.48	0.82	0.131	99.71	100.53	-0.01	0.065
	1.5	99.98	100.81	99.71	100.54	99.85	0.48	1.3	1.553	0.48	0.83	0.131	99.71	100.54	0.00	0.130
	2.0	99.98	100.81	99.71	100.54	99.85	0.48	1.8	0.000	0.48	0.83	0.131	99.71	100.54	0.00	0.196
	2.5	99.98	100.83	99.71	100.56	99.85	0.48	2.3	3.107	0.48	0.85	0.131	99.71	100.55	0.00	0.261
	3.0	99.98	100.83	99.71	100.56	99.85	0.48	2.8	0.000	0.48	0.85	0.131	99.71	100.56	0.00	0.327
	3.5	99.98	100.83	99.71	100.56	99.85	0.48	3.3	0.000	0.48	0.85	0.131	99.71	100.56	0.00	0.392
	4.0	99.98	100.83	99.71	100.56	99.85	0.48	3.8	0.000	0.48	0.85	0.131	99.71	100.56	0.00	0.458
	4.5	99.98	100.84	99.71	100.57	99.85	0.48	4.3	1.553	0.48	0.86	0.131	99.71	100.57	0.01	0.523
	5.0	99.98	100.84	99.71	100.57	99.85	0.48	4.8	0.000	0.48	0.86	0.131	99.71	100.57	0.01	0.589
	6.0	99.98	100.84	99.71	100.57	99.85	0.48	5.5	0.000	0.48	0.86	0.131	99.71	100.57	0.01	0.687
	7.0	99.98	100.84	99.71	100.57	99.85	0.48	6.5	0.000	0.48	0.86	0.131	99.71	100.57	0.01	0.818
	8.0	99.98	100.85	99.71	100.58	99.86	0.48	7.5	0.777	0.48	0.87	0.131	99.71	100.58	0.01	0.949
	9.0	99.98	100.85	99.71	100.58	99.86	0.48	8.5	0.000	0.48	0.87	0.131	99.71	100.58	0.01	1.080
	10.0	99.98	100.85	99.71	100.58	99.86	0.48	9.5	0.000	0.48	0.87	0.131	99.71	100.58	0.01	1.211
	11.0	99.98	100.85	99.71	100.58	99.86	0.48	10.5	0.000	0.48	0.87	0.131	99.71	100.58	0.01	1.342
	12.0	99.98	100.86	99.71	100.59	99.86	0.48	11.5	0.777	0.48	0.88	0.131	99.71	100.59	0.02	1.473
	13.0	99.98	100.86	99.71	100.59	99.86	0.48	12.5	0.000	0.48	0.88	0.131	99.71	100.59	0.02	1.604
	14.0	99.98	100.86	99.71	100.59	99.86	0.48	13.5	0.000	0.48	0.88	0.131	99.71	100.59	0.02	1.736
	15.0	99.98	100.86	99.71	100.59	99.86	0.48	14.5	0.000	0.48	0.88	0.131	99.71	100.59	0.02	1.867
	20.0	99.97	100.87	99.70	100.60	99.85	0.47	17.5	0.311	0.47	0.90	0.131	99.70	100.60	0.02	2.260
	25.0	99.96	100.88	99.69	100.61	99.84	0.46	22.5	0.311	0.46	0.92	0.131	99.69	100.61	0.03	2.915
	30.00	99.96	100.89	99.69	100.62	99.85	0.46	27.5	0.155	0.46	0.93	0.131	99.69	100.62	0.04	3.570
	45.00	99.96	100.90	99.69	100.63	99.85	0.46	37.5	0.052	0.46	0.94	0.131	99.69	100.63	0.04	4.880
	60.00	99.95	100.91	99.68	100.64	99.84	0.45	52.5	0.104	0.45	0.96	0.131	99.68	100.64	0.05	6.846
	90.00	99.94	100.92	99.67	100.65	99.83	0.44	75.0	0.052	0.44	0.98	0.131	99.68	100.65	0.06	9.794
	120.00	99.94	100.93	99.67	100.66	99.84	0.44	105.0	0.026	0.44	0.99	0.131	99.67	100.66	0.06	13.725
	180.00	99.95	100.96	99.68	100.69	99.85	0.45	150.0	0.026	0.44	1.01	0.131	99.68	100.68	0.07	19.621
	240.00	99.93	100.97	99.66	100.70	99.84	0.43	210.0	0.039	0.44	1.04	0.131	99.67	100.70	0.08	27.483
	300.00	99.93	100.98	99.66	100.71	99.84	0.43	270.0	0.013	0.43	1.05	0.131	99.66	100.71	0.08	35.345

Figure 1

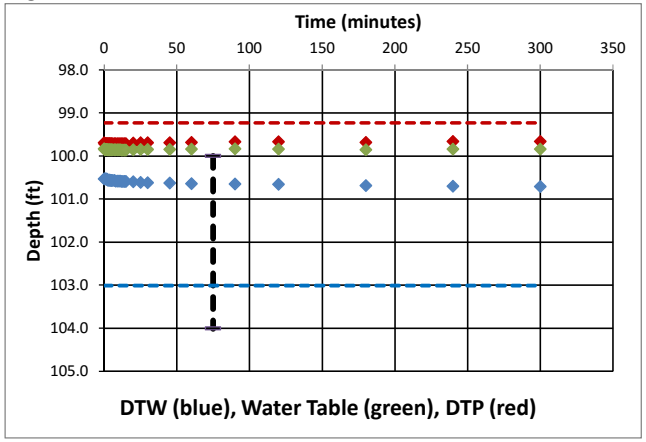
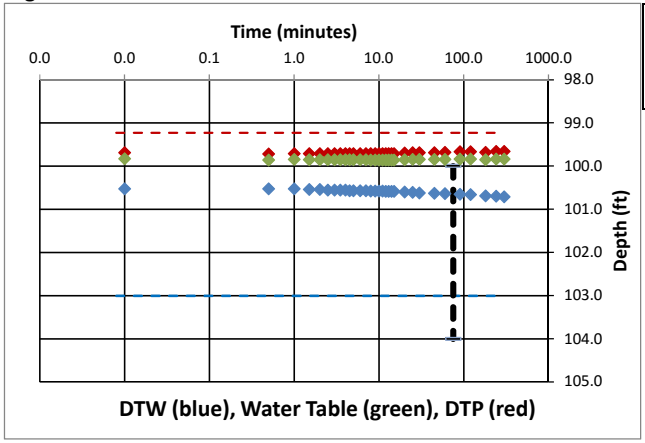


Figure 2



0.0	99.23
300	99.23
0.0	103.01
300	103.01

75.0	100	100.0
75.0	104.0	104.0

Figure 3

Q_n (ft³/d)	s_n (ft)
0	0
0.015	0.5

Drawdown Adjust.	
Δs_n (ft)	0

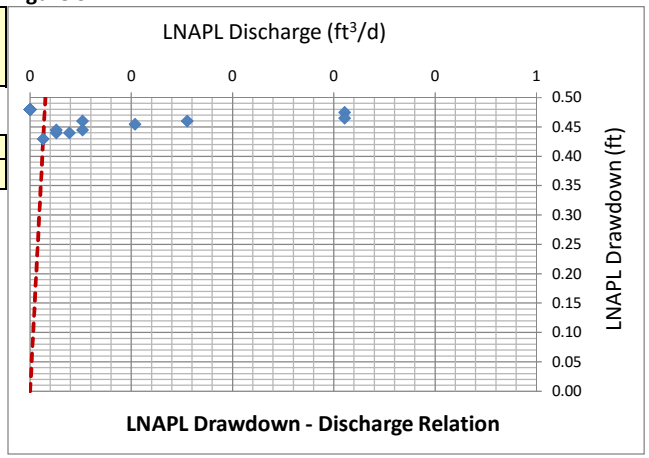
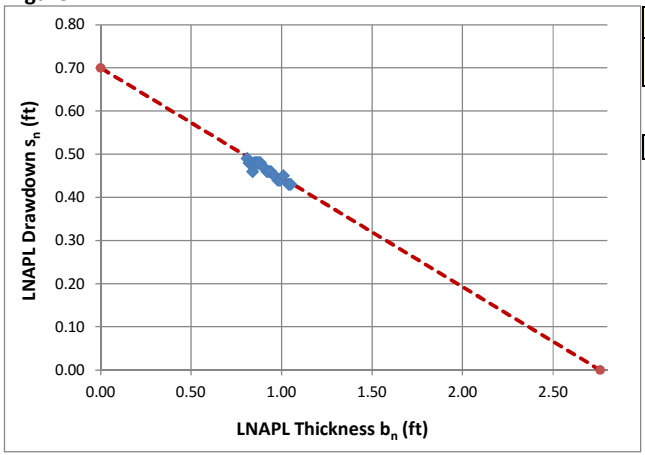


Figure 4



b_n	s_n
2.76	0
0	0.7

J-ratio	-0.254

Figure 5

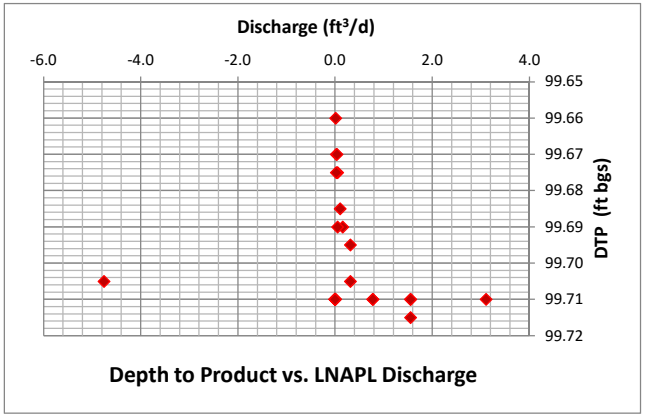


Figure 6

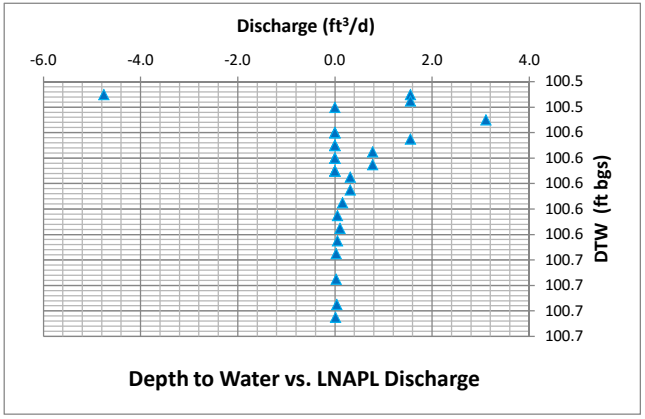


Figure 7

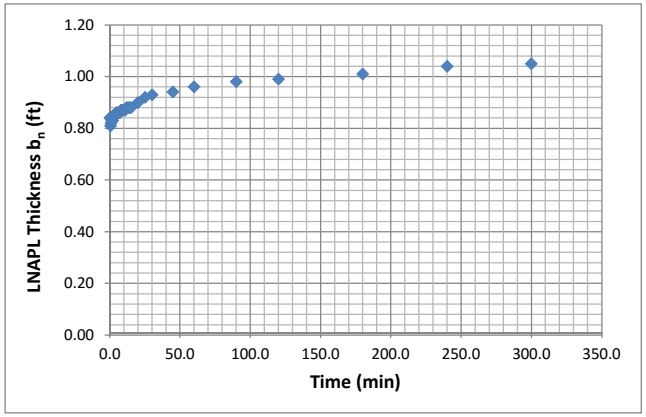


Figure 8

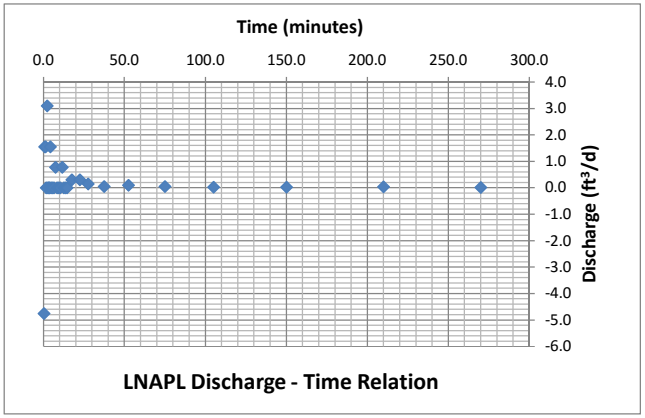


Figure 9

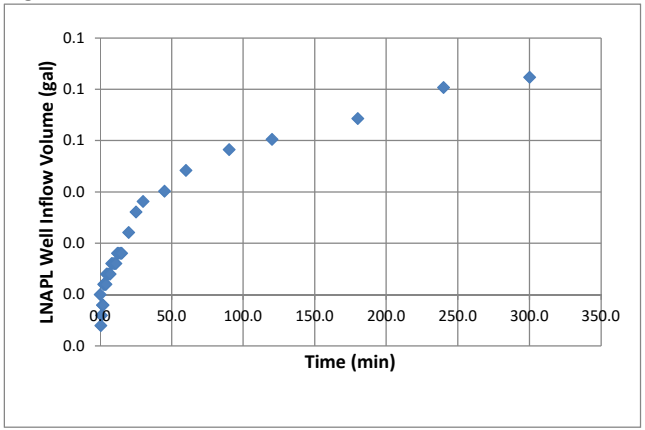
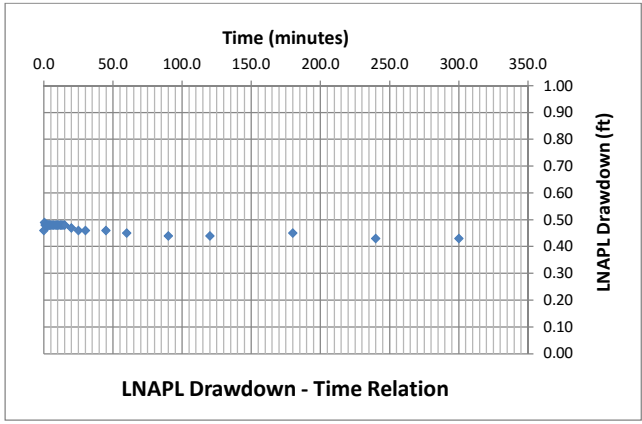


Figure 10



t (min)	s_n (ft)
0	0
0	0

Generalized Bouwer and Rice (1976)

Well Designation:	MW-31
Date:	12-Jun-17

$$T_n = \frac{r_e^{\,2}\ln(R/r_e)\ln(s_n(t_1)/s_n(t))}{2(-J)(t-t_1)}$$

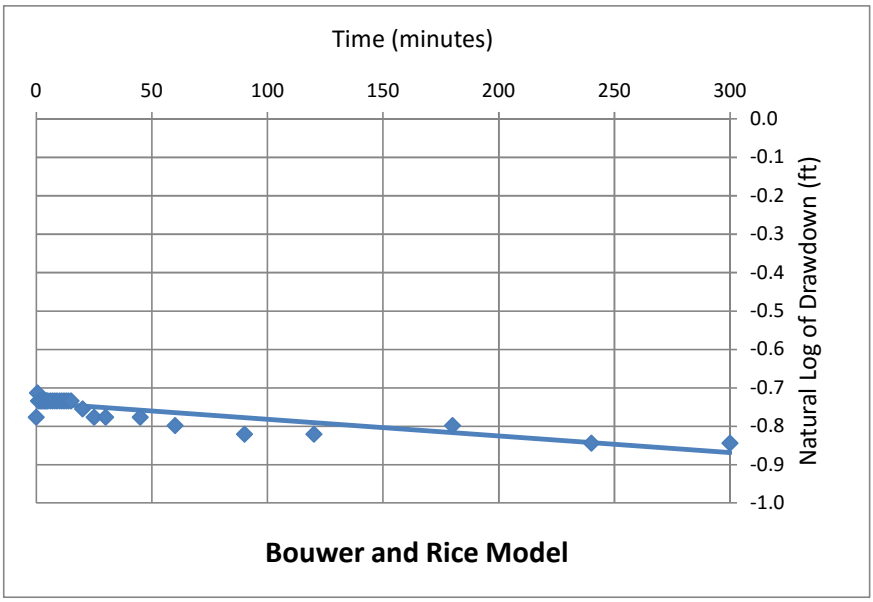
Enter early time cut-off for least-squares model fit

$Time_{cut}$	0	<- Enter or change value here

L_e/r_e
20.9
C
1.63
R/r_e
9.74

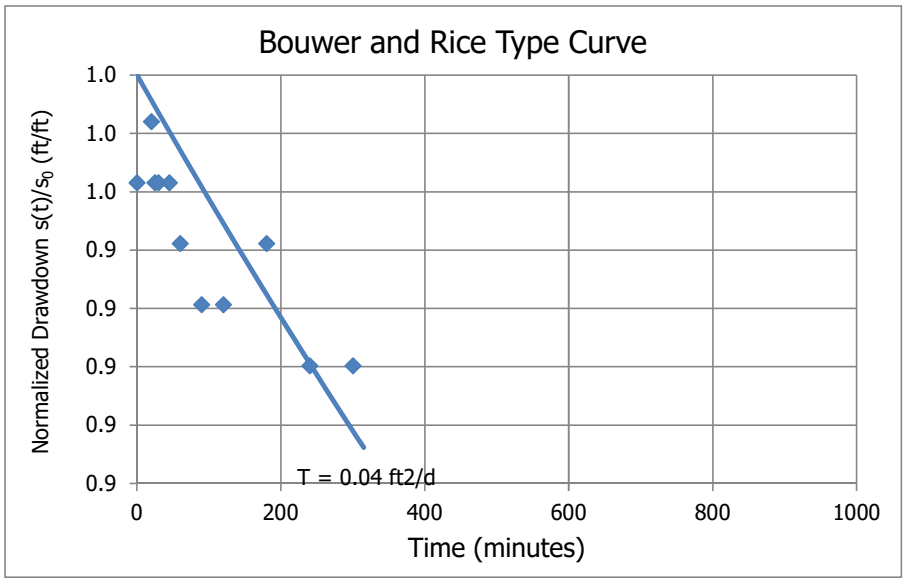
Model Results: T_n (ft^2/d) = 0.05 +/- 0.01 ft^2/d

J-Ratio
-0.254



Coef. Of Variation
0.11

C coefficient calculated from Eq. 6.5(c) of Butler, The Design, Performance, and Analysis of Slug Tests, CRC Press, 2000.



Cooper and Jacob (1946)

Well Designation:	MW-31
Date:	12-Jun-17

$$V_n(t_i) = \sum_j^i \frac{4\pi T_n s_j}{\ln\left(\frac{2.25 T_n t_j}{r_e^{\,2} S_n}\right)} \Delta t_j$$

Enter early time cut-off for least-squares model fit

$Time_{cut}$ (min):	0	<- Enter or change values here
Time Adjustment (min):	0	

Trial S_n: 0.010 <-- Enter d for default or enter S_n value

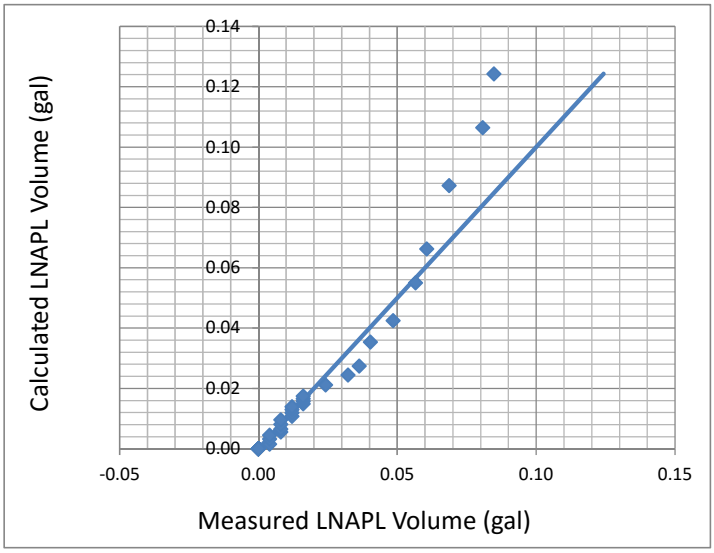
Root-Mean-Square Error: 0.056 <-- Minimize this using "Solver"

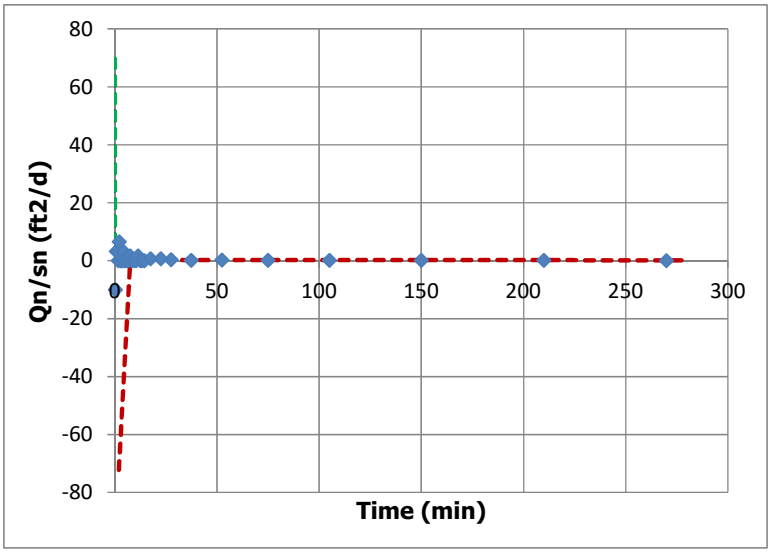
0.010 <-- Working S_n

Trial T_n (ft^2/d): 0.052 <-- By changing T_n through "Solver"

Add constraint T_n > 0.00001

Model Result: T_n (ft^2/d) = **0.05**





Height
70

Cooper, Bredehoeft and Papadopulos (1967)

Well Designation:	MW-31
Date:	12-Jun-17

Enter early time cut-off for least-squares model fit

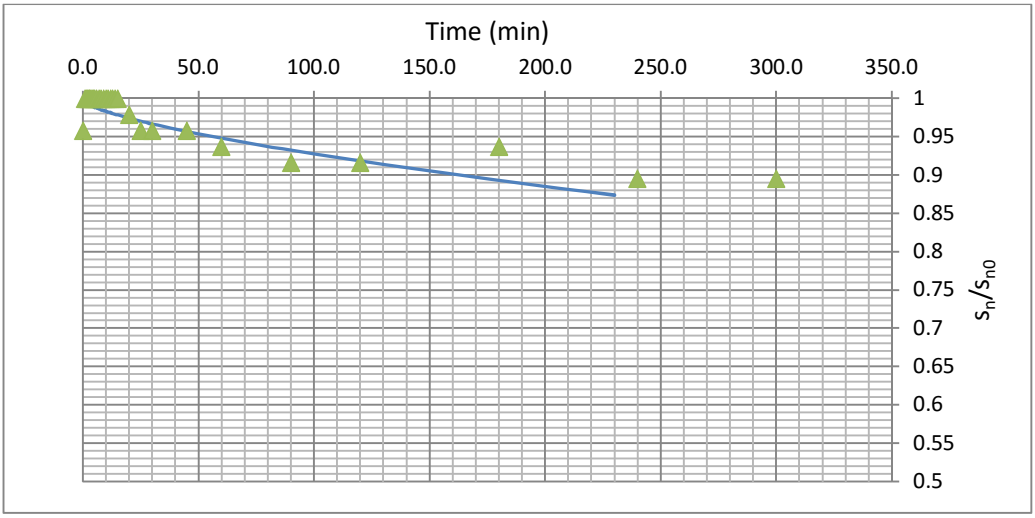
$Time_{cut}$ (min):	0	<- Enter or change values here
Initial Drawdown s_n (ft):	0.48	

Trial S_n:	0.009	<-- Enter d for default
Root-Mean-Square Error:	0.106	<-- Minimize this using "Solver"
Trial T_n (ft^2/d):	0.040	<-- By changing T_n through "Solver"
	0.009	<-- Working S_n

Add constraint Tn > 0.00001

T_{min}	1
T_{max}	230

Model Result: T_n (ft^2/d) = **0.04**



J-Ratio
-0.254

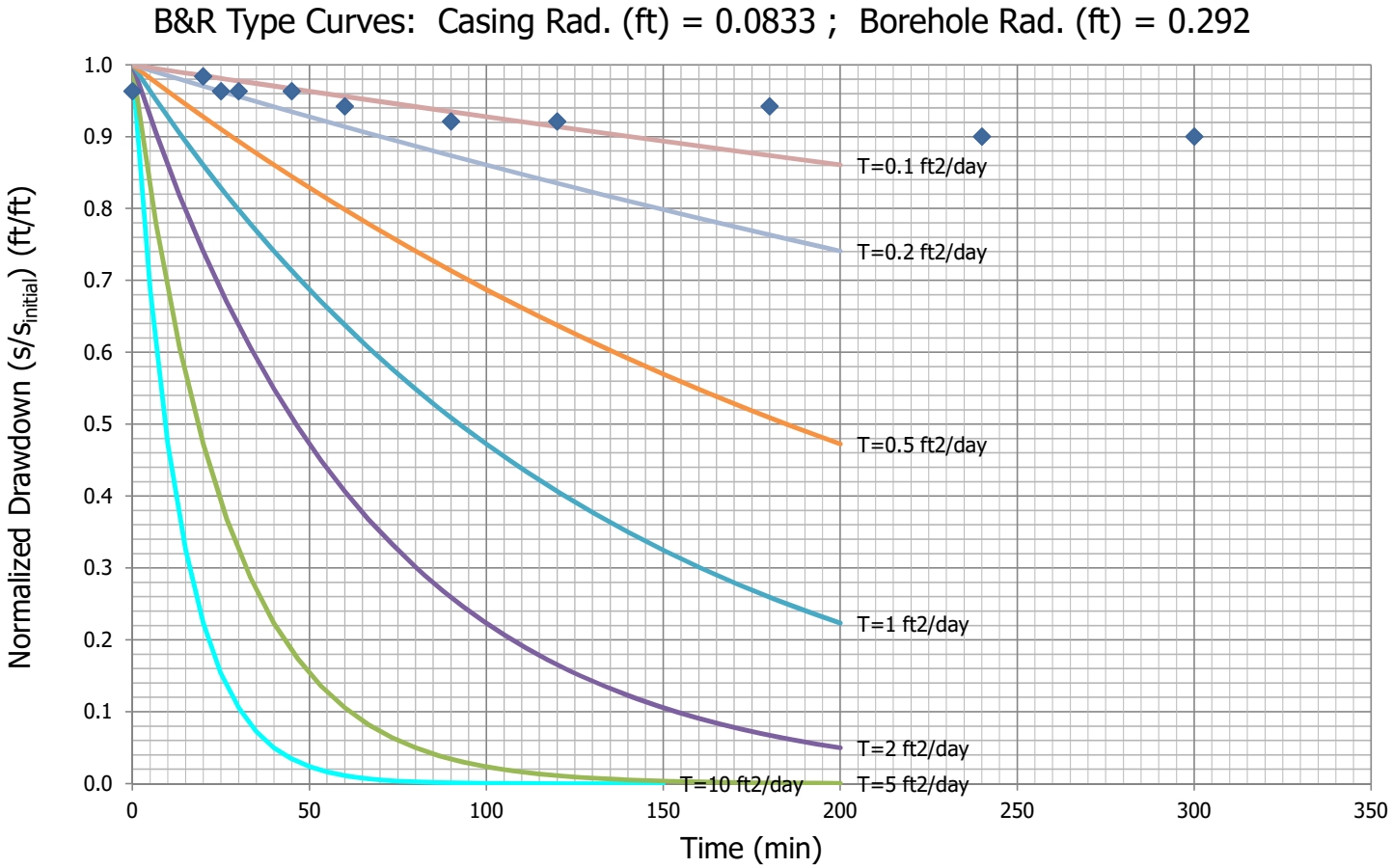
Bouwer and Rice Short Term LNAPL Mobility Test Type Curves

B&R Type Curves: Casing Rad. (ft) = 0.0833 ; Borehole Rad. (ft) = 0.292

Enter these values

Type Curve ID	Type Curve Name	Notes	Max Time (min)	Transmissivity (ft^2/day)
1	T=10 ft2/day		150	10
2	T=5 ft2/day		200	5
3	T=2 ft2/day		200	2
4	T=1 ft2/day		200	1
5	T=0.5 ft2/day		200	0.5
6	T=0.2 ft2/day		200	0.2
7	T=0.1 ft2/day		200	0.1

J-Ratio	
-0.254	<-- If uncertain use
	-0.1683



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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

HOBBS OCD
MAR 29 2017
RECEIVED

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company HOLLY ENERGY PARTNERS	Contact MELANIE ISENBERG
Address 1602 W. MAIN, ARTESIA NM 88210	Telephone No. 214-605-8303
Facility Name LOVINGTON REFINERY-	Facility Type HEP HOBBS RECEIVING LINE SUMP

Surface Owner CITY OF LOVINGTON	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
G	36	16 S	36 E					LEA

Latitude 32.880277 **Longitude** -103.304544

NATURE OF RELEASE

Type of Release Crude Oil	Volume of Release 7 Barrels	Volume Recovered 5 Barrels
Source of Release Overfill of Sump	Date and Hour of Occurrence 3/23/17 1500	Date and Hour of Discovery 3/23/17 1546
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? Courtesy Called NMOCD District I Office on 3/24/17. A message was left with Olivia Yu (Spelling).	
By Whom? Melanie Isenberg	Date and Hour 3/24/17 Approximately 0930.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*
N/A

RECEIVED
By Olivia Yu at 9:30 am, Mar 31, 2017

Describe Cause of Problem and Remedial Action Taken.*
At this time it appears that the spill was caused by debris causing either a drain valve or check valve on facility piping to remain open causing the sump for the location to begin to fill. Power supply to the sump had been cut off due to an issue that was being repaired. Therefore allowing the crude oil to continuously flow into the sump without pumping out causing an overflow. The spill was contained within the perimeter of the facility. Crews were on site to contain the spill and start clean-up. Approximately 7 barrels of crude was released with 5 barrels being vacuumed up.

Describe Area Affected and Cleanup Action Taken.* A detailed work plan will be submitted once site assessment, delineation and sampling are completed.

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: Melanie Isenberg

Printed Name: MELANIE ISENBERG

Title: ENVIRONMENTAL ASSOCIATE

E-mail Address: MELANIE.ISENBERG@HOLLYENERGY.COM

Date: 3/28/17 Phone: 575-748-8972

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: DY

Approval Date: 3/31/2017 Expiration Date:

Conditions of Approval: see attached directive

Attached ☑

* Attach Additional Sheets If Necessary

1RP-4663 fOY1709034993 nOY1709036161

pOY1709037107

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _3/29/2017_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number __1R-_4663_ has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _3/31/2017__. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

● Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

● Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

● Nominal detection limits for field and laboratory analyses must be provided.

● Composite sampling is not generally allowed.

● Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

●Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

● If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

● Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

April 27, 2017 #5E25941- BG7

Carl Chavez
NMOCD
1220 South St. Francis Dr
Santa Fe, NM 87505

SUBJECT: FINAL CLOSURE REPORT FOR INCIDENT 1RP-4663, HOBBS RECEIVABLE SUMP, LOVINGTON REFINERY, UNIT G SECTION 36-T16S-R36E NMPM, LEA COUNTY, NEW MEXICO

Dear Mr. Chavez:

On behalf of Holly Energy Partners (HEP), Souder Miller & Associates (SMA) is pleased to submit a submit Final Closure Report summarizing the remediation of the release site located at the Hobbs Receivable Sump at the Lovington Refinery, in Lea County, New Mexico. The purpose of the Closure Report is to obtain approval from the New Mexico Oil Conservation Division (NMOCD) for the closure of the release that occurred on March 23, 2017 within the Lovington Refinery property by a pipeline and associated equipment operated and maintained by Holly Energy Partners.

SMA responded at the request of HEP, to assess, delineate and remediate the release of production fluids associated with the Hobbs Receivable Sump at the Lovington Refinery. The release was initially reported to NMOCD by HEP on March 23, 2017 and was a result of overfill of Sump. The table below summarizes information regarding the release. Results of the assessment and delineation are described in the following report.

Table 1: Release information and Site Ranking	
Name	Hobbs Receivable Sump
Company	Holly Energy Partners
Incident Number	1RP-4663
API Number	N/A Pipeline
Location	32.42766, -103.29718
Estimated Date of Release	3/23/2017
Date Reported to NMOCD	3/28/2017
Land Owner	City of Lovington
Reported To	NM Oil Conservation Division (NMOCD)
Source of Release	Pipeline Pig Receiver sump
Released Material	Crude Oil
Released Volume	7 bbls
Recovered Volume	5 bbls
Net Release	2 bbls
Nearest Waterway	3.7 miles north of the location
Depth to Groundwater	Estimated to be 98’
Nearest Domestic Water Source	Greater than 1,000 feet
NMOCD Ranking	1 0
SMA Response Dates	Initial: 3/28/17 Mitigation Activities: 3/29/17

SOIL REMEDIATION FINAL CLOSURE REPORT FOR INCIDENT 1RP-4663

HOLLY ENERGY PARTNERS

LOVINGTON REFINERY
UL G, SECTION 36, T16S R36E, NMPM
LEA COUNTY, NM



Prepared for:
Holly Energy Partners
2828 N. Harwood, Suite 1300
Dallas, Texas 75201

Prepared by:
Souder, Miller & Associates
201 S. Halagueno
Carlsbad, NM 88221
575-689-7040

April 27, 2017
SMA Reference
5E25941 BG7

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1.0 Introduction

On behalf of Holly Energy Partners, Souder, Miller & Associates (SMA) has prepared this closure report that describes the assessment, initial delineation, remediation actions and closure sampling for a release located at Hobbs Receivable Sump, within the Lovington Refinery. The site is located in Section 36, Township 16S, Range 36 E NMPM, Eddy County, New Mexico, on City of Lovington land. Figure 1 illustrates the vicinity and location of the site.

2.0 Site Ranking and Land Jurisdiction

The release site is located approximately 5 miles southeast of Lovington, NM, with an elevation of approximately 3,835 feet above sea level. After evaluation of the site using aerial photography, topographic maps, and nearby well log data, the depth to groundwater is estimated to be approximately 98 feet below ground surface (bgs). A search of the New Mexico State Engineer's Office (NMOSE) online water well database for water wells in the vicinity of the release. Several wells are located within a 1,000-foot radius of the site. According to NMOSE, all of the found wells are monitoring wells, and range in depths to water varying from 90 to 123 feet bgs. Figure 1 depicts the site vicinity and the NMOSE water wells, and Figure 2 shows the site itself.

The physical location of this release is within the jurisdiction of the New Mexico Oil Conservation Division (NMOCD). Based on the NMOCD Guidelines Ranking Criteria, this release location has been assigned a NMOCD ranking of 10 which requires a soil remediation standard of 10 parts per million (ppm) benzene, 50 ppm combined benzene, toluene, ethyl-benzene, and total xylenes (BTEX), and 1000 ppm total petroleum hydrocarbons (TPH). Table 1 illustrates site ranking rationale.

Soil Remediation Standards	0 to 9	10 to 19	>19
Benzene	10 PPM	10 PPM	10 PPM
BTEX	50 PPM	50 PPM	50 PPM
TPH	5000 PPM	1000 PPM	100 PPM

Depth to Groundwater	NMOCD Numeric Rank
< 50 BGS = 20	
50' to 99' = 10	10
>100' = 0	
Distance to Nearest Surface Water	**NMOCD Numeric Rank**
< 200' = 20	
200' - 1000' = 10	
>1000' = 0	0
Well Head Protection	**NMOCD Numeric Rank**
<1000' (or <200' domestic) = 20	
> 1000' = 0	0
Total Site Ranking	**10**

3.0 Assessment and Initial Results

On March 28, 2017 SMA field personnel assessed the release on behalf of Holly Energy Partners. Soil samples were field-screened using a mobile chlorides titration kit (EPA method 9045D) and meter. The impacted area was determined to be approximately 100 feet long and 10 feet wide, and 20 feet by 15 feet around sump, as depicted in Figure 2. The location was initially scraped and the resulting spill pile was stored onsite until remediation occurred. Site delineation samples were collected during the initial scraping to depths of one foot bgs. Specific locations for all samples are depicted on Figure 2. The samples were sent to Hall Laboratory for analysis for Benzene and Total BTEX using EPA Method 8021B, MRO, DRO, and GRO by EPA Method 8015D, and total Chlorides using EPA Method 300.0.

4.0 Soil Remediation Summary

SMA began oversight of the excavation of affected soils on March 29, 2017, with approval from area utilities owners via 811 and NMOCD. SMA continuously guided the excavation activities by collecting composite soil samples for field screening with a Photo Ionization Detector (PID).

SMA returned to the site on April 4, 2016, and collected eight closure samples from the remediated area (L1-L4). Excavation occurred to depths of one foot bgs. Field screening results and depths of excavation are shown in Table 2, and the excavation area with sample locations are depicted on Figure 2.

Due to three high pressure pipelines and assorted dumps which are at 0.5 feet bgs, the excavation was halted around the sump pump area (S1 and S2). Because of the many safety and operational concerns, SMA and HEP are requesting deferment for the immediate area around the sump until pipeline personnel can shut in all lines and replace the sump.

Closure samples from the excavated area was collected at the final depth of excavation and from the sidewalls. Approximately 63 cubic yards of contaminated soil were removed and replaced with clean backfill material to return the surface to previous contours. The contaminated soil was transported for proper disposal at Lea Land, near Carlsbad, NM, an NMOCD permitted disposal facility.

5.0 Conclusions and Recommendations

NMOCD Guidelines for Remediation of Leaks, Spills, and Releases have established the following action levels for contaminants of concern with a site ranking of 10: 10 ppm (mg/kg) Benzene, 50 ppm total BTEX, and 1000 ppm TPH. All samples collected in the excavated area are below the action levels, and SMA recommends no further action in this area. A summary of the laboratory analyses is included in Table 2. Laboratory reports are included in Appendix A. As mentioned above, SMA and HEP request a deferment for the sump area until the lines can be shut in and the sump replaced.

Photo documentation is available upon request.

6.0 Closure and Limitations

The scope of our services consisted of the performance of release assessment, initial delineation sampling and field screening, verification of release stabilization, regulatory liaison, and preparation of this Closure Document. All work has been performed in accordance with generally

accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this report, please contact either Austin Weyant at 575-689-7040 or Shawna Chubbuck at 505-325-7535.

Submitted by:

SOUDER, MILLER & ASSOCIATES

J. Austin Weyant

Austin Weyant
Project Scientist

Reviewed by:

Shawna Chubbuck

Shawna Chubbuck
Senior Scientist

Figures:

Figure 1: Vicinity and NMOSE Wells Map
Figure 2: Detailed Site and Sample Map

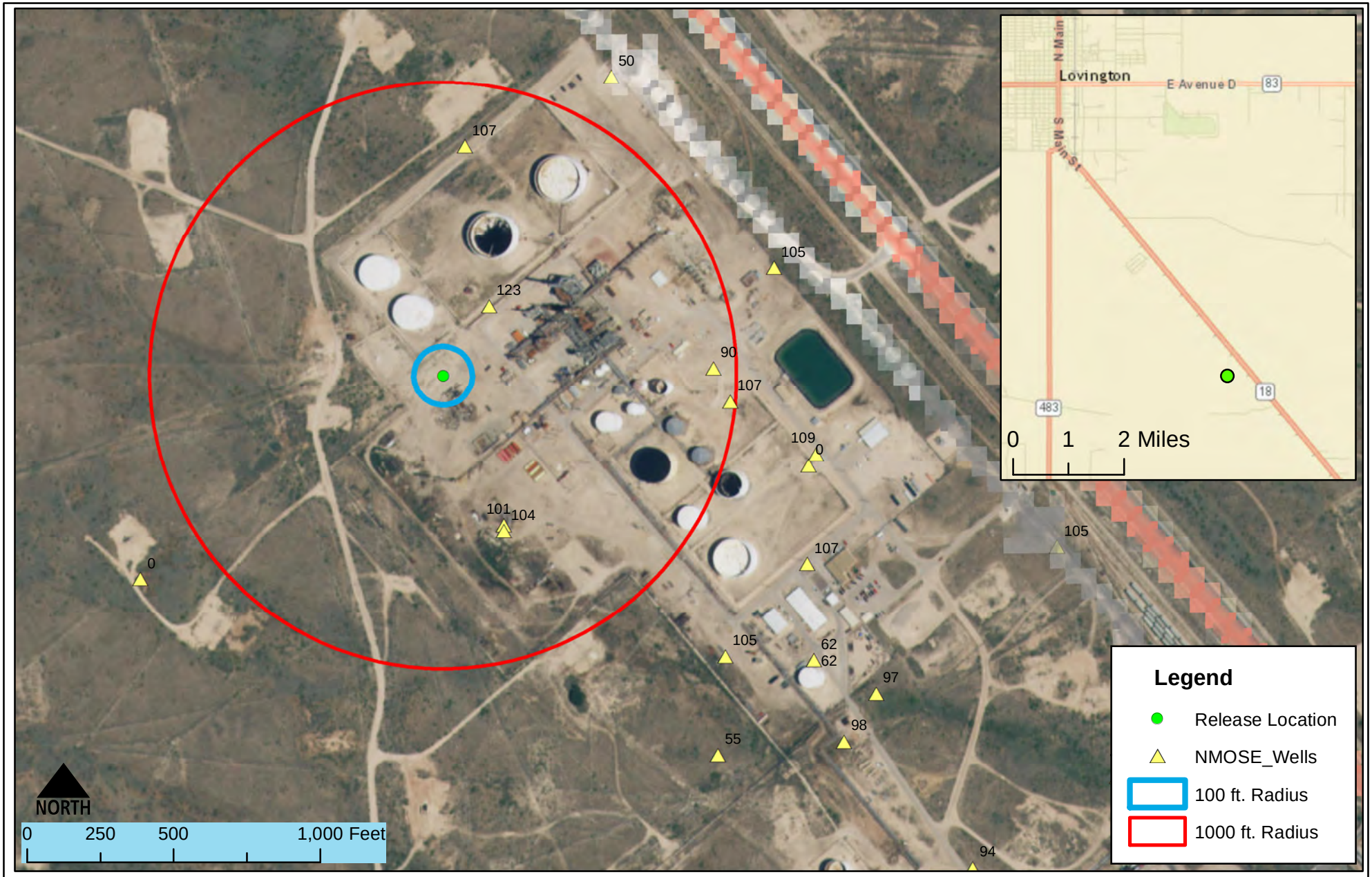
Tables:

Table 1: Release Information and Site Ranking
Table 2: Summary of Laboratory Analyses

Appendices:

Appendix A: Laboratory Analytical Reports
Appendix B: Form C141 Final
Appendix C: NMOSE Water Column Data
Appendix D: Photo Documentation

FIGURE 1
VICINITY AND NMOSE WELLS MAP



Vicinity and NMOSE Wells Map
Hobbs REC Sump- HEP
UL:G S:36 T16S R36E , New Mexico

Figure 1

Document: C:\Users\lcm.CBO\Documents\GIS DATA\MAPS\holly sump Figure 1.mxd

Date Saved: 4/20/2017

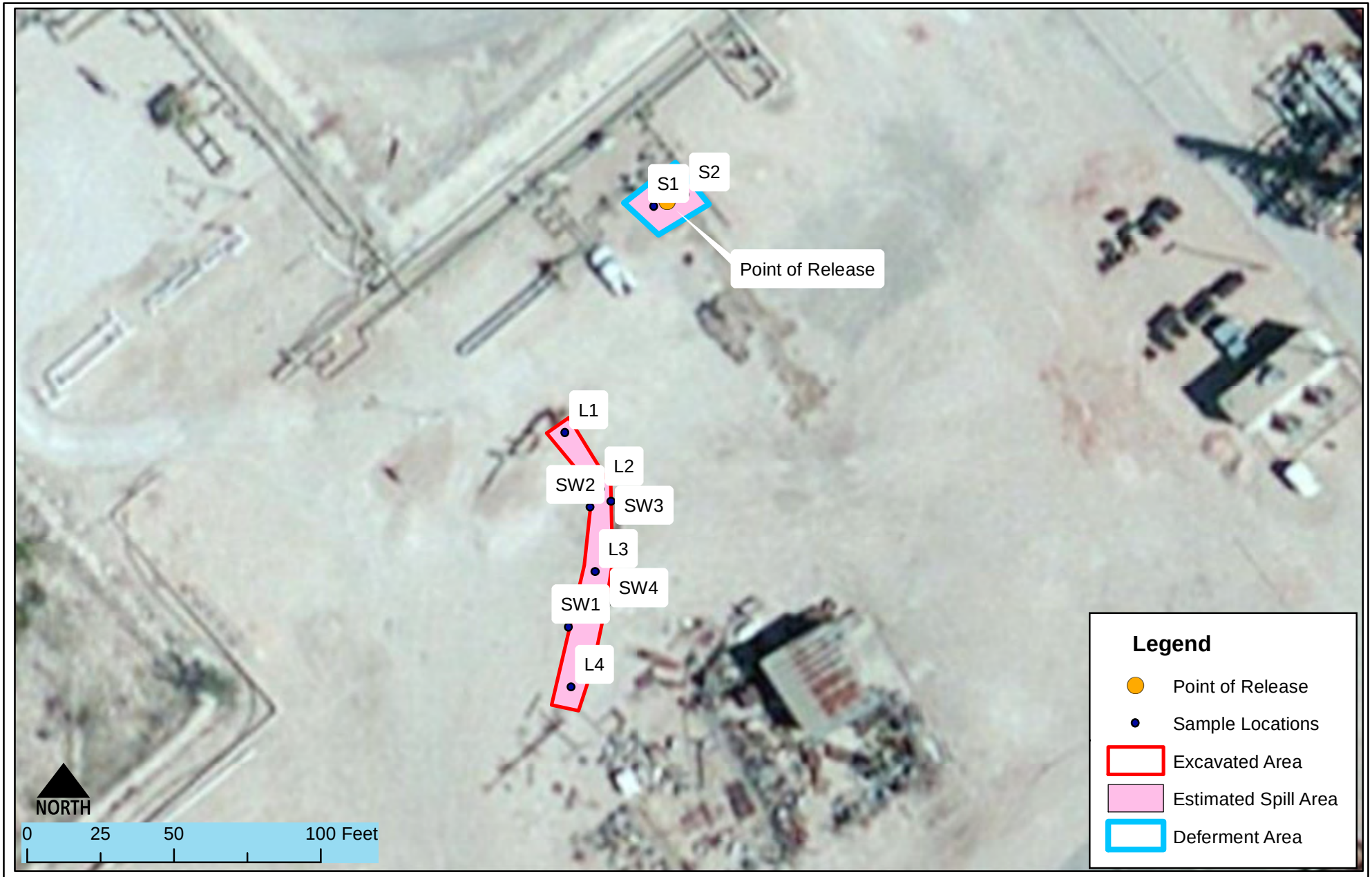
Revisions
By: Date: Descr:
By: Date: Descr:

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Drawn Lucas Middleton
Checked
Approved

SMA
201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689.7040
www.soudermiller.com
Serving the Southwest & Rocky Mountains

FIGURE 2
SITE AND SAMPLE LOCATION MAP



Detailed Site and Sample Map
Lovington Refinery, Hobbs Receivable Sump
UL:G S:36 T16S R36E , New Mexico

Figure 2

Revisions
By: Date: Descr:
By: Date: Descr:

Drawn Lucas Middleton
Checked
Approved

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Date Saved: 4/27/2017

Document: C:\Users\lcm.CBO\Documents\GIS DATA\MAPS\holly sump\Figure 2.mxd

TABLE 1

RELEASE INFORMATION AND SITE RANKING

Table 1: Release information and Site Ranking					
Name	Lovington Refinery				
Location	Incident Number	API Number	Section, Township, Range		
	1RP-4663	N/A	SW/NE (Unit)	Section 36	T16S, R36E NMPM
Estimated Date of Release	March 23, 2017				
Date Reported to NMOCD	March 28, 2017				
Reported by	Melanie Isenberg				
Land Owner	City of Lovington				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	Overfill of Sump				
Released Material	Crude Oil				
Released Volume	7 bbls Crude Oil				
Recovered Volume	5 bbls Crude Oil				
Net Release	2 bbls Crude Oil				
Nearest Waterway	3.7 miles north of the location				
Depth to Groundwater	Estimated to be 98 ft				
Nearest Domestic Water Source	Greater than 1,000 feet				
NMOCD Ranking	10				
SMA Response Dates	Initial: 3/28/17 Mitigation Activities: 3/29/17				
Subcontractors	Ferguson Contraction				
Disposal Facility	Lea Land				
Estimated Yd^3 Contaminated Soil Excavated and Disposed	34				

TABLE 2

SUMMARY OF LABORATORY ANALYSES

Lovington Refinery

Table 2.

Sample Number on Figure 2	Sample Date	Depth (feet bgs)	Action Taken	BTEX ppm	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	**Total TPH** mg/Kg	Sulfates mg/Kg	Cl- Laboratory mg/Kg
NMOCD RRAL's for Site Ranking 0				50 mg/Kg	10 mg/Kg				1000 mg/Kg		
S1	3/28/2017	0.5'	in-situ	<0.99	<0.25	<49	**3700**	**2800**	**6500**	--	--
S2	3/28/2017	surface	excavated	65	<1.2	**1800**	**28000**	**13000**	**42800**	--	--
L1	3/28/2017	0.5'	excavated	--	--	<4.9	**2,900**	**6,300**	**9,200**	--	--
	4/4/2017	1'	in-situ	<0.092	<0.023	<4.6	51	110	161	100	57
L2	3/28/2017	1'	excavated	--	--	240	**6100**	**2500**	**8840**	--	--
	4/4/2017	1'	in-situ	<0.097	<0.024	<4.9	<10	<50	<65	56	<30
L3	3/28/2017	0.5'	excavated	--	--	**1500**	**25000**	**9700**	**36200**	--	--
	3/28/2017	1'	excavated	--	--	<25	980	500	**1480**	--	--
	4/4/2017	1'	in-situ	<0.099	<0.025	<5.0	48	<49	48	<30	<30
L4	3/28/2017	0.5'	excavated	--	--	460	**34,000**	**5,300**	**17,500**	--	--
	3/28/2017	1'	excavated	--	--	<24	**1,300**	650	**1,950**	--	--
	4/4/2017	1'	in-situ	<0.094	<0.023	<4.7	36	<50	36	94	36
SP (spill pile)	4/4/2017	N/A	excavated	<0.98	<0.25	460	**9900**	**3600**	**13960**	87	76
SW1	4/4/2017	0.5'	in-situ	<0.099	<0.025	<4.9	160	540	700	160	240
SW2	4/4/2017	0.5'	in-situ	<0.092	<0.023	<4.6	62	190	252	190	250
SW3	4/4/2017	0.5'	in-situ	<0.099	<0.025	<5.0	170	450	620	290	420
SW4	4/4/2017	0.5'	in-situ	<0.098	<0.024	<4.9	100	340	440	66	<30

"--" = Not Analyzed

APPENDIX A

LABORATORY ANALYTICAL REPORTS

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

April 14, 2017

Austin Weyant
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: HEP Rec Sump OrderNo.: 1704130

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 9 sample(s) on 4/5/2017 for the analyses presented in the following report.

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

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

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

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1
Project: HEP Rec Sump
Collection Date: 4/4/2017 1:30:00 PM
Lab ID: 1704130-001 **Matrix:** SOIL **Received Date:** 4/5/2017 10:04:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	57	30		mg/Kg	20	4/11/2017 11:08:16 AM	31182
Sulfate	100	30		mg/Kg	20	4/11/2017 11:08:16 AM	31182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	51	9.2		mg/Kg	1	4/11/2017 2:50:14 PM	31157
Motor Oil Range Organics (MRO)	110	46		mg/Kg	1	4/11/2017 2:50:14 PM	31157
Surr: DNOP	94.7	70-130		%Rec	1	4/11/2017 2:50:14 PM	31157
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	4/6/2017 1:59:21 PM	31088
Surr: BFB	88.4	54-150		%Rec	1	4/6/2017 1:59:21 PM	31088
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.092		mg/Kg	1	4/6/2017 1:59:21 PM	31088
Benzene	ND	0.023		mg/Kg	1	4/6/2017 1:59:21 PM	31088
Toluene	ND	0.046		mg/Kg	1	4/6/2017 1:59:21 PM	31088
Ethylbenzene	ND	0.046		mg/Kg	1	4/6/2017 1:59:21 PM	31088
Xylenes, Total	ND	0.092		mg/Kg	1	4/6/2017 1:59:21 PM	31088
Surr: 4-Bromofluorobenzene	102	66.6-132		%Rec	1	4/6/2017 1:59:21 PM	31088

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L2
Project: HEP Rec Sump
Collection Date: 4/4/2017 1:40:00 PM
Lab ID: 1704130-002
Matrix: SOIL
Received Date: 4/5/2017 10:04:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	4/11/2017 11:45:30 AM	31182
Sulfate	56	30		mg/Kg	20	4/11/2017 11:45:30 AM	31182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/6/2017 3:34:55 PM	31097
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/6/2017 3:34:55 PM	31097
Surr: DNOP	75.9	70-130		%Rec	1	4/6/2017 3:34:55 PM	31097
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/6/2017 3:09:38 PM	31088
Surr: BFB	88.2	54-150		%Rec	1	4/6/2017 3:09:38 PM	31088
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	4/6/2017 3:09:38 PM	31088
Benzene	ND	0.024		mg/Kg	1	4/6/2017 3:09:38 PM	31088
Toluene	ND	0.049		mg/Kg	1	4/6/2017 3:09:38 PM	31088
Ethylbenzene	ND	0.049		mg/Kg	1	4/6/2017 3:09:38 PM	31088
Xylenes, Total	ND	0.097		mg/Kg	1	4/6/2017 3:09:38 PM	31088
Surr: 4-Bromofluorobenzene	105	66.6-132		%Rec	1	4/6/2017 3:09:38 PM	31088

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3
Project: HEP Rec Sump
Collection Date: 4/4/2017 1:50:00 PM
Lab ID: 1704130-003 **Matrix:** SOIL **Received Date:** 4/5/2017 10:04:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	4/11/2017 11:57:55 AM	31182
Sulfate	ND	30		mg/Kg	20	4/11/2017 11:57:55 AM	31182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	48	9.8		mg/Kg	1	4/6/2017 3:59:50 PM	31097
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/6/2017 3:59:50 PM	31097
Surr: DNOP	92.6	70-130		%Rec	1	4/6/2017 3:59:50 PM	31097
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/6/2017 4:19:48 PM	31088
Surr: BFB	87.9	54-150		%Rec	1	4/6/2017 4:19:48 PM	31088
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	4/6/2017 4:19:48 PM	31088
Benzene	ND	0.025		mg/Kg	1	4/6/2017 4:19:48 PM	31088
Toluene	ND	0.050		mg/Kg	1	4/6/2017 4:19:48 PM	31088
Ethylbenzene	ND	0.050		mg/Kg	1	4/6/2017 4:19:48 PM	31088
Xylenes, Total	ND	0.099		mg/Kg	1	4/6/2017 4:19:48 PM	31088
Surr: 4-Bromofluorobenzene	106	66.6-132		%Rec	1	4/6/2017 4:19:48 PM	31088

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L4
Project: HEP Rec Sump
Collection Date: 4/4/2017 2:00:00 PM
Lab ID: 1704130-004
Matrix: SOIL
Received Date: 4/5/2017 10:04:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	36	30		mg/Kg	20	4/11/2017 12:10:20 PM	31182
Sulfate	94	30		mg/Kg	20	4/11/2017 12:10:20 PM	31182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	36	10		mg/Kg	1	4/6/2017 4:24:39 PM	31097
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/6/2017 4:24:39 PM	31097
Surr: DNOP	90.4	70-130		%Rec	1	4/6/2017 4:24:39 PM	31097
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/6/2017 6:40:02 PM	31088
Surr: BFB	88.2	54-150		%Rec	1	4/6/2017 6:40:02 PM	31088
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.094		mg/Kg	1	4/6/2017 6:40:02 PM	31088
Benzene	ND	0.023		mg/Kg	1	4/6/2017 6:40:02 PM	31088
Toluene	ND	0.047		mg/Kg	1	4/6/2017 6:40:02 PM	31088
Ethylbenzene	ND	0.047		mg/Kg	1	4/6/2017 6:40:02 PM	31088
Xylenes, Total	ND	0.094		mg/Kg	1	4/6/2017 6:40:02 PM	31088
Surr: 4-Bromofluorobenzene	103	66.6-132		%Rec	1	4/6/2017 6:40:02 PM	31088

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW1
Project: HEP Rec Sump
Collection Date: 4/4/2017 2:10:00 PM
Lab ID: 1704130-005 **Matrix:** SOIL **Received Date:** 4/5/2017 10:04:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	240	30		mg/Kg	20	4/11/2017 12:47:34 PM	31182
Sulfate	160	30		mg/Kg	20	4/11/2017 12:47:34 PM	31182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	160	9.6		mg/Kg	1	4/11/2017 9:13:56 AM	31097
Motor Oil Range Organics (MRO)	540	48		mg/Kg	1	4/11/2017 9:13:56 AM	31097
Surr: DNOP	99.5	70-130		%Rec	1	4/11/2017 9:13:56 AM	31097
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/6/2017 7:03:25 PM	31088
Surr: BFB	88.4	54-150		%Rec	1	4/6/2017 7:03:25 PM	31088
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	4/6/2017 7:03:25 PM	31088
Benzene	ND	0.025		mg/Kg	1	4/6/2017 7:03:25 PM	31088
Toluene	ND	0.049		mg/Kg	1	4/6/2017 7:03:25 PM	31088
Ethylbenzene	ND	0.049		mg/Kg	1	4/6/2017 7:03:25 PM	31088
Xylenes, Total	ND	0.099		mg/Kg	1	4/6/2017 7:03:25 PM	31088
Surr: 4-Bromofluorobenzene	105	66.6-132		%Rec	1	4/6/2017 7:03:25 PM	31088

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW2
Project: HEP Rec Sump
Collection Date: 4/4/2017 2:20:00 PM
Lab ID: 1704130-006 **Matrix:** SOIL **Received Date:** 4/5/2017 10:04:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	250	30		mg/Kg	20	4/11/2017 12:59:58 PM	31182
Sulfate	190	30		mg/Kg	20	4/11/2017 12:59:58 PM	31182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	62	9.8		mg/Kg	1	4/11/2017 10:36:51 AM	31097
Motor Oil Range Organics (MRO)	190	49		mg/Kg	1	4/11/2017 10:36:51 AM	31097
Surr: DNOP	54.2	70-130	S	%Rec	1	4/11/2017 10:36:51 AM	31097
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	4/6/2017 7:26:48 PM	31088
Surr: BFB	88.5	54-150		%Rec	1	4/6/2017 7:26:48 PM	31088
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.092		mg/Kg	1	4/6/2017 7:26:48 PM	31088
Benzene	ND	0.023		mg/Kg	1	4/6/2017 7:26:48 PM	31088
Toluene	ND	0.046		mg/Kg	1	4/6/2017 7:26:48 PM	31088
Ethylbenzene	ND	0.046		mg/Kg	1	4/6/2017 7:26:48 PM	31088
Xylenes, Total	ND	0.092		mg/Kg	1	4/6/2017 7:26:48 PM	31088
Surr: 4-Bromofluorobenzene	105	66.6-132		%Rec	1	4/6/2017 7:26:48 PM	31088

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW3
Project: HEP Rec Sump
Collection Date: 4/4/2017 2:30:00 PM
Lab ID: 1704130-007 **Matrix:** SOIL **Received Date:** 4/5/2017 10:04:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	420	30		mg/Kg	20	4/11/2017 1:12:23 PM	31182
Sulfate	290	30		mg/Kg	20	4/11/2017 1:12:23 PM	31182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	170	9.5		mg/Kg	1	4/11/2017 12:01:21 PM	31097
Motor Oil Range Organics (MRO)	450	47		mg/Kg	1	4/11/2017 12:01:21 PM	31097
Surr: DNOP	89.9	70-130		%Rec	1	4/11/2017 12:01:21 PM	31097
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/6/2017 7:50:04 PM	31088
Surr: BFB	86.8	54-150		%Rec	1	4/6/2017 7:50:04 PM	31088
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	4/6/2017 7:50:04 PM	31088
Benzene	ND	0.025		mg/Kg	1	4/6/2017 7:50:04 PM	31088
Toluene	ND	0.050		mg/Kg	1	4/6/2017 7:50:04 PM	31088
Ethylbenzene	ND	0.050		mg/Kg	1	4/6/2017 7:50:04 PM	31088
Xylenes, Total	ND	0.099		mg/Kg	1	4/6/2017 7:50:04 PM	31088
Surr: 4-Bromofluorobenzene	103	66.6-132		%Rec	1	4/6/2017 7:50:04 PM	31088

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW4
Project: HEP Rec Sump
Collection Date: 4/4/2017 2:40:00 PM
Lab ID: 1704130-008 **Matrix:** SOIL **Received Date:** 4/5/2017 10:04:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	4/11/2017 1:24:47 PM	31182
Sulfate	66	30		mg/Kg	20	4/11/2017 1:24:47 PM	31182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	100	9.8		mg/Kg	1	4/11/2017 1:25:35 PM	31097
Motor Oil Range Organics (MRO)	340	49		mg/Kg	1	4/11/2017 1:25:35 PM	31097
Surr: DNOP	79.0	70-130		%Rec	1	4/11/2017 1:25:35 PM	31097
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/6/2017 8:13:21 PM	31088
Surr: BFB	88.1	54-150		%Rec	1	4/6/2017 8:13:21 PM	31088
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.098		mg/Kg	1	4/6/2017 8:13:21 PM	31088
Benzene	ND	0.024		mg/Kg	1	4/6/2017 8:13:21 PM	31088
Toluene	ND	0.049		mg/Kg	1	4/6/2017 8:13:21 PM	31088
Ethylbenzene	ND	0.049		mg/Kg	1	4/6/2017 8:13:21 PM	31088
Xylenes, Total	ND	0.098		mg/Kg	1	4/6/2017 8:13:21 PM	31088
Surr: 4-Bromofluorobenzene	102	66.6-132		%Rec	1	4/6/2017 8:13:21 PM	31088

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SP
Project: HEP Rec Sump
Collection Date: 4/4/2017 2:50:00 PM
Lab ID: 1704130-009
Matrix: SOIL
Received Date: 4/5/2017 10:04:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	76	30		mg/Kg	20	4/11/2017 1:37:11 PM	31182
Sulfate	87	30		mg/Kg	20	4/11/2017 1:37:11 PM	31182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	9900	100		mg/Kg	10	4/6/2017 6:29:00 PM	31097
Motor Oil Range Organics (MRO)	3600	500		mg/Kg	10	4/6/2017 6:29:00 PM	31097
Surr: DNOP	0	70-130	S	%Rec	10	4/6/2017 6:29:00 PM	31097
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	460	49		mg/Kg	10	4/6/2017 12:25:25 PM	31088
Surr: BFB	322	54-150	S	%Rec	10	4/6/2017 12:25:25 PM	31088
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.98		mg/Kg	10	4/6/2017 12:25:25 PM	31088
Benzene	0.50	0.25		mg/Kg	10	4/6/2017 12:25:25 PM	31088
Toluene	5.4	0.49		mg/Kg	10	4/6/2017 12:25:25 PM	31088
Ethylbenzene	6.9	0.49		mg/Kg	10	4/6/2017 12:25:25 PM	31088
Xylenes, Total	18	0.98		mg/Kg	10	4/6/2017 12:25:25 PM	31088
Surr: 4-Bromofluorobenzene	131	66.6-132		%Rec	10	4/6/2017 12:25:25 PM	31088

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1704130**

14-Apr-17

Client: Souder, Miller & Associates

Project: HEP Rec Sump

Sample ID	**MB-31182**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**31182**	RunNo:	**42023**					
Prep Date:	**4/11/2017**	Analysis Date:	**4/11/2017**	SeqNo:	**1320834**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								
Sulfate	ND	1.5								

Sample ID	**LCS-31182**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**31182**	RunNo:	**42023**					
Prep Date:	**4/11/2017**	Analysis Date:	**4/11/2017**	SeqNo:	**1320835**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.1	90	110			
Sulfate	29	1.5	30.00	0	97.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1704130**

14-Apr-17

Client: Souder, Miller & Associates

Project: HEP Rec Sump

Sample ID	**LCS-31097**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**31097**		RunNo:	**41927**				
Prep Date:	**4/5/2017**	Analysis Date:	**4/6/2017**		SeqNo:	**1316910**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	50.00	0	77.2	63.8	116			
Surr: DNOP	3.7		5.000		73.1	70	130			

Sample ID	**MB-31097**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**31097**		RunNo:	**41927**				
Prep Date:	**4/5/2017**	Analysis Date:	**4/6/2017**		SeqNo:	**1316911**	Units:	**mg/Kg**		
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	8.2		10.00		82.0	70	130			

Sample ID	**LCS-31157**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**31157**		RunNo:	**42017**				
Prep Date:	**4/10/2017**	Analysis Date:	**4/11/2017**		SeqNo:	**1319773**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	99.1	63.8	116			
Surr: DNOP	5.1		5.000		102	70	130			

Sample ID	**MB-31157**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**31157**		RunNo:	**42017**				
Prep Date:	**4/10/2017**	Analysis Date:	**4/11/2017**		SeqNo:	**1319775**	Units:	**mg/Kg**		
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	11		10.00		110	70	130			

Sample ID	**MB-31222**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**31222**		RunNo:	**42086**				
Prep Date:	**4/13/2017**	Analysis Date:	**4/13/2017**		SeqNo:	**1321896**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		112	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1704130**

14-Apr-17

Client: Souder, Miller & Associates

Project: HEP Rec Sump

Sample ID	**LCS-31222**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**31222**		RunNo:	**42086**				
Prep Date:	**4/13/2017**	Analysis Date:	**4/13/2017**		SeqNo:	**1321918**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.3		5.000		106	70	130			

Sample ID	**LCS-31205**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**31205**		RunNo:	**42092**				
Prep Date:	**4/12/2017**	Analysis Date:	**4/13/2017**		SeqNo:	**1322086**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		85.9	70	130			

Sample ID	**MB-31205**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**31205**		RunNo:	**42092**				
Prep Date:	**4/12/2017**	Analysis Date:	**4/13/2017**		SeqNo:	**1322087**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.4		10.00		83.9	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1704130**

14-Apr-17

Client: Souder, Miller & Associates

Project: HEP Rec Sump

Sample ID	**MB-31088**	SampType:	**MBLK**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**PBS**	Batch ID:	**31088**		RunNo:	**41937**				
Prep Date:	**4/5/2017**	Analysis Date:	**4/6/2017**		SeqNo:	**1317190**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	860		1000		85.9	54	150			

Sample ID	**LCS-31088**	SampType:	**LCS**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**LCSS**	Batch ID:	**31088**		RunNo:	**41937**				
Prep Date:	**4/5/2017**	Analysis Date:	**4/6/2017**		SeqNo:	**1317191**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.1	76.4	125			
Surr: BFB	940		1000		93.6	54	150			

Sample ID	**1704130-002AMS**	SampType:	**MS**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**L2**	Batch ID:	**31088**		RunNo:	**41937**				
Prep Date:	**4/5/2017**	Analysis Date:	**4/6/2017**		SeqNo:	**1317195**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.8	23.76	0	103	61.3	150			
Surr: BFB	910		950.6		95.7	54	150			

Sample ID	**1704130-002AMSD**	SampType:	**MSD**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**L2**	Batch ID:	**31088**		RunNo:	**41937**				
Prep Date:	**4/5/2017**	Analysis Date:	**4/6/2017**		SeqNo:	**1317196**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.8	23.83	0	104	61.3	150	1.52	20	
Surr: BFB	930		953.3		97.4	54	150	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1704130**

14-Apr-17

Client: Souder, Miller & Associates

Project: HEP Rec Sump

Sample ID **MB-31088**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **31088**	RunNo: **41937**
Prep Date: **4/5/2017**	Analysis Date: **4/6/2017**	SeqNo: **1317216** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		102	66.6	132			

Sample ID **LCS-31088**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **31088**	RunNo: **41937**
Prep Date: **4/5/2017**	Analysis Date: **4/6/2017**	SeqNo: **1317217** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.99	0.10	1.000	0	98.9	66.5	120			
Benzene	1.1	0.025	1.000	0	114	80	120			
Toluene	1.1	0.050	1.000	0	109	80	120			
Ethylbenzene	1.1	0.050	1.000	0	107	80	120			
Xylenes, Total	3.1	0.10	3.000	0	102	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	66.6	132			

Sample ID **1704130-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **L1**	Batch ID: **31088**	RunNo: **41937**
Prep Date: **4/5/2017**	Analysis Date: **4/6/2017**	SeqNo: **1317220** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.98	0.097	0.9747	0	101	42.5	143			
Benzene	1.1	0.024	0.9747	0	108	61.5	138			
Toluene	1.1	0.049	0.9747	0	109	71.4	127			
Ethylbenzene	1.1	0.049	0.9747	0	109	70.9	132			
Xylenes, Total	3.0	0.097	2.924	0.01963	103	76.2	123			
Surr: 4-Bromofluorobenzene	1.1		0.9747		111	66.6	132			

Sample ID **1704130-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **L1**	Batch ID: **31088**	RunNo: **41937**
Prep Date: **4/5/2017**	Analysis Date: **4/6/2017**	SeqNo: **1317221** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.94	0.093	0.9268	0	101	42.5	143	4.73	20	
Benzene	1.0	0.023	0.9268	0	110	61.5	138	3.66	20	
Toluene	1.0	0.046	0.9268	0	110	71.4	127	4.45	20	
Ethylbenzene	1.0	0.046	0.9268	0	109	70.9	132	4.84	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1704130**

14-Apr-17

Client: Souder, Miller & Associates

Project: HEP Rec Sump

Sample ID	**1704130-001AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**L1**	Batch ID:	**31088**	RunNo:	**41937**					
Prep Date:	**4/5/2017**	Analysis Date:	**4/6/2017**	SeqNo:	**1317221**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	2.9	0.093	2.780	0.01963	104	76.2	123	4.26	20	
Surr: 4-Bromofluorobenzene	1.0		0.9268		110	66.6	132	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: SMA-CARLSBAD Work Order Number: 1704130 RcptNo: 1

Received By: **Lindsay Mangin** 4/5/2017 10:04:00 AM

Completed By: **Lindsay Mangin** 4/5/2017 10:24:47 AM

Reviewed By: BRC 04/05/17

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ✔	No	NA
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
6. Sample(s) in proper container(s)?	Yes ✔	No	
7. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
8. Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
9. Was preservative added to bottles?	Yes	No ✔	NA
10. VOA vials have zero headspace?	Yes	No	No VOA Vials ✔
11. Were any sample containers received broken?	Yes	No ✔	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	Adjusted?
14. Is it clear what analyses were requested?	Yes ✔	No	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by:

Special Handling (if applicable)

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

Person Notified: Date:

By Whom: Via: eMail Phone Fax In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Yes			

Chain-of-Custody Record

Client: SMA Carlsbad

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time: 5 day Turn
☐ Standard ☐ Rush

Project Name: HEP-Rec Sump

Project #:

Project Manager: Austin Weyand

Sampler: Lucas Sandoval

On Ice: ☐ Yes ☐ No

Sample Temperature: 3.4

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. 1704130	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F^-, Cl^-, NO_3^-, NO_2^-, PO_4^{3-}, SO_4^{2-})	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Sulfate				Air Bubbles (Y or N)
4-4-17	1:30	Soil/Rock	L1	4 oz		-001	X		X					X								
	1:40		L2			-002	X		X					X								
	1:50		L3			-003	X		X					X								
	2:00		LH			-004	X		X					X								
	2:10		SW1			-005	X		X					X								
	2:20		SW2			-006	X		X					X								
	2:30		SW3			-007	X		X					X								
	2:40		SW4			-008	X		X					X								
	2:45		SP			-009	X		X					X								

Date	Time	Relinquished by:	Received by:	Date	Time
4/4/17	3:30			4/4/17	1530
4/4/17	1900			04/05/17	1004

Remarks: TPH EXTENDED RANGE

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

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

April 03, 2017

Austin Weyant

Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: HEP Holly Rec Sump OrderNo.: 1703E39

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 9 sample(s) on 3/29/2017 for the analyses presented in the following report.

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

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

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

Sincerely,



Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: S1-0.5
Project: HEP Holly Rec Sump
Collection Date: 3/28/2017 1:24:00 PM
Lab ID: 1703E39-001 **Matrix:** SOIL **Received Date:** 3/29/2017 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	3700	95		mg/Kg	10	4/1/2017 5:49:17 AM	30969
Motor Oil Range Organics (MRO)	2800	480		mg/Kg	10	4/1/2017 5:49:17 AM	30969
Surr: DNOP	0	70-130	S	%Rec	10	4/1/2017 5:49:17 AM	30969
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	49	D	mg/Kg	10	3/30/2017 9:25:29 PM	30956
Surr: BFB	107	54-150	D	%Rec	10	3/30/2017 9:25:29 PM	30956
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.99	D	mg/Kg	10	3/30/2017 9:25:29 PM	30956
Benzene	ND	0.25	D	mg/Kg	10	3/30/2017 9:25:29 PM	30956
Toluene	ND	0.49	D	mg/Kg	10	3/30/2017 9:25:29 PM	30956
Ethylbenzene	ND	0.49	D	mg/Kg	10	3/30/2017 9:25:29 PM	30956
Xylenes, Total	ND	0.99	D	mg/Kg	10	3/30/2017 9:25:29 PM	30956
Surr: 4-Bromofluorobenzene	100	66.6-132	D	%Rec	10	3/30/2017 9:25:29 PM	30956

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: S2-0.5
Project: HEP Holly Rec Sump
Collection Date: 3/28/2017 3:00:00 PM
Lab ID: 1703E39-002 **Matrix:** SOIL **Received Date:** 3/29/2017 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	28000	950		mg/Kg	100	3/31/2017 1:51:46 AM	30969
Motor Oil Range Organics (MRO)	13000	4800		mg/Kg	100	3/31/2017 1:51:46 AM	30969
Surr: DNOP	0	70-130	S	%Rec	100	3/31/2017 1:51:46 AM	30969
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	1800	240		mg/Kg	50	3/30/2017 9:51:47 PM	30956
Surr: BFB	265	54-150	S	%Rec	50	3/30/2017 9:51:47 PM	30956
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	4.8		mg/Kg	50	3/30/2017 9:51:47 PM	30956
Benzene	12	1.2		mg/Kg	50	3/30/2017 9:51:47 PM	30956
Toluene	52	2.4		mg/Kg	50	3/30/2017 9:51:47 PM	30956
Ethylbenzene	32	2.4		mg/Kg	50	3/30/2017 9:51:47 PM	30956
Xylenes, Total	65	4.8		mg/Kg	50	3/30/2017 9:51:47 PM	30956
Surr: 4-Bromofluorobenzene	111	66.6-132		%Rec	50	3/30/2017 9:51:47 PM	30956

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-0.5
Project: HEP Holly Rec Sump
Collection Date: 3/28/2017 1:44:00 PM
Lab ID: 1703E39-003 **Matrix:** SOIL **Received Date:** 3/29/2017 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	2900	970		mg/Kg	100	3/31/2017 2:36:03 AM	30969
Motor Oil Range Organics (MRO)	6300	4800		mg/Kg	100	3/31/2017 2:36:03 AM	30969
Surr: DNOP	0	70-130	S	%Rec	100	3/31/2017 2:36:03 AM	30969
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/30/2017 10:18:02 PM	30956
Surr: BFB	78.7	54-150		%Rec	1	3/30/2017 10:18:02 PM	30956

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L2-1
Project: HEP Holly Rec Sump
Collection Date: 3/28/2017 2:03:00 PM
Lab ID: 1703E39-004 **Matrix:** SOIL **Received Date:** 3/29/2017 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	6100	100		mg/Kg	10	4/1/2017 6:54:40 AM	30969
Motor Oil Range Organics (MRO)	2500	510		mg/Kg	10	4/1/2017 6:54:40 AM	30969
Surr: DNOP	0	70-130	S	%Rec	10	4/1/2017 6:54:40 AM	30969
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	240	46		mg/Kg	10	3/30/2017 10:44:21 PM	30956
Surr: BFB	349	54-150	S	%Rec	10	3/30/2017 10:44:21 PM	30956

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3-0.5
Project: HEP Holly Rec Sump
Collection Date: 3/28/2017 2:37:00 PM
Lab ID: 1703E39-005 **Matrix:** SOIL **Received Date:** 3/29/2017 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	25000	960		mg/Kg	100	3/31/2017 4:04:17 AM	30969
Motor Oil Range Organics (MRO)	9700	4800		mg/Kg	100	3/31/2017 4:04:17 AM	30969
Surr: DNOP	0	70-130	S	%Rec	100	3/31/2017 4:04:17 AM	30969
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	1500	250		mg/Kg	50	3/30/2017 11:10:43 PM	30956
Surr: BFB	340	54-150	S	%Rec	50	3/30/2017 11:10:43 PM	30956

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3-1
Project: HEP Holly Rec Sump
Collection Date: 3/28/2017 2:52:00 PM
Lab ID: 1703E39-006 **Matrix:** SOIL **Received Date:** 3/29/2017 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	980	19		mg/Kg	2	4/1/2017 8:00:04 AM	30969
Motor Oil Range Organics (MRO)	500	96		mg/Kg	2	4/1/2017 8:00:04 AM	30969
Surr: DNOP	130	70-130		%Rec	2	4/1/2017 8:00:04 AM	30969
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	24	D	mg/Kg	5	3/30/2017 11:37:04 PM	30956
Surr: BFB	123	54-150	D	%Rec	5	3/30/2017 11:37:04 PM	30956

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L4-0.5
Project: HEP Holly Rec Sump
Collection Date: 3/28/2017 3:00:00 PM
Lab ID: 1703E39-007 **Matrix:** SOIL **Received Date:** 3/29/2017 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	34000	920		mg/Kg	100	3/31/2017 5:33:10 AM	30969
Motor Oil Range Organics (MRO)	13000	4600		mg/Kg	100	3/31/2017 5:33:10 AM	30969
Surr: DNOP	0	70-130	S	%Rec	100	3/31/2017 5:33:10 AM	30969
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	460	94		mg/Kg	20	3/31/2017 12:03:31 AM	30956
Surr: BFB	365	54-150	S	%Rec	20	3/31/2017 12:03:31 AM	30956

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L4-0.1
Project: HEP Holly Rec Sump
Collection Date: 3/28/2017 3:30:00 PM
Lab ID: 1703E39-008 **Matrix:** SOIL **Received Date:** 3/29/2017 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	1300	98		mg/Kg	10	3/31/2017 6:17:31 AM	30969
Motor Oil Range Organics (MRO)	650	490		mg/Kg	10	3/31/2017 6:17:31 AM	30969
Surr: DNOP	0	70-130	S	%Rec	10	3/31/2017 6:17:31 AM	30969
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	24	D	mg/Kg	5	3/31/2017 12:30:02 AM	30956
Surr: BFB	126	54-150	D	%Rec	5	3/31/2017 12:30:02 AM	30956

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SP-1
Project: HEP Holly Rec Sump
Collection Date: 3/28/2017 3:45:00 PM
Lab ID: 1703E39-009
Matrix: SOIL
Received Date: 3/29/2017 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	26000	980		mg/Kg	100	3/31/2017 7:01:45 AM	30969
Motor Oil Range Organics (MRO)	10000	4900		mg/Kg	100	3/31/2017 7:01:45 AM	30969
Surr: DNOP	0	70-130	S	%Rec	100	3/31/2017 7:01:45 AM	30969
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	1700	250		mg/Kg	50	3/31/2017 12:56:24 AM	30956
Surr: BFB	344	54-150	S	%Rec	50	3/31/2017 12:56:24 AM	30956
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	4.9		mg/Kg	50	3/31/2017 12:56:24 AM	30956
Benzene	ND	1.2		mg/Kg	50	3/31/2017 12:56:24 AM	30956
Toluene	28	2.5		mg/Kg	50	3/31/2017 12:56:24 AM	30956
Ethylbenzene	53	2.5		mg/Kg	50	3/31/2017 12:56:24 AM	30956
Xylenes, Total	120	4.9		mg/Kg	50	3/31/2017 12:56:24 AM	30956
Surr: 4-Bromofluorobenzene	127	66.6-132		%Rec	50	3/31/2017 12:56:24 AM	30956

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703E39**

03-Apr-17

Client: Souder, Miller & Associates

Project: HEP Holly Rec Sump

Sample ID	**LCS-30969**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**30969**		RunNo:	**41755**				
Prep Date:	**3/29/2017**	Analysis Date:	**3/30/2017**		SeqNo:	**1311683**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	101	63.8	116			
Surr: DNOP	5.2		5.000		104	70	130			

Sample ID	**MB-30969**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**30969**		RunNo:	**41755**				
Prep Date:	**3/29/2017**	Analysis Date:	**3/30/2017**		SeqNo:	**1311684**	Units:	**mg/Kg**		
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	10		10.00		101	70	130			

Sample ID	**LCS-31008**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**31008**		RunNo:	**41755**				
Prep Date:	**3/31/2017**	Analysis Date:	**3/31/2017**		SeqNo:	**1312226**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.9		5.000		98.7	70	130			

Sample ID	**MB-31008**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**31008**		RunNo:	**41755**				
Prep Date:	**3/31/2017**	Analysis Date:	**3/31/2017**		SeqNo:	**1312227**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		106	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703E39**

03-Apr-17

Client: Souder, Miller & Associates

Project: HEP Holly Rec Sump

Sample ID	**MB-30956**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**
Client ID:	**PBS**	Batch ID:	**30956**	RunNo:	**41768**
Prep Date:	**3/29/2017**	Analysis Date:	**3/30/2017**	SeqNo:	**1311406** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	780		1000		78.0	54	150			

Sample ID	**LCS-30956**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**
Client ID:	**LCSS**	Batch ID:	**30956**	RunNo:	**41768**
Prep Date:	**3/29/2017**	Analysis Date:	**3/30/2017**	SeqNo:	**1311407** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	76.4	125			
Surr: BFB	830		1000		83.2	54	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703E39**

03-Apr-17

Client: Souder, Miller & Associates

Project: HEP Holly Rec Sump

Sample ID **MB-30956**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **30956**	RunNo: **41768**
Prep Date: **3/29/2017**	Analysis Date: **3/30/2017**	SeqNo: **1311441** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.88		1.000		87.7	66.6	132			

Sample ID **LCS-30956**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **30956**	RunNo: **41768**
Prep Date: **3/29/2017**	Analysis Date: **3/30/2017**	SeqNo: **1311442** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.86	0.10	1.000	0	86.3	66.5	120			
Benzene	0.99	0.025	1.000	0	99.2	80	120			
Toluene	1.0	0.050	1.000	0	100	80	120			
Ethylbenzene	1.0	0.050	1.000	0	103	80	120			
Xylenes, Total	3.2	0.10	3.000	0	106	80	120			
Surr: 4-Bromofluorobenzene	0.84		1.000		84.4	66.6	132			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: SMA-CARLSBAD Work Order Number: 1703E39 RcptNo: 1

Received by/date: AS 03/29/17

Logged By: **Lindsay Mangin** 3/29/2017 9:45:00 AM

Completed By: **Lindsay Mangin** 3/29/2017 12:20:04 PM

Reviewed By: JRE 03/29/17

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? _____
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Yes			

Chain-of-Custody Record

Client: SMA

Mailing Address: 201 S Halagueño Carlsbad NM

Phone #: 575 689 7040

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: HEP Holly Rec Sump

Project #:

Project Manager: Austin Weyant

Sampler: SMW

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.6°C

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. 1703E39	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
3/28	1:05	SOIL	S1-0.5	4oz 1	-	-001	X		X													
3/28	3:00	SOIL	S2-0.5	4oz 1	↓	-002	X		X													
3/28	1:44	SOIL	L1-0.5	↓		-003			X													
3/28	2:03	SOIL	L2-1			-004			X													
3/28	2:37	SOIL	L3-0.5			-005			X													
3/28	2:57	SOIL	L3-1			-006			X													
3/28	3:00	SOIL	L4-0.5			-007			X													
3/28	3:30	SOIL	L4-01			-008			X													
3/28	3:45	SOIL	SP-1			-009	X		X													

Date	Time	Relinquished by:	Received by:	Date	Time
3/28	4:00	J. Austin Weyant			
3/28/17	1900			3/29/17	0945

Remarks:

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.

APPENDIX B
FORM C141 FINAL

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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

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 HOLLY ENERGY PARTNERS	Contact MELANIE ISENBERG
Address 1602 W. MAIN, ARTESIA NM 88210	Telephone No. 214-605-8303
Facility Name LOVINGTON REFINERY-	Facility Type HEP HOBBS RECEIVING LINE SUMP

Surface Owner CITY OF LOVINGTON	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
G	36	16S	36E					LEA

Latitude 32.880277 **Longitude** -103.304544

NATURE OF RELEASE

Type of Release Crude Oil	Volume of Release 7 Barrels	Volume Recovered 5 Barrels
Source of Release Overfill of Sump	Date and Hour of Occurrence 3/23/17 1500	Date and Hour of Discovery 3/23/17 1546
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? Courtesy Called NMOCD District I Office on 3/24/17. A message was left with Olivia Yu (Spelling).	
By Whom? Melanie Isenberg	Date and Hour 3/24/17 Approximately 0930.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
At this time it appears that the spill was caused by debris causing either a drain valve or check valve on facility piping to remain open causing the sump for the location to begin to fill. Power supply to the sump had been cut off due to an issue that was being repaired. Therefore allowing the crude oil to continuously flow into the sump without pumping out causing an overflow. The spill was contained within the perimeter of the facility. Crews were on site to contain the spill and start clean-up. Approximately 7 barrels of crude was released with 5 barrels being vacuumed up.

Describe Area Affected and Cleanup Action Taken.* **PLEASE SEE ATTACHED CLOSURE REPORT DETAILING REMEDIATION AND CLEAN UP EFFORTS.**

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: Melanie Isenberg Printed Name: MELANIE ISENBERG	OIL CONSERVATION DIVISION Approved by Environmental Specialist:	
Title: ENVIRONMENTAL SPECIALIST I	Approval Date:	Expiration Date:
E-mail Address: MELANIE.ISENBERG@HOLLYENERGY.COM Date: 4/28/17 Phone: 575-748-8972	Conditions of Approval:	Attached ☐

* Attach Additional Sheets If Necessary

APPENDIX C
OSE WATER COLUMN DATA

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
L 13332 POD3	L	LE	2	3	2	36	16S	36E	658660	3639363	92	128	123	5
L 12562 POD14	L	LE		2	2	36	16S	36E	658677	3639136	168	116	101	15
L 13332 POD2	L	LE	4	3	2	36	16S	36E	658677	3639129	174	120	104	16
L 14228 POD1	L	LE	3	4	2	36	16S	36E	658821	3639303	216	130		
L 12562 POD15	L	LE	4	1	2	36	16S	36E	658634	3639529	242	122	107	15
L 04058 S23	L	LE		4	2	36	16S	36E	658894	3639301*	288	119	90	29
L 12562 POD7	L	LE	4	4	2	36	16S	36E	658912	3639266	306	122	107	15
L 04058 S15	L	LE	3	2	2	36	16S	36E	658786	3639603*	362	260	50	210
L 12562 POD13	L	LE	2	4	2	36	16S	36E	658956	3639405	369	120	105	15
L 04058 S26	L	LE	4	4	2	36	16S	36E	658993	3639200*	397	237		

Average Depth to Water: **98 feet**

Minimum Depth: **50 feet**

Maximum Depth: **123 feet**

Record Count: 10

UTMNAD83 Radius Search (in meters):

Easting (X): 658605.58 **Northing (Y):** 3639288.77 **Radius:** 400

***UTM location was derived from PLSS - see Help**

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

APPENDIX D
PHOTO DOCUMENTATION



Photo 1: Northern part of excavation. Taken on 4/4/17



Photo 2: Central part of excavation. Taken on 4/4/17



Photo 3: Southern part of excavation
Taken on 4/4/17



Photo 4: Spill Pile
Taken on 4/4/17



Photo 5: Area around sump
Taken on 4/4/17



Photo 6: Area around sump after surface scrap
Taken on 4/4/17



Photo 7: Backfill at Sump
Taken on 5/1/17



Photo 8: Backfill at Northern End
Taken on 5/1/17



Photo 9: Backfill at Southern End
Taken on 5/1/17

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, March 1, 2017 3:50 PM
To: 'Combs, Robert'
Cc: Griswold, Jim, EMNRD; Holder, Mike; Denton, Scott; Brown, Maxey G, EMNRD
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack New Mexico OCD Review of Work Plan

Robert, et al.:

The New Mexico Oil Conservation Division (OCD) has completed its review of the work plan submitted by HollyFrontier Navajo Refining, LLC via e-mail with attachments on Feb. 24, 2017.

OCD Comments are:

1) The work plan was succinct and well written.
2) The S-SW downgradient location from MW-31 is not adequately covered.
3) Drilling utilizing an undisturbed core sample system would provide accurate hydrogeologic information within the zone(s) of contamination with depth.

OCD Requirements are:

1) Each SB shall be advanced to a minimum depth of 40 ft. Environmental samples shall be gathered every 5 ft. in depth. SB shall continue until the minimum depth of 40 ft. and two consecutive samples with PID headspace < 100 ppm or the groundwater table is reached. If the water table is encountered, a monitoring well shall be installed, developed, stabilized, purged and sampled.
2) Another MW shall be installed ~ 350 ft. S-SW of MW-31 is required to address the SW component of groundwater flow.
3) MW screens shall be 15 ft. long with 5 ft. of unsaturated zone during well construction screen placement.
4) All new MWs shall be added to the FWGWMP.
5) Environmental analytical laboratory sampling shall comply with EPA QA/QC and DQOs.
6) Environmental analytical compound lab methods shall consist of 8260 (full list), and 8015M (extended C_5 – C_{36}).

Please contact Jim Griswold at (505) 476-3465 if you have questions or wish to communicate further based on the above.

Thank you.

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Friday, February 24, 2017 5:35 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott <Scott.Denton@HollyFrontier.com>
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack

Carl,

Navajo is providing this Work Plan to conduct additional investigation of soil and groundwater impacts discovered at the asphalt loading rack, as requested by the OCD in an email on February 8, 2017. Navajo encountered light non-aqueous phase liquid (LNAPL) in monitoring well MW-31 during semiannual

monitoring activities on February 6, 2017. This well was installed at the loading rack in December 2016, in accordance with the work plan submitted to the OCD in an email on November 30, 2016, to assess historical soil impacts discovered during loading rack expansion construction activities. The December 2016 investigation included collection of soil and groundwater samples and the laboratory analytical results indicated the following:

- Total petroleum hydrocarbons (TPH) are present in groundwater samples collected from MW-31.
- Total naphthalene was present in groundwater samples collected from MW-31 at concentrations in exceedance of the Water Quality Control Commission (WQCC) human-health standard.
- TPH diesel range organics (DRO) was present in soil samples collected at 75 and 98 feet below ground surface (bgs) during drilling activities of MW-31, but concentrations were below applicable screening levels.
- Total naphthalene was present in soil samples collected at 75 and 98 feet bgs at concentrations above applicable screening levels.

A LNAPL sample was collected on February 9, 2017, for laboratory characterization (fingerprinting, specific gravity, and sulfur). The laboratory results available to date indicate the LNAPL is a weathered diesel that contains elevated concentrations of sulfur (0.309 percent or 3,090 parts per million), which is generally consistent with diesel fuel refined before 1993. This indicates the LNAPL is sourced from a release that pre-dates Navajo's operation of the Lovington facility (Navajo purchased in 1989, operation began in 1991). Navajo has not processed, refined, stored, or dispensed diesel fuel in this portion of the refinery since their ownership. Navajo removed the existing diesel unit (installed by the previous operator) from the refinery in 1992 and had previously drained the associated diesel lines in this portion of the refinery. The LNAPL laboratory analytical report is included as Attachment A.

It is recommended that LNAPL be bailed from well MW-31 periodically as an interim measure pending further characterization of the LNAPL and surrounding formation.

This Work Plan was developed to achieve the following objectives in response to the December 2016 and February 2017 soil and groundwater investigation results and OCD's February 8, 2017, email:

1. Delineate the lateral extent of naphthalene and total petroleum hydrocarbon (TPH) diesel range organics (DRO) in soil and groundwater.
2. Delineate the lateral extent of LNAPL to the southeast along the refinery boundary.
3. Characterize the LNAPL and surrounding formation in order to develop an effective LNAPL recovery program.

The locations of the asphalt loading rack and existing monitoring wells are shown on the attached figure (Figure 1). To achieve the above objectives, Navajo will complete additional soil, groundwater, and LNAPL investigation as described below.

Soil Investigation

Navajo will drill 4 soil borings – one in each cardinal direction of monitoring well MW-31 (i.e., at locations surrounding the asphalt loading rack), and collect soil samples for field and laboratory analysis. The proposed locations of these soil borings are shown on Figure 1.

The soil borings will be drilled using either air-rotary or roto-sonic drilling methods to the water table (expected at a depth of approximately 100 to 110 feet bgs). Soil samples will be continuously collected; described based on lithology, moisture content, notable presence of potential hydrocarbon impacts (i.e., odor and staining); and field-screened for organic vapors using a photoionization detector (PID). Two soil samples will be collected from each soil boring for laboratory analysis – one sample will be collected from the depth with the greatest indication of impacts based on visual, olfactory, and PID field-screening and one sample will be collected from immediately above saturation. The soil samples will be submitted to a laboratory for analysis of TPH by Method 8015 and naphthalene, 1-methylnaphthalene, and 2- methylnaphthalene by Method 8270.

If LNAPL is observed or suspected in the soil borings during or immediately following drilling, the borings will be converted to 2-inch or 4-inch wells consistent with the methods discussed in the section below.

Groundwater Investigation

Navajo will install one monitoring well to the southeast and downgradient of MW-31 along the southeastern facility boundary. The proposed well location is shown on Figure 1. As shown on Figure 1, the existing monitoring well network provides delineation of TPH and total naphthalene in groundwater in all other directions.

The monitoring well will be installed to a total depth of at least 15 feet below the top of the water table and will be constructed using 2-inch diameter Schedule 40 polyvinyl chloride (PVC) casing and 20 linear feet of 0.010-inch machine-slot PVC screen. The monitoring well will be installed and completed by a licensed driller in accordance with state regulations. Following installation, the monitoring well will be developed and sampled for TPH by Method 8015 and naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene by Method 8270. The new monitoring will also be added to the facility-wide monitoring work plan (FWGWMWP) to be sampled on a semi-annual basis for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), dissolved metals, total mercury, anions, total dissolved solids (TDS), and total alkalinity in accordance with methods in the December 2015 Revised FWGWMWP. In addition, the new well and select surrounding wells will be sampled for TPH by Method 8015. The next semi-annual monitoring event is scheduled for August 2017.

LNAPL Investigation

Navajo will conduct a LNAPL bail-down test at monitoring well MW-31 to determine LNAPL transmissivity and recovery rates, which are critical metrics for selection of an appropriate LNAPL recovery method. In addition, these metrics will provide baseline data necessary to evaluate the effectiveness of the selected recovery method over time and to identify a practical recoverability end-point.

The LNAPL bail-down test will be conducted at well MW-31 by rapidly removing LNAPL from the well using a disposable bailer and then measuring the LNAPL recharge in the well for up to a 24-hour period. Prior to bailing, the static depth to LNAPL and groundwater will be gauged from the top of casing. LNAPL will then be bailed until the product thickness stabilizes or until 90 percent the thickness of the LNAPL is removed, as visually observed in the bailer. The amount of water bailed will be minimized to the extent practical. The total volume of LNAPL bailed from the well will be recorded. During the recharge portion of the bail-down test, depth to LNAPL and groundwater will measured at regular intervals for up to 24 hours or until LNAPL recharge of 80-percent is achieved. The frequency of the gauging intervals will be more frequent at the beginning of the test and less frequent towards the end of the test. Gauging will only be conducted during daylight hours.

The results of the bail-down test and recovery data will be analyzed using the American Petroleum Institute's (API) LNAPL Transmissivity Workbook Tool. Navajo will evaluate LNAPL recovery methods based on the transmissivity results and the results of the soil and groundwater investigation discussed above.

Closing

Navajo will document the additional soil, groundwater, and LNAPL investigation activities and results in a report for submittal to the OCD. The report will include a summary of the investigation activities conducted at the loading rack to date, soil boring and well construction logs, maps, copies of analytical reports, and recommendations for additional LNAPL recovery. Navajo will also update the FWGWMWP and submit to the OCD. The initial C-141 Form for the discovery of the historical impacts at the loading rack was submitted to the OCD by Holly Energy Partners (the operator of the asphalt loading rack). A supplemental C-141 Form is included as Attachment B to document the discovery of LNAPL in MW-31 and interim corrective actions. If you have any questions or concerns, please do not hesitate to contact Scott Denton of Navajo at (575) 746-5487 or myself at (575) 746-5382.

Thanks,
Robert

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, February 09, 2017 1:19 PM
To: Combs, Robert
Cc: Griswold, Jim, EMNRD
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack

Robert:

Good afternoon. The New Mexico Oil Conservation Division (OCD) last held a telephone meeting with HollyFrontier (HF) late in 2016. OCD approved the MW location and sampling approach for MW-31 near the suspected source area of the soil and groundwater contamination beneath the asphalt loading rack area. After installation and environmental sampling of groundwater, HF confirmed the presence of groundwater contamination from sampling of MW-31.

Consequently, OCD requested a characterization (through MW installation) work plan, which means that characterization of the horizontal and vertical extent of PSH and any dissolved phase groundwater contamination from the source of contamination. A C-141 Form (Preliminary) is requested to document the situation.

There will only be manual bailing and passive recovery. Based on the thickness of PSH, the potential for source contamination to have been present for significant time, OCD requires a continuous PSH recovery system be installed.

Some details/requirements of a characterization work plan? A work plan with proposed MWs to characterize the horizontal and vertical extent of groundwater contamination with a proposed monitoring program with chemicals of concern. HF will need to incorporate the MWs into the FWGWMP.

Analytical reports, volumes recovered, etc.? The PSH recovery system must be properly monitored for efficiency of PSH recovery. HF must monitor the daily flow rate, volume of PSH recovered vs. total fluids recovered. The disposition of the recovered fluids must be approved by OCD. Rerouting effluent into the refinery treatment plant appears to be an option. HF must provide a recovery system efficiency report with statistics based on flow rates, recovery, percent and volume of product recovered over time, with nearby MW documentation of remediation verifying the recovery system is properly functioning.

If you do not understand the above, HF may want to hire an environmental consultant to address OCD's requirements.

Please contact me if you have questions. Thank you.

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Wednesday, February 8, 2017 2:36 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack

Carl,
Can you provide some details/requirements of a characterization work plan? Analytical rpts, vols recovered, etc.?
To clarify, there will only be manual bailing and passive recovery.
Thanks,
Robert

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, February 08, 2017 1:37 PM
To: Combs, Robert
Cc: Griswold, Jim, EMNRD; Holder, Mike; Denton, Scott; Dade, Lewis (Randy); Brown, Maxey G, EMNRD; Fortner, Kerry,

EMNRD
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack

Robert:

Good afternoon. The New Mexico Oil Conservation Division (OCD) in Santa Fe requests a characterization work plan (monitor well installation) within 15 work days of receipt of this message.

OCD authorizes HollyFrontier to move forward with corrective action(s) to recover Phase Separated Hydrocarbon (PSH) in groundwater immediately. Documentation of the efficiency of the PSH recovery system is required.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
E-mail: CarlJ.Chavez@state.nm.us
"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD **and see "Publications")**

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Wednesday, February 8, 2017 9:43 AM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott <Scott.Denton@HollyFrontier.com>; Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>
Subject: Lovington LNAPL discovery

Carl,

During the semi-annual synoptic groundwater gauging event conducted at the Lovington facility on February 6, 2017, light non-aqueous phase liquid (LNAPL) was encountered in the new monitoring well (MW-31) that was installed at the asphalt loading rack in December 2016. An apparent LNAPL thickness of 6.16 feet was measured in MW-31. No LNAPL was encountered during well installation, development, or sampling activities in December 2016. This week, Navajo will recover LNAPL from the well via bailing, collect a LNAPL sample for laboratory analysis, and install a passive skimmer (i.e., in-well collection reservoir with hydrophobic inlet filter). Navajo will conduct regular O&M of the passive skimmer at a schedule that will be modified based on recovery results.

The LNAPL appears to be weathered refined product based on field observations. The source of this LNAPL is likely associated with historical subsurface impacts discovered during recent loading rack construction activities because Navajo has only managed asphalt at the loading rack since acquiring ownership of the refinery in 1989. In addition, all other product lines located in the southern portion of the facility are aboveground and no releases have occurred near or upgradient of the loading rack. Navajo will submit a C141 Form to the OCD to document the well installation, sampling results, and recovery activities.

Please do not hesitate to contact me with any questions.

Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

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Chavez, Carl J, EMNRD

From: Combs, Robert <Robert.Combs@HollyFrontier.com>
Sent: Friday, February 24, 2017 5:35 PM
To: Chavez, Carl J, EMNRD
Cc: Griswold, Jim, EMNRD; Holder, Mike; Denton, Scott
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack
Attachments: Attachment A - MW-31 LNAPL Lab Results.pdf; Lovington - Loading Rack Work Plan Figure 1.pdf; Attachment B - Addtl C-141 Form for Asphalt Rack 022417.pdf

Carl,

Navajo is providing this Work Plan to conduct additional investigation of soil and groundwater impacts discovered at the asphalt loading rack, as requested by the OCD in an email on February 8, 2017. Navajo encountered light non-aqueous phase liquid (LNAPL) in monitoring well MW-31 during semiannual monitoring activities on February 6, 2017. This well was installed at the loading rack in December 2016, in accordance with the work plan submitted to the OCD in an email on November 30, 2016, to assess historical soil impacts discovered during loading rack expansion construction activities. The December 2016 investigation included collection of soil and groundwater samples and the laboratory analytical results indicated the following:

- Total petroleum hydrocarbons (TPH) are present in groundwater samples collected from MW-31.
- Total naphthalene was present in groundwater samples collected from MW-31 at concentrations in exceedance of the Water Quality Control Commission (WQCC) human-health standard.
- TPH diesel range organics (DRO) was present in soil samples collected at 75 and 98 feet below ground surface (bgs) during drilling activities of MW-31, but concentrations were below applicable screening levels.
- Total naphthalene was present in soil samples collected at 75 and 98 feet bgs at concentrations above applicable screening levels.

A LNAPL sample was collected on February 9, 2017, for laboratory characterization (fingerprinting, specific gravity, and sulfur). The laboratory results available to date indicate the LNAPL is a weathered diesel that contains elevated concentrations of sulfur (0.309 percent or 3,090 parts per million), which is generally consistent with diesel fuel refined before 1993. This indicates the LNAPL is sourced from a release that pre-dates Navajo's operation of the Lovington facility (Navajo purchased in 1989, operation began in 1991). Navajo has not processed, refined, stored, or dispensed diesel fuel in this portion of the refinery since their ownership. Navajo removed the existing diesel unit (installed by the previous operator) from the refinery in 1992 and had previously drained the associated diesel lines in this portion of the refinery. The LNAPL laboratory analytical report is included as Attachment A.
It is recommended that LNAPL be bailed from well MW-31 periodically as an interim measure pending further characterization of the LNAPL and surrounding formation.
This Work Plan was developed to achieve the following objectives in response to the December 2016 and February 2017 soil and groundwater investigation results and OCD's February 8, 2017, email:

1. Delineate the lateral extent of naphthalene and total petroleum hydrocarbon (TPH) diesel range organics (DRO) in soil and groundwater.
2. Delineate the lateral extent of LNAPL to the southeast along the refinery boundary.
3. Characterize the LNAPL and surrounding formation in order to develop an effective LNAPL recovery program.

The locations of the asphalt loading rack and existing monitoring wells are shown on the attached figure (Figure 1). To achieve the above objectives, Navajo will complete additional soil, groundwater, and LNAPL investigation as described below.

Soil Investigation

Navajo will drill 4 soil borings – one in each cardinal direction of monitoring well MW-31 (i.e., at locations surrounding the asphalt loading rack), and collect soil samples for field and laboratory analysis. The proposed locations of these soil borings are shown on Figure 1.

The soil borings will be drilled using either air-rotary or roto-sonic drilling methods to the water table (expected at a depth of approximately 100 to 110 feet bgs). Soil samples will be continuously collected; described based on lithology, moisture content, notable presence of potential hydrocarbon impacts (i.e., odor and staining); and field-screened for organic vapors using a photoionization detector (PID). Two soil samples will be collected from each soil boring for laboratory analysis – one sample will be collected from the depth with the greatest indication of impacts based on visual, olfactory, and PID field-screening and one sample will be collected from immediately above saturation. The soil samples will be submitted to a laboratory for analysis of TPH by Method 8015 and naphthalene, 1-methylnaphthalene, and 2- methylnaphthalene by Method 8270.

If LNAPL is observed or suspected in the soil borings during or immediately following drilling, the borings will be converted to 2-inch or 4-inch wells consistent with the methods discussed in the section below.

Groundwater Investigation

Navajo will install one monitoring well to the southeast and downgradient of MW-31 along the southeastern facility boundary. The proposed well location is shown on Figure 1. As shown on Figure 1, the existing monitoring well network provides delineation of TPH and total naphthalene in groundwater in all other directions.

The monitoring well will be installed to a total depth of at least 15 feet below the top of the water table and will be constructed using 2-inch diameter Schedule 40 polyvinyl chloride (PVC) casing and 20 linear feet of 0.010-inch machine-slot PVC screen. The monitoring well will be installed and completed by a licensed driller in accordance with state regulations. Following installation, the monitoring well will be developed and sampled for TPH by Method 8015 and naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene by Method 8270. The new monitoring will also be added to the facility-wide monitoring work plan (FWGWMWP) to be sampled on a semi-annual basis for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), dissolved metals, total mercury, anions, total dissolved solids (TDS), and total alkalinity in accordance with methods in the December 2015 Revised FWGWMWP. In addition, the new well and select surrounding wells will be sampled for TPH by Method 8015. The next semi-annual monitoring event is scheduled for August 2017.

LNAPL Investigation

Navajo will conduct a LNAPL bail-down test at monitoring well MW-31 to determine LNAPL transmissivity and recovery rates, which are critical metrics for selection of an appropriate LNAPL recovery method. In addition, these metrics will provide baseline data necessary to evaluate the effectiveness of the selected recovery method over time and to identify a practical recoverability end-point.

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The results of the bail-down test and recovery data will be analyzed using the American Petroleum Institute's (API) LNAPL Transmissivity Workbook Tool. Navajo will evaluate LNAPL recovery methods based on the transmissivity results and the results of the soil and groundwater investigation discussed above.

Closing
Navajo will document the additional soil, groundwater, and LNAPL investigation activities and results in a report for submittal to the OCD. The report will include a summary of the investigation activities conducted at the loading rack to date, soil boring and well construction logs, maps, copies of analytical reports, and recommendations for additional LNAPL recovery. Navajo will also update the FWGWMWP and submit to the OCD. The initial C-141 Form for the discovery of the historical impacts at the loading rack was submitted to the OCD by Holly Energy Partners (the operator of the asphalt loading rack). A supplemental C-141 Form is included as Attachment B to document the discovery of LNAPL in MW-31 and interim corrective actions. If you have any questions or concerns, please do not hesitate to contact Scott Denton of Navajo at (575) 746-5487 or myself at (575) 746-5382.

Thanks,
Robert

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, February 09, 2017 1:19 PM
To: Combs, Robert
Cc: Griswold, Jim, EMNRD
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack

Robert:

Good afternoon. The New Mexico Oil Conservation Division (OCD) last held a telephone meeting with HollyFrontier (HF) late in 2016. OCD approved the MW location and sampling approach for MW-31 near the suspected source area of the soil and groundwater contamination beneath the asphalt loading rack area. After installation and environmental sampling of groundwater, HF confirmed the presence of groundwater contamination from sampling of MW-31.

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If you do not understand the above, HF may want to hire an environmental consultant to address OCD's requirements.

Please contact me if you have questions. Thank you.

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Wednesday, February 8, 2017 2:36 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack

Carl,
Can you provide some details/requirements of a characterization work plan? Analytical rpts, vols recovered, etc.?
To clarify, there will only be manual bailing and passive recovery.
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Sent: Wednesday, February 08, 2017 1:37 PM
To: Combs, Robert
Cc: Griswold, Jim, EMNRD; Holder, Mike; Denton, Scott; Dade, Lewis (Randy); Brown, Maxey G, EMNRD; Fortner, Kerry, EMNRD
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack

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Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
E-mail: CarlJ.Chavez@state.nm.us
"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD **and see "Publications")**

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Wednesday, February 8, 2017 9:43 AM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott <Scott.Denton@HollyFrontier.com>; Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>
Subject: Lovington LNAPL discovery

Carl,

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Please do not hesitate to contact me with any questions.

Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

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CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

February 21, 2017

JULIE SPEER

TRC SOLUTIONS

505 E. HARTLAND DRIVE, SUITE 250

AUSTIN, TX 78752

RE: LOVINGTON 2017 GROUNDWATER MONITORING

Enclosed are the results of analyses for samples received by the laboratory on 02/10/17 8:36.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: LOVINGTON 2017 GROUNDWATER Project Number: 270076.0000 Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 21-Feb-17 08:24

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-31	H700346-01	Oil	09-Feb-17 12:20	10-Feb-17 08:36

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: LOVINGTON 2017 GROUNDWATER Project Number: 270076.0000 Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 21-Feb-17 08:24

MW-31

H700346-01 (Oil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Specific Gravity @ 60° F	**0.8317**		0.000	[blank]	1	7021506	AC	15-Feb-17	SM 2710F	
Miscellaneous Subcontracted Analyses										
API Gravity @ 60° F	**38.3**		0.00	@ 60°F	1	7022101	CK	17-Feb-17	D287	SUB_LS
Sulfur	**0.3090**		0.0001	%	1	7022101	CK	17-Feb-17	D4294	SUB_LS

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence ar any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether su claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

TRC SOLUTIONS 505 E. HARTLAND DRIVE, SUITE 250 AUSTIN TX, 78752	Project: LOVINGTON 2017 GROUNDWATER Project Number: 270076.0000 Project Manager: JULIE SPEER Fax To: (512) 431-8184	Reported: 21-Feb-17 08:24

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7021506 - General Prep - Wet Chem										
Duplicate (7021506-DUP1)		**Source: H700346-01**		Prepared & Analyzed: 15-Feb-17						
Specific Gravity @ 60° F	0.8327	0.000	[blank]		0.8317			0.120	20	

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Celey D. Keene, Lab Director/Quality Manager

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Notes and Definitions

SUB_LS	Analysis subcontracted to Laboratory Services, Inc.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	TRC
Project Manager:	Julie Speer
Address:	505 East Huntland Dr.
City:	Austin State: TX Zip: 78752
Phone #:	(512) 684-3148 Fax #: 512-329-8750
Project #:	270076.0000 Project Owner:
Project Name:	Lovington ~~Gross~~ 2017 Groundwater Monitoring
Project Location:	Lovington, NM
Sampler Name:	Audrey Ejuri; John O'Neal

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

ANALYSIS REQUEST

Sulfur
Gravity
Extended Liquid Analysis

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER: Product	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME
H700346-1	MW-31	G	2						X		X		2/9/17	1220

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Audrey Ejuri	Date: 2/10/17 Time: 8:30	Received By: Jodi Henson	
Relinquished By:	Date: Time:	Received By:	

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: #75 1.4°C

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No

CHECKED BY: (Initials) JH

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

jspeer@trcsolutions.com

+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

MITCHELL ANALYTICAL LAB
2638 FAUDREE
ODESSA, TEXAS 79765-8538
432.561.5579

SUMMARY OF CHROMATOGRAPHIC ANALYSIS

COMPANY:	Cardinal Laboratories	**Lab Ref #:**	17-FEB-93068
PRODUCER:	Cardinal	**SAMPLED BY:**	n.a.
LEASE:	H700346-01	**SAMPLE DATE**	2/9/17
STATION #:	MW-31		
DATE RUN:	2/16/2017		

COMPONENT	MOLE %	WEIGHT %	VOLUME %
HYDROGEN SULFIDE	0.0000	0.0000	0.0000
NITROGEN	0.0000	0.0000	0.0000
OXYGEN	0.0000	0.0000	0.0000
METHANE	0.0000	0.0000	0.0000
CARBON DIOXIDE	0.0000	0.0000	0.0000
ETHANE	0.0000	0.0000	0.0000
PROPANE	0.0000	0.0000	0.0000
ISO-BUTANE	0.0175	0.0055	0.0075
N-BUTANE	0.0187	0.0059	0.0078
ISO-PENTANE	0.1374	0.0537	0.0664
N-PENTANE (C-5)	0.3410	0.1333	0.1630
2,2 DIMETHYL BUTANE	0.0000	0.0000	0.0000
CYCLOPENTANE	0.0000	0.0000	0.0000
2-METHYLPENTANE	0.5946	0.2776	0.3258
3-METHYLPENTANE	0.4453	0.2079	0.2399
N-HEXANE (C-6)	1.0935	0.5105	0.5937
METHYLCYCLOPENTANE	0.9631	0.4391	0.4496
BENZENE	0.5705	0.2414	0.2111
CYCLOHEXANE	1.8731	0.8540	0.8415
2-METHYLHEXANE	0.2520	0.1368	0.1548
3-METHYLHEXANE	0.6792	0.3687	0.4108
DIMETHYLCYCLOPENTA	0.5918	0.3148	0.3214
HEPTANES	0.5871	0.3187	0.3575
N-HEPTANE (C-7)	1.3295	0.7217	0.8095
METHYLCYCLOHEXANE	2.3081	1.2025	1.1982
TOLUENE	1.8277	0.9123	0.8055
OCTANES	2.8126	1.7405	1.9006
N-OCTANE (C-8)	1.2346	0.7640	0.8343
ETHYL BENZENE	0.6475	0.3724	0.3288
P-M-XYLENE	1.6479	0.9478	0.8429
O-XYLENE	0.6485	0.3730	0.3254
NONANES	3.2265	2.2419	2.3976
N-NONANE (C-9)	1.4052	0.9764	1.0442

CALCULATED PARAMETERS

TOTAL ANALYSIS SUMMARY

AVE MOLE WT	184.5913
SP GRAV, 60F/60	0.8225
API GRAVITY	40.5
REL DENS, AIR=1	6.3733
VAPOR PRESS PSIA	0.51

HEXANES PLUS SUMMARY

AVE MOLE WT	185.1780
SP GRAV, 60F/60	0.8236
API GRAVITY	40.3
LBS/GAL	6.589
REL DENS, AIR=1	6.3935
VAPOR PRESS PSIA	0.41

BTEX SUMMARY

WT % BENZENE	0.2414
WT % TOLUENE	0.9123
WT % E BENZENE	0.3724
WT % XYLENES	1.3208

DECANES PLUS SUMMARY

AVE MOLE WT	212.0836
SP GRAV, 60F/60	0.8451
API GRAVITY	35.9
LBS/GAL	6.762
REL DENS, AIR=1	7.3225
VAPOR PRESS PSIA	0.010

CONTINUED ON NEXT PAGE

H700346-01

COMPONENT	MOLE %	WEIGHT %	VOLUME %
DECANES	5.8261	4.4907	4.7218
N-DECANE (C-10)	2.4296	1.8727	1.9691
UNDECANES	6.7119	5.6836	5.8933
N-UNDECANE (C-11)	2.6626	2.2547	2.3379
DODECANES	5.7512	5.3072	5.4425
N-DODECANE (C-12)	2.0079	1.8529	1.9001
TRIDECANES	5.1900	5.1835	5.2529
N-TRIDECANE (C-13)	1.8842	1.8818	1.9070
TETRADECANES	4.3351	4.6592	4.7119
N-TETRADECANE (C-14)	1.8961	2.0378	2.0609
PENTADECANES	4.4541	5.1256	5.1240
N-PENTADECANE (C-15)	1.6067	1.8489	1.8483
HEXADECANES	2.6068	3.1978	3.1761
N-HEXADECANE (C-16)	1.1758	1.4424	1.4326
HEPTADECANES	1.8015	2.3468	2.3237
N-HEPTADECANE (C-17)	0.9140	1.1907	1.1790
OCTADECANES	1.5174	2.0921	2.0655
N-OCTADECANE (C-18)	0.6968	0.9607	0.9485
NONADECANES	1.0411	1.5145	1.4856
N-NONADECANE (C-19)	0.5532	0.8048	0.7895
EICOSANES	0.4252	0.6508	0.6349
N-EICOSANES (C-20)	0.3306	0.5060	0.4937
HENEICOSANE + (C-21+)	18.9292	28.9744	27.6634
TOTALS	100.0000	100.0000	100.0000

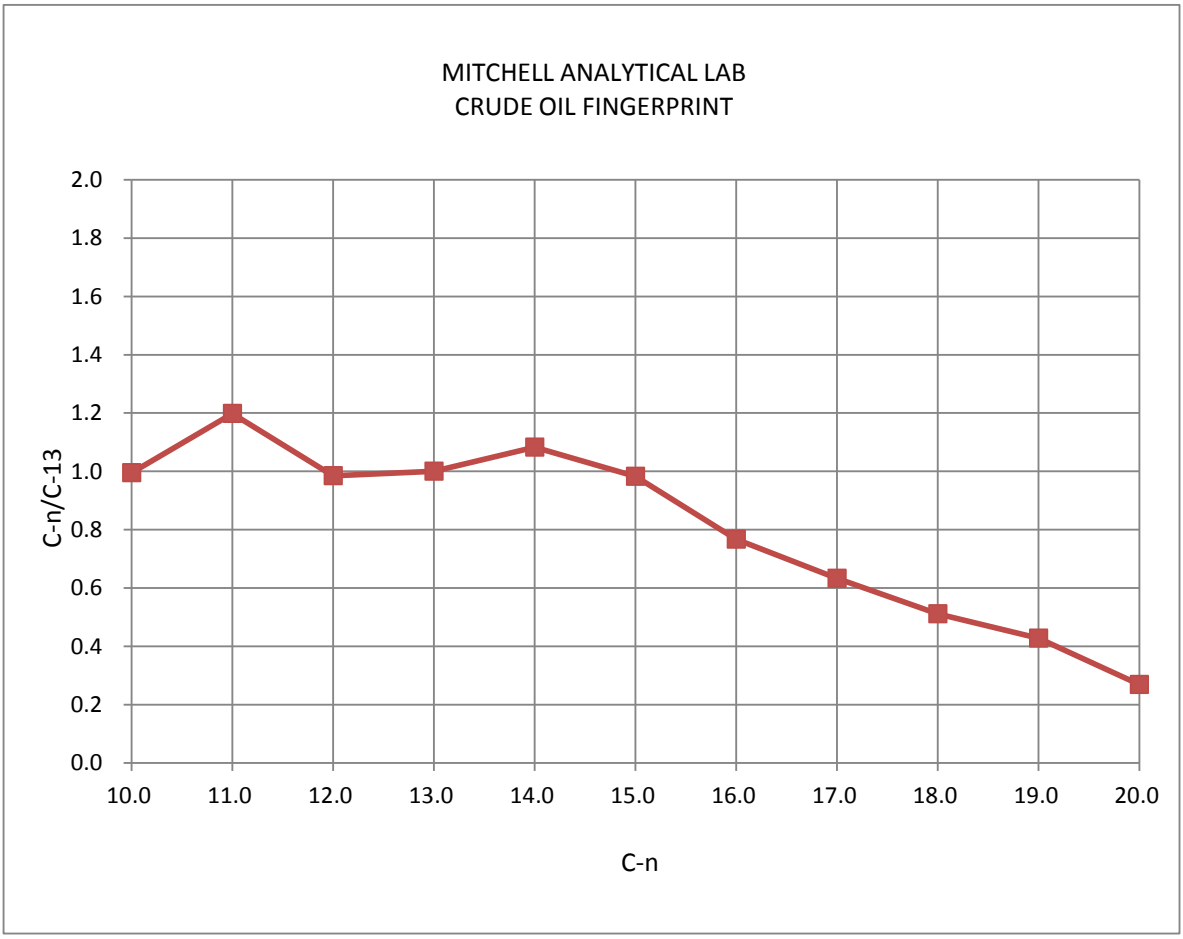
CRUDE OIL FINGERPRINT
C-n/C-13 RATIO SUMMARY

C-n	C-n/C-13
10.0	0.995
11.0	1.198
12.0	0.985
13.0	1.000
14.0	1.083
15.0	0.983
16.0	0.767
17.0	0.633
18.0	0.511
19.0	0.428
20.0	0.269

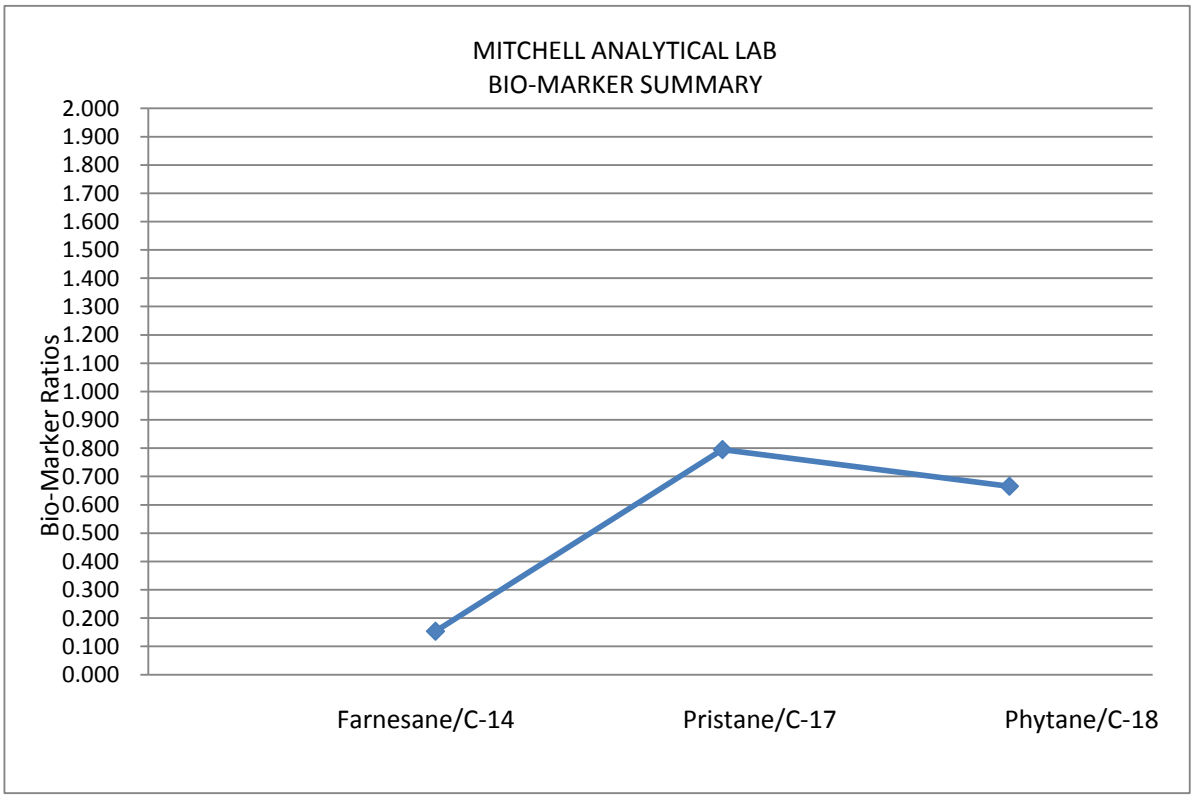
BIO-MARKER SUMMARY

Farnesane/C-14	0.153
Pristane/C-17	0.795
Phytane/C-18	0.665

Weight % Sulfur	n.a.
Gravity, API @ 60 F	40.3


MITCHELL ANALYTICAL LAB
CRUDE OIL FINGERPRINT
C-n/C-13
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
10.0
11.0
12.0
13.0
14.0
15.0
16.0
17.0
18.0
19.0
20.0
C-n

H700346-01


MITCHELL ANALYTICAL LAB
BIO-MARKER SUMMARY
Bio-Marker Ratios
2.000
1.900
1.800
1.700
1.600
1.500
1.400
1.300
1.200
1.100
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
Farnesane/C-14
Pristane/C-17
Phytane/C-18

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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

N/A - Supplemental Interim Report

OPERATOR

☐ Initial Report ☐ Final Report

Name of Company	HollyFrontier Navajo Refining LLC	Contact	Robert Combs
Address	7406 South Main St., Lovington NM	Telephone No.	575-746-5382
Facility Name	HEP Lovington Pipeline & Terminal	Facility Type	Asphalt Loading Rack within Petroleum Refinery

Surface Owner	City of Lovington	Mineral Owner	N/A	API No.	N/A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
SW/4	31	16S	37E					Lea

Latitude 32°52'31.73"N **Longitude** 103°17'48.05"W

NATURE OF RELEASE

Type of Release: Unknown diesel-range	Volume of Release: Unknown	Volume Recovered: 7.5 gallons
Source of Release: Unknown historical operations (prior to 1989)	Date and Hour of Occurrence	Date and Hour of Discovery: 2/6/2017 14:45
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Original C141 Form filed with OCD 12/1/2015. OCD (Carl Chavez and Jim Griswold) notified of 2/6/2017 LNAPL discovery	
By Whom?	Date and Hour: 2/8/2017 09:43 AM by email	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

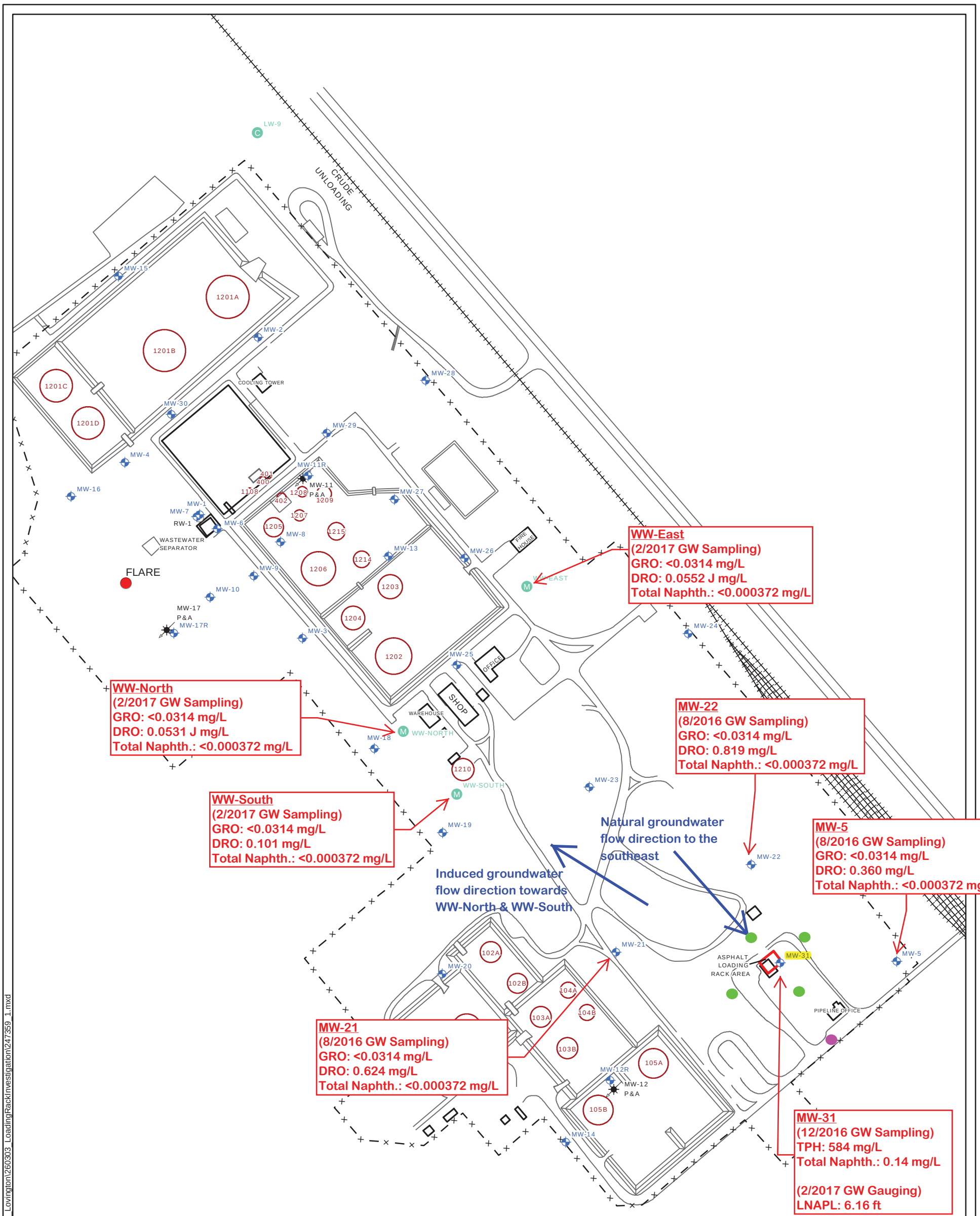
Describe Cause of Problem and Remedial Action Taken.*
A groundwater monitoring well (MW-31) was installed in December 2016 as part of additional investigation of the historical soil impacts discovered at the asphalt loading rack by Holly Energy Partners (HEP) on 11/19/15. No light non-aqueous phase liquid (LNAPL) was observed in MW-31 during installation. LNAPL was measured (6.16 feet) in MW-31 during semi-annual gauging on 2/6/17. A LNAPL sample was collected for fingerprinting and readily recoverable LNAPL (7.5 gallons) was bailed on 2/9/2017. LNAPL is not present in any other well across the property.

Describe Area Affected and Cleanup Action Taken.*
The existing well network provides delineation of LNAPL and dissolved-phase COCs in all directions except to the southeast. Navajo is submitting a work plan to drill 4 soil borings for additional soil/LNAPL delineation; install one well to the southeast along the southern property boundary for groundwater/LNAPL delineation; and conduct LNAPL transmissivity testing to develop most effective long-term LNAPL recovery program. LNAPL will be bailed on a weekly basis as an interim corrective action measure pending selection of long-term program.

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:	OIL CONSERVATION DIVISION	
Printed Name: Robert Combs	Approved by Environmental Specialist:	
Title: Environmental Specialist	Approval Date:	Expiration Date:
E-mail Address: robert.combs@hollyfrontier.com	Conditions of Approval:	Attached ☐
Date: 2/24/17 Phone: 575-746-5382		

* Attach Additional Sheets If Necessary



Document Path: J:\Holly_Energy_Partners\Navajo_Lovington\260303_LoadingRackInvestigation\247359_1.mxd

LEGEND

- MONITORING WELL
- MONITORING WELL - PLUGGED AND ABANDONED
- RECOVERY WELL
- REFINERY WATER SUPPLY WELL
- CITY OF LOVINGTON WATER SUPPLY WELL
- WATER WELL
- FLARE
- RAIL
- FENCE
- BUILDINGS
- TANKS

N

0 175 350 700

FEET

Asphalt Loading Rack - 2017 Investigation Work Plan

HOLLYFRONTIER NAVAJO REFINING LLC
LEA REFINERY LOVINGTON, NM

PROJECT NO: 247359	MXD: 247359_1
AUTHOR: MFL	DATE: 2/17/2017

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 1

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, March 17, 2017 5:17 PM
To: 'Combs, Robert'
Cc: Griswold, Jim, EMNRD; Holder, Mike; Denton, Scott; Brown, Maxey G, EMNRD
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack New Mexico OCD Review of Work Plan

Robert:

Ok. Please proceed. Thanks.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
E-mail: CarlJ.Chavez@state.nm.us
"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD and see "Publications")

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Friday, March 17, 2017 4:54 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott <Scott.Denton@HollyFrontier.com>; Brown, Maxey G, EMNRD <MaxeyG.Brown@state.nm.us>
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack New Mexico OCD Review of Work Plan

Carl,

Navajo will complete the additional investigation at the asphalt loading rack at the Lovington facility in accordance with the Work Plan dated February 24, 2017, and OCD comments/requirements provided on March 1, 2017. However, Navajo requests a variance on one OCD requirement regarding 15 linear feet of screen length for new wells. Existing monitoring wells at the facility were completed with 20 or 30 linear feet of screen length, and the wells installed most recently (from 2013 to 2015) were completed with 20 linear feet of screen. Navajo requests to complete the new wells with 20 linear feet of screen to allow screening across at least 5 feet of unsaturated (vadose) zone and to accommodate for consistently declining groundwater elevations observed at the facility. Wells at the facility are deep (total depths of 110 to 130 feet below ground surface) and the submersible sampling pumps require sufficient water column for operation.

Thanks,
Robert

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, March 01, 2017 3:50 PM
To: Combs, Robert
Cc: Griswold, Jim, EMNRD; Holder, Mike; Denton, Scott; Brown, Maxey G, EMNRD
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack New Mexico OCD Review of Work Plan

Robert, et al.:

The New Mexico Oil Conservation Division (OCD) has completed its review of the work plan submitted by HollyFrontier Navajo Refining, LLC via e-mail with attachments on Feb. 24, 2017.

OCD Comments are:

1) The work plan was succinct and well written.
2) The S-SW downgradient location from MW-31 is not adequately covered.
3) Drilling utilizing an undisturbed core sample system would provide accurate hydrogeologic information within the zone(s) of contamination with depth.

OCD Requirements are:

1) Each SB shall be advanced to a minimum depth of 40 ft. Environmental samples shall be gathered every 5 ft. in depth. SB shall continue until the minimum depth of 40 ft. and two consecutive samples with PID headspace < 100 ppm or the groundwater table is reached. If the water table is encountered, a monitoring well shall be installed, developed, stabilized, purged and sampled.
2) Another MW shall be installed ~ 350 ft. S-SW of MW-31 is required to address the SW component of groundwater flow.
3) MW screens shall be 15 ft. long with 5 ft. of unsaturated zone during well construction screen placement.
4) All new MWs shall be added to the FWGWMP.
5) Environmental analytical laboratory sampling shall comply with EPA QA/QC and DQOs.
6) Environmental analytical compound lab methods shall consist of 8260 (full list), and 8015M (extended C_5 – C_{36}).

Please contact Jim Griswold at (505) 476-3465 if you have questions or wish to communicate further based on the above.

Thank you.

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Friday, February 24, 2017 5:35 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott <Scott.Denton@HollyFrontier.com>
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack

Carl,

Navajo is providing this Work Plan to conduct additional investigation of soil and groundwater impacts discovered at the asphalt loading rack, as requested by the OCD in an email on February 8, 2017. Navajo encountered light non-aqueous phase liquid (LNAPL) in monitoring well MW-31 during semiannual monitoring activities on February 6, 2017. This well was installed at the loading rack in December 2016, in accordance with the work plan submitted to the OCD in an email on November 30, 2016, to assess historical soil impacts discovered during loading rack expansion construction activities. The December 2016

investigation included collection of soil and groundwater samples and the laboratory analytical results indicated the following:

- Total petroleum hydrocarbons (TPH) are present in groundwater samples collected from MW-31.
- Total naphthalene was present in groundwater samples collected from MW-31 at concentrations in exceedance of the Water Quality Control Commission (WQCC) human-health standard.
- TPH diesel range organics (DRO) was present in soil samples collected at 75 and 98 feet below ground surface (bgs) during drilling activities of MW-31, but concentrations were below applicable screening levels.
- Total naphthalene was present in soil samples collected at 75 and 98 feet bgs at concentrations above applicable screening levels.

A LNAPL sample was collected on February 9, 2017, for laboratory characterization (fingerprinting, specific gravity, and sulfur). The laboratory results available to date indicate the LNAPL is a weathered diesel that contains elevated concentrations of sulfur (0.309 percent or 3,090 parts per million), which is generally consistent with diesel fuel refined before 1993. This indicates the LNAPL is sourced from a release that pre-dates Navajo's operation of the Lovington facility (Navajo purchased in 1989, operation began in 1991). Navajo has not processed, refined, stored, or dispensed diesel fuel in this portion of the refinery since their ownership. Navajo removed the existing diesel unit (installed by the previous operator) from the refinery in 1992 and had previously drained the associated diesel lines in this portion of the refinery. The LNAPL laboratory analytical report is included as Attachment A.

It is recommended that LNAPL be bailed from well MW-31 periodically as an interim measure pending further characterization of the LNAPL and surrounding formation.

This Work Plan was developed to achieve the following objectives in response to the December 2016 and February 2017 soil and groundwater investigation results and OCD's February 8, 2017, email:

1. Delineate the lateral extent of naphthalene and total petroleum hydrocarbon (TPH) diesel range organics (DRO) in soil and groundwater.
2. Delineate the lateral extent of LNAPL to the southeast along the refinery boundary.
3. Characterize the LNAPL and surrounding formation in order to develop an effective LNAPL recovery program.

The locations of the asphalt loading rack and existing monitoring wells are shown on the attached figure (Figure 1). To achieve the above objectives, Navajo will complete additional soil, groundwater, and LNAPL investigation as described below.

Soil Investigation

Navajo will drill 4 soil borings – one in each cardinal direction of monitoring well MW-31 (i.e., at locations surrounding the asphalt loading rack), and collect soil samples for field and laboratory analysis. The proposed locations of these soil borings are shown on Figure 1.

The soil borings will be drilled using either air-rotary or roto-sonic drilling methods to the water table (expected at a depth of approximately 100 to 110 feet bgs). Soil samples will be continuously collected; described based on lithology, moisture content, notable presence of potential hydrocarbon impacts (i.e., odor and staining); and field-screened for organic vapors using a photoionization detector (PID). Two soil samples will be collected from each soil boring for laboratory analysis – one sample will be collected from the depth with the greatest indication of impacts based on visual, olfactory, and PID field-screening and one sample will be collected from immediately above saturation. The soil samples will be submitted to a laboratory for analysis of TPH by Method 8015 and naphthalene, 1-methylnaphthalene, and 2- methylnaphthalene by Method 8270.

If LNAPL is observed or suspected in the soil borings during or immediately following drilling, the borings will be converted to 2-inch or 4-inch wells consistent with the methods discussed in the section below.

Groundwater Investigation

Navajo will install one monitoring well to the southeast and downgradient of MW-31 along the southeastern facility boundary. The proposed well location is shown on Figure 1. As shown on Figure 1, the existing monitoring well network provides delineation of TPH and total naphthalene in groundwater in all other directions.

The monitoring well will be installed to a total depth of at least 15 feet below the top of the water table and will be constructed using 2-inch diameter Schedule 40 polyvinyl chloride (PVC) casing and 20 linear feet of 0.010-inch machine-slot PVC screen. The monitoring well will be installed and completed by a licensed driller in accordance with state regulations. Following installation, the monitoring well will be developed and sampled for TPH by Method 8015 and naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene by Method 8270. The new monitoring will also be added to the facility-wide monitoring work plan (FWGWMWP) to be sampled on a semi-annual basis for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), dissolved metals, total mercury, anions, total dissolved solids (TDS), and total alkalinity in accordance with methods in the December 2015 Revised FWGWMWP. In addition, the new well and select surrounding wells will be sampled for TPH by Method 8015. The next semi-annual monitoring event is scheduled for August 2017.

LNAPL Investigation

Navajo will conduct a LNAPL bail-down test at monitoring well MW-31 to determine LNAPL transmissivity and recovery rates, which are critical metrics for selection of an appropriate LNAPL recovery method. In addition, these metrics will provide baseline data necessary to evaluate the effectiveness of the selected recovery method over time and to identify a practical recoverability end-point.

The LNAPL bail-down test will be conducted at well MW-31 by rapidly removing LNAPL from the well using a disposable bailer and then measuring the LNAPL recharge in the well for up to a 24-hour period. Prior to bailing, the static depth to LNAPL and groundwater will be gauged from the top of casing. LNAPL will then be bailed until the product thickness stabilizes or until 90 percent the thickness of the LNAPL is removed, as visually observed in the bailer. The amount of water bailed will be minimized to the extent practical. The total volume of LNAPL bailed from the well will be recorded. During the recharge portion of the bail-down test, depth to LNAPL and groundwater will measured at regular intervals for up to 24 hours or until LNAPL recharge of 80-percent is achieved. The frequency of the gauging intervals will be more frequent at the beginning of the test and less frequent towards the end of the test. Gauging will only be conducted during daylight hours.

The results of the bail-down test and recovery data will be analyzed using the American Petroleum Institute's (API) LNAPL Transmissivity Workbook Tool. Navajo will evaluate LNAPL recovery methods based on the transmissivity results and the results of the soil and groundwater investigation discussed above.

Closing

Navajo will document the additional soil, groundwater, and LNAPL investigation activities and results in a report for submittal to the OCD. The report will include a summary of the investigation activities conducted at the loading rack to date, soil boring and well construction logs, maps, copies of analytical reports, and recommendations for additional LNAPL recovery. Navajo will also update the FWGWMWP and submit to the OCD. The initial C-141 Form for the discovery of the historical impacts at the loading rack was submitted to the OCD by Holly Energy Partners (the operator of the asphalt loading rack). A supplemental C-141 Form is included as Attachment B to document the discovery of LNAPL in MW-31 and interim corrective actions. If you have any questions or concerns, please do not hesitate to contact Scott Denton of Navajo at (575) 746-5487 or myself at (575) 746-5382.

Thanks,
Robert

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, February 09, 2017 1:19 PM
To: Combs, Robert
Cc: Griswold, Jim, EMNRD
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack

Robert:

Good afternoon. The New Mexico Oil Conservation Division (OCD) last held a telephone meeting with HollyFrontier (HF) late in 2016. OCD approved the MW location and sampling approach for MW-31 near the suspected source area of the soil and groundwater contamination beneath the asphalt loading rack area. After installation and environmental sampling of groundwater, HF confirmed the presence of groundwater contamination from sampling of MW-31.

Consequently, OCD requested a characterization (through MW installation) work plan, which means that characterization of the horizontal and vertical extent of PSH and any dissolved phase groundwater contamination from the source of contamination. A C-141 Form (Preliminary) is requested to document the situation.

There will only be manual bailing and passive recovery. Based on the thickness of PSH, the potential for source contamination to have been present for significant time, OCD requires a continuous PSH recovery system be installed.

Some details/requirements of a characterization work plan? A work plan with proposed MWs to characterize the horizontal and vertical extent of groundwater contamination with a proposed monitoring program with chemicals of concern. HF will need to incorporate the MWs into the FWGWMP.

Analytical reports, volumes recovered, etc.? The PSH recovery system must be properly monitored for efficiency of PSH recovery. HF must monitor the daily flow rate, volume of PSH recovered vs. total fluids recovered. The disposition of the recovered fluids must be approved by OCD. Rerouting effluent into the refinery treatment plant appears to be an option. HF must provide a recovery system efficiency report with statistics based on flow rates, recovery, percent and volume of product recovered over time, with nearby MW documentation of remediation verifying the recovery system is properly functioning.

If you do not understand the above, HF may want to hire an environmental consultant to address OCD's requirements.

Please contact me if you have questions. Thank you.

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Wednesday, February 8, 2017 2:36 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack

Carl,
Can you provide some details/requirements of a characterization work plan? Analytical rpts, vols recovered, etc.?
To clarify, there will only be manual bailing and passive recovery.
Thanks,
Robert

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, February 08, 2017 1:37 PM
To: Combs, Robert
Cc: Griswold, Jim, EMNRD; Holder, Mike; Denton, Scott; Dade, Lewis (Randy); Brown, Maxey G, EMNRD; Fortner, Kerry, EMNRD
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack

Robert:

Good afternoon. The New Mexico Oil Conservation Division (OCD) in Santa Fe requests a characterization work plan (monitor well installation) within 15 work days of receipt of this message.

OCD authorizes HollyFrontier to move forward with corrective action(s) to recover Phase Separated Hydrocarbon (PSH) in groundwater immediately. Documentation of the efficiency of the PSH recovery system is required.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
E-mail: CarlJ.Chavez@state.nm.us
"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD **and see "Publications")**

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Wednesday, February 8, 2017 9:43 AM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott <Scott.Denton@HollyFrontier.com>; Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>
Subject: Lovington LNAPL discovery

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The LNAPL appears to be weathered refined product based on field observations. The source of this LNAPL is likely associated with historical subsurface impacts discovered during recent loading rack construction activities because Navajo has only managed asphalt at the loading rack since acquiring ownership of the refinery in 1989. In addition, all other product lines located in the southern portion of the facility are aboveground and no releases have occurred near or upgradient of the loading rack. Navajo will submit a C141 Form to the OCD to document the well installation, sampling results, and recovery activities.

Please do not hesitate to contact me with any questions.

Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

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Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, February 9, 2017 1:17 PM
To: 'Combs, Robert'
Cc: Griswold, Jim, EMNRD
Subject: RE: Lovington Refinery (AP-110) LNAPL discovery at Asphalt Loading Rack

Robert:

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Sent: Wednesday, February 8, 2017 2:36 PM
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Sent: Wednesday, February 08, 2017 1:37 PM

To: Combs, Robert
Cc: Griswold, Jim, EMNRD; Holder, Mike; Denton, Scott; Dade, Lewis (Randy); Brown, Maxey G, EMNRD; Fortner, Kerry, EMNRD
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Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
E-mail: CarlJ.Chavez@state.nm.us
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Cc: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott <Scott.Denton@HollyFrontier.com>; Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>
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Robert

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Environmental Specialist
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office: 575-746-5382
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Chavez, Carl J, EMNRD

From: Griswold, Jim, EMNRD
Sent: Thursday, December 1, 2016 11:05 AM
To: Denton, Scott; Chavez, Carl J, EMNRD; Brown, Maxey G, EMNRD
Cc: Combs, Robert; Dade, Lewis (Randy); Holder, Mike
Subject: RE: Lovington Loading Rack

Scott,

You make the statement "*Navajo understands based on the telephone conversation with OCD that groundwater does not need to be assessed at the loading rack if vertical delineation of naphthalene and diesel impacts is achieved before groundwater is encountered*." This is an incorrect interpretation of what OCD needs. It would be preferable if Navajo would bore in the immediate area of contamination that was indicated at a depth of 95 feet (BH-1-0316). Navajo did not wish to advance a deeper boring in that same area as you felt it would delay completion of surface construction. OCD is accepting of an offset boring as close to the prior boring as possible without impeding your construction efforts. However, no decision will be made as to the vertical delineation of vadose zone contamination or possible groundwater contamination UNTIL INFORMATION FROM THE NEW BORING IS OBTAINED. Groundwater may not need to be assessed, but such a decision will only be made with additional information in hand.

Jim Griswold
Environmental Bureau Chief
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505.476.3465
email: jim.griswold@state.nm.us

From: Denton, Scott [mailto:Scott.Denton@HollyFrontier.com]
Sent: Wednesday, November 30, 2016 2:41 PM
To: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Denton, Scott <Scott.Denton@HollyFrontier.com>; Combs, Robert <Robert.Combs@HollyFrontier.com>; Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>
Subject: Lovington Loading Rack

Jim & Carl,

Please find below the plan for the HEP Lovington Loading Rack.

Let me know if you have any questions or concerns as we plan to move forward with this next week.

Regards,

SMD

Navajo developed the following scope of work to address historical soil impacts at the asphalt loading rack based on recent conversations with Jim Griswold of the OCD. In a telephone conversation on November 9, 2016, OCD indicated vertical delineation of naphthalene and diesel impacts in soil needs to be achieved and/or groundwater needs to be assessed at the asphalt loading rack near soil boring BH-1-0316. Navajo understands based on the telephone conversation with OCD that groundwater does not need to be assessed at the loading rack if vertical delineation of naphthalene and diesel impacts is achieved before groundwater is encountered. Vertical delineation of total petroleum hydrocarbon (TPH) below the OCD remediation action level (RAL) of 5,000 milligrams per kilogram (mg/kg) for a site with a zero ranking score was achieved at 80 feet below ground surface (bgs) at soil boring BH-1-0316. Vertical delineation of naphthalene below the screening standard was not achieved in soil boring BH-1-0316, which was advanced to a total depth of 95 feet bgs. Groundwater was not encountered in soil boring BH-1-0316.

Soil Investigation

Navajo will advance a soil boring downgradient and within 25 feet of soil boring BH-1-0316 in an area clear of active loading rack operations as agreed with the OCD on November 9, 2016. The proposed location of the boring is provided on the attached Figure 1.

The soil boring will be drilled using air-rotary drilling methods. Return cuttings from the borehole will be continuously collected with a clean shovel; described based on lithology, moisture content, and notable presence of potential hydrocarbon impacts (i.e., odor and staining); and field screened for volatile organic compounds using a photoionization detector (PID). Grab soil samples will be collected from the borehole using a soil core barrel every ten feet (i.e., one grab sample at 10 feet bgs, 20 feet bgs, 30 feet bgs, etc.) for potential laboratory analysis. The soil boring will be advanced to a depth of at least 50 feet bgs and will be terminated if no indications of hydrocarbon impacts based on odor, staining, and elevated PID readings are present for at least 10 feet. If the soil boring is terminated based on the absence of indications of hydrocarbon impacts for at least 10 feet prior to reaching groundwater, a grab sample will be collected from the bottom of the soil boring and submitted for laboratory analysis of TPH diesel range organics (DRO) by Method 8015 and naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene by Method 8270 (i.e., the chemicals detected in loading rack soils above screening standards). If the soil boring is not terminated prior to reaching groundwater, and/or if soil sample laboratory analytical results indicate the presence of chemicals of concern (COCs) above screening standards in the bottom sample, the soil boring will be advanced to a depth of at least 15 feet below the top of the water table and a monitoring well will be installed.

Contingent Groundwater Investigation

The proposed soil boring will be converted to a monitoring well if vertical delineation of hydrocarbon impacts is not achieved via field observations or laboratory analysis. The monitoring well will be installed to a total depth of at least 15 feet below the top of the water table. The monitoring well will be constructed using 2-inch diameter Schedule 40 polyvinyl chloride (PVC) casing and twenty linear feet of 0.010-inch machine-slot PVC screen. The monitoring well will be installed and completed by a licensed driller in accordance with state regulations. Following installation, the monitoring well will be developed and sampled for TPH DRO by Method 418.1 and naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene by Method 8270. The monitoring well will be plugged and abandoned if no COCs are detected in groundwater at concentrations above the New Mexico Water Quality Control Commission (WQCC) Human Health Standards. Navajo will seek OCD concurrence prior to plugging and abandoning.

Schedule

Navajo has tentatively scheduled the additional investigation at the loading rack to commence on December 5, 2016. The schedule is dependent on receiving an approved well permit from the New Mexico Office of the State Engineer (OSE), as required by state law.

Reporting

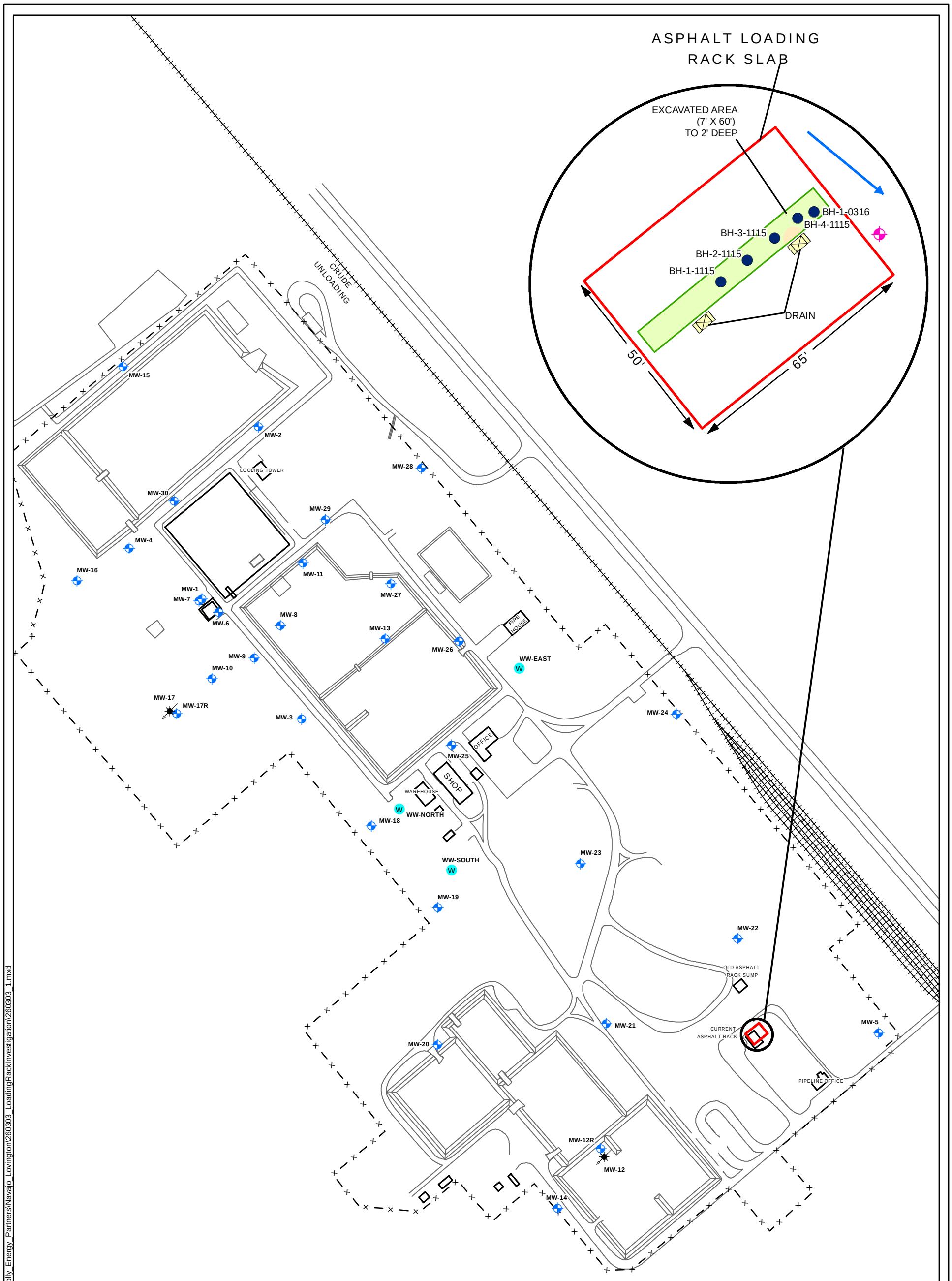
Navajo will communicate ongoing progress and results of the loading rack investigation with the OCD during investigation activities. The final results will be provided to OCD in a letter report.

Scott M. Denton
Environmental Manager

The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
575-746-5487 (o)
970-581-7268 (c)

Scott.Denton@HollyFrontier.com

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LEGEND

- MONITORING WELL
- PLUGGED WELL
- RECOVERY WELL
- WATER WELL
- SOIL BORING
- DRAINS
- RAIL
- FENCE
- EXCAVATED AREA
- BUILDINGS
- SITE
- PROPOSED SOIL BORING/CONTINGENT MONITOR WELL
- NATURAL GROUNDWATER FLOW DIRECTION

N

0 175 350 700

FEET

PROPOSED SOIL BORING AND CONTINGENT MONITOR WELL LOCATION MAP

HOLLYFRONTIER NAVAJO REFINING LLC
LEA REFINERY LOVINGTON, NM

PROJECT NO: 260303	MXD: 260303_1
AUTHOR: MLOVELACE	DATE: 11/21/2016

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 1

HOLLYFRONTIER

September 15, 2016

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

Re: Historical Asphalt Loading Rack Release, HollyFrontier Navajo Refining LLC, Lovington, New Mexico, AP-110

Dear Mr. Chavez:

HollyFrontier Navajo Refining LLC (Navajo) is submitting this letter to document abatement and investigation activities completed to date in response to historical soil impacts discovered at the asphalt loading rack at the Navajo facility (refinery) in Lovington, New Mexico. This letter supplements recent communication between Navajo and the New Mexico Oil Conservation Division (NMOCD) and recommends a path forward regarding the historical soil impacts.

BACKGROUND

Holly Energy Partners (HEP) operates the asphalt loading rack located at the southeastern portion of the refinery. Loading rack operations consist of the loading of asphalt into transport trucks from the loading rack to Navajo's refinery in Artesia, New Mexico for additional processing. The transfer of this asphalt between the Lovington and Artesia refineries is completed by truck because pipeline transfer of asphalt is not possible. Only asphalt has been managed at the loading rack since Navajo acquired ownership of the refinery in 1989. No diesel fuel was stored, handled, or transferred at the loading rack or loading rack area since Navajo has owned and operated the refinery. A 7-inch thick concrete slab underlies the extent of the loading rack and a concrete curb bounds the loading rack as secondary containment. The loading rack, including the slab and an associated subgrade drainage line, was constructed prior to Navajo's ownership and operation of the refinery.

In November 2015, HEP commenced construction activities to expand the loading rack operations. The activities included the removal of a 7-foot by 60-foot section of concrete slab from the existing 50-foot by 65-foot concrete slab, as shown in Figure 1. This portion of the concrete slab was being removed to allow for the installation of structural foundations for additional loading and pipe racks. Upon removal of the slab, stained soil with a hydrocarbon odor was encountered beneath the removed section of the concrete slab. This discovery was reported to the NMOCD District I Office in Hobbs, New Mexico on December 1, 2015, by HEP submitting a C-141 Form.

HEP contracted Safety Environmental Solutions, Inc. (SESI) to assess the discovered soil impacts. SESI conducted soil assessment activities in November 2015, December 2015, and March 2016. Results of the soil assessment activities indicated Total Petroleum Hydrocarbons (TPH) Diesel Range Organics (DRO) and naphthalene are present in soil. The greatest concentrations were determined to be located near one of two drain boxes (i.e, the easternmost drain box) located immediately southeast of the removed concrete slab (Figure 1). These two drain boxes were connected to a subgrade drainage line that runs along the southern boundary of where the concrete slab was removed. The increased levels of TPH DRO concentrations near the easternmost drain box indicates that this drain box was the potential source of the historical soil impacts.

Soil removal activities were completed in conjunction with the soil assessment activities. This included excavation of soil within the area where the concrete slab was removed to an approximate depth of 2 feet below ground surface (bgs), at which depth native well-compacted caliche was encountered. HEP also further excavated soil from around the easternmost drain box to an approximate depth of 4.5 feet bgs. The two drain boxes and associated drainage line adjacent to the excavation were emptied of fluids (i.e., storm water from recent rainfall) with a vacuum truck and were plugged with concrete. Details of the assessment and response activities and the associated analytical results are discussed in the sections below. The locations of the asphalt rack, concrete slab cut, soil borings, excavated area, and drain boxes are presented on Figure 1.

Only asphalt has been handled at the loading rack since Navajo acquired ownership of the refinery in 1989. Thus, the impacted soil is considered to be the result of historical refinery operations conducted prior to Navajo ownership.

HEP ceased construction activities pending soil response and assessment activities. Navajo will be managing future soil remediation and assessment activities associated with the impacted soil at the asphalt loading rack.

SOIL RESPONSE AND ASSESSMENT ACTIVITIES

On behalf of HEP, SESI completed initial soil assessment activities on November 11, 2015. The assessment activities consisted of advancing four shallow soil borings (BH-1-1115 through BH-4-1115) spaced approximately 10 feet apart along the concrete slab cut using direct push technology (DPT) drilling techniques. Soil boring locations are depicted on Figure 1. Soil samples were continuously collected from each boring and observed for hydrocarbon odor and staining. DPT refusal was encountered at approximately 2 to 4 feet bgs at each soil boring. Soil samples were collected from select intervals for laboratory analysis based on observations of odor and staining. The soil samples were submitted to Cardinal Laboratories in Hobbs, New

Mexico for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX) by Method 8021 and TPH Gasoline Range Organics (GRO) and DRO by Method 8015.

On December 10 and 11, 2015, HEP mechanically excavated impacted soil within the concrete slab cut area to an approximate depth of 2 feet, the depth that the native caliche was encountered. Stained soil around and beneath the easternmost drain box was also removed via hand digging to approximately 4.5 feet bgs. A total of 68 cubic-yards of excavated soil was placed in steel roll-off bins, characterized as non-hazardous waste based on analytical results of composite samples, and transported to the Gandy Marley, Inc. Contaminated Soils Landfarm in Roswell, New Mexico. Soil manifests are presented in Attachment A.

SESI conducted additional soil assessment activities on behalf of HEP on December 14, 2015. Two soil samples were collected for laboratory analysis. One grab soil sample was collected from the north sidewall of the excavated area around/beneath the easternmost drain box. A second grab sample was collected from beneath the in-place concrete slab north of boring BH-3-1115 by hand digging horizontally from the north excavation sidewall. The two soil samples were submitted to Cardinal Laboratories in Hobbs, New Mexico for analysis of BTEX by Method 8021 and TPH GRO and DRO by Method 8015.

After completion of sampling activities on December 14, 2015, HEP removed any fluids present in the drain boxes and drainage line located along the excavated area via vacuum truck and backfilled them with concrete as they are no longer needed.

SESI drilled an additional boring (BH-1-0316) to 95 feet bgs using air-rotary drilling techniques on March 24, 2016, to determine the vertical extent of historical hydrocarbon impacts beneath the loading rack. Soil cores were continuously collected, logged, and observed for hydrocarbon odor and staining. Nine soil and rock samples were collected for laboratory analysis every ten feet from 10 feet bgs to 90 feet bgs. The soil and rock samples were submitted to Cardinal Laboratories in Hobbs, New Mexico for analysis of volatile organic compounds (VOCs) by Method 8260, semi-volatile organic compounds (SVOCs) by Method 8270, and TPH GRO and DRO by Method 8015. Groundwater was not encountered in the boring. A boring log for BH-1-0316 is provided as Attachment B. Photographic logs of soil assessment activities are provided as Attachment C.

A final C-141 Form documenting the response activities is provided as Attachment D.

SOIL ASSESSMENT RESULTS

Laboratory analytical results from the soil assessment activities are summarized in Table 1. Laboratory analytical reports are provided as Attachment E. The soil analytical results were compared to screening levels in accordance with the "Release Response Guidance" included as Appendix B of the December 2015 *Revised Facility-Wide Groundwater Monitoring Work Plan*

(Revised FWGWMWP) that was approved by NMOCD in an email on March 9, 2016. Soil analytical results for BTEX and TPH were compared to NMOCD Remediation Action Levels (RALs) as determined using the ranking system found in the NMOCD *Guidelines for the Remediation of Leaks and Spills* dated August 13, 1993. A ranking score of "0" was determined for the historical soil impacts discovered at the asphalt loading rack based on the following:

- The average depth to groundwater across the refinery is 109.99 feet bgs based on March 2016 groundwater gauging results. The March 2016 groundwater gauging results are consistent with historical groundwater levels measured at the refinery. Further, groundwater was not encountered in boring BH-1-0316, which was drilled to a depth of 95 feet.

- The asphalt loading rack is located more than 1,000 feet from the nearest water source (e.g., a public water supply well) and more than 200 feet from the nearest private domestic water source (e.g., a private water supply well). Portions of the refinery are located within the wellhead protection areas of City of Lovington public supply wells and water supply wells used on behalf of Navajo at the refinery; however, the asphalt loading rack is not located within any wellhead protection area.

- The asphalt loading rack is located more than 1,000 feet from the nearest surface water body.

The NMOCD RALs for a ranking score of "0" are provided in Table 1. TPH was detected at concentrations above the RAL of 5,000 milligrams per kilogram (mg/kg) in soil samples collected from soil borings BH-3-1115 at 4.3 feet bgs, BH-4-1115 at 1 feet bgs, and BH-1-0316 from 60 to 65 feet bgs and 70 to 75 feet bgs; and from the grab soil sample collected from the excavated area around the easternmost drain box at 4.7 feet bgs. The soil that was present in exceedance of the TPH RAL at soil boring BH-4-1115 was removed by HEP during excavation activities conducted on December 10-11, 2015. TPH concentrations in soil samples collected from 80 to 95 feet bgs at soil boring BH-1-0316 were below the RAL.

Analytical results of constituents of concern (COCs) other than BTEX and TPH were compared to their respective New Mexico Water Quality Control Commission (WQCC) Human Health Standards (WQCC Standards) with an applied dilution factor (DF) of 20 (i.e., 20x DF) in accordance with the Revised FWGWMWP. Total combined naphthalene concentrations (naphthalene, 1-methylnaphthalene, and 2- methylnaphthalene) were greater than the respective WQCC Standard with a 20x DF in all soil samples collected from soil boring BH-0316, with the greatest concentration reported from 70 to 75 feet bgs (41.26 mg/kg). All total naphthalene concentrations were less than the New Mexico Environmental Department (NMED) Soil Screening Level (SSL) for residential soil (49.7 mg/kg).

GROUNDWATER CONDITIONS

Navajo implements a robust facility-wide groundwater monitoring program that includes semi-annual groundwater monitoring of wells located throughout the refinery and quarterly sampling of the three refinery water supply wells. Semi-annual groundwater gauging events conducted at the refinery since at least 2012 indicate groundwater flows south/southeast across the refinery (i.e., natural gradient) with radial flow towards a cone of depression near the three water supply wells located within the central portion of the refinery (i.e., induced gradient). Groundwater gradient maps based on groundwater gauging data collected during the 2015 semi-annual monitoring events were provided to the NMOCD in the *2015 Annual Facility-Wide Groundwater Monitoring Report* (2015 GW Report) and are included as Attachment F to this letter for reference. The groundwater monitoring program includes gauging and sampling of monitoring wells in both the natural downgradient direction and the induced downgradient direction of the asphalt loading rack (i.e., towards the refinery water supply wells). Groundwater samples are submitted for laboratory analysis of VOCs, SVOCs, anions, cations, metals, and total dissolved solids (TDS). A summary of analytical results of groundwater monitoring events conducted from 2010 to 2015 were provided to the NMOCD in tables in the 2015 GW Report and are included as Attachment G to this letter for reference.

Naphthalene has never been detected above its WQCC Standard in any refinery monitoring well with the exception of one anomalous result in monitoring well MW-11 in February 2012. However, MW-11 is located approximately 2,400 feet upgradient of the asphalt loading rack and therefore the historical soil impacts present beneath the asphalt loading rack could not be the source of the anomalous exceedance of naphthalene in MW-11. Naphthalene has never been detected in wells MW-5, MW-21, or MW-22 that are located immediately in the natural downgradient direction and the induced downgradient direction of the asphalt loading rack. In addition, naphthalene has never been detected in any of the three water supply wells. 2-Methylnaphtahelene was detected at a concentration of 0.00031 milligrams per liter (mg/L) in MW-21 in February 2013, but the concentration is significantly lower than the WQCC Standard for total naphthalene (0.03 mg/L) and 2-methylnaphthalene was not detected in this well during any other sampling event.

TPH is not included in the facility-wide groundwater monitoring program. During the August 2016 semi-annual groundwater monitoring event, groundwater samples collected from the three water-supply wells and from monitoring wells MW-5, MW-21, and MW-22, which are located immediately in the natural downgradient direction and/or the induced downgradient direction of the asphalt loading rack, were submitted for laboratory analysis of TPH GRO and DRO. The results indicate that TPH DRO was detected in water-supply wells WW-South and WW-East at respective J-flagged concentrations of 0.0482 mg/L (DUP-4) and 0.0357 mg/L and in monitoring wells MW-5, MW-21, and MW-22 at respective concentrations of 0.366 mg/L, 0.624 mg/L, and 0.819 mg/L. TPH GRO was only detected at a J-flagged concentration of 0.0343 J mg/L in WW-

South, but it was not detected in the duplicate sample (DUP-4). No VOCs or SVOCs were detected above reporting limits in these wells with the exception of benzene in WW-South at a J-flagged concentration of 0.000509 mg/L (DUP-4), which is consistent with historical monitoring results. The August 2016 groundwater laboratory analytical reports for wells MW-5, MW-21, and MW-22 and the three water-supply wells are provided as Attachment E. The August 2016 groundwater analytical results are not included on the groundwater tables provided in Attachment G. The August 2016 monitoring results will be documented in the annual groundwater monitoring report due to OCD by April 15, 2017.

Groundwater monitoring results indicate VOCs and/or SVOCs associated with the historical soil impacts discovered at the asphalt loading rack have not leached into groundwater at the refinery. Diesel products have not been stored, handled, or transferred at the asphalt loading rack for at least 27 years since Navajo acquired ownership of the refinery, and therefore, the soil impacts were sourced at least 27 years ago. If naphthalene in soil at the asphalt loading rack had leached into groundwater, it would have been persistently detected in nearby monitoring wells during historical groundwater monitoring events conducted by Navajo. In addition, no other COC has been detected above WQCC standards in nearby wells MW-5, MW-21, and MW-22, with the exception of TDS in MW-21 and select metals (aluminum, chromium, iron, and uranium) in MW-22 in August 2014. The August 2014 metal results in MW-22 were highly anomalous compared to all other monitoring events.

PATH FORWARD

The results of the 2015 and 2016 soil assessment activities conducted at the asphalt loading rack and the results of historical groundwater monitoring data do not indicate further remediation actions for TPH DRO and naphthalene in soil are warranted at this time. Navajo recommends the following path forward to address the historical soil impacts at the asphalt loading rack:

- HEP will continue loading rack construction activities, including backfill of the excavation and repair of the concrete slab.

- Navajo will continue to implement the groundwater monitoring program in accordance with the Revised FWGWMWP. The three water supply wells and monitoring wells MW-5, MW-21, and MW-22 will be additionally analyzed for TPH GRO and DRO by Method 8015 for a period of two years. Additional response or monitoring activities associated with the historical loading rack release will be determined based on the groundwater monitoring results at these wells.

- Navajo or HEP will inspect and maintain the integrity of the loading rack concrete slab on a quarterly basis following asphalt rack construction and concrete slab repair activities.

These recommendations are based on the following:

- The age of the release that caused the historical soil impacts is at least 27 years old because Navajo has not stored, handled, or transferred any products containing diesel since it acquired ownership of the refinery in 1989.

- The likely source of the historical soil impacts has been removed and the drainage boxes and drain line have been plugged and abandoned.

- The concrete slab present beneath the asphalt loading rack serves as a "cap" over the historical soil impacts, effectively preventing worker exposure to impacted soil and preventing vertical migration of fluids from the surface through the impacted soil zone (i.e., prevents precipitation from percolating through the soil impacts and leaching to groundwater).

- Excavation of impacted soil in this area is not feasible due to the existence of loading rack infrastructure, active loading rack operations, and the depth of soil impacts (95 feet bgs). Loading rack operation, which includes active truck traffic and loading, occurs on a 24-hour basis.

- Historical groundwater monitoring results indicate VOCs and/or SVOCs have not leached into groundwater at the southeastern portion of the refinery. The current groundwater monitoring program effectively monitors VOCs and SVOCs in all directions of the asphalt loading rack (i.e., installation of any additional wells would be redundant).

- Installation of a monitoring well at the location of the historical soil impacts is not feasible because installation and sampling activities would interfere with active loading operations and pose potential environmental and safety risks. Heavy truck traffic over this location could potentially damage the well surface completions over time and the presence of the well would provide a potential vertical conduit through the concrete slab "cap" and to groundwater. Accessing the well during active loading operations would pose significant safety risks for sampling personnel.

Navajo requests NMOCD to approve this recommended path forward for the historical soil impacts at the asphalt loading rack. HEP will continue loading rack construction activities, including backfill of the excavation and repair of the concrete slab. If you have any questions or concerns, please do not hesitate to contact me at (575) 746-5487 or Robert Combs of Navajo at (575) 746-5382.

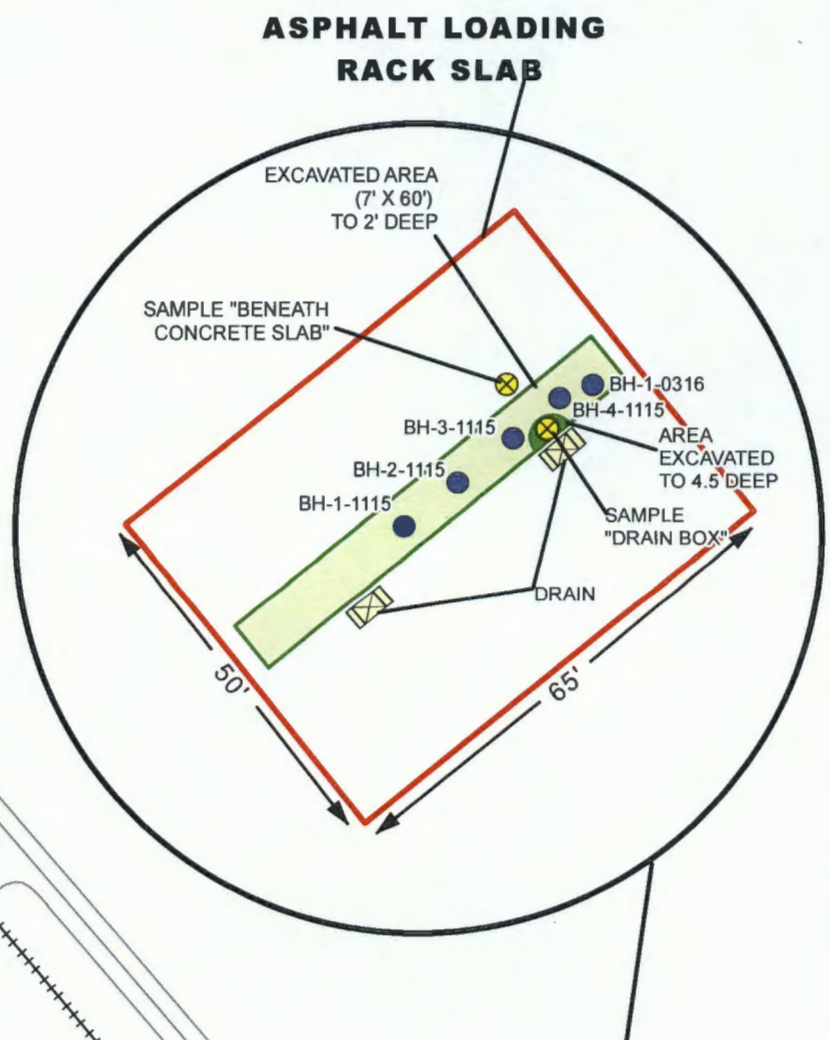
Sincerely,

Scott M. Denton
Environmental Manager

Attachments
Figure 1 – Site Plan and Soil Boring Location Map
Table 1 – Soil Analytical Results, Asphalt Loading Rack Investigation

Attachment A – Soil Waste Manifests
Attachment B – Soil Boring Log
Attachment C – Photographic Logs of Soil Assessment Activities
Attachment D – Final C-141 Form
Attachment E – Laboratory Analytical Reports
Attachment F – 2015 Groundwater Gradient Maps
Attachment G – Summary of Groundwater Analytical Results through 2015

cc: Jim Griswold, NMOCD Environmental Bureau, Santa Fe, New Mexico
Robert Combs, NRC, Artesia, New Mexico
Julie Speer, TRC, Austin, Texas
Bryan Gilbert, TRC, Austin, Texas



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LEGEND

- MONITORING WELL
- PLUGGED WELL
- RECOVERY WELL
- WATER WELL
- SOIL BORING
- GRAB SOIL SAMPLE
- DRAINS
- RAIL
- FENCE
- EXCAVATED AREA
- BUILDINGS
- SITE

N

0 175 350 700

FEET

SITE PLAN AND SOIL BORING LOCATION MAP

HOLLYFRONTIER NAVAJO REFINING LLC
LEA REFINERY LOVINGTON, NM

PROJECT NO: 260303	MXD: 260303_1
AUTHOR: MLOVELACE	DATE: 9/1/2016

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 1

Table 1. Soil Analytical Results, Asphalt Loading Rack Investigation
HollyFrontier Navajo Refining, LLC, AP-110, Lovington, New Mexico

Sample Location:		BH-1-1115	BH-2-1115	BH-3-1115		BH-4-1115		Drain Box[1]	Beneath Concrete Slab[2]	BH-1-0316								
Depth (feet bgs):		0.8 - 1.4	1.1 - 1.7	2.3 - 2.7	4 - 4.3	0.7 - 1.0	1.5 - 1.7	4.7	2.2	10 - 15	20 - 25	30 - 35	40 - 45	50 - 55	60 - 65	70 -75	80 - 85	90 - 95
Sample Collection Date:		11/19/2015	11/19/2015	11/19/2015	11/19/2015	11/19/2015	11/19/2015	12/14/2015	12/14/2015	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016
Analyte	Screening Standard	ANALYTICAL RESULTS (mg/kg)																
		Total Petroleum Hydrocarbons (Method 8015)																
GRO C6-C10	--	44.9	43.1	30.5	343	265	<10.0	279	26.8	32.0	39.0	245	140	66.8	271	508	162	21.4
DRO >C10-C28	--	2,120	1,620	1,180	7,570	11,300	321	9,420	1,070	1,420	1,980	3,560	2,720	2,580	5,460	8,140	4,050	838
Total TPH	5,000 [3]	2,165	1,663	1,211	**7,913**	**11,565**	321	**9,699**	1,097	1,452	2,019	3,805	2,860	2,647	**5,731**	**8,648**	4,212	859
		Volatile Organic Compounds [4] (Method 8021 or 8260) [5]																
Benzene	10 [3]	<0.050	<0.050	<0.050	<0.200	<0.200	<0.050	<0.200	<0.200	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095
Toluene	15 [6]	<0.050	0.065	<0.050	0.270	0.289	<0.050	0.217	<0.200	<0.130	<0.130	<0.130	<0.130	<0.130	<0.130	0.264	<0.130	<0.130
Ethylbenzene	15 [6]	0.599	0.939	0.588	10.4	2.72	0.302	0.675	0.393	<0.085	<0.085	0.792	0.531	0.339	0.946	3.16	0.739	<0.085
Xylenes	12.4 [6]	<0.150	<0.150	<0.150	<0.600	1.87	0.250	1.99	1.25	<0.135	<0.135	2.31	1.60	0.474	2.70	8.55	1.80	<0.135
Total BTEX	50 [6]	0.645	1.04	0.659	10.80	4.88	0.581	2.88	1.65	--	--	3.10	2.13	0.813	3.65	11.97	2.54	--
n-Propylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.313	<0.030	0.537	0.707	0.430	1.64	3.74	1.04	<0.030
1,3,5-Trimetyhlbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.090	<0.090	1.61	1.09	0.783	2.36	4.37	1.36	<0.090
1,2,4-Trimethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.085	<0.085	5.19	3.82	2.89	8.43	14.8	4.87	0.724
sec-Butylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.338	<0.085	0.961	0.748	0.602	1.60	2.83	0.997	<0.085
p-Isopropyltoluene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.065	<0.065	2.11	1.43	1.19	2.91	4.88	1.88	0.314
n-Butylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.633	<0.090	1.06	2.91	2.71	4.50	9.36	3.80	0.693
Naphthalene	0.6 [6]	NA	NA	NA	NA	NA	NA	NA	NA	**1.04**	0.266	**2.11**	**2.73**	**3.09**	**5.08**	**7.03**	**3.44**	**0.910**
		Semivolatile Organic Compounds (Method 8270)																
Naphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.798	0.140	1.4	2.78	2.38	4.39	5.76	2.37	0.274
2-Methylnapthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	2.63	0.215	5.71	9.81	9.75	13.6	18.0	9.58	1.43
1-Methylnaphtalene	--	NA	NA	NA	NA	NA	NA	NA	NA	2.86	0.27	7.08	9.60	9.72	13.1	17.5	9.66	1.49
Total Naphthalene	0.6 [6]	NA	NA	NA	NA	NA	NA	NA	NA	**6.288**	**0.625**	**14.19**	**22.19**	**21.85**	**31.09**	**41.26**	**21.61**	**3.194**
Acephtylene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.031	<0.031	0.151	0.065	0.227	0.263	<0.310	0.623	0.041
Fluorene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.577	0.036	1.00	1.22	1.39	1.49	2.05	1.44	0.262
Phenanthrene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.821	<0.060	1.37	1.78	1.99	2.22	3.42	2.07	0.438

1.04 Concentration exceeded applicable screening standard

mg/kg = milligrams per kilogram

NA = Not Analyzed

[1] Grab sample collected from north sidewall of area excavated immediately north of the easternmost drain box.

[2] Grab sample collected from beneath the loading rack concrete slab north of BH-3-1115 by hand digging 2.2 feet horizontally from the north excavation sidewall.

[3] Based on a total ranking score of zero points in accordance with New Mexico's Oil Conservation Division's *Guidelines for Remediation of Leaks, Spills and Releases* dated August 13, 1993. (>100' depth to groundwater, >200' from wellhead protection area, >1,000' from nearest surface water body)

[4] Only VOCs that were detected above the laboratory reporting limit are included in this table

[5] Soil samples collected on November 19, 2015 and December 14, 2015, were analyzed for VOCs by Method 8021. Soil samples collected on March 24, 2016, were analyzed for VOCs by Method 8260.

[6] New Mexico Water Quality Control Commission (WQCC) Human Health Standards (WQCC Standards) with an applied dilution factor (DF) of 20 (i.e., 20x DF), in accordance with the Release Response Guidance included as Appendix B of the December 2015 *Revised Facility-Wide Groundwater Monitoring Work Plan* that was approved by the OCD in an email on March 9, 2016.

ATTACHMENT A

Soil Waste Manifests

Contaminated Soils Shipment Manifest

1. Manifest Document No: 29151098

2. Page 1 of 1

GENERATOR

3. Generator Name and Mailing Address
Navajo Refining Co. LLC
PO Box 150
Artesia, NM 88211-0159

Truck 3

4. Generator Phone No.
575-748-3311

5. Generator Contact
Mick Schultz

6. Transporter 1 Company Name
3 Brothers Waste Services Inc.

7. ID No.

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP-1041

12. Facility Phone No.
(575) 398-0107

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt./Vol.
a. Non-Hazardous Soil EXCAVATION SOIL	1	CM	17	Y
b.				
c.				

17. Special Handling Instructions and Additional Information
South ASPHT RACK
Bin # 37

25880 lbs

18. Generator's Certification: *I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.*

FURTHER, I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Printed/Typed Name	Signature	Date
Christie Coons	Christie Coons	

TRANSPORTER

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
Arthur Bustamante		01/18/16

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date

GMI

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.

Printed/Typed Name	Signature	Date
Jim Thompson	Jim Thompson	01/18/16

Contaminated Soils Shipment Manifest

1. Manifest Document No. 120115125 10 | 2. Page 1 of ___

GENERATOR

3. Generator's Name and Mailing Address
Navajo Refining Co. LLC
PO Box 159
Artesia, NM 88211-0159
Lovington, NM Truck 4

4. Generator Phone No.
575-748-3311

5. Generator Contact
Richard Orosco

6. Transporter 1 Company Name
S Brothers Waste Services Inc.

7. ID No.

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP-1041

12. Facility Phone No.
(575) 398-0107

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt./Vol.
a. EXCAVATED SOIL	1	DM	17	Y
b.				
c.				

17. Special Handling Instructions and Additional Information
UNIT South ASPHALT Rack
BIN 36 22460 165

18. Generator's Certification: *I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.*

FURTHER. I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Printed/Typed Name	Signature	Date
Richard L. Orosco	Richard L Orosco	

TRANSPORTER

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
Arthur Bustamante	Arthur Bustamante	01/11/16

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date

GMI

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21. 9:47 AM

Printed/Typed Name	Signature	Date
J TOLTON	J Tolton	01/11/16

Contaminated Soils Shipment Manifest

1. Manifest Document No. 20151206

2. Page ___ of ___

GENERATOR

3. Generator's Name and Mailing Address
Navajo Refining Co. L.L.C.
PO Box 159
Artesia NM 88211-0159

4. Generator Phone No.
575-748-3311

5. Generator Contact
Richard Orosco

6. Transporter 1 Company Name
S Brothers Waste Services Inc.

7. ID No.

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP-1041

12. Facility Phone No.
(575) 398-0107

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt/Vol.
a. EXCAVATED SOIL	1	DM	17	Y
b.				
c.				

17. Special Handling Instructions and Additional Information
Unit South Asphalt Rack Lovington, NM
BIN 57 Truck 4 24 6 60 lbs

18. Generator's Certification: *I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.*

FURTHER. I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Printed/Typed Name	Signature	Date
Richard L. Orosio	Richard L Orosio	

TRANSPORTER

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
Arthur Bustamantes	Arthur Bustamantes	01/11/16

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date

GMI

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21. 1:13 PM

Printed/Typed Name	Signature	Date
J. TOLTON	J Tolton	01/11/16

Contaminated Soils Shipment Manifest

1. Manifest Document No. 20115120155 2. Page ___ of ___

GENERATOR

3. Generator's Name and Mailing Address
Navajo Refining Co., L.L.C.
P.O Box 159
Artesia NM 88211-0159

4. Generator Phone No.
575-748-3311

5. Generator Contact
Richard Orosco

6. Transporter 1 Company Name
S. Brothers Waste Services Inc.

7. ID No.

8. Transporter 2 Company Name
Lovington, NM Truck 4

9. ID No.

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP-1041

12. Facility Phone No.
(575) 398-0107

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt./Vol.
a. Excavated Soil	1	CM	17	Y
b.				
c.				

17. Special Handling Instructions and Additional Information
Unit South Asphalt Rock
Bin 66 15780 165

18. Generator's Certification: *I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.*

FURTHER. I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Printed/Typed Name	Signature	Date
Richard L. Orosco	Richard R Orosco	

TRANSPORTER

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
Arthur Bustamante		01/21/16

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date

GMI

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21. 1:37 PM

Printed/Typed Name	Signature	Date
J TOLTON	J Tolton	

ATTACHMENT B

Soil Boring Log

Safety & Environmental Solutions, Inc.

LOG OF BORING BH-1

HollyFrontier Companies
Navajo Lea Refinery
NW/4 SW/4, Sec 31, T-16-S, R-37-E
Lea County, New Mexico
N32.875421°, W103.296815°

Date/Time Started	: 03/24/16, 1000	Drilled By	: HCI Drilling, Inc.
Date/Time Completed	: 03/24/16, 1430	Sampling Method	: Tube core w/teeth
Hole Diameter	: 5-1/2 in.	Logged By	: David Boyer, P.G., SESI
Drilling Method	: Air Rotary		
Drilling Equipment	: Ingersol-Rand T-60		

Sample Method:
SS Split Spoon (18" or 24")
RC Rock Coring
CT Air Cuttings
NR No recovery

Depth in Feet	Sample Method	Recovery (feet)	USCS	GRAPHIC	DESCRIPTION	GRO (mg/kg)	DRO (mg/kg)	Benzene (mg/Kg)	VOC Naphthalene (mg/kg)	Semi-VOC total Naphthalenes (mg/kg)
0					0-4 ft. Previously excavated					
5			CA		4-10 ft. CALICHE, not sampled					
10	RC	2	CA		10-15 ft. CALICHE, light gray to white, hard, H/C staining and odor	32.0	1,420	<0.095	1.04	6.29
15	RC	2.5	CA/GP		15-20 ft. CALICHE, with some gravels, H/C staining and odor					
20	RC	1	SP/GP		20-25 ft. GRAVELLY SAND, H/C staining and odor	39.0	1,980	<0.095	0.266	0.625
25	NR	--			25-30 ft. No Recovery					
30	RC	2.5	SS		30-35 ft. SANDSTONE, H/C staining and odor	245	3,560	<0.095	2.11	14.2
35	RC	2.5	SS		35-40 ft. SANDSTONE with fine grained sand at 40 ft., strong H/C odor					
40	RC	3	SS		40-45 ft. SANDSTONE, very fine grained, poorly cemented, broken by hammer for sample, staining on rock, strong H/C odor	140	2,720	<0.095	2.73	22.2
45	RC	0.8	SS		45-50 ft. SANDSTONE, fine grained, brown with staining in rock, strong H/C odor					
50										

Notes:
1. Samples below 85 ft. are air cuttings which are likely to have lower hydrocarbon concentrations due to mixing with ambient injection air.
2. Lab analyses every 10 feet by Cardinal Labs, Hobbs, NM
3.Semi-volatile naphthalene values are total of SVOC naphthalene, 1-methyl naphthalene and 2-methyl naphthalene as per NM WQCC direction.
4. Hole plugged back from 95 feet with 2 bags PBS brand bentonite then mixture of 14 bags concrete with 1.5 bags bentonite for 5% bentonite mix.

Z:\Company Files\Navajo\2015 Cleanups\NAV-15-001 Lea Refinery Asphalt Rack\BH-1 boring to 95 feet.bor

Safety & Environmental Solutions, Inc.

LOG OF BORING BH-1

HollyFrontier Companies
Navajo Lea Refinery
NW/4 SW/4, Sec 31, T-16-S, R-37-E
Lea County, New Mexico
N32.875421°, W103.296815°

Date/Time Started	: 03/24/16, 1000	Drilled By	: HCI Drilling, Inc.
Date/Time Completed	: 03/24/16, 1430	Sampling Method	: Tube core w/teeth
Hole Diameter	: 5-1/2 in.	Logged By	: David Boyer, P.G., SESI
Drilling Method	: Air Rotary		
Drilling Equipment	: Ingersol-Rand T-60		

Sample Method:
SS Split Spoon (18" or 24")
RC Rock Coring
CT Air Cuttings
NR No recovery

Depth in Feet	Sample Method	Recovery (feet)	USCS	GRAPHIC	DESCRIPTION	GRO (mg/kg)	DRO (mg/kg)	Benzene (mg/Kg)	VOC Naphthalene (mg/kg)	Semi-VOC total Naphthalenes (mg/kg)
50	RC	1	SS		50-55 ft. SANDSTONE, poor to medium cementing with H/C odor and staining seen in interior of core.	66.8	2,580	<0.095	3.09	21.8
55	RC	2	SS		55-60 ft. SANDSTONE, staining as seen above, broke core for lab sampling					
60	RC	2.8	SS		60-65 ft. SANDSTONE, softer, sand grains brown, fine grained, staining on core	271	5,480	<0.095	5.08	31.1
65	RC	4.4	SS		65-70 ft. SANDSTONE, fractured with H/C staining, possible different H/C odor, sample for lab broken by hammer					
70	RC	2.2	SS		70-75 ft. SANDSTONE, very fractured, lab sample mainly from loose sand between fractures	508	8,140	<0.095	7.03	41.3
75	RC	<1	SS		75-80 ft. Less than 1 ft. recovery, several hard SANDSTONE pieces, not broken further for sampling, H/C staining and odor on pieces.					
80	RC	~2	SS		80-85 ft. SANDSTONE as above, less than 2 ft. recovery, some smaller pieces have gray staining.	162	4,050	<0.095	3.44	21.6
85	CT	--	SP		85-90 ft. Sample from air cuttings due to possibility of losing core sampling tube and bit due to collasping sand. Cuttings are SAND, light brown, very fine grained, slightly damp, strong H/C odor					
90	CT	--	SP		90-95 ft. No core, cuttings, SAND, light brown, very fine grained, slightly damp, strong H/C odor	21.4	838	<0.095	0.910	3.19
95										
100										

Notes:
1. Samples below 85 ft. are air cuttings which are likely to have lower hydrocarbon concentrations due to mixing with ambient injection air.
2. Lab analyses every 10 feet by Cardinal Labs, Hobbs, NM
3. Semi-volatile naphthalene values are total of SVOC naphthalene, 1-methyl naphthalene and 2-methyl naphthalene as per NM WQCC direction.
4. Hole plugged back from 95 feet with 2 bags PBS brand bentonite then mixture of 14 bags concrete with 1.5 bags bentonite for 5% bentonite mix.

Z:\Company Files\Navajo\2015 Cleanups\NAV-15-001 Lea Refinery Asphalt Rack\BH-1 boring to 95 feet.bor

ATTACHMENT C

Photographic Logs of Soil Assessment Activities

Holly Energy Partners
Lovington Asphalt Rack Soils Investigation
Photographic Log of November 2015 Assessment Activities, Safety Environmental Solutions, Inc.



11-20-15 Sample points as flagged



11-20-15 Sample flags and diesel Staining



11-20-15 Sample points as flagged

Holly Energy Partners
Lovington Asphalt Rack Soils Investigation
Photographic Log of December 2015 Assessment Activities, Safety Environmental Solutions, Inc.



12-11-15 Excavated area



12-11-15 Excavated area



12-11-15 Excavated drain box

Holly Energy Partners
Lovington Asphalt Rack Soils Investigation
Photographic Log of December 2015 Assessment Activities, Safety Environmental Solutions, Inc.



12-11-15 Excavated Area



12-11-15 Close up of Drain box with staining



12-14-15 Close up of Drain box. Water and minor product draining to sorbent pads

Holly Energy Partners
Lovington Asphalt Rack Soils Investigation
Photographic Log of 3-24-16 Assessment Activities, Safety Environmental Solutions, Inc.



HCI Drilling Rig



Small ramp for drilling rig



Drillers with drill pipe in excavation



Core 15 to 20 feet



Core 35 to 40 feet



Core Fragments 37 to38 feet with staining

Holly Energy Partners
Lovington Asphalt Rack Soils Investigation
Photographic Log of 3-24-16 Assessment Activities, Safety Environmental Solutions, Inc.



Core 40 to 45 feet showing staining



Core Fragments 55 to 60 feet



Core 60 to 65 feet, some staining



Core 70 to 75 feet, fractured sandstone

ATTACHMENT D

Final C-141 Form

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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

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: HollyFrontier Navajo Refining LLC	Contact: Robert Combs
Address: 501 E. Main St., Artesia, NM 88210	Telephone No.: 575-746-5382
Facility Name: HollyFrontier Navajo Refining LLC	Facility Type: Petroleum Refinery

Surface Owner: HollyFrontier Navajo Refining LLC	Mineral Owner N/A	API No. N/A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
SW/4	31	16S	37E					

Latitude 32°52'31.71"N **Longitude** 103°17'48.29"W

NATURE OF RELEASE

Type of Release: Unknown	Volume of Release: Unknown	Volume Recovered N/A
Source of Release: Appears to be sewer system at loading rack.	Date and Hour of Occurrence: Unknown	Date and Hour of Discovery: November 11, 2015; 12:00 pm
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. None	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.* While excavating for new construction, HEP discovered discolored soil with a hydrocarbon odor. Safety and Environmental Solutions (SESI) was contact to sample and delineate. SESI mobilized on 11/19/15 with Geoprobe and on 3/24/16 with a drilling rig for further vertical delineation. DRO impacts were observed to 95 ft bgs.

Describe Area Affected and Cleanup Action Taken.* The area observed as being affected is a dirt rectangle 60 ft. x 7 ft. The current owner HEP/HollyFrontier, only loads asphalt in the area but the previous operator reportedly loaded diesel and naphtha at this location (pre-1989). A total of 68 cubic-yards of soil was excavated, characterized as non-hazardous waste based on analytical results of composite samples, and transported to the Gandy Marley, Inc. Contaminated Soils Landfarm in Roswell, New Mexico. In addition to the soil investigation, groundwater samples from adjacent monitor wells were analyzed for DRO in August 2016 and historical monitoring results are presented in the attached letter report. Because hydrocarbon impacts are not observed in groundwater, limited leaching is observed. Furthermore, since the area is covered with concrete and/or pavement, further remediation is not practicable.

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:	OIL CONSERVATION DIVISION	
Printed Name: Robert Combs	Approved by Environmental Specialist:	
Title: Environmental Specialist	Approval Date:	Expiration Date:
E-mail Address: robert.combs@hollyfrontier.com	Conditions of Approval:	Attached ☐
Date: 9/15/16 Phone: 575-746-3311		

* Attach Additional Sheets If Necessary

ATTACHMENT E

Laboratory Analytical Reports

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

November 25, 2015

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: LEA REFINERY ASPHALT RACK SOILS

Enclosed are the results of analyses for samples received by the laboratory on 11/19/15 16:59.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Hope S. Moreno

Hope S. Moreno For Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	11/19/2015	Sampling Date:	11/19/2015
Reported:	11/25/2015	Sampling Type:	Soil
Project Name:	LEA REFINERY ASPHALT RACK SOILS	Sampling Condition:	** (See Notes)
Project Number:	HOL-15-008	Sample Received By:	Jodi Henson
Project Location:	LOOVINGTON, NM		

Sample ID: BH-1, 0.8 - 1.4' (H503070-01)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/23/2015	ND	1.84	91.9	2.00	1.55	
Toluene*	<0.050	0.050	11/23/2015	ND	2.10	105	2.00	1.90	
Ethylbenzene*	**0.599**	0.050	11/23/2015	ND	2.11	105	2.00	2.31	
Total Xylenes*	<0.150	0.150	11/23/2015	ND	6.21	104	6.00	2.09	
Total BTEX	**0.645**	0.300	11/23/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *136 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**44.9**	10.0	11/22/2015	ND	197	98.3	200	1.26	
DRO >C10-C28	**2120**	10.0	11/22/2015	ND	186	93.0	200	0.310	

Surrogate: 1-Chlorooctane *105 %* *35-147*

Surrogate: 1-Chlorooctadecane *137 %* *28-171*

Cardinal Laboratories

*=Accredited Analyte

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Hope S. Moreno

Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	11/19/2015	Sampling Date:	11/19/2015
Reported:	11/25/2015	Sampling Type:	Soil
Project Name:	LEA REFINERY ASPHALT RACK SOILS	Sampling Condition:	** (See Notes)
Project Number:	HOL-15-008	Sample Received By:	Jodi Henson
Project Location:	LOOVINGTON, NM		

Sample ID: BH-2, 1.1 - 1.7' (H503070-02)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/23/2015	ND	1.84	91.9	2.00	1.55	
Toluene*	**0.065**	0.050	11/23/2015	ND	2.10	105	2.00	1.90	
Ethylbenzene*	**0.939**	0.050	11/23/2015	ND	2.11	105	2.00	2.31	
Total Xylenes*	<0.150	0.150	11/23/2015	ND	6.21	104	6.00	2.09	
Total BTEX	**1.04**	0.300	11/23/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *133 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**43.1**	10.0	11/22/2015	ND	197	98.3	200	1.26	
DRO >C10-C28	**1620**	10.0	11/22/2015	ND	186	93.0	200	0.310	

Surrogate: 1-Chlorooctane *102 %* *35-147*

Surrogate: 1-Chlorooctadecane *122 %* *28-171*

Cardinal Laboratories

*=Accredited Analyte

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Hope S. Moreno

Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	11/19/2015	Sampling Date:	11/19/2015
Reported:	11/25/2015	Sampling Type:	Soil
Project Name:	LEA REFINERY ASPHALT RACK SOILS	Sampling Condition:	** (See Notes)
Project Number:	HOL-15-008	Sample Received By:	Jodi Henson
Project Location:	LOOVINGTON, NM		

Sample ID: BH-3, 2.3 - 2.7' (H503070-03)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/23/2015	ND	1.84	91.9	2.00	1.55	
Toluene*	<0.050	0.050	11/23/2015	ND	2.10	105	2.00	1.90	
Ethylbenzene*	**0.588**	0.050	11/23/2015	ND	2.11	105	2.00	2.31	
Total Xylenes*	<0.150	0.150	11/23/2015	ND	6.21	104	6.00	2.09	
Total BTEX	**0.659**	0.300	11/23/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *122 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**30.5**	10.0	11/22/2015	ND	197	98.3	200	1.26	
DRO >C10-C28	**1180**	10.0	11/22/2015	ND	186	93.0	200	0.310	

Surrogate: 1-Chlorooctane *95.7 %* *35-147*

Surrogate: 1-Chlorooctadecane *110 %* *28-171*

Cardinal Laboratories

*=Accredited Analyte

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Hope S. Moreno

Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	11/19/2015	Sampling Date:	11/19/2015
Reported:	11/25/2015	Sampling Type:	Soil
Project Name:	LEA REFINERY ASPHALT RACK SOILS	Sampling Condition:	** (See Notes)
Project Number:	HOL-15-008	Sample Received By:	Jodi Henson
Project Location:	LOOVINGTON, NM		

Sample ID: BH-3, 4 - 4.3' (H503070-04)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	11/23/2015	ND	1.84	91.9	2.00	1.55	
Toluene*	**0.270**	0.200	11/23/2015	ND	2.10	105	2.00	1.90	
Ethylbenzene*	**10.4**	0.200	11/23/2015	ND	2.11	105	2.00	2.31	
Total Xylenes*	<0.600	0.600	11/23/2015	ND	6.21	104	6.00	2.09	
Total BTEX	**10.8**	1.20	11/23/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *127 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS** **S-04**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**343**	10.0	11/22/2015	ND	197	98.3	200	1.26	
DRO >C10-C28	**7570**	10.0	11/22/2015	ND	186	93.0	200	0.310	

Surrogate: 1-Chlorooctane *157 %* *35-147*

Surrogate: 1-Chlorooctadecane *194 %* *28-171*

Cardinal Laboratories

*=Accredited Analyte

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Hope S. Moreno

Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	11/19/2015	Sampling Date:	11/19/2015
Reported:	11/25/2015	Sampling Type:	Soil
Project Name:	LEA REFINERY ASPHALT RACK SOILS	Sampling Condition:	** (See Notes)
Project Number:	HOL-15-008	Sample Received By:	Jodi Henson
Project Location:	LOOVINGTON, NM		

Sample ID: BH-4, 0.7 - 1.0' (H503070-05)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	11/24/2015	ND	2.01	101	2.00	8.60	
Toluene*	**0.289**	0.200	11/24/2015	ND	2.00	99.9	2.00	11.2	
Ethylbenzene*	**2.72**	0.200	11/24/2015	ND	2.12	106	2.00	15.4	
Total Xylenes*	**1.87**	0.600	11/24/2015	ND	6.39	106	6.00	15.5	
Total BTEX	**4.88**	1.20	11/24/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS** **S-04**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**265**	10.0	11/22/2015	ND	197	98.3	200	1.26	
DRO >C10-C28	**11300**	10.0	11/22/2015	ND	186	93.0	200	0.310	

Surrogate: 1-Chlorooctane *149 %* *35-147*

Surrogate: 1-Chlorooctadecane *286 %* *28-171*

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Hope S. Moreno

Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	11/19/2015	Sampling Date:	11/19/2015
Reported:	11/25/2015	Sampling Type:	Soil
Project Name:	LEA REFINERY ASPHALT RACK SOILS	Sampling Condition:	** (See Notes)
Project Number:	HOL-15-008	Sample Received By:	Jodi Henson
Project Location:	LOOVINGTON, NM		

Sample ID: BH-4, 1.5 - 1.7' (H503070-06)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/24/2015	ND	2.01	101	2.00	8.60	
Toluene*	<0.050	0.050	11/24/2015	ND	2.00	99.9	2.00	11.2	
Ethylbenzene*	**0.302**	0.050	11/24/2015	ND	2.12	106	2.00	15.4	
Total Xylenes*	**0.250**	0.150	11/24/2015	ND	6.39	106	6.00	15.5	
Total BTEX	**0.581**	0.300	11/24/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *110 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/22/2015	ND	197	98.3	200	1.26	
DRO >C10-C28	**321**	10.0	11/22/2015	ND	186	93.0	200	0.310	

Surrogate: 1-Chlorooctane *94.2 %* *35-147*

Surrogate: 1-Chlorooctadecane *110 %* *28-171*

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Hope S. Moreno

Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Hope S. Moreno

Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240
(505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page ____ of ____

Company Name:	Safety & Environmental Solutions, Inc.	**BILL TO**	
Project Manager:	Bob Allen	P.O. #:	
Address:	703 East Clinton	Company:	Same
City:	Hobbs State: NM Zip: 88240	Attn:	
Phone #:	575-397-0510 Fax #: 575-393-4388	Address:	
Project #:	HOL-15-008 Project Owner: Holly Energy	City:	
Project Name:	Lea Refinery Asphalt Rack 5215	State: Zip:	
Project Location:	Lovington	Phone #:	
Sampler Name:	David Boyer	Fax #:	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV: ACID/BASE:	ICE (COOL)	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: TPH (8015 Mod) (GRO/DRO)	BTEX
H503070													11/19			
1	BH-1, 0.8-1.4 FT	G	1			X					X		11/19	0840	X	X
2	BH-2, 1.1-1.7 FT	G	1			X					X			0905		
3	BH-3, 2.3-2.7 FT	G	1			X					X			0935		
4	BH-3, 4-4.3 FT	G	1			X					X			1000		
5	BH-4, 0.7-1.0 FT	G	1			X					X			1025		
6	BH-4, 1.5-1.7 FT	G	1			X					X		11/19	1030	X	X

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Terms and Conditions: Interest on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice and all costs of collections, including attorney's fees.

Sampler Relinquished:	Date: 11/19/15	Received By:	Phone Result: ☐ Yes ☒ No	Add'l Phone #:	
Relinquished By:	Time: 4:59	Received By:	Fax Result: ☐ Yes ☒ No	Add'l Fax #:	
	Date:		REMARKS: Samples taken & brought directly to lab. JH		
	Time:				

Delivered By: (Circle One)	Temp:	Sample Condition	CHECKED BY:
Sampler - UPS - Bus - Other: 15.2°C		Cool: ☐ Yes ☐ No; Intact: ☑ Yes ☐ No	(Initials) JH

Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.

FED EX

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

December 15, 2015

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: HEP ASPHALT RACK SOIL INVESTIGATION

Enclosed are the results of analyses for samples received by the laboratory on 12/14/15 16:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	12/14/2015	Sampling Date:	12/14/2015
Reported:	12/15/2015	Sampling Type:	Soil
Project Name:	HEP ASPHALT RACK SOIL INVESTIGATIC	Sampling Condition:	** (See Notes)
Project Number:	NAV-15-001	Sample Received By:	Jodi Henson
Project Location:	LEA REFINERY		

Sample ID: SE DRAIN BOX EXC N SIDE WALL 4.7' BELOW SURFACE (H50

TEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	12/15/2015	ND	1.70	85.2	2.00	0.0320	
oluene*	**0.217**	0.200	12/15/2015	ND	1.72	85.8	2.00	0.311	
Ethylbenzene*	**0.675**	0.200	12/15/2015	ND	1.75	87.7	2.00	0.503	
otal Xylenes*	**1.99**	0.600	12/15/2015	ND	5.25	87.4	6.00	0.204	
otal BTEX	**2.88**	1.20	12/15/2015	ND					

urrogate: 4-Bromofluorobenzene (PID *129 %* *73.6-140*

PH 8015M mg/kg **Analyzed By: MS** **S-06**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
RO C6-C10	**279**	50.0	12/15/2015	ND	189	94.3	200	1.55	
DRO >C10-C28	**9420**	50.0	12/15/2015	ND	176	88.0	200	3.61	

urrogate: 1-Chlorooctane *149 %* *35-147*

Surrogate: 1-Chlorooctadecane *250 %* *28-171*

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	12/14/2015	Sampling Date:	12/14/2015
Reported:	12/15/2015	Sampling Type:	Soil
Project Name:	HEP ASPHALT RACK SOIL INVESTIGATIC	Sampling Condition:	** (See Notes)
Project Number:	NAV-15-001	Sample Received By:	Jodi Henson
Project Location:	LEA REFINERY		

Sample ID: N EXC SIDE WALL 2.2' UNDER CONCRETE (H503243-02)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	12/15/2015	ND	1.70	85.2	2.00	0.0320	
Toluene*	<0.200	0.200	12/15/2015	ND	1.72	85.8	2.00	0.311	
Ethylbenzene*	**0.393**	0.200	12/15/2015	ND	1.75	87.7	2.00	0.503	
Total Xylenes*	**1.25**	0.600	12/15/2015	ND	5.25	87.4	6.00	0.204	
Total BTEX	**1.65**	1.20	12/15/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**26.8**	10.0	12/15/2015	ND	189	94.3	200	1.55	
DRO >C10-C28	**1070**	10.0	12/15/2015	ND	176	88.0	200	3.61	

Surrogate: 1-Chlorooctane *112 %* *35-147*

Surrogate: 1-Chlorooctadecane *111 %* *28-171*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

RUSH!!

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(505) 393-2326 Fax (505) 393-2476

Page 1 of 1

Company Name:	Safety & Environmental Solutions, Inc.	BILL TO	
Project Manager:	Bob Allen	P.O. #:	
Address:	703 East Clinton	Company:	Same
City:	Hobbs State: NM Zip: 88240	Attn:	
Phone #:	~~575-397-0510~~ Fax #: 575-393-4388	Address:	
Project #:	~~Hot 15-005~~ NAV-15-001 Project Owner: HEP	City:	
Project Name:	HEP Asphalt Rack Soil Investigation	State: Zip:	
Project Location:	Lea Refinery	Phone #:	
Sampler Name:	DAVID BOYER	Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV: ACID/BASE:	ICE/COOL	OTHER:	SAMPLING DATE	SAMPLING TIME	BTEX	TPH 8015
H503243													2015			
1	SE Drain Box Excavation North Sidewall 4.7 FT Below Surface DB	G	1			X						X	12/14	1535	X	X
2	North Excavation Sidewall, 2.2 FT under concrete	G	1			X						X	12/14	1540	X	X

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Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished:	Date: 12/14/15	Received By:	
	Time: 4:55	Jodi Henson	
Relinquished By:	Date:	Received By:	
	Time:		

Phone Result: ☐ Yes ☒ No Add'l Phone #:
Fax Result: ☐ Yes ☒ No Add'l Fax #:
REMARKS: samples taken & brought directly to lab.

Delivered By: (Circle One)	Temp.	Sample Condition Cool	Intact	CHECKED BY: (Initials)
Sampler - UPS - Bus - Other:	17.6°C	☐ Yes ☐ No	☑ Yes ☐ No	

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.

#54

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

April 08, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: NAV-15-001

Enclosed are the results of analyses for samples received by the laboratory on 03/28/16 10:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-15-7. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-1, 10-15'	H600648-01	Soil	24-Mar-16 10:20	28-Mar-16 10:30
BH-1, 20-25'	H600648-02	Soil	24-Mar-16 10:40	28-Mar-16 10:30
BH-1, 30-35'	H600648-03	Soil	24-Mar-16 10:55	28-Mar-16 10:30
BH-1, 40-45'	H600648-04	Soil	24-Mar-16 11:20	28-Mar-16 10:30
BH-1, 50-55'	H600648-05	Soil	24-Mar-16 11:40	28-Mar-16 10:30
BH-1, 60-65'	H600648-06	Soil	24-Mar-16 12:15	28-Mar-16 10:30
BH-1, 70-75'	H600648-07	Soil	24-Mar-16 12:40	28-Mar-16 10:30
BH-1, 80-85'	H600648-08	Soil	24-Mar-16 13:05	28-Mar-16 10:30
BH-1, 90-95'	H600648-09	Soil	24-Mar-16 13:15	28-Mar-16 10:30

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 10-15'

H600648-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**32.0**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**1420**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*83.7 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*95.8 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**1.07**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 10-15'

H600648-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	<0.065	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Total Xylenes*	<0.135	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**0.313**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 10-15'

H600648-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**0.338**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
p-Isopropyltoluene*	<0.065	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**0.633**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**1.04**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*103 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*94.6 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*99.4 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**0.798**	0.018	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
2-Methylnaphthalene	**2.63**	0.029	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
1-Methylnaphthalene	**2.86**	0.011	0.200	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthylene	<0.031	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 10-15'

H600648-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**0.577**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Phenanthrene	**0.821**	0.060	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Carbazole	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]pyrene	<0.028	0.028	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*110 %*	*36.9-116*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: 2-Fluorobiphenyl			*74.9 %*	*29.5-132*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*68.4 %*	*35.1-158*		*6040103*	MS	*01-Apr-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 20-25'

H600648-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**39.0**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**1980**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*99.0 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*142 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**0.914**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 20-25'

H600648-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	<0.065	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Total Xylenes*	<0.135	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	<0.030	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 20-25'

H600648-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	<0.065	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**0.266**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*100 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*97.0 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*102 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**0.140**	0.018	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
2-Methylnaphthalene	**0.215**	0.029	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
1-Methylnaphthalene	**0.270**	0.011	0.200	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthylene	<0.031	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 20-25'

H600648-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**0.036**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Phenanthrene	<0.060	0.060	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Carbazole	**0.076**	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Chrysene	**0.090**	0.033	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Benzo[b]flouranthene	**0.264**	0.034	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]pyrene	**0.066**	0.028	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*109 %*	*36.9-116*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: 2-Fluorobiphenyl			*83.9 %*	*29.5-132*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*87.2 %*	*35.1-158*		*6040103*	MS	*01-Apr-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 30-35'

H600648-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**245**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**3560**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*131 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*121 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**0.843**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 30-35'

H600648-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	**0.792**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	**1.62**	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	**0.687**	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Total Xylenes*	**2.31**	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	**0.298**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**0.537**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 30-35'

H600648-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	**1.61**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**5.19**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**0.961**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	**2.11**	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**1.06**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**2.11**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*102 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*96.2 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*104 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**1.40**	0.018	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
2-Methylnaphthalene	**5.71**	0.029	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
1-Methylnaphthalene	**7.08**	0.011	0.200	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthylene	**0.151**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 30-35'

H600648-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**1.00**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Phenanthrene	**1.37**	0.060	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Carbazole	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]pyrene	<0.028	0.028	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*134 %*	*36.9-116*		*6040103*	MS	*01-Apr-16*	*8270C*	*S-06*
Surrogate: 2-Fluorobiphenyl			*84.8 %*	*29.5-132*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*91.6 %*	*35.1-158*		*6040103*	MS	*01-Apr-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 40-45'

H600648-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**140**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**2720**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*111 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*104 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**1.17**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 40-45'

H600648-04 (Soil)

Cardinal Laboratories

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	**0.531**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	**1.10**	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	**0.492**	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
Total Xylenes*	**1.60**	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	**0.299**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**0.707**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 40-45'

H600648-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	**1.09**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**3.82**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**0.748**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	**1.43**	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**2.91**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**2.73**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*103 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*96.3 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*103 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**2.78**	0.018	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
2-Methylnaphthalene	**9.81**	0.029	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
1-Methylnaphthalene	**9.60**	0.011	0.200	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthylene	**0.065**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 40-45'

H600648-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**1.22**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Phenanthrene	**1.78**	0.060	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Carbazole	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]pyrene	<0.028	0.028	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*149 %*	*36.9-116*		*6040103*	MS	*01-Apr-16*	*8270C*	*S-06*
Surrogate: 2-Fluorobiphenyl			*99.0 %*	*29.5-132*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: Terphenyl-d14			*103 %*	*35.1-158*		*6040103*	MS	*01-Apr-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 50-55'

H600648-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**66.8**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**2580**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*115 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*151 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**0.969**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 50-55'

H600648-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	**0.339**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	**0.474**	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
Total Xylenes*	**0.474**	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
o-Xylene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**0.430**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 50-55'

H600648-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	**0.783**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**2.89**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**0.602**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	**1.19**	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**2.71**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**3.09**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*102 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*98.2 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*101 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**2.38**	0.018	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
2-Methylnaphthalene	**9.75**	0.029	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
1-Methylnaphthalene	**9.72**	0.011	0.200	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthylene	**0.227**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 50-55'

H600648-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**1.39**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Phenanthrene	**1.99**	0.060	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Carbazole	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]pyrene	**0.070**	0.028	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*135 %*	*36.9-116*		*6040103*	MS	*01-Apr-16*	*8270C*	*S-06*
Surrogate: 2-Fluorobiphenyl			*88.2 %*	*29.5-132*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*95.7 %*	*35.1-158*		*6040103*	MS	*01-Apr-16*	*8270C*	

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 60-65'

H600648-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										**S-04**
GRO C6-C10	**271**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**5460**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*161 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*140 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**0.856**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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BH-1, 60-65'

H600648-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	**0.946**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	**1.76**	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	**0.947**	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Total Xylenes*	**2.70**	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	**0.652**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**1.64**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 60-65'

H600648-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
'OLATILES BY GC/MS										
,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
3,5-Trimethylbenzene*	**2.36**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
rt-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**8.43**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**1.60**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
-Isopropyltoluene*	**2.91**	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
-Butylbenzene*	**4.50**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
exachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**5.08**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
rrogate: Dibromofluoromethane			*102 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*95.1 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*107 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
emivolatile Organic Compounds by GCMS										
Naphthalene	**4.39**	0.018	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Methylnaphthalene	**13.6**	0.029	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Methylnaphthalene	**13.1**	0.011	0.200	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthylene	**0.263**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
cenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 60-65'

H600648-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**1.49**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Phenanthrene	**2.22**	0.060	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Carbazole	**0.117**	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]pyrene	**0.072**	0.028	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*73.8 %*	*36.9-116*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: 2-Fluorobiphenyl			*82.8 %*	*29.5-132*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*87.4 %*	*35.1-158*		*6040103*	MS	*01-Apr-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 70-75'

H600648-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										**S-04**
GRO C6-C10	**508**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**8140**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*181 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*174 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**1.10**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 70-75'

H600648-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	**0.264**	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	**3.16**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	**5.74**	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Total Xylenes*	**8.55**	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	**2.81**	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	**1.64**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**3.74**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 70-75'

H600648-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	**4.37**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**14.8**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**2.83**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	**4.88**	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**9.36**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**7.03**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*102 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*96.9 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*113 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**5.76**	0.176	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
2-Methylnaphthalene	**18.0**	0.287	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
1-Methylnaphthalene	**17.5**	0.111	2.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Acenaphthylene	<0.310	0.310	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Acenaphthene	<0.260	0.260	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 70-75'

H600648-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**2.05**	0.310	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	J
Phenanthrene	**3.42**	0.596	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	J
Anthracene	<0.323	0.323	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Carbazole	<0.368	0.368	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Fluoranthene	<0.712	0.712	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Pyrene	<0.302	0.302	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Benzo[a]anthracene	<1.56	1.56	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Chrysene	<0.331	0.331	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Benzo[b]flouranthene	<0.339	0.339	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Benzo[k]flouranthene	<0.367	0.367	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Benzo[a]pyrene	<0.284	0.284	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Indeno[1,2,3-cd]pyrene	<0.266	0.266	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.256	0.256	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Benzo[g,h,i]perylene	<2.96	2.96	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*204 %*	*36.9-116*		*6040103*	MS	*05-Apr-16*	*8270C*	*S-06*
Surrogate: 2-Fluorobiphenyl			*79.9 %*	*29.5-132*		*6040103*	MS	*05-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*81.1 %*	*35.1-158*		*6040103*	MS	*05-Apr-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 80-85'

H600648-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**162**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**4050**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*115 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*122 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**0.935**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 80-85'

H600648-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	**0.739**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	**1.15**	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Total Xylenes*	**1.80**	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	**0.650**	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	**0.410**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**1.04**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 80-85'

H600648-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	**1.36**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**4.87**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**0.997**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	**1.88**	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**3.80**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**3.44**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*100 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*96.1 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*106 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**2.37**	0.018	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
2-Methylnaphthalene	**9.58**	0.029	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
1-Methylnaphthalene	**9.66**	0.011	0.200	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Acenaphthylene	**0.208**	0.031	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	J
Acenaphthene	**0.623**	0.026	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 80-85'

H600648-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**1.44**	0.031	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Phenanthrene	**2.07**	0.060	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Carbazole	<0.037	0.037	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[a]pyrene	<0.028	0.028	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*141 %*	*36.9-116*		*6040103*	MS	*04-Apr-16*	*8270C*	*S-06*
Surrogate: 2-Fluorobiphenyl			*93.3 %*	*29.5-132*		*6040103*	MS	*04-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*108 %*	*35.1-158*		*6040103*	MS	*04-Apr-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 90-95'

H600648-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**21.4**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**838**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*87.8 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*88.2 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Acetone*	**0.848**	0.815	2.50	mg/kg	500	6040607	MS	07-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	07-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 90-95'

H600648-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Ethylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
m+p - Xylene*	<0.065	0.065	1.00	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Total Xylenes*	<0.135	0.135	1.50	mg/kg	500	6040607	MS	07-Apr-16	8260B	
o-Xylene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Isopropylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
n-Propylbenzene*	<0.030	0.030	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 90-95'

H600648-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,3,5-Trimethylbenzene*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**0.724**	0.085	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
sec-Butylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
p-Isopropyltoluene*	**0.314**	0.065	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	J
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
n-Butylbenzene*	**0.693**	0.090	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Naphthalene*	**0.910**	0.080	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*102 %*	*90.4-111*		*6040607*	MS	*07-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*97.2 %*	*85.3-114*		*6040607*	MS	*07-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*103 %*	*80.1-121*		*6040607*	MS	*07-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**0.274**	0.018	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	J
2-Methylnaphthalene	**1.43**	0.029	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
1-Methylnaphthalene	**1.49**	0.011	0.200	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Acenaphthylene	**0.041**	0.031	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	J
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 90-95'

H600648-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**0.262**	0.031	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	J
Phenanthrene	**0.438**	0.060	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Carbazole	<0.037	0.037	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[a]pyrene	**0.069**	0.028	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	J
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*75.0 %*	*36.9-116*		*6040103*	MS	*04-Apr-16*	*8270C*	
Surrogate: 2-Fluorobiphenyl			*66.4 %*	*29.5-132*		*6040103*	MS	*04-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*73.9 %*	*35.1-158*		*6040103*	MS	*04-Apr-16*	*8270C*	

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6032906 - General Prep - Organics										
Blank (6032906-BLK1)				Prepared & Analyzed: 29-Mar-16						
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	*43.8*		mg/kg	*50.0*		*87.6*	*35-147*			
Surrogate: 1-Chlorooctadecane	*47.7*		mg/kg	*50.0*		*95.5*	*28-171*			
LCS (6032906-BS1)				Prepared: 29-Mar-16 Analyzed: 30-Mar-16						
GRO C6-C10	176	10.0	mg/kg	200		88.2	76.7-115			
DRO >C10-C28	166	10.0	mg/kg	200		83.1	78.3-122			
Total TPH C6-C28	343	10.0	mg/kg	400		85.6	79.8-117			
Surrogate: 1-Chlorooctane	*39.8*		mg/kg	*50.0*		*79.6*	*35-147*			
Surrogate: 1-Chlorooctadecane	*47.9*		mg/kg	*50.0*		*95.7*	*28-171*			
LCS Dup (6032906-BSD1)				Prepared & Analyzed: 29-Mar-16						
GRO C6-C10	187	10.0	mg/kg	200		93.7	76.7-115	6.12	9.42	
DRO >C10-C28	188	10.0	mg/kg	200		94.0	78.3-122	12.3	13.2	
Total TPH C6-C28	376	10.0	mg/kg	400		93.9	79.8-117	9.19	10.7	
Surrogate: 1-Chlorooctane	*47.6*		mg/kg	*50.0*		*95.2*	*35-147*			
Surrogate: 1-Chlorooctadecane	*47.2*		mg/kg	*50.0*		*94.5*	*28-171*			

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
Blank (6040607-BLK1)				Prepared & Analyzed: 06-Apr-16						
Dichlorodifluoromethane	ND	0.050	mg/kg							
Chloromethane	ND	0.050	mg/kg							
Vinyl chloride	ND	0.050	mg/kg							
Bromomethane	ND	0.050	mg/kg							
Chloroethane	ND	0.050	mg/kg							
Trichlorofluoromethane	ND	0.050	mg/kg							
1,1-Dichloroethene	ND	0.050	mg/kg							
Carbon disulfide	ND	0.050	mg/kg							
Iodomethane	ND	0.050	mg/kg							
Acrolein	ND	2.50	mg/kg							
Methylene chloride	ND	0.050	mg/kg							
Acetone	ND	0.250	mg/kg							
trans-1,2-Dichloroethene	ND	0.050	mg/kg							
Methyl t-Butyl Ether	ND	0.050	mg/kg							
1,1-Dichloroethane	ND	0.050	mg/kg							
Acrylonitrile	ND	0.050	mg/kg							
Vinyl acetate	ND	0.250	mg/kg							
cis-1,2-Dichloroethene	ND	0.050	mg/kg							
2,2-Dichloropropane	ND	0.050	mg/kg							
Bromochloromethane	ND	0.050	mg/kg							
Chloroform	ND	0.050	mg/kg							
Carbon tetrachloride	ND	0.050	mg/kg							
1,1,1-Trichloroethane	ND	0.050	mg/kg							
1,1-Dichloropropene	ND	0.050	mg/kg							
2-Butanone	ND	0.250	mg/kg							
Benzene	ND	0.050	mg/kg							
1,2-Dichloroethane	ND	0.050	mg/kg							
Trichloroethene	ND	0.050	mg/kg							
Dibromomethane	ND	0.050	mg/kg							
1,2-Dichloropropane	ND	0.050	mg/kg							
Bromodichloromethane	ND	0.050	mg/kg							
cis-1,3-Dichloropropene	ND	0.050	mg/kg							

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
Blank (6040607-BLK1)				Prepared & Analyzed: 06-Apr-16						
Toluene	ND	0.050	mg/kg							
4-Methyl-2-pentanone	ND	0.250	mg/kg							
Tetrachloroethene	ND	0.050	mg/kg							
trans-1,3-Dichloropropene	ND	0.050	mg/kg							
1,1,2-Trichloroethane	ND	0.050	mg/kg							
Dibromochloromethane	ND	0.050	mg/kg							
1,3-Dichloropropane	ND	0.050	mg/kg							
1,2-Dibromoethane	ND	0.050	mg/kg							
2-Hexanone	ND	0.250	mg/kg							
Chlorobenzene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
1,1,1,2-Tetrachloroethane	ND	0.050	mg/kg							
m+p - Xylene	ND	0.100	mg/kg							
o-Xylene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Bromoform	ND	0.050	mg/kg							
Styrene	ND	0.050	mg/kg							
Isopropylbenzene	ND	0.050	mg/kg							
Bromobenzene	ND	0.050	mg/kg							
n-Propylbenzene	ND	0.050	mg/kg							
1,1,2,2-Tetrachloroethane	ND	0.050	mg/kg							
2-Chlorotoluene	ND	0.050	mg/kg							
1,2,3-trichloropropane	ND	0.050	mg/kg							
1,3,5-Trimethylbenzene	ND	0.050	mg/kg							
trans-1,4-Dichloro-2-butene	ND	0.050	mg/kg							
4-Chlorotoluene	ND	0.050	mg/kg							
tert-Butylbenzene	ND	0.050	mg/kg							
1,2,4-Trimethylbenzene	ND	0.050	mg/kg							
sec-Butylbenzene	ND	0.050	mg/kg							
p-Isopropyltoluene	ND	0.050	mg/kg							
1,3-Dichlorobenzene	ND	0.050	mg/kg							
1,4 Dichlorobenzene	ND	0.050	mg/kg							

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
Blank (6040607-BLK1)				Prepared & Analyzed: 06-Apr-16						
n-Butylbenzene	ND	0.050	mg/kg							
1,2-Dichlorobenzene	ND	0.050	mg/kg							
1,2-Dibromo-3-chloropropane	ND	0.050	mg/kg							
Hexachlorobutadiene	ND	0.050	mg/kg							
1,2,4-Trichlorobenzene	ND	0.050	mg/kg							
Naphthalene	ND	0.050	mg/kg							
1,2,3-Trichlorobenzene	ND	0.050	mg/kg							
Surrogate: Dibromofluoromethane	*0.515*		mg/kg	*0.500*		*103*	*90.4-111*			
Surrogate: Toluene-d8	*0.482*		mg/kg	*0.500*		*96.4*	*85.3-114*			
Surrogate: 4-Bromofluorobenzene	*0.490*		mg/kg	*0.500*		*98.0*	*80.1-121*			
LCS (6040607-BS1)				Prepared & Analyzed: 06-Apr-16						
Dichlorodifluoromethane	1.78	0.050	mg/kg	2.00		89.1	27.7-127			
Chloromethane	1.89	0.050	mg/kg	2.00		94.7	39-143			
Vinyl chloride	1.87	0.050	mg/kg	2.00		93.6	38.9-132			
Bromomethane	1.60	0.050	mg/kg	2.00		80.2	44.2-129			
Chloroethane	1.41	0.050	mg/kg	2.00		70.6	24.2-192			
Trichlorofluoromethane	1.78	0.050	mg/kg	2.00		89.2	38-176			
1,1-Dichloroethene	2.05	0.050	mg/kg	2.00		102	51.1-157			
Carbon disulfide	2.13	0.050	mg/kg	2.00		106	18.6-235			
Iodomethane	2.02	0.050	mg/kg	2.00		101	69.6-113			
Acrolein	ND	2.50	mg/kg				0-200			
Methylene chloride	2.11	0.050	mg/kg	2.00		106	70-122			
Acetone	ND	0.250	mg/kg				0-200			
trans-1,2-Dichloroethene	2.34	0.050	mg/kg	2.00		117	69.9-124			
Methyl t-Butyl Ether	ND	0.050	mg/kg				0-200			
1,1-Dichloroethane	2.21	0.050	mg/kg	2.00		111	81.7-132			
Acrylonitrile	1.70	0.050	mg/kg				0-200			
Vinyl acetate	ND	0.250	mg/kg				0-200			
cis-1,2-Dichloroethene	2.02	0.050	mg/kg	2.00		101	66.7-123			
2,2-Dichloropropane	2.15	0.050	mg/kg	2.00		108	57.2-119			
Bromochloromethane	2.13	0.050	mg/kg	2.00		107	67.5-123			

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
LCS (6040607-BS1)				Prepared & Analyzed: 06-Apr-16						
Chloroform	2.20	0.050	mg/kg	2.00		110	77.2-124			
Carbon tetrachloride	2.34	0.050	mg/kg	2.00		117	76.3-132			
1,1,1-Trichloroethane	2.23	0.050	mg/kg	2.00		112	79.5-131			
1,1-Dichloropropene	2.18	0.050	mg/kg	2.00		109	77.7-125			
2-Butanone	ND	0.250	mg/kg				0-200			
Benzene	2.09	0.050	mg/kg	2.00		105	75.1-126			
1,2-Dichloroethane	2.05	0.050	mg/kg	2.00		102	73.1-121			
Trichloroethene	2.20	0.050	mg/kg	2.00		110	74.5-119			
Dibromomethane	2.08	0.050	mg/kg	2.00		104	73-123			
1,2-Dichloropropane	2.09	0.050	mg/kg	2.00		104	72.5-128			
Bromodichloromethane	2.22	0.050	mg/kg	2.00		111	74.6-129			
cis-1,3-Dichloropropene	1.89	0.050	mg/kg	2.00		94.4	61.6-122			
Toluene	2.11	0.050	mg/kg	2.00		106	71.7-121			
4-Methyl-2-pentanone	ND	0.250	mg/kg				0-200			
Tetrachloroethene	2.13	0.050	mg/kg	2.00		106	76.8-114			
trans-1,3-Dichloropropene	1.97	0.050	mg/kg	2.00		98.3	63-130			
1,1,2-Trichloroethane	1.93	0.050	mg/kg	2.00		96.5	71.5-113			
Dibromochloromethane	2.14	0.050	mg/kg	2.00		107	70.9-123			
1,3-Dichloropropane	1.93	0.050	mg/kg	2.00		96.7	70.6-114			
1,2-Dibromoethane	1.99	0.050	mg/kg	2.00		99.7	71.2-114			
2-Hexanone	ND	0.250	mg/kg				0-200			
Chlorobenzene	2.04	0.050	mg/kg	2.00		102	80.2-119			
Ethylbenzene	2.14	0.050	mg/kg	2.00		107	80.2-118			
1,1,1,2-Tetrachloroethane	2.01	0.050	mg/kg	2.00		101	72.9-113			
m+p - Xylene	3.95	0.100	mg/kg	4.00		98.8	83-124			
o-Xylene	2.03	0.050	mg/kg	2.00		102	84.7-121			
Total Xylenes	5.99	0.150	mg/kg	6.00		99.8	84.1-122			
Bromoform	2.10	0.050	mg/kg	2.00		105	66-120			
Styrene	1.96	0.050	mg/kg	2.00		98.1	76.3-110			
Isopropylbenzene	2.07	0.050	mg/kg	2.00		103	84.9-127			
Bromobenzene	1.94	0.050	mg/kg	2.00		97.1	70.8-117			
n-Propylbenzene	2.03	0.050	mg/kg	2.00		101	81.5-133			

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
LCS (6040607-BS1)				Prepared & Analyzed: 06-Apr-16						
1,1,2,2-Tetrachloroethane	1.88	0.050	mg/kg	2.00		93.8	61.8-110			
2-Chlorotoluene	1.93	0.050	mg/kg	2.00		96.3	79.8-121			
1.2.3-trichloropropane	1.83	0.050	mg/kg	2.00		91.4	50.6-118			
1,3,5-Trimethylbenzene	2.00	0.050	mg/kg	2.00		100	78.3-117			
trans-1,4-Dichloro-2-butene	1.30	0.050	mg/kg	2.00		65.2	8.5-181			
4-Chlorotoluene	1.93	0.050	mg/kg	2.00		96.3	81.1-120			
tert-Butylbenzene	1.97	0.050	mg/kg	2.00		98.7	78-120			
1,2,4-Trimethylbenzene	1.96	0.050	mg/kg	2.00		98.1	77-125			
sec-Butylbenzene	1.98	0.050	mg/kg	2.00		98.8	75.5-125			
p-Isopropyltoluene	1.90	0.050	mg/kg	2.00		94.9	69.4-126			
1,3-Dichlorobenzene	1.96	0.050	mg/kg	2.00		98.1	72.3-115			
1,4 Dichlorobenzene	1.97	0.050	mg/kg	2.00		98.4	73.6-115			
n-Butylbenzene	1.89	0.050	mg/kg	2.00		94.5	64-131			
1,2-Dichlorobenzene	1.97	0.050	mg/kg	2.00		98.6	78-113			
1,2-Dibromo-3-chloropropane	1.82	0.050	mg/kg	2.00		91.2	49.7-112			
Hexachlorobutadiene	2.14	0.050	mg/kg	2.00		107	54.4-131			
1,2,4-Trichlorobenzene	1.94	0.050	mg/kg	2.00		97.1	73.4-114			
Naphthalene	1.71	0.050	mg/kg	2.00		85.4	72.2-121			
1,2,3-Trichlorobenzene	1.67	0.050	mg/kg	2.00		83.6	76-112			
Surrogate: Dibromofluoromethane	*0.510*		mg/kg	*0.500*		*102*	*90.4-111*			
Surrogate: Toluene-d8	*0.476*		mg/kg	*0.500*		*95.2*	*85.3-114*			
Surrogate: 4-Bromofluorobenzene	*0.515*		mg/kg	*0.500*		*103*	*80.1-121*			
LCS Dup (6040607-BSD1)				Prepared & Analyzed: 06-Apr-16						
Dichlorodifluoromethane	1.76	0.050	mg/kg	2.00		88.0	27.7-127	1.28	19.5	
Chloromethane	1.82	0.050	mg/kg	2.00		91.2	39-143	3.68	23.1	
Vinyl chloride	1.85	0.050	mg/kg	2.00		92.5	38.9-132	1.11	19.3	
Bromomethane	1.54	0.050	mg/kg	2.00		76.8	44.2-129	4.39	21	
Chloroethane	1.36	0.050	mg/kg	2.00		67.8	24.2-192	4.04	23	
Trichlorofluoromethane	1.78	0.050	mg/kg	2.00		89.1	38-176	0.0477	29.2	
1,1-Dichloroethene	2.02	0.050	mg/kg	2.00		101	51.1-157	1.53	20.3	
Carbon disulfide	2.11	0.050	mg/kg	2.00		106	18.6-235	0.781	24.9	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
LCS Dup (6040607-BSD1)				Prepared & Analyzed: 06-Apr-16						
*Iodomethane	2.22	0.050	mg/kg	2.00		111	69.6-113	9.48	17.7	
Acrolein	ND	2.50	mg/kg				0-200		50	
*Methylene chloride	2.05	0.050	mg/kg	2.00		103	70-122	3.00	22.9	
Acetone	ND	0.250	mg/kg				0-200		50	
trans-1,2-Dichloroethene	2.27	0.050	mg/kg	2.00		114	69.9-124	2.84	16	
Methyl t-Butyl Ether	ND	0.050	mg/kg				0-200		50	
1,1-Dichloroethane	2.14	0.050	mg/kg	2.00		107	81.7-132	3.14	17.7	
*Acrylonitrile	1.78	0.050	mg/kg				0-200	4.47	50	
Vinyl acetate	ND	0.250	mg/kg				0-200		50	
*cis-1,2-Dichloroethene	1.94	0.050	mg/kg	2.00		96.8	66.7-123	4.38	16.2	
2,2-Dichloropropane	2.10	0.050	mg/kg	2.00		105	57.2-119	2.38	16.2	
*Bromochloromethane	2.07	0.050	mg/kg	2.00		104	67.5-123	2.91	16.1	
Chloroform	2.13	0.050	mg/kg	2.00		106	77.2-124	3.36	14.3	
*Carbon tetrachloride	2.49	0.050	mg/kg	2.00		125	76.3-132	6.35	17.1	
*1,1,1-Trichloroethane	2.20	0.050	mg/kg	2.00		110	79.5-131	1.59	16.9	
1,1-Dichloropropene	2.13	0.050	mg/kg	2.00		107	77.7-125	2.18	16	
*2-Butanone	ND	0.250	mg/kg				0-200		50	
Benzene	2.04	0.050	mg/kg	2.00		102	75.1-126	2.44	15.7	
*1,2-Dichloroethane	1.98	0.050	mg/kg	2.00		99.2	73.1-121	3.16	16	
Trichloroethene	2.18	0.050	mg/kg	2.00		109	74.5-119	0.870	15	
*Dibromomethane	2.01	0.050	mg/kg	2.00		101	73-123	3.19	18.5	
1,2-Dichloropropane	2.04	0.050	mg/kg	2.00		102	72.5-128	2.38	18.4	
Bromodichloromethane	2.13	0.050	mg/kg	2.00		106	74.6-129	4.41	15.4	
cis-1,3-Dichloropropene	1.87	0.050	mg/kg	2.00		93.5	61.6-122	0.941	17.3	
Toluene	2.10	0.050	mg/kg	2.00		105	71.7-121	0.466	14.4	
*4-Methyl-2-pentanone	ND	0.250	mg/kg				0-200		50	
Tetrachloroethene	2.13	0.050	mg/kg	2.00		107	76.8-114	0.208	15.8	
*trans-1,3-Dichloropropene	1.95	0.050	mg/kg	2.00		97.4	63-130	0.911	14.3	
1,1,2-Trichloroethane	1.96	0.050	mg/kg	2.00		98.0	71.5-113	1.49	14.7	
*Dibromochloromethane	2.08	0.050	mg/kg	2.00		104	70.9-123	2.50	15	
1,3-Dichloropropane	1.91	0.050	mg/kg	2.00		95.6	70.6-114	1.17	17.8	
*1,2-Dibromoethane	1.99	0.050	mg/kg	2.00		99.7	71.2-114	0.00452	22	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
LCS Dup (6040607-BSD1)				Prepared & Analyzed: 06-Apr-16						
2-Hexanone	ND	0.250	mg/kg				0-200		50	
Chlorobenzene	2.04	0.050	mg/kg	2.00		102	80.2-119	0.0309	16.2	
Ethylbenzene	2.10	0.050	mg/kg	2.00		105	80.2-118	1.76	14.1	
1,1,1,2-Tetrachloroethane	2.00	0.050	mg/kg	2.00		99.8	72.9-113	0.760	14.7	
m+p - Xylene	3.90	0.100	mg/kg	4.00		97.6	83-124	1.31	14.6	
o-Xylene	2.01	0.050	mg/kg	2.00		101	84.7-121	1.00	14	
Total Xylenes	5.91	0.150	mg/kg	6.00		98.6	84.1-122	1.20	14.1	
Bromoform	2.07	0.050	mg/kg	2.00		103	66-120	1.52	22.2	
Styrene	1.93	0.050	mg/kg	2.00		96.6	76.3-110	1.47	14.7	
Isopropylbenzene	2.07	0.050	mg/kg	2.00		103	84.9-127	0.0653	14.6	
Bromobenzene	1.94	0.050	mg/kg	2.00		96.8	70.8-117	0.263	16.9	
n-Propylbenzene	2.04	0.050	mg/kg	2.00		102	81.5-133	0.314	18.5	
1,1,2,2-Tetrachloroethane	1.88	0.050	mg/kg	2.00		94.2	61.8-110	0.499	28.6	
2-Chlorotoluene	1.92	0.050	mg/kg	2.00		95.9	79.8-121	0.420	17.8	
1.2.3-trichloropropane	1.86	0.050	mg/kg	2.00		92.9	50.6-118	1.56	30.8	
1,3,5-Trimethylbenzene	2.00	0.050	mg/kg	2.00		100	78.3-117	0.0170	18.3	
trans-1,4-Dichloro-2-butene	1.19	0.050	mg/kg	2.00		59.5	8.5-181	9.07	35.4	
4-Chlorotoluene	1.95	0.050	mg/kg	2.00		97.3	81.1-120	1.02	18.3	
tert-Butylbenzene	1.97	0.050	mg/kg	2.00		98.3	78-120	0.436	17.2	
1,2,4-Trimethylbenzene	1.95	0.050	mg/kg	2.00		97.7	77-125	0.351	17.4	
sec-Butylbenzene	1.97	0.050	mg/kg	2.00		98.5	75.5-125	0.335	17.8	
p-Isopropyltoluene	1.91	0.050	mg/kg	2.00		95.5	69.4-126	0.636	19.6	
1,3-Dichlorobenzene	1.95	0.050	mg/kg	2.00		97.7	72.3-115	0.480	18.7	
1,4 Dichlorobenzene	1.95	0.050	mg/kg	2.00		97.3	73.6-115	1.12	18.7	
n-Butylbenzene	1.91	0.050	mg/kg	2.00		95.5	64-131	0.986	19.6	
1,2-Dichlorobenzene	1.96	0.050	mg/kg	2.00		98.0	78-113	0.632	18.8	
1,2-Dibromo-3-chloropropane	1.75	0.050	mg/kg	2.00		87.6	49.7-112	4.08	45.4	
Hexachlorobutadiene	2.24	0.050	mg/kg	2.00		112	54.4-131	4.65	20.3	
1,2,4-Trichlorobenzene	1.91	0.050	mg/kg	2.00		95.3	73.4-114	1.88	21.6	
Naphthalene	1.68	0.050	mg/kg	2.00		83.8	72.2-121	1.87	25.6	
1,2,3-Trichlorobenzene	1.63	0.050	mg/kg	2.00		81.5	76-112	2.56	21.2	
Surrogate: Dibromofluoromethane	*0.509*		mg/kg	*0.500*		*102*	*90.4-111*			

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
LCS Dup (6040607-BSD1)				Prepared & Analyzed: 06-Apr-16						
Surrogate: Toluene-d8	*0.484*		mg/kg	*0.500*		*96.8*	*85.3-114*			
Surrogate: 4-Bromofluorobenzene	*0.503*		mg/kg	*0.500*		*101*	*80.1-121*			

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

Semivolatile Organic Compounds by GCMS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040103 - SW-846 3550										
Blank (6040103-BLK1)				Prepared & Analyzed: 01-Apr-16						
Naphthalene	ND	0.040	mg/kg							
2-Methylnaphthalene	ND	0.040	mg/kg							
1-Methylnaphthalene	ND	0.020	mg/kg							
Acenaphthylene	ND	0.040	mg/kg							
Acenaphthene	ND	0.040	mg/kg							
Fluorene	ND	0.040	mg/kg							
Phenanthrene	ND	0.040	mg/kg							
Anthracene	ND	0.040	mg/kg							
Carbazole	ND	0.040	mg/kg							
Fluoranthene	ND	0.040	mg/kg							
Pyrene	ND	0.040	mg/kg							
Benzo[a]anthracene	ND	0.040	mg/kg							
Chrysene	ND	0.040	mg/kg							
Benzo[b]flouranthene	ND	0.040	mg/kg							
Benzo[k]flouranthene	ND	0.040	mg/kg							
Benzo[a]pyrene	ND	0.040	mg/kg							
Indeno[1,2,3-cd]pyrene	ND	0.040	mg/kg							
Dibenz[a,h]anthracene	ND	0.040	mg/kg							
Benzo[g,h,i]perylene	ND	0.040	mg/kg							
Surrogate: Nitrobenzene-d5	*2.22*		mg/kg	*2.00*		*111*	*36.9-116*			
Surrogate: 2-Fluorobiphenyl	*2.28*		mg/kg	*2.00*		*114*	*29.5-132*			
Surrogate: Terphenyl-dl4	*2.97*		mg/kg	*2.00*		*148*	*35.1-158*			
LCS (6040103-BS1)				Prepared: 01-Apr-16 Analyzed: 04-Apr-16						
Naphthalene	0.384	0.040	mg/kg	0.400		96.1	44.7-98			
2-Methylnaphthalene	0.348	0.040	mg/kg	0.400		87.0	38.9-112			
Acenaphthylene	0.418	0.040	mg/kg	0.400		104	40.8-111			
Acenaphthene	0.412	0.040	mg/kg	0.400		103	38.4-113			
Fluorene	0.347	0.040	mg/kg	0.400		86.7	35.2-119			
Phenanthrene	0.427	0.040	mg/kg	0.400		107	38.1-123			
Anthracene	0.406	0.040	mg/kg	0.400		102	40.3-118			
Carbazole	0.461	0.040	mg/kg	0.400		115	33-126			

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

Semivolatile Organic Compounds by GCMS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040103 - SW-846 3550										
LCS (6040103-BS1)				Prepared: 01-Apr-16 Analyzed: 04-Apr-16						
Fluoranthene	0.355	0.040	mg/kg	0.400		88.8	32.8-127			
Pyrene	0.524	0.040	mg/kg	0.400		131	39.4-120			BS1
Benzo[a]anthracene	0.417	0.040	mg/kg	0.400		104	43.9-111			
Chrysene	0.416	0.040	mg/kg	0.400		104	44.4-111			
Benzo[b]flouranthene	0.369	0.040	mg/kg	0.400		92.2	33.1-123			
Benzo[k]flouranthene	0.383	0.040	mg/kg	0.400		95.8	37.5-124			
Benzo[a]pyrene	0.360	0.040	mg/kg	0.400		90.1	41.6-117			
Indeno[1,2,3-cd]pyrene	0.319	0.040	mg/kg	0.400		79.8	35.7-115			
Dibenz[a,h]anthracene	0.326	0.040	mg/kg	0.400		81.5	40-113			
Benzo[g,h,i]perylene	0.316	0.040	mg/kg	0.400		79.1	31.4-115			
Surrogate: Nitrobenzene-d5	*2.18*		mg/kg	*2.00*		*109*	*36.9-116*			
Surrogate: 2-Fluorobiphenyl	*2.17*		mg/kg	*2.00*		*108*	*29.5-132*			
Surrogate: Terphenyl-dl4	*3.06*		mg/kg	*2.00*		*153*	*35.1-158*			
LCS Dup (6040103-BSD1)				Prepared: 01-Apr-16 Analyzed: 04-Apr-16						
Naphthalene	0.384	0.040	mg/kg	0.400		95.9	44.7-98	0.174	9.54	
2-Methylnaphthalene	0.357	0.040	mg/kg	0.400		89.2	38.9-112	2.49	15.5	
Acenaphthylene	0.419	0.040	mg/kg	0.400		105	40.8-111	0.399	14.2	
Acenaphthene	0.410	0.040	mg/kg	0.400		103	38.4-113	0.498	9.34	
Fluorene	0.350	0.040	mg/kg	0.400		87.4	35.2-119	0.836	12.6	
Phenanthrene	0.425	0.040	mg/kg	0.400		106	38.1-123	0.461	13.5	
Anthracene	0.407	0.040	mg/kg	0.400		102	40.3-118	0.263	18.3	
Carbazole	0.461	0.040	mg/kg	0.400		115	33-126	0.171	25.3	
Fluoranthene	0.351	0.040	mg/kg	0.400		87.8	32.8-127	1.11	19.6	
Pyrene	0.521	0.040	mg/kg	0.400		130	39.4-120	0.570	26.5	BS1
Benzo[a]anthracene	0.418	0.040	mg/kg	0.400		104	43.9-111	0.333	4.96	
Chrysene	0.419	0.040	mg/kg	0.400		105	44.4-111	0.792	4.96	
Benzo[b]flouranthene	0.402	0.040	mg/kg	0.400		100	33.1-123	8.54	24.2	
Benzo[k]flouranthene	0.344	0.040	mg/kg	0.400		86.0	37.5-124	10.8	23.1	
Benzo[a]pyrene	0.362	0.040	mg/kg	0.400		90.5	41.6-117	0.507	7.25	
Indeno[1,2,3-cd]pyrene	0.317	0.040	mg/kg	0.400		79.3	35.7-115	0.594	12.7	
Dibenz[a,h]anthracene	0.328	0.040	mg/kg	0.400		82.0	40-113	0.612	12.1	

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

Semivolatile Organic Compounds by GCMS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040103 - SW-846 3550										
LCS Dup (6040103-BSD1)				Prepared: 01-Apr-16 Analyzed: 04-Apr-16						
Benzo[g,h,i]perylene	0.318	0.040	mg/kg	0.400		79.6	31.4-115	0.630	12.4	
Surrogate: Nitrobenzene-d5	*2.21*		mg/kg	*2.00*		*110*	*36.9-116*			
Surrogate: 2-Fluorobiphenyl	*2.16*		mg/kg	*2.00*		*108*	*29.5-132*			
Surrogate: Terphenyl-dl4	*3.07*		mg/kg	*2.00*		*153*	*35.1-158*			

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Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
BS1	Blank spike recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Safety and Environmental Solutions	**BILL TO**	
Project Manager:	Bob Allen	**P.O. #:**	
Address:	703 East Clinton, PO Box 1613	**Company:**	Same
City:	Hobbs **State:** NM **Zip:** 88240	**Attn:**	
Phone #:	575 397-0510 **Fax #:** 575 393-4388	**Address:**	
Project #:	NAV-15-001 **Project Owner:**	**City:**	
Project Name:		**State:** **Zip:**	
Project Location:		**Phone #:**	
Sampler Name:	David Boyer	**Fax #:**	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	ANALYSIS REQUEST: TPH 8015	Volatiles	Semi Volatiles
H600618													3-26				
1	BH-1, 10-15'	G	1			X					X		3/24	1020	X	X	X
2	BH-1, 20-25													1140			
3	BH-1 30-35													1255			
4	BH-1 40-45													1120			
5	BH-1 50-55													1140			
6	BH-1 60-65													1215			
7	BH-1 70-75													1240			
8	BH-1 80-85													1305			
9	BH-1, 90-95	G	1			X					X		3/24	1315	X	X	X

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Relinquished By:	**Date:** 3/25/14 **Time:** 10:30	**Received By:**	Jodi Henson
Relinquished By:	**Date:** **Time:**	**Received By:**	

Delivered By: (Circle One) Sampler - UPS - Bus - Other:	5.4°C	**Sample Condition** Cool: ☑ Yes ☐ No	Intact: ☑ Yes ☐ No	**CHECKED BY: (Initials)**

Phone Result: ☐ Yes ☒ No **Add'l Phone #:**
Fax Result: ☐ Yes ☒ No **Add'l Fax #:**
REMARKS: No Pesticides / Herbicides

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Dissolved Solids	626		2.82	10.0	10.0	1	08/25/2016 01:32	WG901330

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Alkalinity	187	J6	2.71	20.0	20.0	1	08/26/2016 20:18	WG901258

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	5.76		0.0197	0.100	0.100	1	08/26/2016 11:59	WG901602

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	129		0.260	1.00	5.00	5	08/26/2016 23:03	WG902621
Fluoride	0.872		0.00990	0.100	0.100	1	08/26/2016 17:46	WG902621
Sulfate	70.9		0.0774	5.00	5.00	1	08/26/2016 17:46	WG902621

Mercury by Method 7470A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Mercury	0.0000503	B J	0.0000490	0.000200	0.000200	1	08/23/2016 12:54	WG901226

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	0.00295	B J	0.00200	0.100	0.100	1	08/26/2016 17:58	WG901756
Arsenic,Dissolved	0.00548		0.000250	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Barium,Dissolved	0.111		0.000360	0.00500	0.00500	1	08/26/2016 17:58	WG901756
Boron,Dissolved	0.157		0.00150	0.0200	0.0200	1	08/28/2016 21:01	WG901756
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/26/2016 17:58	WG901756
Calcium,Dissolved	97.3	V	0.0460	1.00	1.00	1	08/26/2016 17:58	WG901756
Chromium,Dissolved	0.00139	B J	0.000540	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Copper,Dissolved	0.00146	B J	0.000520	0.00500	0.00500	1	08/26/2016 17:58	WG901756
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Iron,Dissolved	U		0.0150	0.100	0.100	1	08/26/2016 17:58	WG901756
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Magnesium,Dissolved	12.1		0.100	1.00	1.00	1	08/26/2016 17:58	WG901756
Manganese,Dissolved	0.00101	B J	0.000250	0.00500	0.00500	1	08/26/2016 17:58	WG901756
Molybdenum,Dissolved	0.00293	J	0.000140	0.00500	0.00500	1	08/26/2016 17:58	WG901756
Nickel,Dissolved	0.00103	B J	0.000350	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Potassium,Dissolved	2.25		0.0370	1.00	1.00	1	08/26/2016 17:58	WG901756
Selenium,Dissolved	0.00367		0.000380	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Sodium,Dissolved	62.9	O1	0.110	1.00	1.00	1	08/26/2016 17:58	WG901756
Uranium,Dissolved	0.00176	J	0.000330	0.0100	0.0100	1	08/26/2016 17:58	WG901756
Zinc,Dissolved	0.00285	B J	0.00256	0.0250	0.0250	1	08/26/2016 17:58	WG901756

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	U		0.0314	0.100	0.100	1	08/23/2016 23:22	WG901297

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
(S) a,a,a-Trifluorotoluene(FID)	*80.4*				*62.0-128*		*08/23/2016 23:22*	WG901297

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acetone	U		0.0100	1.00	1.00	1	08/26/2016 22:14	WG902356
Benzene	0.000425	J	0.000331	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/26/2016 22:14	WG902356
Bromoform	U		0.000469	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Bromomethane	U		0.000866	0.00500	0.00500	1	08/26/2016 22:14	WG902356
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/26/2016 22:14	WG902356
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/26/2016 22:14	WG902356
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Chloroethane	U		0.000453	0.00500	0.00500	1	08/26/2016 22:14	WG902356
Chloroform	U		0.000324	0.00500	0.00500	1	08/26/2016 22:14	WG902356
Chloromethane	U		0.000276	0.00250	0.00250	1	08/26/2016 22:14	WG902356
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/26/2016 22:14	WG902356
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/26/2016 22:14	WG902356
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/26/2016 22:14	WG902356
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/26/2016 22:14	WG902356
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/26/2016 22:14	WG902356
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/26/2016 22:14	WG902356
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/26/2016 22:14	WG902356
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/26/2016 22:14	WG902356
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/26/2016 22:14	WG902356
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/26/2016 22:14	WG902356
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/26/2016 22:14	WG902356
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Naphthalene	U		0.00100	0.00500	0.00500	1	08/26/2016 22:14	WG902356
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Styrene	U		0.000307	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Toluene	U		0.000780	0.00500	0.00500	1	08/26/2016 22:14	WG902356
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/26/2016 22:14	WG902356
(S) Toluene-d8	*95.2*				*90.0-115*		*08/26/2016 22:14*	WG902356
(S) Dibromofluoromethane	*102*				*79.0-121*		*08/26/2016 22:14*	WG902356
(S) 4-Bromofluorobenzene	*96.2*				*80.1-120*		*08/26/2016 22:14*	WG902356

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) High Fraction	U		0.0247	0.100	0.100	1	08/24/2016 20:17	WG901493
(S) o-Terphenyl	*89.8*				*50.0-150*		*08/24/2016 20:17*	WG901493

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Acetophenone	U		0.00247	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Anthracene	U		0.000291	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Atrazine	U		0.000260	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Benzaldehyde	U		0.00140	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/26/2016 00:42	WG901966
Biphenyl	U		0.000325	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/26/2016 00:42	WG901966
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/26/2016 00:42	WG901966
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Caprolactam	U		0.00259	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Carbazole	U		0.000260	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Chrysene	U		0.000332	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/26/2016 00:42	WG901966
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/26/2016 00:42	WG901966
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Fluorene	U		0.000323	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Isophorone	U		0.000272	0.0100	0.0100	1	08/26/2016 00:42	WG901966
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/26/2016 00:42	WG901966
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Naphthalene	U		0.000372	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/26/2016 00:42	WG901966
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/26/2016 00:42	WG901966
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/26/2016 00:42	WG901966
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300	0.00300	1	08/26/2016 00:42	WG901966
Di-n-butyl phthalate	0.000763	BJ	0.000266	0.00300	0.00300	1	08/26/2016 00:42	WG901966
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/26/2016 00:42	WG901966
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/26/2016 00:42	WG901966
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/26/2016 00:42	WG901966
Pyrene	U		0.000330	0.00100	0.00100	1	08/26/2016 00:42	WG901966
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/26/2016 00:42	WG901966
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/26/2016 00:42	WG901966

Tc
Ss
Tr
Sr
Qc
Gl
Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/26/2016 00:42	WG901966
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,4-Dinitrophenol	U		0.00325	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/26/2016 00:42	WG901966
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/26/2016 00:42	WG901966
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/26/2016 00:42	WG901966
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/26/2016 00:42	WG901966
4-Nitroaniline	U	J4	0.000349	0.0100	0.0100	1	08/26/2016 00:42	WG901966
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Phenol	U		0.000334	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/26/2016 00:42	WG901966
(S) 2-Fluorophenol	*49.6*				*10.0-77.9*		*08/26/2016 00:42*	WG901966
(S) Phenol-d5	*37.3*				*5.00-70.1*		*08/26/2016 00:42*	WG901966
(S) Nitrobenzene-d5	*55.2*				*21.8-123*		*08/26/2016 00:42*	WG901966
(S) 2-Fluorobiphenyl	*66.4*				*29.5-131*		*08/26/2016 00:42*	WG901966
(S) 2,4,6-Tribromophenol	*78.6*				*11.2-130*		*08/26/2016 00:42*	WG901966
(S) p-Terphenyl-d14	*84.2*				*29.3-137*		*08/26/2016 00:42*	WG901966

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Dissolved Solids	1420		2.82	10.0	10.0	1	08/25/2016 01:32	WG901580

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Alkalinity	199	J6	2.71	20.0	20.0	1	08/26/2016 20:40	WG901268

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	3.18		0.0197	0.100	0.100	1	08/26/2016 12:18	WG901602

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	381		0.260	1.00	5.00	5	08/26/2016 23:17	WG902621
Fluoride	0.692		0.00990	0.100	0.100	1	08/26/2016 18:29	WG902621
Sulfate	98.2		0.0774	5.00	5.00	1	08/26/2016 18:29	WG902621

Mercury by Method 7470A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Mercury	0.0000764	B J	0.0000490	0.000200	0.000200	1	08/23/2016 13:03	WG901226

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	U		0.00200	0.100	0.100	1	08/26/2016 18:10	WG901756
Arsenic,Dissolved	0.00419		0.000250	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Barium,Dissolved	0.134		0.000360	0.00500	0.00500	1	08/26/2016 18:10	WG901756
Boron,Dissolved	0.224		0.00150	0.0200	0.0200	1	08/28/2016 21:15	WG901756
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/26/2016 18:10	WG901756
Calcium,Dissolved	170	V	0.0460	1.00	1.00	1	08/26/2016 18:10	WG901756
Chromium,Dissolved	0.00138	B J	0.000540	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Copper,Dissolved	0.00444	B J	0.000520	0.00500	0.00500	1	08/26/2016 18:10	WG901756
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Iron,Dissolved	U		0.0150	0.100	0.100	1	08/26/2016 18:10	WG901756
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Magnesium,Dissolved	24.7		0.100	1.00	1.00	1	08/26/2016 18:10	WG901756
Manganese,Dissolved	0.00250	B J	0.000250	0.00500	0.00500	1	08/26/2016 18:10	WG901756
Molybdenum,Dissolved	0.00188	J	0.000140	0.00500	0.00500	1	08/26/2016 18:10	WG901756
Nickel,Dissolved	0.00106	B J	0.000350	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Potassium,Dissolved	3.24		0.0370	1.00	1.00	1	08/26/2016 18:10	WG901756
Selenium,Dissolved	0.00326		0.000380	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Sodium,Dissolved	139	V	0.110	1.00	1.00	1	08/26/2016 18:10	WG901756
Uranium,Dissolved	0.00257	J	0.000330	0.0100	0.0100	1	08/26/2016 18:10	WG901756
Zinc,Dissolved	0.00833	B J	0.00256	0.0250	0.0250	1	08/26/2016 18:10	WG901756

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	0.0343	J	0.0314	0.100	0.100	1	08/23/2016 20:47	WG901297

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
(S) o,o,o-Trifluorotoluene(FID)	*91.6*				*62.0-128*		*08/23/2016 20:47*	WG901297

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acetone	U		0.0100	1.00	1.00	1	08/27/2016 19:04	WG902359
Benzene	0.000451	J	0.000331	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/27/2016 19:04	WG902359
Bromoform	U		0.000469	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Bromomethane	U		0.000866	0.00500	0.00500	1	08/27/2016 19:04	WG902359
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/27/2016 19:04	WG902359
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/27/2016 19:04	WG902359
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Chloroethane	U		0.000453	0.00500	0.00500	1	08/27/2016 19:04	WG902359
Chloroform	0.00135	J	0.000324	0.00500	0.00500	1	08/27/2016 19:04	WG902359
Chloromethane	U		0.000276	0.00250	0.00250	1	08/27/2016 19:04	WG902359
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/27/2016 19:04	WG902359
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/27/2016 19:04	WG902359
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/27/2016 19:04	WG902359
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/27/2016 19:04	WG902359
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/27/2016 19:04	WG902359
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/27/2016 19:04	WG902359
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/27/2016 19:04	WG902359
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/27/2016 19:04	WG902359
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/27/2016 19:04	WG902359
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/27/2016 19:04	WG902359
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/27/2016 19:04	WG902359
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Naphthalene	U		0.00100	0.00500	0.00500	1	08/27/2016 19:04	WG902359
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Styrene	U		0.000307	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Toluene	U		0.000780	0.00500	0.00500	1	08/27/2016 19:04	WG902359
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/27/2016 19:04	WG902359
(S) Toluene-d8	*93.6*				*90.0-115*		*08/27/2016 19:04*	WG902359
(S) Dibromofluoromethane	*101*				*79.0-121*		*08/27/2016 19:04*	WG902359
(S) 4-Bromofluorobenzene	*95.9*				*80.1-120*		*08/27/2016 19:04*	WG902359

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) High Fraction	0.0303	J	0.0247	0.100	0.100	1	08/24/2016 21:18	WG901493
(S) o-Terphenyl	*90.5*				*50.0-150*		*08/24/2016 21:18*	WG901493

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Acetophenone	U		0.00247	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Anthracene	U		0.000291	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Atrazine	U		0.000260	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Benzaldehyde	U		0.00140	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/26/2016 01:51	WG901966
Biphenyl	U		0.000325	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/26/2016 01:51	WG901966
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/26/2016 01:51	WG901966
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Caprolactam	U		0.00259	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Carbazole	U		0.000260	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Chrysene	U		0.000332	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/26/2016 01:51	WG901966
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/26/2016 01:51	WG901966
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Fluorene	U		0.000323	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Isophorone	U		0.000272	0.0100	0.0100	1	08/26/2016 01:51	WG901966
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/26/2016 01:51	WG901966
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Naphthalene	U		0.000372	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/26/2016 01:51	WG901966
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/26/2016 01:51	WG901966
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/26/2016 01:51	WG901966
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300	0.00300	1	08/26/2016 01:51	WG901966
Di-n-butyl phthalate	0.000690	B J	0.000266	0.00300	0.00300	1	08/26/2016 01:51	WG901966
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/26/2016 01:51	WG901966
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/26/2016 01:51	WG901966
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/26/2016 01:51	WG901966
Pyrene	U		0.000330	0.00100	0.00100	1	08/26/2016 01:51	WG901966
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/26/2016 01:51	WG901966
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/26/2016 01:51	WG901966

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/26/2016 01:51	WG901966
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,4-Dinitrophenol	U		0.00325	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/26/2016 01:51	WG901966
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/26/2016 01:51	WG901966
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/26/2016 01:51	WG901966
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/26/2016 01:51	WG901966
4-Nitroaniline	U	J4	0.000349	0.0100	0.0100	1	08/26/2016 01:51	WG901966
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Phenol	U		0.000334	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/26/2016 01:51	WG901966
(S) 2-Fluorophenol	*47.8*				*10.0-77.9*		*08/26/2016 01:51*	WG901966
(S) Phenol-d5	*36.2*				*5.00-70.1*		*08/26/2016 01:51*	WG901966
(S) Nitrobenzene-d5	*53.9*				*21.8-123*		*08/26/2016 01:51*	WG901966
(S) 2-Fluorobiphenyl	*66.5*				*29.5-131*		*08/26/2016 01:51*	WG901966
(S) 2,4,6-Tribromophenol	*73.7*				*11.2-130*		*08/26/2016 01:51*	WG901966
(S) p-Terphenyl-d14	*86.7*				*29.3-137*		*08/26/2016 01:51*	WG901966

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Dissolved Solids	555		2.82	10.0	10.0	1	08/25/2016 01:32	WG901880

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Alkalinity	181		2.71	20.0	20.0	1	08/26/2016 21:02	WG901259

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	3.12		0.0197	0.100	0.100	1	08/26/2016 12:10	WG901602

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	104		0.260	1.00	5.00	5	08/26/2016 20:24	WG902621
Fluoride	0.915		0.00990	0.100	0.100	1	08/26/2016 20:10	WG902621
Sulfate	74.4		0.0774	5.00	5.00	1	08/26/2016 20:10	WG902621

Mercury by Method 7470A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Mercury	U		0.0000490	0.000200	0.000200	1	08/23/2016 13:58	WG901226

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	0.00258	B J	0.00200	0.100	0.100	1	08/27/2016 02:10	WG901756
Arsenic,Dissolved	0.00454		0.000250	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Barium,Dissolved	0.0939		0.000360	0.00500	0.00500	1	08/27/2016 02:10	WG901756
Boron,Dissolved	0.162		0.00150	0.0200	0.0200	1	08/28/2016 21:56	WG901756
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/27/2016 02:10	WG901756
Calcium,Dissolved	92.4		0.0460	1.00	1.00	1	08/27/2016 02:10	WG901756
Chromium,Dissolved	0.00451	B	0.000540	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Copper,Dissolved	0.00196	B J	0.000520	0.00500	0.00500	1	08/27/2016 02:10	WG901756
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Iron,Dissolved	0.0337	J	0.0150	0.100	0.100	1	08/27/2016 02:10	WG901756
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Magnesium,Dissolved	13.2		0.100	1.00	1.00	1	08/27/2016 02:10	WG901756
Manganese,Dissolved	0.00346	J	0.000250	0.00500	0.00500	1	08/27/2016 02:10	WG901756
Molybdenum,Dissolved	0.00288	J	0.000140	0.00500	0.00500	1	08/27/2016 02:10	WG901756
Nickel,Dissolved	0.00121	B J	0.000350	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Potassium,Dissolved	2.03		0.0370	1.00	1.00	1	08/27/2016 02:10	WG901756
Selenium,Dissolved	0.00386		0.000380	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Sodium,Dissolved	55.2		0.110	1.00	1.00	1	08/28/2016 21:56	WG901756
Uranium,Dissolved	0.00194	J	0.000330	0.0100	0.0100	1	08/27/2016 02:10	WG901756
Zinc,Dissolved	0.0291	B	0.00256	0.0250	0.0250	1	08/27/2016 02:10	WG901756

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	U		0.0314	0.100	0.100	1	08/23/2016 23:44	WG901297

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*93.7*				*62.0-128*		*08/23/2016 23:44*	WG901297

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Acetone	U		0.0100	1.00	1.00	1	08/25/2016 12:45	WG901774
Benzene	U		0.000331	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/25/2016 12:45	WG901774
Bromoform	U		0.000469	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Bromomethane	U		0.000866	0.00500	0.00500	1	08/25/2016 12:45	WG901774
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/25/2016 12:45	WG901774
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/25/2016 12:45	WG901774
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Chloroethane	U		0.000453	0.00500	0.00500	1	08/25/2016 12:45	WG901774
Chloroform	U		0.000324	0.00500	0.00500	1	08/25/2016 12:45	WG901774
Chloromethane	U		0.000276	0.00250	0.00250	1	08/25/2016 12:45	WG901774
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/25/2016 12:45	WG901774
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/25/2016 12:45	WG901774
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/25/2016 12:45	WG901774
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/25/2016 12:45	WG901774
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/25/2016 12:45	WG901774
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/25/2016 12:45	WG901774
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/25/2016 12:45	WG901774
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/25/2016 12:45	WG901774
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/25/2016 12:45	WG901774
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/25/2016 12:45	WG901774
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/25/2016 12:45	WG901774
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Naphthalene	U		0.00100	0.00500	0.00500	1	08/25/2016 12:45	WG901774
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Styrene	U		0.000307	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Toluene	U		0.000780	0.00500	0.00500	1	08/25/2016 12:45	WG901774
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/25/2016 12:45	WG901774
(S) Toluene-d8	*104*				*90.0-115*		*08/25/2016 12:45*	WG901774
(S) Dibromofluoromethane	*97.2*				*79.0-121*		*08/25/2016 12:45*	WG901774
(S) 4-Bromofluorobenzene	*103*				*80.1-120*		*08/25/2016 12:45*	WG901774

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) High Fraction	0.0357	J	0.0247	0.100	0.100	1	08/24/2016 16:54	WG901493
(S) o-Terphenyl	*97.6*				*50.0-150*		*08/24/2016 16:54*	WG901493

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Acetophenone	U		0.00247	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Anthracene	U		0.000291	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Atrazine	U		0.000260	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Benzaldehyde	U		0.00140	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/26/2016 03:00	WG901966
Biphenyl	U		0.000325	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/26/2016 03:00	WG901966
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/26/2016 03:00	WG901966
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Caprolactam	U		0.00259	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Carbazole	U		0.000260	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Chrysene	U		0.000332	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/26/2016 03:00	WG901966
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/26/2016 03:00	WG901966
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Fluorene	U		0.000323	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Isophorone	U		0.000272	0.0100	0.0100	1	08/26/2016 03:00	WG901966
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/26/2016 03:00	WG901966
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Naphthalene	U		0.000372	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/26/2016 03:00	WG901966
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/26/2016 03:00	WG901966
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/26/2016 03:00	WG901966
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300	0.00300	1	08/26/2016 03:00	WG901966
Di-n-butyl phthalate	0.000533	B J	0.000266	0.00300	0.00300	1	08/26/2016 03:00	WG901966
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/26/2016 03:00	WG901966
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/26/2016 03:00	WG901966
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/26/2016 03:00	WG901966
Pyrene	U		0.000330	0.00100	0.00100	1	08/26/2016 03:00	WG901966
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/26/2016 03:00	WG901966
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/26/2016 03:00	WG901966

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/26/2016 03:00	WG901966
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,4-Dinitrophenol	U		0.00325	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/26/2016 03:00	WG901966
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/26/2016 03:00	WG901966
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/26/2016 03:00	WG901966
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/26/2016 03:00	WG901966
4-Nitroaniline	U	J4	0.000349	0.0100	0.0100	1	08/26/2016 03:00	WG901966
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Phenol	U		0.000334	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/26/2016 03:00	WG901966
(S) 2-Fluorophenol	*39.7*				*10.0-77.9*		*08/26/2016 03:00*	WG901966
(S) Phenol-d5	*30.2*				*5.00-70.1*		*08/26/2016 03:00*	WG901966
(S) Nitrobenzene-d5	*43.9*				*21.8-123*		*08/26/2016 03:00*	WG901966
(S) 2-Fluorobiphenyl	*56.3*				*29.5-131*		*08/26/2016 03:00*	WG901966
(S) 2,4,6-Tribromophenol	*68.9*				*11.2-130*		*08/26/2016 03:00*	WG901966
(S) p-Terphenyl-d14	*85.9*				*29.3-137*		*08/26/2016 03:00*	WG901966

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Dissolved Solids	1390		2.82	10.0	10.0	1	08/25/2016 01:32	WG901380

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Alkalinity	197		2.71	20.0	20.0	1	08/26/2016 21:08	WG901258

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	3.18		0.0197	0.100	0.100	1	08/26/2016 12:11	WG901603

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	385		0.260	1.00	5.00	5	08/26/2016 20:53	WG902621
Fluoride	0.695		0.00990	0.100	0.100	1	08/26/2016 20:39	WG902621
Sulfate	97.6		0.0774	5.00	5.00	1	08/26/2016 20:39	WG902621

Mercury by Method 7470A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Mercury	0.0000788	B J	0.0000490	0.000200	0.000200	1	08/23/2016 14:00	WG901226

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	0.00377	B J	0.00200	0.100	0.100	1	08/27/2016 02:13	WG901756
Arsenic,Dissolved	0.00370		0.000250	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Barium,Dissolved	0.137		0.000360	0.00500	0.00500	1	08/27/2016 02:13	WG901756
Boron,Dissolved	0.233		0.00150	0.0200	0.0200	1	08/28/2016 22:00	WG901756
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/27/2016 02:13	WG901756
Calcium,Dissolved	171		0.0460	1.00	1.00	1	08/27/2016 02:13	WG901756
Chromium,Dissolved	0.00165	B J	0.000540	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Copper,Dissolved	0.00485	B J	0.000520	0.00500	0.00500	1	08/27/2016 02:13	WG901756
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Iron,Dissolved	U		0.0150	0.100	0.100	1	08/27/2016 02:13	WG901756
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Magnesium,Dissolved	24.5		0.100	1.00	1.00	1	08/27/2016 02:13	WG901756
Manganese,Dissolved	0.00270	B J	0.000250	0.00500	0.00500	1	08/27/2016 02:13	WG901756
Molybdenum,Dissolved	0.00201	J	0.000140	0.00500	0.00500	1	08/27/2016 02:13	WG901756
Nickel,Dissolved	0.00128	B J	0.000350	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Potassium,Dissolved	3.20		0.0370	1.00	1.00	1	08/27/2016 02:13	WG901756
Selenium,Dissolved	0.00318		0.000380	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Sodium,Dissolved	142		0.110	1.00	1.00	1	08/28/2016 22:00	WG901756
Uranium,Dissolved	0.00262	J	0.000330	0.0100	0.0100	1	08/27/2016 02:13	WG901756
Zinc,Dissolved	0.00936	B J	0.00256	0.0250	0.0250	1	08/27/2016 02:13	WG901756

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	U		0.0314	0.100	0.100	1	08/24/2016 00:06	WG901297

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
(S) a,a,a-Trifluorotoluene(FID)	*92.1*				*62.0-128*		*08/24/2016 00:06*	WG901237

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acetone	U		0.0100	1.00	1.00	1	08/25/2016 13:07	WG901774
Benzene	0.000509	J	0.000331	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/25/2016 13:07	WG901774
Bromoform	U		0.000469	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Bromomethane	U		0.000866	0.00500	0.00500	1	08/25/2016 13:07	WG901774
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/25/2016 13:07	WG901774
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/25/2016 13:07	WG901774
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Chloroethane	U		0.000453	0.00500	0.00500	1	08/25/2016 13:07	WG901774
Chloroform	0.00138	J	0.000324	0.00500	0.00500	1	08/25/2016 13:07	WG901774
Chloromethane	U		0.000276	0.00250	0.00250	1	08/25/2016 13:07	WG901774
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/25/2016 13:07	WG901774
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/25/2016 13:07	WG901774
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/25/2016 13:07	WG901774
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/25/2016 13:07	WG901774
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/25/2016 13:07	WG901774
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/25/2016 13:07	WG901774
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/25/2016 13:07	WG901774
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/25/2016 13:07	WG901774
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/25/2016 13:07	WG901774
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/25/2016 13:07	WG901774
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/25/2016 13:07	WG901774
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Naphthalene	U		0.00100	0.00500	0.00500	1	08/25/2016 13:07	WG901774
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Styrene	U		0.000307	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Toluene	U		0.000780	0.00500	0.00500	1	08/25/2016 13:07	WG901774
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/25/2016 13:07	WG901774
(S) Toluene-d8	*105*				*90.0-115*		*08/25/2016 13:07*	WG901774
(S) Dibromofluoromethane	*98.8*				*79.0-121*		*08/25/2016 13:07*	WG901774
(S) 4-Bromofluorobenzene	*104*				*80.1-120*		*08/25/2016 13:07*	WG901774

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) High Fraction	0.0482	J	0.0247	0.100	0.100	1	08/24/2016 17:36	WG901493
(S) o-Terphenyl	*92.5*				*50.0-150*		*08/24/2016 17:36*	WG901493

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Acetophenone	U		0.00247	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Anthracene	U		0.000291	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Atrazine	U		0.000260	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Benzaldehyde	U		0.00140	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/26/2016 03:24	WG901966
Biphenyl	U		0.000325	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/26/2016 03:24	WG901966
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/26/2016 03:24	WG901966
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Caprolactam	U		0.00259	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Carbazole	U		0.000260	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Chrysene	U		0.000332	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/26/2016 03:24	WG901966
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/26/2016 03:24	WG901966
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Fluorene	U		0.000323	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Isophorone	U		0.000272	0.0100	0.0100	1	08/26/2016 03:24	WG901966
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/26/2016 03:24	WG901966
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Naphthalene	U		0.000372	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/26/2016 03:24	WG901966
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/26/2016 03:24	WG901966
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/26/2016 03:24	WG901966
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300	0.00300	1	08/26/2016 03:24	WG901966
Di-n-butyl phthalate	0.000766	B J	0.000266	0.00300	0.00300	1	08/26/2016 03:24	WG901966
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/26/2016 03:24	WG901966
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/26/2016 03:24	WG901966
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/26/2016 03:24	WG901966
Pyrene	U		0.000330	0.00100	0.00100	1	08/26/2016 03:24	WG901966
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/26/2016 03:24	WG901966
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/26/2016 03:24	WG901966

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/26/2016 03:24	WG901966
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,4-Dinitrophenol	U		0.00325	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/26/2016 03:24	WG901966
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/26/2016 03:24	WG901966
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/26/2016 03:24	WG901966
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/26/2016 03:24	WG901966
4-Nitroaniline	U	J4	0.000349	0.0100	0.0100	1	08/26/2016 03:24	WG901966
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Phenol	U		0.000334	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/26/2016 03:24	WG901966
(S) 2-Fluorophenol	*51.4*				*10.0-77.9*		*08/26/2016 03:24*	WG901966
(S) Phenol-d5	*37.7*				*5.00-70.1*		*08/26/2016 03:24*	WG901966
(S) Nitrobenzene-d5	*54.1*				*21.8-123*		*08/26/2016 03:24*	WG901966
(S) 2-Fluorobiphenyl	*66.5*				*29.5-131*		*08/26/2016 03:24*	WG901966
(S) 2,4,6-Tribromophenol	*67.8*				*11.2-130*		*08/26/2016 03:24*	WG901966
(S) p-Terphenyl-d14	*82.6*				*29.3-137*		*08/26/2016 03:24*	WG901966

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Dissolved Solids	449		2.82	10.0	10.0	1	08/22/2016 04:55	WG900644

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Alkalinity	354		2.71	20.0	20.0	1	08/25/2016 12:21	WG901393

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	2.15		0.0197	0.100	0.100	1	08/22/2016 18:30	WG900741

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	18.4		0.0519	1.00	1.00	1	08/23/2016 17:54	WG900748
Fluoride	1.62		0.00990	0.100	0.100	1	08/23/2016 17:54	WG900748
Sulfate	38.1		0.0774	5.00	5.00	1	08/23/2016 17:54	WG900748

Mercury by Method 7470A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Mercury	U		0.0000490	0.000200	0.000200	1	08/22/2016 10:32	WG900632

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	0.0155	B J	0.00200	0.100	0.100	1	08/29/2016 10:42	WG901124
Arsenic,Dissolved	0.00425		0.000250	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Barium,Dissolved	0.119		0.000360	0.00500	0.00500	1	08/29/2016 10:42	WG901124
Boron,Dissolved	0.108		0.00150	0.0200	0.0200	1	08/29/2016 10:42	WG901124
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/29/2016 10:42	WG901124
Calcium,Dissolved	64.3		0.0460	1.00	1.00	1	08/29/2016 10:42	WG901124
Chromium,Dissolved	0.00217	B	0.000540	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Copper,Dissolved	0.00122	B J	0.000520	0.00500	0.00500	1	08/29/2016 10:42	WG901124
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Iron,Dissolved	0.0974	B J	0.0150	0.100	0.100	1	08/29/2016 10:42	WG901124
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Magnesium,Dissolved	7.87		0.100	1.00	1.00	1	08/29/2016 10:42	WG901124
Manganese,Dissolved	0.000764	B J	0.000250	0.00500	0.00500	1	08/29/2016 10:42	WG901124
Molybdenum,Dissolved	0.00876		0.000140	0.00500	0.00500	1	08/29/2016 10:42	WG901124
Nickel,Dissolved	0.000540	B J	0.000350	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Potassium,Dissolved	3.50		0.0370	1.00	1.00	1	08/29/2016 10:42	WG901124
Selenium,Dissolved	0.000502	J	0.000380	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Sodium,Dissolved	111		0.110	1.00	1.00	1	08/29/2016 10:42	WG901124
Uranium,Dissolved	0.00553	J	0.000330	0.0100	0.0100	1	08/29/2016 10:42	WG901124
Zinc,Dissolved	0.00590	J	0.00256	0.0250	0.0250	1	08/29/2016 10:42	WG901124

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	U		0.0314	0.100	0.100	1	08/21/2016 05:32	WG900637

Tc
Ss
Tr
Sr
Qc
Gl
Sc

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
(S) a,a,a-Trifluorotoluene(FID)	*106*				*62.0-128*		*08/21/2016 05:32*	WG900637

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acetone	U		0.0100	1.00	1.00	1	08/24/2016 14:42	WG901614
Benzene	U		0.000331	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/24/2016 14:42	WG901614
Bromoform	U		0.000469	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Bromomethane	U		0.000866	0.00500	0.00500	1	08/24/2016 14:42	WG901614
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/24/2016 14:42	WG901614
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/24/2016 14:42	WG901614
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Chloroethane	U		0.000453	0.00500	0.00500	1	08/24/2016 14:42	WG901614
Chloroform	U		0.000324	0.00500	0.00500	1	08/24/2016 14:42	WG901614
Chloromethane	U		0.000276	0.00250	0.00250	1	08/24/2016 14:42	WG901614
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/24/2016 14:42	WG901614
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/24/2016 14:42	WG901614
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/24/2016 14:42	WG901614
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/24/2016 14:42	WG901614
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/24/2016 14:42	WG901614
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/24/2016 14:42	WG901614
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/24/2016 14:42	WG901614
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/24/2016 14:42	WG901614
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/24/2016 14:42	WG901614
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/24/2016 14:42	WG901614
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/24/2016 14:42	WG901614
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Naphthalene	U		0.00100	0.00500	0.00500	1	08/24/2016 14:42	WG901614
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Styrene	U		0.000307	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Toluene	U		0.000780	0.00500	0.00500	1	08/24/2016 14:42	WG901614
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/24/2016 14:42	WG901614
(S) Toluene-d8	*105*				*90.0-115*		*08/24/2016 14:42*	WG901614
(S) Dibromofluoromethane	*97.6*				*79.0-121*		*08/24/2016 14:42*	WG901614
(S) 4-Bromofluorobenzene	*104*				*80.1-120*		*08/24/2016 14:42*	WG901614

1 Tc
3 Ss
4 Tr
5 Sr
6 Qc
7 Gl
9 Sc

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	0.366		0.0247	0.100	0.100	1	08/24/2016 13:32	WG901047
(S) o-Terphenyl	*111*				*50.0-150*		*08/24/2016 13:32*	WG901047

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Acetophenone	U		0.00247	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Anthracene	U		0.000291	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Atrazine	U		0.000260	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Benzaldehyde	U	J3	0.00140	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/25/2016 15:41	WG902203
Biphenyl	U		0.000325	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/25/2016 15:41	WG902203
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/25/2016 15:41	WG902203
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Caprolactam	U		0.00259	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Carbazole	U		0.000260	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Chrysene	U		0.000332	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/25/2016 15:41	WG902203
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/25/2016 15:41	WG902203
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Fluorene	U		0.000323	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Isophorone	U		0.000272	0.0100	0.0100	1	08/25/2016 15:41	WG902203
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/25/2016 15:41	WG902203
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Naphthalene	U		0.000372	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/25/2016 15:41	WG902203
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/25/2016 15:41	WG902203
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/25/2016 15:41	WG902203
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300	0.00300	1	08/25/2016 15:41	WG902203
Di-n-butyl phthalate	0.000436	B J	0.000266	0.00300	0.00300	1	08/25/2016 15:41	WG902203
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/25/2016 15:41	WG902203
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/25/2016 15:41	WG902203
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/25/2016 15:41	WG902203
Pyrene	U		0.000330	0.00100	0.00100	1	08/25/2016 15:41	WG902203
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/25/2016 15:41	WG902203
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/25/2016 15:41	WG902203

Tc
Ss
Tr
Sr
Qc
Gl
Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/25/2016 15:41	WG902203
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,4-Dinitrophenol	U	J3	0.00325	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/25/2016 15:41	WG902203
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/25/2016 15:41	WG902203
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/25/2016 15:41	WG902203
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/25/2016 15:41	WG902203
4-Nitroaniline	U		0.000349	0.0100	0.0100	1	08/25/2016 15:41	WG902203
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Phenol	U		0.000334	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/25/2016 15:41	WG902203
(S) 2-Fluorophenol	*55.9*				*10.0-77.9*		*08/25/2016 15:41*	WG902203
(S) Phenol-d5	*39.0*				*5.00-70.1*		*08/25/2016 15:41*	WG902203
(S) Nitrobenzene-d5	*67.6*				*21.8-123*		*08/25/2016 15:41*	WG902203
(S) 2-Fluorobiphenyl	*78.6*				*29.5-131*		*08/25/2016 15:41*	WG902203
(S) 2,4,6-Tribromophenol	*89.5*				*11.2-130*		*08/25/2016 15:41*	WG902203
(S) p-Terphenyl-d14	*91.7*				*29.3-137*		*08/25/2016 15:41*	WG902203

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	4.05		0.0197	0.100	0.100	1	08/23/2016 21:43	WG901193

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	131		0.260	1.00	5.00	5	08/25/2016 09:34	WG901472
Fluoride	0.253		0.00990	0.100	0.100	1	08/25/2016 09:20	WG901472
Sulfate	71.7		0.0774	5.00	5.00	1	08/25/2016 09:20	WG901472

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	0.00210	J	0.00200	0.100	0.100	1	08/24/2016 20:22	WG901422
Arsenic,Dissolved	0.00147	J	0.000250	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Barium,Dissolved	0.171		0.000360	0.00500	0.00500	1	08/24/2016 20:22	WG901422
Boron,Dissolved	0.460		0.0150	0.0200	0.200	10	08/28/2016 23:50	WG901422
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/24/2016 20:22	WG901422
Calcium,Dissolved	206		0.0460	1.00	1.00	1	08/24/2016 20:22	WG901422
Chromium,Dissolved	0.00115	B J	0.000540	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Copper,Dissolved	0.000881	B J	0.000520	0.00500	0.00500	1	08/24/2016 20:22	WG901422
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Iron,Dissolved	U		0.0150	0.100	0.100	1	08/24/2016 20:22	WG901422
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Magnesium,Dissolved	21.1		0.100	1.00	1.00	1	08/24/2016 20:22	WG901422
Manganese,Dissolved	0.00793		0.000250	0.00500	0.00500	1	08/24/2016 20:22	WG901422
Molybdenum,Dissolved	0.000639	J	0.000140	0.00500	0.00500	1	08/24/2016 20:22	WG901422
Nickel,Dissolved	0.00167	B J	0.000350	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Potassium,Dissolved	2.75		0.0370	1.00	1.00	1	08/24/2016 20:22	WG901422
Selenium,Dissolved	0.000702	J	0.000380	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Sodium,Dissolved	58.3		0.110	1.00	1.00	1	08/24/2016 20:22	WG901422
Uranium,Dissolved	0.00920	J	0.000330	0.0100	0.0100	1	08/24/2016 20:22	WG901422
Zinc,Dissolved	0.00432	J	0.00256	0.0250	0.0250	1	08/24/2016 20:22	WG901422

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	U		0.0314	0.100	0.100	1	08/21/2016 05:03	WG900637
(S) a,a,a-Trifluorotoluene(FID)	*106*				*62.0-128*		*08/21/2016 05:03*	WG900637

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acetone	U		0.0100	1.00	1.00	1	08/24/2016 03:30	WG901485
Benzene	U		0.000331	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/24/2016 03:30	WG901485
Bromoform	U		0.000469	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Bromomethane	U		0.000866	0.00500	0.00500	1	08/24/2016 03:30	WG901485
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/24/2016 03:30	WG901485
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/24/2016 03:30	WG901485
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/24/2016 03:30	WG901485

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Chloroethane	U		0.000453	0.00500	0.00500	1	08/24/2016 03:30	WG901485
Chloroform	U		0.000324	0.00500	0.00500	1	08/24/2016 03:30	WG901485
Chloromethane	U		0.000276	0.00250	0.00250	1	08/24/2016 03:30	WG901485
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/24/2016 03:30	WG901485
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/24/2016 03:30	WG901485
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/24/2016 03:30	WG901485
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/24/2016 03:30	WG901485
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/24/2016 03:30	WG901485
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/24/2016 03:30	WG901485
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/24/2016 03:30	WG901485
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/24/2016 03:30	WG901485
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/24/2016 03:30	WG901485
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/24/2016 03:30	WG901485
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/24/2016 03:30	WG901485
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Naphthalene	U		0.00100	0.00500	0.00500	1	08/24/2016 03:30	WG901485
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Styrene	U		0.000307	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Toluene	U		0.000780	0.00500	0.00500	1	08/24/2016 03:30	WG901485
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/24/2016 03:30	WG901485
(S) Toluene-d8	*97.2*				*90.0-115*		*08/24/2016 03:30*	WG901485
(S) Dibromofluoromethane	*91.3*				*79.0-121*		*08/24/2016 03:30*	WG901485
(S) 4-Bromofluorobenzene	*92.1*				*80.1-120*		*08/24/2016 03:30*	WG901485

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) High Fraction	0.624		0.0247	0.100	0.100	1	08/24/2016 13:16	WG901047
(S) o-Terphenyl	*115*				*50.0-150*		*08/24/2016 13:16*	WG901047

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Acetophenone	U		0.00247	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Anthracene	U		0.000291	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Atrazine	U		0.000260	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Benzaldehyde	U	J3	0.00140	0.0100	0.0100	1	08/25/2016 18:12	WG901058

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/25/2016 18:12	WG901058
Biphenyl	U		0.000325	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/25/2016 18:12	WG901058
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/25/2016 18:12	WG901058
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Caprolactam	U		0.00259	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Carbazole	U		0.000260	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Chrysene	U		0.000332	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/25/2016 18:12	WG901058
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/25/2016 18:12	WG901058
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Fluorene	U		0.000323	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Isophorone	U		0.000272	0.0100	0.0100	1	08/25/2016 18:12	WG901058
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/25/2016 18:12	WG901058
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Naphthalene	U		0.000372	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/25/2016 18:12	WG901058
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/25/2016 18:12	WG901058
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/25/2016 18:12	WG901058
Bis(2-ethylhexyl)phthalate	0.000848	J	0.000709	0.00300	0.00300	1	08/25/2016 18:12	WG901058
Di-n-butyl phthalate	0.000329	B J	0.000266	0.00300	0.00300	1	08/25/2016 18:12	WG901058
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/25/2016 18:12	WG901058
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/25/2016 18:12	WG901058
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/25/2016 18:12	WG901058
Pyrene	U		0.000330	0.00100	0.00100	1	08/25/2016 18:12	WG901058
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/25/2016 18:12	WG901058
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/25/2016 18:12	WG901058
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,4-Dinitrophenol	U	J3	0.00325	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/25/2016 18:12	WG901058
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/25/2016 18:12	WG901058
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/25/2016 18:12	WG901058
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/25/2016 18:12	WG901058
4-Nitroaniline	U		0.000349	0.0100	0.0100	1	08/25/2016 18:12	WG901058
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/25/2016 18:12	WG901058

Tc
3 Ss
4 Tr
5 Sr
6 Qc
7 Gl
9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Phenol	U		0.000334	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/25/2016 18:12	WG901058
(S) 2-Fluorophenol	*57.5*				*10.0-77.9*		*08/25/2016 18:12*	WG901058
(S) Phenol-d5	*37.9*				*5.00-70.1*		*08/25/2016 18:12*	WG901058
(S) Nitrobenzene-d5	*73.9*				*21.8-123*		*08/25/2016 18:12*	WG901058
(S) 2-Fluorobiphenyl	*77.3*				*29.5-131*		*08/25/2016 18:12*	WG901058
(S) 2,4,6-Tribromophenol	*103*				*11.2-130*		*08/25/2016 18:12*	WG901058
(S) p-Terphenyl-d14	*85.1*				*29.3-137*		*08/25/2016 18:12*	WG901058

2 Tc
3 Ss
4 Tr
5 Sr
6 Qc
7 Gl
9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Dissolved Solids	827		2.82	10.0	10.0	1	08/22/2016 03:34	WG900642

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Alkalinity	411		2.71	20.0	20.0	1	08/25/2016 11:04	WG901093

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	5.86		0.0985	0.100	0.500	5	08/22/2016 18:17	WG900741

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	128		0.260	1.00	5.00	5	08/25/2016 09:06	WG901472
Fluoride	0.577		0.00990	0.100	0.100	1	08/25/2016 08:51	WG901472
Sulfate	57.6		0.0774	5.00	5.00	1	08/25/2016 08:51	WG901472

Mercury by Method 7470A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Mercury	U		0.0000490	0.000200	0.000200	1	08/22/2016 10:11	WG900632

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	0.00281	B J	0.00200	0.100	0.100	1	08/29/2016 10:07	WG901124
Arsenic,Dissolved	0.00241		0.000250	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Barium,Dissolved	0.150		0.000360	0.00500	0.00500	1	08/29/2016 10:07	WG901124
Boron,Dissolved	0.190		0.00150	0.0200	0.0200	1	08/29/2016 10:07	WG901124
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/29/2016 10:07	WG901124
Calcium,Dissolved	169		0.0460	1.00	1.00	1	08/29/2016 10:07	WG901124
Chromium,Dissolved	0.00199	B J	0.000540	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Copper,Dissolved	0.000854	B J	0.000520	0.00500	0.00500	1	08/29/2016 10:07	WG901124
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Iron,Dissolved	U		0.0150	0.100	0.100	1	08/29/2016 10:07	WG901124
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Magnesium,Dissolved	20.9		0.100	1.00	1.00	1	08/29/2016 10:07	WG901124
Manganese,Dissolved	0.00134	B J	0.000250	0.00500	0.00500	1	08/29/2016 10:07	WG901124
Molybdenum,Dissolved	0.00142	B J	0.000140	0.00500	0.00500	1	08/29/2016 10:07	WG901124
Nickel,Dissolved	0.00143	B J	0.000350	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Potassium,Dissolved	3.43		0.0370	1.00	1.00	1	08/29/2016 10:07	WG901124
Selenium,Dissolved	0.000387	J	0.000380	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Sodium,Dissolved	77.3		0.110	1.00	1.00	1	08/29/2016 10:07	WG901124
Uranium,Dissolved	0.00865	J	0.000330	0.0100	0.0100	1	08/29/2016 10:07	WG901124
Zinc,Dissolved	0.00380	J	0.00256	0.0250	0.0250	1	08/29/2016 10:07	WG901124

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	U		0.0314	0.100	0.100	1	08/21/2016 04:34	WG900637

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*107*				*62.0-128*		*08/21/2016 04:34*	WG900837

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Acetone	U		0.0100	1.00	1.00	1	08/22/2016 18:12	WG900942
Benzene	U		0.000331	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/22/2016 18:12	WG900942
Bromoform	U	J4	0.000469	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Bromomethane	U	J3	0.000866	0.00500	0.00500	1	08/22/2016 18:12	WG900942
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/22/2016 18:12	WG900942
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/22/2016 18:12	WG900942
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Chloroethane	U		0.000453	0.00500	0.00500	1	08/22/2016 18:12	WG900942
Chloroform	U		0.000324	0.00500	0.00500	1	08/22/2016 18:12	WG900942
Chloromethane	U		0.000276	0.00250	0.00250	1	08/22/2016 18:12	WG900942
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/22/2016 18:12	WG900942
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/22/2016 18:12	WG900942
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/22/2016 18:12	WG900942
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/22/2016 18:12	WG900942
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/22/2016 18:12	WG900942
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/22/2016 18:12	WG900942
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/22/2016 18:12	WG900942
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/22/2016 18:12	WG900942
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/22/2016 18:12	WG900942
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/22/2016 18:12	WG900942
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/22/2016 18:12	WG900942
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Naphthalene	U		0.00100	0.00500	0.00500	1	08/22/2016 18:12	WG900942
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Styrene	U		0.000307	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Toluene	U		0.000780	0.00500	0.00500	1	08/22/2016 18:12	WG900942
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/22/2016 18:12	WG900942
(S) Toluene-d8	*106*				*90.0-115*		*08/22/2016 18:12*	WG900942
(S) Dibromofluoromethane	*103*				*79.0-121*		*08/22/2016 18:12*	WG900942
(S) 4-Bromofluorobenzene	*101*				*80.1-120*		*08/22/2016 18:12*	WG900942

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) High Fraction	0.819		0.0247	0.100	0.100	1	08/24/2016 12:59	WG901047
(S) o-Terphenyl	*109*				*50.0-150*		*08/24/2016 12:59*	WG901047

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

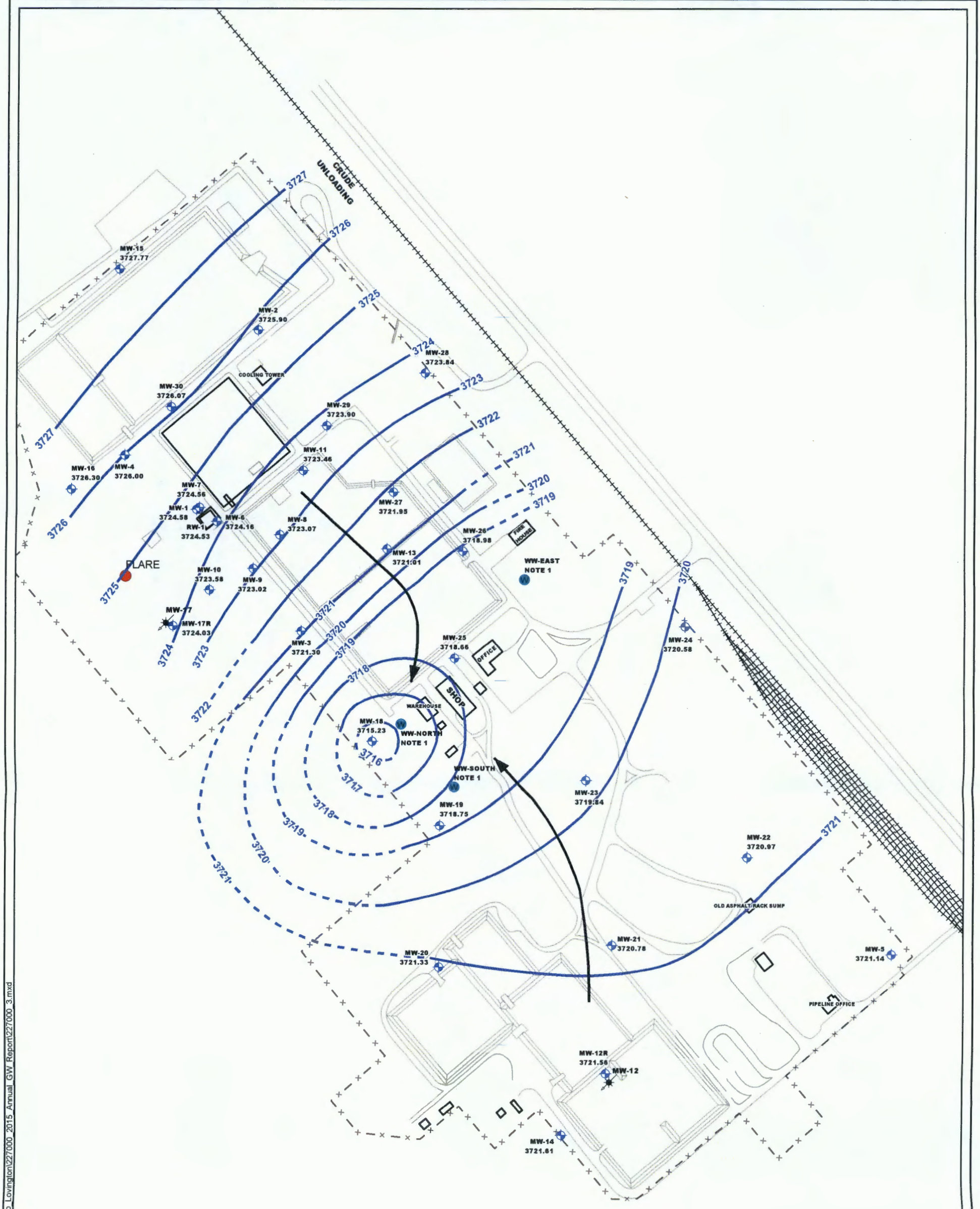
Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Acetophenone	U		0.00247	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Anthracene	U		0.000291	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Atrazine	U		0.000260	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Benzaldehyde	U	J3	0.00140	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/25/2016 18:59	WG901058
Biphenyl	U		0.000325	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/25/2016 18:59	WG901058
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/25/2016 18:59	WG901058
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Caprolactam	U		0.00259	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Carbazole	U		0.000260	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Chrysene	U		0.000332	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/25/2016 18:59	WG901058
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/25/2016 18:59	WG901058
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Fluorene	U		0.000323	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Isophorone	U		0.000272	0.0100	0.0100	1	08/25/2016 18:59	WG901058
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/25/2016 18:59	WG901058
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Naphthalene	U		0.000372	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/25/2016 18:59	WG901058
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/25/2016 18:59	WG901058
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/25/2016 18:59	WG901058
Bis(2-ethylhexyl)phthalate	0.000894	J	0.000709	0.00300	0.00300	1	08/25/2016 18:59	WG901058
Di-n-butyl phthalate	0.000493	B J	0.000266	0.00300	0.00300	1	08/25/2016 18:59	WG901058
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/25/2016 18:59	WG901058
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/25/2016 18:59	WG901058
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/25/2016 18:59	WG901058
Pyrene	U		0.000330	0.00100	0.00100	1	08/25/2016 18:59	WG901058
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/25/2016 18:59	WG901058
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/25/2016 18:59	WG901058

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/25/2016 18:59	WG901058
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,4-Dinitrophenol	U	J3	0.00325	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/25/2016 18:59	WG901058
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/25/2016 18:59	WG901058
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/25/2016 18:59	WG901058
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/25/2016 18:59	WG901058
4-Nitroaniline	U		0.000349	0.0100	0.0100	1	08/25/2016 18:59	WG901058
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Phenol	U		0.000334	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/25/2016 18:59	WG901058
(S) 2-Fluorophenol	*60.8*				*10.0-77.9*		*08/25/2016 18:59*	WG901058
(S) Phenol-d5	*41.9*				*5.00-70.1*		*08/25/2016 18:59*	WG901058
(S) Nitrobenzene-d5	*83.2*				*21.8-123*		*08/25/2016 18:59*	WG901058
(S) 2-Fluorobiphenyl	*83.6*				*29.5-131*		*08/25/2016 18:59*	WG901058
(S) 2,4,6-Tribromophenol	*125*				*11.2-130*		*08/25/2016 18:59*	WG901058
(S) p-Terphenyl-d14	*83.6*				*29.3-137*		*08/25/2016 18:59*	WG901058

ATTACHMENT F

2015 Groundwater Gradient Maps



NOTE:
1. WELL NOT ACCESSIBLE FOR GAUGING.

LEGEND

- GROUNDWATER CONTOURS (DASHED WHERE INFERRED)
- MONITORING WELL
- PLUGGED AND ABANDONED MONITORING WELL
- RECOVERY WELL
- WATER WELL
- FLARE
- FENCE
- RAIL
- GROUNDWATER FLOW DIRECTION
- 3731.65 GROUNDWATER ELEVATION (FEET)
- BUILDINGS

N

0 175 350 700
FEET

GROUNDWATER POTENTIOMETRIC SURFACE MAP - FEBRUARY 2015

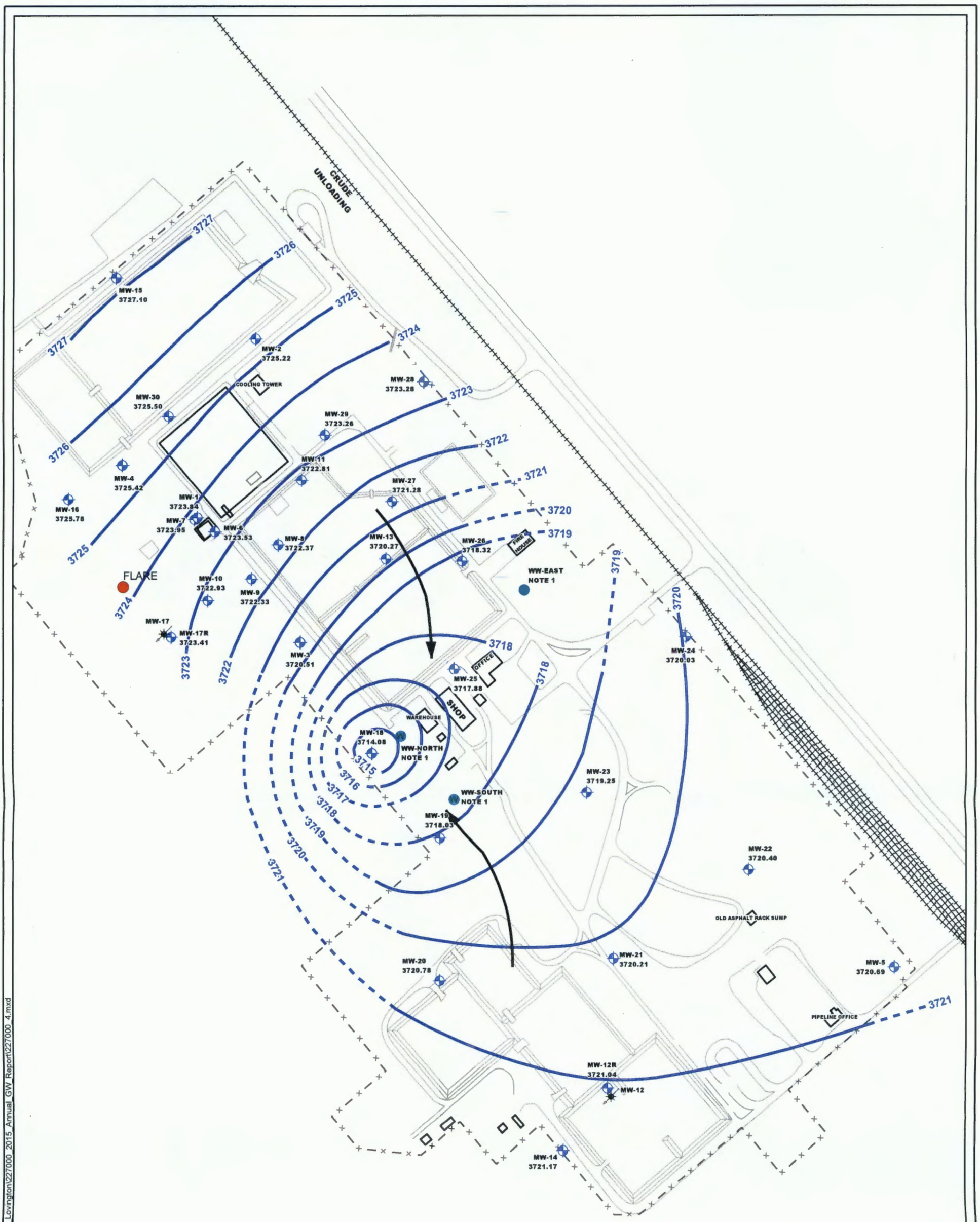
HOLLYFRONTIER NAVAJO REFINING LLC
AP-110, LOVINGTON, NEW MEXICO

PROJECT NO: 227000	MXD: 227000_3
AUTHOR: MREEVES	DATE: 3/25/2016

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 3

Document Path: J:\Holly_Energy_Partners\Navajo_Lovington\227000_2015_Annual_GW_Report\227000_3.mxd



Document Path: J:\Holly_Energy_Partners\Navajo_Lovington\227000_2015_Annual_GW_Report\227000_4.mxd

LEGEND

- GROUNDWATER CONTOURS (DASHED WHERE INFERRED)
- MONITORING WELL
- PLUGGED AND ABANDONED MONITORING WELL
- RECOVERY WELL
- WATER WELL
- FLARE
- FENCE
- RAIL
- GROUNDWATER FLOW DIRECTION
- 3731.65 GROUNDWATER ELEVATION (FEET)
- BUILDINGS

N

0 175 350 700

FEET

GROUNDWATER POTENTIOMETRIC SURFACE MAP - AUGUST 2015

HOLLYFRONTIER NAVAJO REFINING LLC
AP-110, LOVINGTON, NEW MEXICO

PROJECT NO: 227000	MXD: 227000_4
AUTHOR: MREEVES	DATE: 3/25/2016

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 4

ATTACHMENT G

Summary of Groundwater Analytical Results through 2015

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	WQCC Volatiles					WQCC Semi-Volatiles				
		Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		0.010	0.75	0.75	0.62	0.03	0.03	--	--	--	0.005
MW-1	06/19/09	<0.0050	0.012	<0.0050	0.031	<0.0050	--	--	--	--	--
	01/19/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	<0.00020	<0.00020	<0.00020
	08/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	03/01/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/27/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/24/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-2	06/22/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/19/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/16/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	03/03/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/14/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/19/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00022
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/28/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-3	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/14/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
(duplicate)	01/14/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/19/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/24/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/15/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
(duplicate)	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/26/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-4	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/13/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/19/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/15/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00044	0.00044	--	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/28/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.0003723	<0.000332	<0.000311	<0.000334

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

		WQCC Volatiles					WQCC Semi-Volatiles				
Monitor Well	Sample Date	Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		0.010	0.75	0.75	0.62	0.03	0.03	--	--	--	0.005
MW-5	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/20/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
(duplicate)	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/24/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000382 J
MW-6	06/18/09	<0.0050	<0.0050	<0.0050	<0.015	0.0075	--	--	--	--	--
(duplicate)	06/18/09	<0.0050	<0.0050	<0.0050	<0.015	0.0074	--	--	--	--	--
	02/02/10	<0.0050	0.013	<0.0050	<0.015	0.0099	--	--	--	--	--
	08/19/10	<0.0050	0.015	<0.0050	<0.015	<0.0050	--	0.0017	--	0.0017	<0.0010
	03/01/11	<0.0050	0.018	<0.0050	<0.015	0.013	0.0094	0.0062	<0.00020	0.0032	0.0255
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.0008	0.0008	--	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00116	0.00052	0.00064	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00292	0.00092	0.0020	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-7	06/19/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/02/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	03/01/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/27/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000507 J
MW-8	06/18/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/25/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/27/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000990 J

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

		WQCC Volatiles					WQCC Semi-Volatiles				
Monitor Well	Sample Date	Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		0.010	0.75	0.75	0.62	0.03	0.03	--	--	--	0.005
MW-9	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/14/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/19/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	03/01/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/15/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/26/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-10	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/13/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/19/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	<0.00020	<0.00020
	03/03/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00028	0.00028	<0.00020	<0.00020	<0.00020
	07/15/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00032
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/26/15	<0.000331	<0.000384	<0.00078	<0.00106	<0.0010	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-11	06/18/09	0.10	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/18/10	0.20 E	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/18/10	0.078	0.021	<0.0050	<0.015	<0.0050	0.00036	0.00036	--	--	0.00122
	02/25/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	1.2	<0.0050	<0.0050	<0.015	<0.0050	0.00036	0.00036	--	<0.00020	0.00089
	02/01/12	7.8	0.051	<0.0050	0.200	0.096	0.0435	0.039	--	0.0045	0.0035
	07/27/12	0.049	<0.0050	<0.0050	<0.015	<0.0050	0.00022	0.00022	<0.00020	<0.00020	0.00023
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/28/14	0.9600	0.250	<0.0050	0.200	0.0064	--	--	--	--	--
	08/20/14	0.1100	0.011	<0.0050	0.030	<0.0050	--	--	--	--	--
	02/27/15	0.0026	0.00099 J	<0.00078	0.0036	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	0.0010 J
	08/28/15	0.00856	0.00194	0.00283 J	0.0158	<0.00100	--	--	--	--	--
(duplicate)	08/28/15	0.00922	0.00216	0.00305 J	0.0180	<0.00100	--	--	--	--	--
MW-12	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/20/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	--	DAMAGED WELL - NO SAMPLES COLLECTED									
MW-12R	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000362 J

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	WQCC Volatiles					WQCC Semi-Volatiles				
		Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		0.010	0.75	0.75	0.62	0.03	0.03	--	--	--	0.005
MW-13	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/18/10	0.016	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/25/11	0.0057	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00091
	07/19/11	0.0063	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/27/15	0.00034 J	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/26/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000379 J
MW-14	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/20/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/18/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.000205	<0.00020	<0.000205	<0.000205	<0.000205
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/28/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/20/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/27/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000530 J
MW-15	08/20/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/24/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/14/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/19/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/24/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/24/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
(duplicate)	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000997 J
(duplicate)	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000595 J
MW-16	08/20/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/24/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/15/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00030	0.00030	--	<0.00020	<0.00020
(duplicate)	07/15/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	0.00037	0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000397 J

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

		WQCC Volatiles					WQCC Semi-Volatiles				
Monitor Well	Sample Date	Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		0.010	0.75	0.75	0.62	0.03	0.03	--	--	--	0.005
MW-17	08/20/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/24/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/18/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	--	DAMAGED WELL - NO SAMPLES COLLECTED									
MW-17R	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000465 J
MW-18	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/24/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/18/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00021	0.00021	--	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/14	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00056
	08/20/14	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000507 J
MW-19	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/24/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/18/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00034
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
(duplicate)	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
(duplicate)	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/26/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000610 J
MW-20	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/25/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/18/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/15/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000508 J

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

		WQCC Volatiles					WQCC Semi-Volatiles				
Monitor Well	Sample Date	Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		0.010	0.75	0.75	0.62	0.03	0.03	--	--	--	0.005
MW-21	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00031	<0.00020	<0.00020	0.00031	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000497 J
MW-22	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-23	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-24	08/24/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/14/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	07/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000405 J

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

		WQCC Volatiles					WQCC Semi-Volatiles				
Monitor Well	Sample Date	Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		0.010	0.75	0.75	0.62	0.03	0.03	--	--	--	0.005
MW-25	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/18/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
(duplicate)	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
(duplicate)	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000728 J
(duplicate)	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000581 J
MW-26	08/24/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/14/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00061
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-27	08/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/25/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00099
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	0.00034
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/27/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/26/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-28	08/28/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/23/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/14/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/19/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00086
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00022
	02/24/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/23/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	0.00033 J
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000774 J

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

		WQCC Volatiles					WQCC Semi-Volatiles				
Monitor Well	Sample Date	Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		0.010	0.75	0.75	0.62	0.03	0.03	--	--	--	0.005
MW-29	08/24/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
(duplicate)	08/24/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/14/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00050	0.00050	--	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	0.00039 J
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-30	06/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/28/15	<0.000331	<0.000384	<0.000780	0.00142 J	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
RW-1	06/19/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	02/02/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/19/10	<0.0050	<0.0050	<0.0050	0.015	<0.0050	--	--	--	--	--
	03/01/11	<0.0050	<0.0050	<0.0050	0.0054	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/27/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.00078	<0.00106	<0.0010	<0.000372	<0.000372	<0.000332	<0.000311	0.000398 J
North Well	06/18/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/14/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/24/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	03/03/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/19/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/11/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	12/17/14	<0.0010	<0.0010	<0.0010	<0.0015	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	03/09/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	05/19/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00033	<0.00031	<0.00033
	08/28/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
	12/17/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	WQCC Volatiles					WQCC Semi-Volatiles				
		Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		0.010	0.75	0.75	0.62	0.03	0.03	--	--	--	0.005
South Well	06/22/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/14/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/24/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	03/03/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/19/13	0.0052	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/28/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
(duplicate)	08/22/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	12/17/14	0.0023	<0.0010	<0.0010	<0.0015	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
(duplicate)	12/17/14	0.0023	<0.0010	<0.0010	<0.0015	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	03/09/15	0.0014	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
(duplicate)	03/09/15	0.0016	<0.00038	<0.00078	<0.0011	<0.0010	<0.0037	<0.0037	<0.00031	<0.00031	<0.00033
	5/19/2015	0.0010 J	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00033	<0.00031	<0.00033
(duplicate)	5/19/2015	0.00091 J	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00033	<0.00031	<0.00033
	8/28/2015	0.00113	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
(duplicate)	8/28/2015	0.000921 J	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
	12/17/2015	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
(duplicate)	12/17/2015	0.00119	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
East Well	06/18/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	01/14/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	08/25/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	--	--	--	--	--
	03/03/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	--	<0.00020	<0.00020
	07/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/27/12	<0.0050	<0.0050	<0.0050	<0.015	--	<0.00020	<0.00020	<0.00020	--	<0.00020
	09/26/12	<0.0050	<0.0050	<0.0050	<0.015	--	<0.00020	<0.00020	<0.00020	--	<0.00020
	10/22/12	<0.0050	<0.0050	<0.0050	<0.015	--	<0.00020	<0.00020	<0.00020	--	<0.00020
	12/27/12	<0.0050	<0.0050	<0.0050	<0.015	--	<0.00020	<0.00020	<0.00020	--	<0.00020
	02/28/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	12/17/14	<0.0010	<0.0010	<0.0010	<0.0015	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	03/09/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	05/19/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00033	<0.00031	<0.00033
	08/28/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
	12/17/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334

Notes:
Shading indicates detected result exceeded the New Mexico Water Quality Control Commission (WQCC) Human Health Standard
mg/L = milligrams per liter
< = Not reported above laboratory reporting limit
-- = Not Analyzed
J = analyte was detected below the laboratory reporting limit, reported value is estimated
June 2009 to August 2014 analyses performed by ALS Laboratory Group in Houston, Texas
December 2014 anlyses peformed by Hall Environmental Analysis Laboratory in Albuquerque, New Mexico
February 2015 to August 2015 analyses performed by ESC Lab Sciences in Mount Juliet, Tennessee

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-1	06/19/09	131	0.827	3.75	123	694	<0.0100	0.00914	0.1470	0.175	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.974	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	0.01240
	01/19/10	266	0.249	5.84	145	1,240	0.0202	0.00634	0.1640	0.236	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	2.72	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00615	0.00989
	08/18/10	126	0.623	2.59	111	694	<0.0100	0.00841	0.1170	0.182	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	1.62	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00538
	03/01/11	100	0.502	1.84	83.4	580	<0.0100	0.00821	0.0984	0.189	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	1.62	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00689
	07/20/11	34.7	0.623	1.14	73.9	492	<0.0100	0.00808	0.0903	0.168	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.485	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00832
	02/02/12	29.9	0.773	<1.00	65.4	392	<0.0100	0.00782	0.0843	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.780	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00766
	07/27/12	27.3	0.944	<2.00	59.5	358	0.0249	0.00870	0.0917	0.193	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	1.05	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00759
	02/27/13	30.0	0.872	<2.00	67.2	400	<0.0100	0.00857	0.0974	0.184	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.662	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01070
	08/21/13	33.2	1.03	<1.00	70.5	406	0.0158	0.00589	0.1020	0.187	<0.00200	0.01600	<0.00500	<0.00500	<0.200	<0.00500	1.32	<0.000200	<0.00500	0.01640	<0.00500	<0.00500	<0.00500	0.00641
	02/27/14	30.0	0.758	0.710	63.2	418	<0.0100	0.00750	0.1110	0.169	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.690	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00874
	08/21/14	26.6	1.10	1.23	68.0	395	0.0135	0.01020	0.1380	0.109	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0172	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02420
	02/25/15	26.0	1.10	1.50	66.0	390	<0.0350	0.01200	0.1300	0.180 J	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	0.00048 J	<0.0012	<0.000049	0.00250	<0.00490	<0.00740	<0.00280	0.00220 J	0.00670 J
	08/27/15	27.3	0.961	1.70	72.2	441	<0.0350	0.01200	0.1220	0.170	<0.00016	<0.00054	<0.00026	<0.00052	<0.0141	<0.000240	0.00191 J	<0.000049	0.00236 J	<0.00035	0.00268	<0.00031	0.00187 J	<0.00256
MW-2	06/22/09	252	0.765	2.69	66.8	988	0.0657	0.03860	0.0803	0.190	<0.00200	<0.00500	<0.00500	0.00621	<0.200	<0.00500	0.00583	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	0.1100
	01/19/10	246	0.672	3.39	55.1	966	<0.0100	<0.00500	0.005	0.191	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00538	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0166
	08/16/10	276	0.824	3.23	55.9	1,180	0.1367	<0.00500	0.193	0.155	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0204
	03/03/11	221	0.763	3.49	57.6	1,010	<0.0100	<0.00500	0.176	0.171	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0117
	07/14/11	190	0.647	2.98	58.4	966	<0.0100	<0.00500	0.160	0.192	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0230
	01/30/12	214	0.784	3.43	75.1	1,230	<0.0100	<0.00500	0.130	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0255
	07/24/12	201	0.898	3.24	76.3	908	<0.0100	<0.00500	0.140	0.233	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0191
	02/19/13	213	0.810	3.90	86.6	834	0.0102	<0.00500	0.141	0.197	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0436
	08/20/13	178	0.920	5.33	88.9	682	0.0346	<0.00500	0.118	0.216	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00721
	02/25/14	139	0.693	5.25	79.4	616	0.0133	<0.00500	0.125	0.203	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0130
	08/21/14	122	0.812	6.17	82.3	588	0.0143	<0.00500	0.112	0.147	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0214
	02/24/15	130	0.920	7.90	94.0	710	<0.035	0.00370	0.090	0.210	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.0034 J	<0.00490	<0.00740	<0.00280	0.00260 J	<0.0059
	08/28/15	343	1.41	8.33	152	1,000	<0.0350	0.00355	0.111	0.213	<0.00016	0.000625 J	<0.00026	0.000548 J	<0.0141	<0.00024	0.000533 J	<0.000049	0.00254 J	0.00115 J	0.00147 J	<0.000310	0.00340 J	0.00382 J
MW-3	06/16/09	29.1	3.38	2.19	64.6	504	0.3080	0.00815	0.1150	0.160	<0.00200	0.00709	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.01510	<0.00500	<0.00500	<0.00500	--	<0.0100
	01/14/10	49.9	3.18	2.11	76.5	540	0.1440	0.00703	0.1190	0.148	<0.00200	0.00977	<0.00500	0.12100	<0.200	<0.00500	0.00597	<0.000200	0.02000	0.00842	<0.00500	<0.00500	0.000625	0.01950
(duplicate)	01/14/10	49.8	3.18	2.11	75.0	552	0.1420	0.00798	0.1250	0.167	<0.00200	0.01050	<0.00500	0.14800	<0.200	<0.00500	0.00699	<0.000200	0.02160	0.00960	<0.00500	<0.00500	0.000721	0.02300
	08/19/10	72.7	2.99	1.52	77.7	518	0.0767	0.00935	0.1270	0.151	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.00790	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/24/11	88.2	2.58	3.02	80.5	566	<0.0100	0.00892	0.1240	0.178	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.05240
	07/15/11	67.3	2.37	2.59	74.7	568	<0.0100	0.01250	0.1130	0.202	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.00510	<0.00500	<0.00500	<0.00500	<0.00500	0.01560
	01/30/12	65.6	2.94	2.37	86.3	472	<0.0100	0.01170	0.0831	0.168	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.00621	<0.00500	<0.00500	<0.00500	<0.00500	0.00886
	07/25/12	35.0	2.70	<2.00	81.3	436	<0.0100	0.01520	0.0773	0.209	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00673
	02/27/13	54.2	2.47	2.30	89.5	478	<0.0100	0.01560	0.1010	0.186	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.00546	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/22/13	46.1	2.4	2.06	81.9	456	0.0185	0.01690	0.0782	0.178	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/26/14	36.9	1.84	2.08	79.1	430	<0.0100	0.01790	0.0655	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00560	<0.00500	<0.00500	<0.00500	0.00527
	08/21/14	30.0	1.84	1.53	78.0	420	0.0128	0.01830	0.0545	0.104	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/26/15	31.0	1.50	1.90	74.0	420	<0.0350	0.01900	0.0610	0.160	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.00094	<0.00490	<0.00740	<0.00280	0.000570	<0.00590
(duplicate)	02/26/15	32.0	1.60	2.00	74.0	420	<0.0350	0.02000	0.0620	0.160 J	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.00110 J	<0.00490	0.00850 J	<0.00280	0.000560 J	0.00880 J
	08/26/15	27.3	1.55	1.88	77.6	520	<0.0350	0.01950	0.0529	0.166 J	<0.00016	0.000912 J	<0.00026	0.00101 J	<0.0141	<0.00024	0.000572 J	<0.000049	<0.00160	0.000483 J	0.00269	<0.00031	0.000567 J	0.00296 J
MW-4	06/16/09	28.9	0.841	1.84	61.5	422	0.1800	<0.00500	0.1740	0.160	<0.00200	0.00534	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	0.01200
	01/13/10	29.3	1.10	1.67	66.7	416	0.0345	<0.00500	0.0932	0.177	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00102	<0.00500
	08/19/10	26.1	1.10	1.10	65.8	324	0.0607	<0.00500	0.0862	0.136	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/28/11	27.1	1.02	1.91	64.4	378	0.0131	<0.00500	0.0951	0.163	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00533
	07/15/11	25.8	1.12	1.57	63.6	422	0.1440	<0.00500	0.1410	0.172	<0.00200	0.00619	<0.00500	<0.00500	<0.200	<0.00500	0.01140	<0.000200	<0.00500	0.01030	<0.00500	<0.00500	<0.00500	0.02110
	01/30/12	30.0	1.08	1.71	73.4	388	0.0119	<0.00500	0.0796	0.150	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01470
	07/24/12	28.9	1.18	<2.00	69.4	414	<0.0100	<0.00500	0.0883	0.199	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01020
	02/21/13	26.6	1.05	<2.00	75.5	360	<0.0100	0.00525	0.0841	0.157	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01160
	08/20/13	26.4	1.20	1.72	71.6	382	< 0.0100	0.00500	0.0902	0.156	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00506
	02/25/14	26.9	0.877	2.02	75.5	390	<0.0100	<0.00500	0.0897	0.148	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00801
	08/20/14	24.1	1.15	1.64	70.2	372	0.6030	0.00501	0.2130	0.111	<0.00200	<0.00500	<0.00500	<0.00500	0.241	<0.00500	0.00595	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02210
	02/24/15	24.0	1.10	2.10	66.00	390	<0.0350	0.00460	0.0900	0.150 J	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	0.00025 J	<0.00120	0.00011 J	0.00340 J	<0.00490	<0.00740	<0.00280	0.00160 J	<0.00590
	08/28/15	28.8	1.26	2.32	63.8	479	<0.0350	0.00526	0.0930	0.157	<0.00016	<0.00054	<0.00026	<0.00052	<0.0141	<0.00024	0.00114 J	<0.000049	0.00319 J	0.000482 J	0.00228	<0.00031	0.00168 J	0.00269 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-5	06/16/09	186	1.39	3.31	131	952	0.7960	0.02330	0.0639	0.1160	<0.00200	<0.00500	<0.00500	<0.00500	0.399	<0.00500	0.00670	<0.000200	0.01030	<0.00500	<0.00500	<0.00500	--	<0.01000
	01/18/10	26.4	0.781	4.91	80.6	508	<0.0100	<0.00500	0.0966	0.1350	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/20/10	18.5	1.13	3.43	77.7	440	0.0814	<0.00500	0.0967	0.0986	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/28/11	29.8	1.03	2.91	70.5	570	0.1230	<0.00500	0.1000	0.0854	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01420	<0.000200	<0.00500	0.01120	<0.00500	<0.00500	<0.00500	0.03680
	07/19/11	20.9	0.858	2.72	59.0	524	<0.0100	<0.00500	0.0968	0.0871	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03090
	01/31/12	26.9	1.04	2.49	61.2	504	<0.0100	<0.00500	0.0972	0.0557	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00948
(duplicate)	01/31/12	27.1	1.05	2.54	62.0	436	<0.0100	<0.00500	0.0947	0.0728	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01190
	07/25/12	15.9	1.10	2.22	50.1	434	0.0205	<0.00500	0.0931	0.1340	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.05620
	02/21/13	10.9	1.04	2.01	40.8	412	0.0487	<0.00500	0.1040	0.0997	<0.00200	<0.00500	<0.00500	0.04340	<0.200	<0.00500	0.01580	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00582	0.02890
	08/20/13	13.9	1.16	2.05	44.2	448	< 0.0100	<0.00500	0.1050	0.1000	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00507	0.02080
	02/25/14	11.8	0.877	2.52	48.4	436	< 0.0100	<0.00500	0.1160	0.0893	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01140
	08/19/14	8.71	1.16	1.68	44.6	478	0.1480	<0.00500	0.1230	<0.0200	<0.00200	0.00744	<0.00500	<0.00500	<0.200	<0.00500	0.00532	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00535	0.00626
	02/24/15	21.0	1.40	2.20	43.0	520	0.038 J	0.00290	0.1200	0.0910 J	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.00450 J	<0.00490	<0.00740	<0.00280	0.00400 J	0.00890 J
	08/25/15	19.9	1.52	1.97	39.9	586	<0.0350	0.00410	0.1210	0.0899 J	<0.00016	0.00111 J	<0.00026	0.00102 J	<0.0141	<0.00024	<0.00025	<0.000049	0.00476 J	0.000814 J	<0.00038	<0.00031	0.00410 J	0.00539 J
MW-6	06/18/09	188	0.113	0.678	101	844	<0.0100	0.0201	0.186	0.175	<0.00200	<0.00500	<0.00500	<0.00500	0.418	<0.00500	**2.86**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	0.00996
(duplicate)	06/18/09	168	<0.100	0.682	90.4	812	<0.0100	0.0221	0.200	0.192	<0.00200	<0.00500	<0.00500	<0.00500	0.219	<0.00500	**2.76**	<0.000200	<0.00500	0.00653	<0.00500	<0.00500	--	0.01410
	02/02/10	**334**	<0.100	0.822	90.2	**1,400**	<0.0200	0.0250	0.499	0.234	<0.00200	<0.00500	<0.00500	<0.00500	**2.08**	<0.00500	**4.51**	<0.000200	<0.00500	0.00634	<0.00500	<0.00500	0.01130	<0.00500
	08/19/10	**285**	<0.100	<1.00	111	**1,350**	0.0152	0.0456	0.376	0.244	<0.00200	<0.00500	<0.00500	<0.00500	**1.86**	<0.00500	**6.61**	<0.000200	<0.00500	0.00766	<0.00500	<0.00500	0.00785	<0.00500
	03/01/11	**282**	<0.100	0.750	80.7	**1,340**	<0.0100	0.0390	0.404	0.271	<0.00200	<0.00500	<0.00500	<0.00500	0.711	<0.00500	**5.58**	<0.000200	<0.00500	0.00896	<0.00500	<0.00500	0.00659	<0.00500
	07/20/11	174	<0.500	<0.500	114	970	<0.0100	0.0336	0.220	0.223	<0.00200	0.00972	<0.00500	<0.00500	**1.57**	<0.00500	**4.51**	<0.000200	<0.00500	0.00576	<0.00500	<0.00500	<0.00500	0.01760
	02/02/12	58.4	0.313	<1.00	88.0	398	<0.0100	<0.00500	0.0827	0.190	<0.00200	<0.00500	<0.00500	<0.00500	0.488	<0.00500	**1.25**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00599	0.00858
	07/24/12	77.7	0.217	<2.00	80.1	690	<0.0100	0.0128	0.143	0.265	<0.00200	<0.00500	<0.00500	<0.00500	**1.28**	<0.00500	**2.53**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.01020	0.01940
	02/27/13	65.4	0.368	<2.00	77.1	542	<0.0100	0.0126	0.154	0.214	<0.00200	<0.00500	<0.00500	<0.00500	**1.31**	<0.00500	**1.97**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00789	0.01230
(duplicate)	02/27/13	65.7	0.370	<2.00	77.6	556	<0.0100	0.0124	0.158	0.216	<0.00200	<0.00500	<0.00500	<0.00500	**1.33**	<0.00500	**2.02**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00833	0.01060
	08/21/13	43.3	0.441	<0.200	76.6	502	0.0244	<0.00500	0.129	0.198	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	**1.68**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00606	<0.00500
	02/27/14	124	0.309	<0.500	51.0	814	<0.0100	0.0458	0.263	0.220	<0.00200	<0.00500	<0.00500	<0.00500	**3.42**	<0.00500	**2.71**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00882	0.00622
	08/21/14	132	0.230	<1.00	34.4	832	0.0330	0.0185	0.363	0.167	<0.00200	<0.00500	<0.00500	<0.00500	0.268	<0.00500	**3.06**	<0.000200	<0.00500	0.00651	<0.00500	<0.00500	0.00744	0.01510
	02/25/15	42.0	0.580	0.170	67.0	500	0.0920 J	0.0061	0.190	0.190 J	<0.00070	<0.0014	<0.00230	<0.00530	0.015 J	0.00072 J	**1.00**	<0.000049	0.00260 J	<0.00490	<0.00740	<0.00280	0.00660 J	0.02000
	08/27/15	32.4	0.505	0.835	66.5	473	<0.0350	0.00539	0.152	0.181	<0.00016	<0.000540	<0.00026	0.00054 J	<0.0141	<0.00024	**0.411**	<0.000049	0.00192 J	0.00134 J	0.00242	<0.00031	0.00463 J	0.00347 J
MW-7	06/19/09	30.6	1.12	1.66	67.2	384	<0.0100	0.00923	0.169	0.161	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.127	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	0.01370
	02/02/10	28.0	0.854	1.72	62.2	350	<0.0200	0.00869	0.199	0.169	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.125	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/18/10	27.2	0.570	1.12	60.2	370	0.0223	0.00532	0.252	0.161	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	**0.343**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	03/01/11	26.5	0.599	1.91	58.2	376	<0.0100	0.00525	0.237	0.161	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	**0.441**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00593
	07/20/11	23.3	0.626	1.35	56.8	396	<0.0100	0.00669	0.246	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	**0.617**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/02/12	25.5	0.633	1.66	61.5	356	<0.0100	<0.00500	0.229	0.166	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	**0.550**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00746
	07/27/12	23.6	0.796	2.01	55.2	342	0.0727	<0.00500	0.234	0.196	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	**0.642**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01140
	02/27/13	25.8	0.709	<2.00	67.3	286	<0.0100	<0.00500	0.227	0.178	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	**0.300**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00844
	08/21/13	26.9	0.748	1.62	60.8	290	< 0.0100	<0.00500	0.220	0.178	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	**0.365**	<0.000200	<0.00500	<0.00500	0.00600	<0.00500	<0.00500	<0.00500
	02/27/14	31.0	0.501	1.50	62.1	408	0.0159	<0.00500	0.208	0.168	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	**0.781**	<0.000200	<0.00500	<0.00500	0.00540	<0.00500	<0.00500	0.00818
	08/21/14	30.8	0.642	1.72	62.2	380	< 0.0100	<0.00500	0.207	0.110	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	**0.470**	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00566
	02/25/15	35.0	0.710	2.00	60.0	420	<0.0350	0.00550	0.240	0.180 J	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	0.00041 J	0.011	<0.000049	0.00110 J	<0.00490	<0.00740	<0.00280	0.00330 J	0.00830 J
	08/27/15	38.4	0.866	2.28	66.9	471	<0.0350	0.00650	0.215	0.180	<0.00016	<0.00054	<0.00026	<0.00052	<0.0141	<0.00024	0.0184	<0.000049	0.00175 J	<0.00035	0.00334	<0.00031	0.00236 J	<0.00256
MW-8	06/18/09	219	0.730	3.46	73.3	798	<0.0100	0.00501	0.181	0.228	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00919	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	0.04580
	01/18/10	151	0.493	3.80	67.6	742	<0.0100	0.00726	0.157	0.215	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00545
	08/18/10	**279**	0.560	7.08	65.3	**1,260**	0.0377	0.00676	0.204	0.170	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00501	0.00760
	02/25/11	144	0.820	<0.500	87.5	694	<0.0100	<0.00500	0.106	0.175	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	**0.28100**	<0.000200	<0.00500	0.00620	<0.00500	<0.00500	<0.00500	0.03160
	07/19/11	**313**	0.522	4.49	72.4	**1,460**	<0.0100	<0.00500	0.229	0.278	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00928	0.02130
	02/01/12	**376**	0.498	8.21	102	**1,530**	<0.0100	<0.00500	0.221	0.219	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00636	<0.000200	<0.00500	0.01190	<0.00500	<0.00500	0.00745	0.03390
	07/27/12	224	0.490	8.55	122	**1,080**	<0.0100	<0.00500	0.160	0.294	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00523	<0.00500	<0.00500	0.00714	0.00888
	02/26/13	246	0.371	**11.1**	118	**1,080**	<0.0100	0.00627	0.170	0.380	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00592	<0.000200	<0.00500	0.00999	<0.00500	<0.00500	0.00690	0.01880
	08/21/13	101	0.513	9.49	129	788	< 0.0100	<0.00500	0.119	0.266	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02080	<0.000200	<0.00500	0.01350	<0.00500	<0.00500	<0.00500	0.01070
	02/27/14	**368**	0.417	1.43	88.1	**1,440**	0.7470	<0.00500	0.233	0.284	<0.00200	0.04170	<0.00500	<0.00500	0.541	<0.00500	0.02400	<0.000200	<0.00500	0.03390	<0.00500	<0.00500	0.00916	0.01020
	08/21/14	**360**	0.268	4.42	76.6	**1,310**	0.3140	<0.00500	0.212	0.230	<0.00200	0.04040	<0.00500	<0.00500	0.274	<0.00500	0.01280	<0.000200	<0.00500	0.02580	<0.00500	<0.00500	0.00639	0.01810
	02/26/15	220	0.490	7.00	86.0	960	0.1100	0.00550	0.200	0.230	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.000830 J	<0.00490	<0.00740	<0.00280	0.00730 J	0.00590 J
	08/27/15	**258**	0.368 J	8.80	88.5	**1,260**	<0.0350	0.00537	0.232	0.245	<0.00016	0.000562 J	0.000346 J	0.000544 J	<0.0141	<0.00024	0.00141 J	<0.000049	0.000854 J	0.00204	0.00224	<0.00031	0.00891 J	0.00316 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-9	06/16/09	23.0	1.69	0.748	73.2	380	0.0468	0.0373	0.0911	0.122	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	<0.0100
	01/14/10	23.9	1.78	1.72	74.4	450	0.0164	0.0351	0.0676	0.139	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.000656	<0.00500
	08/19/10	21.8	1.64	1.32	75.2	412	0.1150	0.0358	0.0649	0.121	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00961	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	03/01/11	24.1	1.63	2.01	74.6	414	0.0112	0.0382	0.0586	0.131	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00662
	07/15/11	24.9	1.65	1.78	70.2	434	0.0371	0.0374	0.0647	0.166	<0.00200	0.00741	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00511	<0.00500	<0.00500	<0.00500	0.00932
	01/31/12	31.5	2.22	1.43	80.5	484	<0.0100	0.0341	0.0653	0.108	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00529
	07/25/12	30.4	1.99	<2.00	77.8	420	0.0306	0.0292	0.0721	0.182	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00708	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00716
	02/27/13	31.3	1.11	2.82	79.1	440	<0.0100	0.0171	0.0766	0.154	<0.00200	<0.00500	<0.00500	<0.00500	0.702	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01670
	08/22/13	35.7	1.80	3.01	74.0	466	0.0467	0.0246	0.0736	0.153	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/26/14	54.0	1.48	3.17	71.5	452	0.0161	0.0224	0.0737	0.152	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00588	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/21/14	197	0.655	2.35	111	932	2.47	<0.00500	0.1740	0.124	<0.00200	0.205	<0.00500	0.00644	2.22	<0.00500	0.09030	<0.000200	0.00662	0.11100	<0.00500	<0.00500	<0.00500	0.03340
	02/25/15	49.0	0.690	3.50	69.0	440	<0.0350	0.0087	0.1000	0.180 J	<0.00070	<0.0014	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.00140 J	<0.00490	<0.00740	<0.00280	0.00310 J	<0.00590
	08/26/15	46.6	0.527	4.17	67.5	495	<0.0350	0.00744	0.1080	0.163 J	<0.00016	<0.000540	<0.00026	0.000626 J	<0.0141	<0.00024	<0.00025	<0.000049	<0.00160	0.000566 J	<0.00297	<0.00031	0.00285 J	0.00258 J
MW-10	06/16/09	32.2	0.878	1.83	76.5	378	<0.0200	<0.00500	0.1130	0.138	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	0.01270
	01/13/10	33.4	1.05	1.84	77.9	436	<0.0100	<0.00500	0.0815	0.162	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.000911	0.01330
	08/19/10	31.7	1.07	1.91	79.8	508	0.0556	<0.00500	0.0798	0.129	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00569
	03/03/11	32.8	0.945	2.06	79.1	422	<0.0100	<0.00500	0.0772	0.159	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01330
	07/15/11	30.7	1.06	1.68	75.7	470	0.0318	<0.00500	0.0855	0.177	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	01/31/12	42.9	1.00	1.85	87.4	444	<0.0100	<0.00500	0.0865	0.109	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02520
	07/25/12	42.7	1.10	<2.00	82.6	382	<0.0100	0.00516	0.0882	0.186	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00861
	02/27/13	48.0	0.960	<2.00	83.5	416	<0.0100	0.00546	0.0972	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00633
	08/22/13	95.0	0.994	2.12	72.2	516	< 0.0100	<0.00500	0.1040	0.168	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00671
	02/26/14	112	0.674	2.43	70.9	568	< 0.0100	<0.00500	0.1060	0.147	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00979
	08/21/14	156	0.856	2.08	68.5	750	< 0.0100	<0.00500	0.1340	0.0998	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00939	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01140
	02/26/15	120	0.71	2.10	68.0	540	<0.0350	0.00430	0.1200	0.170 J	<0.00070	0.00160 J	<0.00230	<0.0053	<0.014	0.00030 J	<0.00120	<0.000049	0.00260 J	<0.00490	<0.0074	<0.00280	0.00190 J	0.00600 J
	08/26/15	115	1.19	1.92	102	551	<0.0350	0.00466	0.0982	0.154	<0.00016	0.000709 J	<0.00026	0.000803 J	<0.0141	<0.00024	<0.00025	<0.000049	0.00258 J	<0.00035	0.00283	<0.00031	0.00158 J	<0.00256
MW-11	06/18/09	204	0.579	1.23	43.1	994	<0.0100	<0.00500	0.194	0.199	<0.00200	<0.00500	<0.00500	<0.00500	0.571	<0.00500	0.3870	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	0.02120
	01/18/10	164	0.527	1.37	71.4	842	<0.0100	<0.00500	0.147	0.238	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0559	<0.000200	<0.00500	0.01260	<0.00500	<0.00500	0.00635	<0.00500
	08/18/10	146	0.616	2.38	50.6	802	0.0125	<0.00500	0.471	0.255	<0.00200	<0.00500	<0.00500	<0.00500	0.347	<0.00500	0.5710	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00718	<0.00500
	02/25/11	415	0.549	<0.500	82.3	1,510	<0.0100	<0.00500	0.241	0.244	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0101	<0.000200	<0.00500	0.00856	<0.00500	<0.00500	0.00878	0.09820
	07/19/11	134	0.575	0.778	57.0	894	<0.0100	<0.00500	0.150	0.232	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0301	<0.000200	<0.00500	0.00846	<0.00500	<0.00500	0.00616	0.02650
	02/01/12	175	0.749	<0.500	4.96	966	<0.0100	0.0176	1.40	0.288	<0.00200	<0.00500	<0.00500	<0.00500	1.77	<0.00500	1.05	<0.000200	<0.00500	0.01690	<0.00500	<0.00500	0.01380	0.01890
	07/27/12	133	0.708	<2.00	59.7	784	<0.0100	0.0128	0.827	0.374	<0.00200	<0.00500	<0.00500	<0.00500	2.02	<0.00500	2.54	<0.000200	<0.00500	0.03510	<0.00500	<0.00500	0.03300	<0.00500
	02/27/13	140	0.576	3.11	32.6	908	<0.0100	0.00802	0.561	0.349	<0.00200	<0.00500	0.00604	<0.00500	<0.200	<0.00500	5.24	<0.000200	0.00631	0.08610	<0.00500	<0.00500	0.01270	0.02260
(duplicate)	02/27/13	143	0.585	3.23	32.0	908	<0.0100	0.00787	0.574	0.349	<0.00200	<0.00500	0.00574	<0.00500	<0.200	<0.00500	5.47	<0.000200	0.00619	0.08110	<0.00500	<0.00500	0.01250	0.01990
	08/21/13	182	0.668	4.04	75.3	854	< 0.0100	<0.00500	0.195	0.283	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	2.62	<0.000200	<0.00500	0.00869	<0.00500	<0.00500	0.00723	0.00547
(duplicate)	08/21/13	172	0.673	4.19	76.2	868	< 0.0100	<0.00500	0.198	0.29	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	2.92	<0.000200	<0.00500	0.00906	<0.00500	<0.00500	0.00714	0.00592
	02/28/14	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]
	08/20/14	--[1]	--[1]	<1.0	--[1]	--[1]	0.0129	<0.00500	0.820	0.361	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	1.10	<0.000200	<0.00500	0.02170	<0.00500	<0.00500	0.02690	0.01040
	02/27/15	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]
	08/28/15	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]
MW-12	06/16/09	23.0	1.16	1.98	49.6	354	<0.0200	0.00516	0.0775	0.200	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	<0.0100
	01/18/10	26.1	1.05	2.31	49.8	398	<0.0100	<0.00500	0.0755	0.235	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02190	<0.000200	<0.00500	0.01820	<0.00500	<0.00500	<0.00500	<0.00500
	08/20/10	25.8	1.22	2.00	50.3	340	0.1150	0.00550	0.0756	0.176	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/25/11	28.5	1.14	<0.500	50.8	402	<0.0100	0.00504	0.0760	0.198	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01850
	07/19/11	26.8	0.856	2.91	51.2	410	<0.0100	<0.00500	0.0828	0.215	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00976	<0.000200	0.00575	0.00684	<0.00500	<0.00500	<0.00500	<0.00500
	--	DAMAGED WELL - NO SAMPLES COLLECTED																						
MW-12R	08/21/13	31.2	1.40	8.14	71.1	404	< 0.0100	<0.00500	0.0937	0.194	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01290	<0.000200	0.00647	0.01030	<0.00500	<0.00500	<0.00500	0.00956
	02/27/14	28.3	0.886	7.38	63.4	432	< 0.0100	<0.00500	0.0767	0.193	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00992	<0.00500	<0.00500	<0.00500	<0.00500
	08/20/14	24.5	1.05	6.98	67.2	410	1.31	<0.00500	0.1450	0.223	<0.00200	0.0516	<0.00500	<0.00500	0.867	<0.00500	0.04830	<0.000200	0.00554	0.03500	<0.00500	<0.00500	<0.00500	0.00962
	02/24/15	29	1.1	7.0	63	500	0.0370 J	0.00380	0.0950	0.200	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	<0.00024	<0.0012	<0.000049	0.0042 J	<0.00490	<0.00740	<0.00280	0.00190 J	0.00810 J
	08/25/15	19.8	1.02	7.36	71.1	527	<0.0350	0.00413	0.1020	0.233	<0.00016	<0.000540	<0.000260	<0.000520	<0.0141	<0.00024	0.00203 J	<0.000049	0.00294 J	0.00191 J	0.000707 J	<0.00031	0.00270 J	0.00291 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-13	06/16/09	425	0.220	2.65	138	1,790	<0.0200	<0.00500	0.0692	0.253	<0.00200	<0.00500	0.0285	<0.00500	<0.200	<0.00500	0.0176	<0.000200	<0.00500	0.0126	<0.00500	<0.00500	--	0.02690
	01/18/10	604	0.170	1.08	79.8	2,210	<0.0100	<0.00500	0.1110	0.231	<0.00200	0.00728	0.00624	<0.00500	<0.200	<0.00500	0.0591	<0.000200	<0.00500	0.0110	<0.00500	<0.00500	0.0119	0.00769
	08/18/10	390	0.278	<1.00	144	1,720	0.0196	<0.00500	0.1060	0.221	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.256	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.0128	0.00618
	02/25/11	340	0.281	<0.500	235	1,540	<0.0100	<0.00500	0.0692	0.242	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.225	<0.000200	<0.00500	0.0144	<0.00500	<0.00500	0.0170	0.07440
	07/19/11	351	0.327	<0.500	244	1,960	<0.0100	<0.00500	0.0800	0.249	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.302	<0.000200	<0.00500	0.0121	<0.00500	<0.00500	0.0188	0.00785
	02/01/12	418	0.322	<0.500	122	1,590	<0.0100	<0.00500	0.0752	0.228	<0.00200	<0.00500	0.00663	<0.00500	<0.200	<0.00500	0.341	<0.000200	<0.00500	0.0136	<0.00500	<0.00500	0.0128	0.05530
	07/26/12	462	0.422	<2.00	123	2,150	<0.0100	<0.00500	0.1120	0.284	<0.00200	<0.00500	0.00644	<0.00500	<0.200	<0.00500	0.459	<0.000200	<0.00500	0.0108	<0.00500	<0.00500	0.0158	0.03610
	02/26/13	430	0.366	<2.00	135	1,610	0.0139	<0.00500	0.1290	0.270	<0.00200	<0.00500	0.00657	<0.00500	<0.200	<0.00500	0.571	<0.000200	0.00568	0.0820	<0.00500	<0.00500	0.0123	0.03590
	08/21/13	548	0.389	< 1.00	108	2,000	< 0.0100	0.00590	0.1590	0.265	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.705	<0.000200	<0.00500	0.0209	<0.00500	<0.00500	0.0153	0.00931
	02/27/14	588	0.282	<0.500	106	2,380	0.0110	<0.00500	0.1910	0.258	<0.00200	0.01400	0.00541	<0.00500	0.321	<0.00500	1.01	<0.000200	<0.00500	0.0300	<0.00500	<0.00500	0.0173	0.02910
	08/19/14	485	<1.00	< 1.00	87.2	1,900	0.0737	<0.00500	0.2070	0.287	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.940	<0.000200	<0.00500	0.0065	<0.00500	<0.00500	0.0151	0.01150
	02/27/15	550	0.38	0.056 J	59	1,600	<0.0350	0.00340	0.2300	0.240	<0.00070	<0.00140	0.00470 J	<0.00530	<0.014	<0.00024	0.820	<0.000049	0.00100 J	<0.00490	<0.00740	<0.00280	0.0140	0.01900 J
	08/26/15	396	0.505	0.956	107	1,890	<0.0350	0.00301	0.1970	0.231	<0.00016	<0.00054	0.00163 J	0.00208 J	<0.0141	<0.00024	0.383	--[1]	0.00143 J	0.00276	0.000710 J	<0.00031	0.0112	0.00592 J
MW-14	06/16/09	93.0	0.851	5.16	60.9	540	<0.0200	<0.00500	0.0770	0.132	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01990	<0.000200	0.02150	<0.00501	<0.00500	<0.00500	--	0.0255
	01/18/10	103	0.810	6.03	59.0	598	<0.0100	<0.00500	<0.00500	<0.020	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/20/10	74.1	0.986	2.76	61.3	340	0.1030	<0.00500	0.0774	0.131	<0.00200	0.0119	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.00964	0.0480	<0.00500	<0.00500	0.00527	<0.00500
	02/25/11	58.2	0.918	2.32	58.7	440	0.0101	<0.00500	0.0778	0.151	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02340	<0.000200	0.00903	0.0138	<0.00500	<0.00500	0.00541	0.0532
	07/18/11	48.4	1.05	1.36	53.0	482	0.1760	0.00615	0.110	0.156	<0.00200	12.5	0.122	0.21800	54.9	<0.00500	1.45	<0.000200	0.08600	6.81	<0.00500	<0.00500	0.00544	0.0446
	01/31/12	59.7	0.984	1.58	58.3	444	<0.0100	<0.00500	0.0802	0.129	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02760	<0.000200	0.00608	0.0186	<0.00500	<0.00500	<0.00500	0.0287
	07/25/12	69.3	1.03	<2.00	54.8	446	0.0116	<0.00500	0.0905	0.216	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.03210	<0.000200	<0.00500	0.0240	<0.00500	<0.00500	<0.00500	0.0448
	02/22/13	71.9	0.795	<2.00	52.9	428	<0.0100	<0.00500	0.0900	0.174	<0.00200	<0.00500	<0.00500	0.07050	<0.200	<0.00500	0.03490	<0.000200	0.01210	0.0106	<0.00500	<0.00500	0.00591	0.1480
	02/28/14	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]
	08/20/14	--[1]	--[1]	1.10	--[1]	534	0.5730	<0.00500	0.125	0.203	<0.00200	0.02470	<0.00500	<0.00500	0.314	<0.00500	0.00919	<0.000200	0.00533	0.0178	<0.00500	<0.00500	0.00502	0.0134
	02/27/15	--[1]	--[1]	--[1]	--[1]	--[1]	<0.0350	0.0023	0.100	0.200 J	<0.00070	0.00260 J	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	--	0.00400 J	<0.00490	<0.00740	<0.0028	0.00470 J	0.0070 J
	08/27/15	104	0.940	1.96	44.6	611	<0.0350	0.00271	0.0998	0.188	<0.00016	0.00261	0.000326 J	0.00122 J	<0.0141	<0.00024	<0.000250	--[1]	0.00429 J	0.00190 J	0.00123 J	<0.00031	0.00485 J	0.00334 J
MW-15	08/20/10	221	0.921	3.22	77.6	776	0.0790	<0.00500	0.145	0.175	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01980
	02/24/11	190	0.885	4.28	67.0	738	<0.0100	<0.00500	0.127	0.165	<0.00200	0.0102	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03850
	07/14/11	236	0.701	4.18	60.9	940	<0.0100	<0.00500	0.173	0.201	<0.00200	0.0132	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00657	<0.00500	<0.00500	<0.00500	0.01220
	01/30/12	304	0.840	4.09	78.6	1,330	<0.0100	<0.00500	0.180	0.178	<0.00200	0.00644	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00967
	07/24/12	291	0.965	8.22	80.3	1,060	<0.0100	<0.00500	0.178	0.227	<0.00200	0.0110	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00636
	02/19/13	254	0.819	5.12	76.0	882	0.0682	<0.00500	0.178	0.191	<0.00200	0.129	<0.00500	<0.00500	0.610	<0.00500	0.01980	<0.000200	<0.00500	0.07040	<0.00500	<0.00500	<0.00500	0.01600
	08/20/13	379	0.910	6.82	71.3	1,280	< 0.0100	<0.00500	0.232	0.194	<0.00200	0.00594	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00854
(duplicate)	08/20/13	381	0.931	6.83	72.7	1,230	< 0.0100	<0.00500	0.232	0.188	<0.00200	0.00582	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00619
	02/24/14	256	0.715	7.86	83.0	858	< 0.0100	<0.00500	0.178	0.175	<0.00200	0.00910	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
(duplicate)	02/24/14	263	0.832	8.07	82.5	810	< 0.0100	<0.00500	0.178	0.174	<0.00200	0.00961	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/21/14	148	1.02	8.52	97.5	690	0.0102	<0.00500	0.146	0.117	<0.00200	0.00513	<0.00500	<0.00500	<0.200	<0.00500	0.00509	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01490
(duplicate)	08/21/14	150	1.01	8.53	95.6	706	0.0136	<0.00500	0.153	0.119	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02130
	02/24/15	150	0.90	8.4	94	650	0.0520 J	0.00400	0.150	0.170 J	<0.00070	0.0034 J	<0.0023	<0.0053	<0.014	<0.00024	<0.00120	<0.000049	0.00240 J	<0.00490	<0.00740	<0.00280	0.0021 J	0.01200 J
	08/27/15	181	1.13	8.48	123	728	<0.0350	0.00424	0.146	0.167	<0.00016	0.00285	<0.00026	0.00109 J	<0.0141	0.000373 J	0.000492 J	<0.000049	0.00249 J	0.000825 J	0.00232	<0.00031	0.00220 J	<0.00256
(duplicate)	08/27/15	234	1.46	8.47	158	729	<0.0350	0.00443	0.146	0.174	<0.00016	0.00272	<0.00026	<0.000520	0.0144 J	<0.000240	0.000276 J	<0.000049	0.00254 J	0.000688 J	0.00253	<0.00031	0.00200 J	<0.00256
MW-16	08/20/10	25.3	0.930	1.13	73.7	406	0.0746	<0.00500	0.1090	0.156	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00554	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01450
	02/24/11	28.1	0.928	2.36	73.7	412	<0.0100	<0.00500	0.1070	0.162	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00671	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02480
	07/15/11	25.5	1.04	1.82	72.0	484	0.188	<0.00500	0.1290	0.181	<0.00200	0.11500	<0.00500	<0.00500	0.613	<0.00500	0.01640	<0.000200	<0.00500	0.05910	<0.00500	<0.00500	<0.00500	0.01760
(duplicate)	07/15/11	21.0	0.733	1.98	54.1	476	0.0374	<0.00500	0.1180	0.185	<0.00200	0.02510	<0.00500	<0.00500	0.241	<0.00500	0.00820	<0.000200	<0.00500	0.02340	<0.00500	<0.00500	<0.00500	0.01660
	01/30/12	27.9	0.994	1.79	77.6	398	<0.0100	<0.00500	0.0964	0.166	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00899
	07/24/12	26.6	1.14	<2.00	72.6	404	0.0102	<0.00500	0.0966	0.202	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01620	<0.000200	<0.00500	0.01120	<0.00500	<0.00500	<0.00500	0.01670
	02/20/13	24.0	0.966	<2.00	68.1	316	<0.0100	0.00547	0.0968	0.172	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00693
	08/20/13	24.7	1.02	1.75	64.0	392	0.026	<0.00500	0.1050	0.192	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02190	<0.000200	<0.00500	0.01770	<0.00500	<0.00500	<0.00500	<0.00500
	02/25/14	23.9	0.766	1.83	62.3	362	<0.0100	<0.00500	0.0938	0.172	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02250	<0.000200	0.00516	0.02950	<0.00500	<0.00500	<0.00500	0.00786
	08/19/14	21.7	0.975	1.41	64.9	362	0.335	<0.00500	0.1040	0.209	<0.00200	0.00751	<0.00500	<0.00500	<0.200	<0.00500	0.00544	<0.000200	<0.00500	0.00667	<0.00500	<0.00500	<0.00500	0.00897
	02/24/15	20	1.0	1.9	61	360	0.042 J	0.00510	0.0980	0.170 J	<0.00070	<0.00140	<0.00230	<0.0053	<0.014	<0.00024	0.00420 J	<0.000049	0.00350 J	<0.00490	<0.00740	<0.00280	0.00160 J	0.01400 J
	08/27/15	21.3	1.07	2.34	66.0	408	<0.0350	0.00528	0.0936	0.176	<0.00016	<0.00054	<0.00026	0.000638 J	<0.0141	<0.00024	0.000312 J	<0.000049	0.00293 J	<0.00035	0.00228	<0.00031	0.00156 J	0.00343 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		250	1.6	10	600	1,000	5.0	0.1	1.0	0.75	0.01	0.05	0.05	1.0	1.0	0.05	0.20	0.002	1.0	0.2	0.05	0.05	0.03	10.0
MW-17	08/20/10	426	0.517	4.27	72.6	1,650	0.146	<0.00500	0.180	0.157	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0142
	02/24/11	412	0.435	5.33	80.0	1,634	<0.0100	<0.00500	0.152	0.162	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0478
	07/18/11	336	0.753	4.07	82.7	1,850	<0.0100	<0.00500	0.141	0.165	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0126
	- -	DAMAGED WELL - NO SAMPLES COLLECTED																						
MW-17R	08/22/13	246	0.602	3.44	81.7	1,190	0.0302	<0.00500	0.154	0.188	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0819	<0.000200	0.00531	0.0189	<0.00500	<0.00500	<0.00500	<0.00500
	02/27/14	184	0.425	0.629	92.5	904	0.2540	<0.00500	0.121	0.193	<0.00200	0.0121	<0.00500	<0.00500	<0.200	<0.00500	0.0342	<0.000200	<0.00500	0.0273	<0.00500	<0.00500	<0.00500	<0.00500
	08/22/14	170	0.602	2.70	94.8	860	0.0459	<0.00500	0.153	0.120	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0989	<0.000200	<0.00500	0.0378	<0.00500	<0.00500	<0.00500	0.02430
	02/26/15	150	0.65	2.6	75	670	0.0460 J	0.00280	0.120	--	<0.00070	0.0022 J	<0.00230	<0.0053	<0.014	0.00030 J	<0.0012	<0.000049	0.00130 J	<0.0049	<0.00740	<0.00280	0.00300 J	0.02300 J
	08/27/15	110	0.859	2.86	87.4	658	<0.0350	0.00320	0.0972	0.171	<0.00016	0.000967 J	<0.00026	0.000632 J	0.0218 J	<0.000240	0.00123 J	<0.000049	0.00163 J	0.000779 J	0.00203	<0.00031	0.00267 J	<0.00256
MW-18	08/23/10	176	0.456	0.733	287	1,080	0.0787	<0.00500	0.0575	0.334	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.31400	<0.000200	0.00561	0.0298	0.00548	<0.00500	0.0123	0.07720
	02/24/11	286	0.514	4.14	298	1,240	0.0157	<0.00500	0.0766	0.330	<0.00200	0.0186	<0.00500	<0.00500	<0.200	<0.00500	0.00536	<0.000200	<0.00500	0.0144	0.00501	<0.00500	0.00883	0.04390
	07/18/11	218	0.800	5.74	234	1,290	0.0244	<0.00500	0.05636	0.396	<0.00200	0.0111	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.0129	<0.00500	<0.00500	0.00666	0.06610
	01/31/12	106	0.722	3.89	94.3	584	0.0113	<0.00500	0.0645	0.133	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01910
	07/25/12	103	0.753	2.01	63.4	562	0.0110	<0.00500	0.0780	0.230	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00684
	02/22/13	181	0.564	4.02	116	782	0.0742	<0.00500	0.1050	0.249	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01290	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.0138	0.01870
	08/22/13	197	0.531	5.59	130	1,100	< 0.0100	<0.00500	0.1100	0.243	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00509	<0.00500	<0.00500	<0.00500	<0.00500
	02/26/14	145	0.514	4.36	89.1	680	0.0213	<0.00500	0.0766	0.244	<0.00200	<0.00500	<0.00500	0.0215	<0.200	<0.00500	0.01770	<0.000200	<0.00500	0.00681	<0.00500	<0.00500	0.00701	0.04650
	08/20/14	143	0.590	1.97	123	678	1.31	<0.00500	0.1450	0.242	<0.00200	0.00506	<0.00500	<0.00500	0.637	<0.00500	0.03780	<0.000200	<0.00500	0.00634	<0.00500	<0.00500	<0.00500	0.03630
	02/26/15	130	0.68	3.5	97	670	0.069 J	0.0026	0.1000	0.260	<0.00070	<0.0014	<0.00230	0.0061 J	0.022 J	0.00026 J	<0.00120	<0.000049	0.00200 J	<0.00490	<0.00740	<0.00280	0.00390 J	0.01700 J
	08/25/15	136	0.703	2.73	65.8	844	<0.0350	0.00288	0.1160	0.188 J	<0.00016	0.00118 J	<0.00026	0.000646 J	<0.0141	<0.00024	0.00120 J	<0.000049	0.00612	0.00151 J	0.00178 J	<0.00031	0.00434 J	0.00669 J
MW-19	08/23/10	469	0.536	2.94	178	1,650	0.1010	0.04760	0.2290	<0.020	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00666	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02270
	02/24/11	235	0.713	2.87	90.7	828	<0.0100	<0.00500	0.0764	0.180	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03180
	07/18/11	688	0.734	3.66	142	2,880	<0.0100	<0.00500	0.0920	0.266	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00781	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.05530
	01/31/12	610	0.568	4.12	121	1,770	<0.0100	<0.00500	0.0688	0.350	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00553	<0.000200	<0.00500	0.00525	<0.00500	<0.00500	<0.00500	0.03450
	07/25/12	1,130	0.450	5.11	117	3,570	0.0114	<0.00500	0.1060	0.535	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00664	<0.00500	<0.00500	<0.00500	0.07140
	02/26/13	540	0.519	4.21	115	1,650	<0.0100	<0.00500	0.0870	0.300	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00566	<0.00500	<0.00500	<0.00500	0.06290
	08/22/13	487	0.645	3.43	92.6	1,430	<0.0100	<0.00500	0.0857	0.241	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00512
(duplicate)	08/22/13	475	0.672	3.38	95.7	1,670	0.0182	<0.00500	0.0864	0.237	<0.00200	0.0143	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00900	<0.00500	<0.00500	<0.00500	<0.00500
	02/26/14	264	0.576	2.34	72.3	850	0.0120	<0.00500	0.0793	0.227	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01570	<0.000200	<0.00500	0.01220	<0.00500	<0.00500	<0.00500	0.03330
(duplicate)	02/26/14	288	0.555	2.51	76.0	950	0.0435	<0.00500	0.0753	0.204	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01650	<0.000200	<0.00500	0.01230	<0.00500	<0.00500	<0.00500	0.03500
	08/19/14	233	0.592	2.48	84.5	774	0.0461	<0.00500	0.2690	0.279	<0.00200	0.0352	<0.00500	<0.00500	0.263	<0.00500	0.02040	<0.000200	<0.00500	0.02610	<0.00500	<0.00500	<0.00500	0.00854
(duplicate)	08/19/14	241	0.627	2.59	84.7	820	0.0208	<0.00500	0.0846	0.236	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01060	<0.000200	<0.00500	0.00943	<0.00500	<0.00500	<0.00500	0.00640
	02/26/15	140	0.87	2.3	82	630	<0.0350	0.00460	0.0700	0.220	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	<0.00024	<0.00120	<0.000049	0.00320 J	<0.00490	<0.00740	<0.00280	0.00250 J	0.01400 J
(duplicate)	02/26/15	130	0.86	2.4	85	660	0.089 J	0.00460	0.0690	0.210	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	<0.00024	<0.00120	<0.000049	0.00320 J	<0.00490	<0.00740	<0.00280	0.00250 J	0.01300 J
	08/26/15	236	0.789	2.86	70.9	888	<0.0350	0.00422	0.0875	0.185 J	<0.00016	0.00105 J	<0.000260	0.000732 J	<0.0141	<0.00024	<0.00025	<0.000049	0.01070	0.00168 J	0.00138 J	<0.00031	0.00179 J	0.00486 J
MW-20	08/23/10	169	0.570	1.74	65.1	868	0.0891	<0.00500	0.122	0.143	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00970
	02/25/11	187	0.603	2.58	66.3	840	<0.0100	<0.00500	0.120	0.150	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.06430
	07/18/11	148	0.765	2.06	51.3	1,020	<0.0100	<0.00500	0.134	0.159	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02780
	01/31/12	174	0.641	2.51	61.4	726	<0.0100	<0.00500	0.114	0.149	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01710
	07/25/12	189	0.742	2.24	56.0	848	<0.0100	<0.00500	0.107	0.217	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01870
	02/22/13	155	0.570	2.26	55.8	600	0.0294	<0.00500	0.102	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01650
	08/20/13	180	0.755	2.40	60.4	736	0.0104	<0.00500	0.102	0.172	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00966	<0.000200	<0.00500	0.0112	<0.00500	<0.00500	<0.00500	0.02420
	02/26/14	159	0.664	2.70	53.4	696	<0.0100	<0.00500	0.112	0.173	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01070	<0.000200	<0.00500	0.0080	<0.00500	<0.00500	<0.00500	0.00954
	08/19/14	138	0.574	2.09	58.5	672	0.2900	<0.00500	0.108	0.194	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01160
	02/24/15	120	0.65	2.6	56	690	0.0380 J	0.00310	0.110	0.170 J	<0.00070	0.00200 J	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.0024 J	<0.00490	<0.00740	<0.00280	0.00260 J	0.02300 J
	08/25/15	130	0.822	2.61	65.7	750	<0.0350	0.00396	0.108	0.180 J	<0.00016	0.000955 J	<0.000260	0.00109 J	<0.0141	<0.00024	<0.00025	<0.000049	0.00167 J	0.000669 J	0.00141 J	<0.00031	0.00254 J	0.00578 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-21	08/23/10	115	0.250	2.12	52.7	966	0.1950	<0.00500	0.232	0.208	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0567	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00898	0.0307
	02/28/11	182	0.257	3.02	56.7	1,050	<0.0100	<0.00500	0.258	0.257	<0.00200	0.00620	<0.00500	<0.00500	<0.200	<0.00500	0.1020	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.0101	0.0184
(duplicate)	02/28/11	183	0.249	2.99	56.3	1,000	<0.0100	<0.00500	0.256	0.252	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.1010	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00975	0.0213
	07/19/11	191	0.163	2.62	57.0	1,250	<0.0100	<0.00500	0.242	0.225	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0346	<0.000200	<0.00500	0.00836	<0.00500	<0.00500	0.00873	0.0286
	01/31/12	200	0.229	2.84	64.7	1,040	<0.0100	<0.00500	0.245	0.216	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0375	<0.000200	<0.00500	0.00746	<0.00500	<0.00500	0.00704	0.0170
	07/26/12	186	0.306	2.64	60.4	1,130	<0.0100	<0.00500	0.244	0.261	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0380	<0.000200	<0.00500	0.00827	<0.00500	<0.00500	0.00862	0.0163
	02/22/13	160	0.246	2.86	78.3	968	0.0818	<0.00500	0.224	0.286	<0.00200	0.03640	<0.00500	<0.00500	0.403	<0.00500	0.0467	<0.000200	<0.00500	0.04090	<0.00500	<0.00500	0.00962	0.0319
	08/20/13	156	0.268	3.96	82.5	972	< 0.0100	<0.00500	0.179	0.308	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0668	<0.000200	<0.00500	0.02190	<0.00500	<0.00500	0.00936	0.0195
	02/25/14	134	0.213	3.78	75.9	918	< 0.0100	<0.00500	0.187	0.335	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0709	<0.000200	<0.00500	0.01710	<0.00500	<0.00500	0.00939	0.0531
	08/19/14	156	0.250	3.35	72.7	938	0.0299	<0.00500	0.180	0.350	<0.00200	<0.00500	<0.00500	<0.00500	0.344	<0.00500	0.0439	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00844	0.0208
	02/24/15	160	0.32	3.70	70.0	1,100	<0.0350	0.00170 J	0.210	0.360	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	0.00032 J	0.0280	<0.000049	0.00074 J	<0.00490	<0.00740	<0.00280	0.0089 J	0.02500 J
	08/25/15	197	0.341	3.06	77.0	1,430	<0.0350	0.00221	0.224	0.369	<0.00016	0.000810 J	<0.000260	0.000702 J	<0.0141	0.000854 J	0.0110	<0.000049	<0.00160	0.00180 J	0.000525 J	<0.00031	0.00837 J	0.00615 J
MW-22	08/23/10	115	0.552	1.76	62.3	726	0.1210	<0.00500	0.165	0.174	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.03060	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00604	0.09160
	02/28/11	117	0.587	2.36	68.6	678	<0.0100	<0.00500	0.146	0.173	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01080	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00616	0.04870
	07/19/11	107	0.568	2.06	64.1	740	<0.0100	<0.00500	0.150	0.178	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00721	<0.000200	<0.00500	0.00546	<0.00500	<0.00500	0.00638	0.02030
	01/31/12	141	0.570	2.26	74.3	766	<0.0100	<0.00500	0.151	0.141	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01030	<0.000200	<0.00500	0.00762	<0.00500	<0.00500	0.00501	0.01830
	07/26/12	149	0.628	2.09	68.3	830	<0.0100	<0.00500	0.143	0.196	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00949	<0.000200	<0.00500	0.00839	<0.00500	<0.00500	0.00564	0.00680
	02/21/13	178	0.500	2.30	80.4	798	0.0231	<0.00500	0.145	0.180	<0.00200	0.0305	<0.00500	<0.00500	0.269	<0.00500	0.03860	<0.000200	<0.00500	0.05200	<0.00500	<0.00500	0.00590	0.02080
	08/21/13	176	0.606	2.94	83.0	890	< 0.0100	<0.00500	0.137	0.210	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02330	<0.000200	<0.00500	0.02090	<0.00500	<0.00500	0.00658	0.00566
	02/25/14	172	0.416	3.53	85.2	842	< 0.0100	<0.00500	0.143	0.204	<0.00200	0.0133	<0.00500	<0.00500	<0.200	<0.00500	0.02380	<0.000200	<0.00500	0.02660	<0.00500	<0.00500	0.00632	0.01500
	08/20/14	120	1.00	2.36	127	738	**40.3**	0.00642	0.141	0.239	<0.00200	**0.1840**	<0.00500	0.00983	**4.32**	0.00743	0.07150	<0.000200	0.00881	0.09990	<0.00500	<0.00500	**0.0336**	0.03700
	02/24/15	110	0.57	3.30	81.0	820	0.0370 J	0.00250	0.180	0.210	<0.00070	<0.00140	<0.0023	<0.0053	<0.014	0.00077 J	0.00260 J	<0.000049	0.00140 J	<0.00490	<0.00740	<0.00280	0.01200	0.01900 J
	08/25/15	118	0.618	4.85	81.1	928	0.0452 J	0.00279	0.167	0.208	<0.00016	0.00139 J	0.000337 J	0.000760 J	<0.0141	<0.00024	0.00253 J	<0.000049	<0.00160	0.00240	<0.00038	<0.00031	0.00934 J	0.00438 J
MW-23	08/23/10	**645**	0.782	2.92	121	**2,260**	0.2370	<0.00500	0.245	0.157	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00669	<0.000200	<0.00500	0.00859	<0.00500	<0.00500	<0.00500	0.05700
	02/28/11	**511**	0.676	3.47	81.9	**1,540**	<0.0100	<0.00500	0.164	0.151	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00831	<0.000200	<0.00500	0.00930	<0.00500	<0.00500	<0.00500	0.04630
	07/19/11	**712**	0.670	3.79	108	**3,090**	<0.0100	<0.00500	0.272	0.181	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00647	<0.000200	<0.00500	0.00912	<0.00500	<0.00500	<0.00500	0.02130
	02/01/12	**887**	0.697	4.07	85.4	**2,720**	0.0108	<0.00500	0.268	0.159	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00658	<0.000200	<0.00500	0.00714	<0.00500	<0.00500	<0.00500	0.02070
	07/26/12	**774**	0.750	3.45	100	**3,060**	<0.0100	<0.00500	0.252	0.198	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01010
	02/26/13	**662**	0.690	3.46	93.9	**2,040**	<0.0100	<0.00500	0.170	0.196	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00944	<0.000200	<0.00500	0.01550	<0.00500	<0.00500	<0.00500	0.01790
	08/21/13	**530**	0.808	3.29	115	**1,910**	< 0.0100	<0.00500	0.141	0.207	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.03150	<0.000200	<0.00500	0.02860	<0.00500	<0.00500	0.00533	0.00919
	02/25/14	**574**	0.605	3.41	89.0	**1,860**	< 0.0100	<0.00500	0.162	0.198	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.04860	<0.000200	<0.00500	0.04100	<0.00500	<0.00500	<0.00500	0.02240
	08/21/14	**443**	0.792	2.89	98.1	**1,680**	0.0606	<0.00500	0.147	0.138	<0.00200	0.0129	<0.00500	<0.00500	<0.200	<0.00500	0.15700	<0.000200	0.00522	0.07190	<0.00500	<0.00500	<0.00500	0.01040
	02/25/15	57.0	0.630	3.10	92.0	1,000	0.0420 J	0.00240	0.110	0.210	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	0.00031 J	<0.00120	<0.000049	0.00170 J	<0.00490	<0.00740	<0.00280	0.00520 J	0.04600 J
	08/25/15	**431**	0.874	4.39	91.9	**2,190**	<0.0350	0.00255	0.152	0.195 J	<0.00016	0.00188 J	<0.000260	0.00198 J	<0.0141	0.000316 J	0.00167 J	<0.000049	<0.00160	0.00187 J	0.00147 J	<0.00031	0.00508 J	0.00494 J
MW-24	08/24/10	34.6	**2.31**	2.40	53.9	422	0.187	<0.00500	0.0867	0.140	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00922
	02/28/11	39.6	**2.16**	2.94	55.3	414	<0.0100	<0.00500	0.0878	0.154	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00634	<0.00500	<0.00500	<0.00500	0.02450
	07/14/11	43.1	1.55	2.38	48.1	504	<0.0100	<0.00500	0.0932	0.173	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00543	<0.00500	<0.00500	<0.00500	0.02490
	02/01/12	50.6	**2.42**	2.32	62.3	418	<0.0100	<0.00500	0.0946	0.127	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00760	<0.000200	<0.00500	0.00725	<0.00500	<0.00500	<0.00500	0.01010
	07/30/12	51.8	**2.42**	2.39	55.1	420	<0.0100	<0.00500	0.0889	0.179	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00508	<0.000200	<0.00500	0.00758	<0.00500	<0.00500	<0.00500	0.01270
(duplicate)	07/30/12	55.5	**2.34**	2.34	58.8	446	<0.0100	<0.00500	0.0851	0.160	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00731	<0.00500	<0.00500	<0.00500	0.01550
	02/26/13	46.6	**2.39**	2.05	68.6	442	<0.0100	<0.00500	0.0913	0.187	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01060	<0.000200	<0.00500	0.01650	<0.00500	<0.00500	<0.00500	0.01510
	08/21/13	56.5	**2.77**	2.04	55.6	426	< 0.0100	<0.00500	0.0856	0.183	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01460	<0.000200	<0.00500	0.01570	<0.00500	<0.00500	<0.00500	0.00684
	02/27/14	37.3	**2.28**	2.11	51.3	396	0.0247	<0.00500	0.0803	0.197	<0.00200	0.0128	<0.00500	<0.00500	<0.200	<0.00500	0.01390	<0.000200	<0.00500	0.02130	<0.00500	<0.00500	<0.00500	0.02070
	08/21/14	29.2	**2.76**	2.39	44.0	368	0.2700	<0.00500	0.0901	0.117	<0.00200	**0.2580**	<0.00500	0.00634	**1.28**	<0.00500	0.03830	<0.000200	0.00911	0.13500	<0.00500	<0.00500	<0.00500	0.01140
	02/25/15	24.0	**2.70**	2.80	42.0	360	0.0400 J	0.00550	0.0780	0.190 J	<0.00070	<0.0014	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.00250 J	<0.00490	<0.00740	<0.00280	0.00260 J	0.01300 J
	08/25/15	25.5	**2.75**	2.95	43.2	494	<0.0350	0.00600	0.0765	0.177 J	<0.00016	<0.000540	<0.00026	0.000742 J	<0.0141	<0.00024	0.000287 J	<0.000049	0.00185 J	0.00058 J	0.00102 J	<0.00031	0.00239 J	0.00575 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-25	08/23/10	178	0.871	2.42	182	946	0.2440	<0.00500	0.246	0.174	<0.00200	0.0476	<0.00500	<0.00500	<0.200	<0.00500	0.01090	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01940
	02/28/11	**256**	0.729	2.83	93.9	998	<0.0100	<0.00500	0.205	0.198	<0.00200	**0.0537**	<0.00500	<0.00500	<0.200	<0.00500	0.00715	<0.000200	<0.00500	0.00516	<0.00500	<0.00500	0.00535	0.04240
	07/18/11	77.8	1.12	3.64	96.2	634	0.0444	<0.00500	0.186	0.173	<0.00200	0.00732	<0.00500	<0.00500	<0.200	<0.00500	0.00608	<0.000200	<0.00500	0.00832	<0.00500	<0.00500	<0.00500	0.00556
	02/01/12	175	0.813	4.56	84.4	820	<0.0100	<0.00500	0.228	0.175	<0.00200	0.00744	<0.00500	<0.00500	<0.200	<0.00500	0.00804	<0.000200	<0.00500	0.00708	<0.00500	<0.00500	0.00602	0.00582
	07/26/12	133	0.892	**37.1**	144	**1,110**	<0.0100	<0.00500	0.178	0.220	<0.00200	0.00961	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01020
	02/26/13	109	0.710	**19.4**	113	788	<0.0100	<0.00500	0.149	0.241	<0.00200	0.00822	<0.00500	<0.00500	<0.200	<0.00500	0.01040	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00807	0.01480
	08/22/13	**314**	0.696	3.36	74.7	**1,350**	< 0.0100	<0.00500	0.224	0.262	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01220	<0.000200	<0.00500	0.02100	<0.00500	<0.00500	0.00862	<0.00500
(duplicate)	08/22/13	**310**	0.684	3.42	74.3	**1,350**	< 0.0100	<0.00500	0.226	0.263	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01270	<0.000200	<0.00500	0.02100	<0.00500	<0.00500	0.00860	0.00607
	02/26/14	**293**	0.476	2.98	69.3	**1,100**	< 0.0100	<0.00500	0.220	0.231	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00881	<0.000200	<0.00500	0.00775	<0.00500	<0.00500	0.00724	0.02100
(duplicate)	02/26/14	**289**	0.546	2.98	68.6	**1,090**	< 0.0100	<0.00500	0.213	0.218	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00882	<0.000200	<0.00500	0.00701	<0.00500	<0.00500	0.00645	0.02050
	08/19/14	**302**	<0.500	3.06	79.5	**1,230**	0.2850	<0.00500	0.198	0.265	<0.00200	**0.154**	<0.00500	<0.00500	0.814	<0.00500	0.04560	<0.000200	0.00573	0.10000	<0.00500	<0.00500	0.00749	0.01060
(duplicate)	08/19/14	**319**	<0.500	2.76	83.5	**1,200**	0.2910	<0.00500	0.201	0.263	<0.00200	**0.185**	<0.00500	0.00504	0.968	<0.00500	0.05110	<0.000200	0.00638	0.11300	<0.00500	<0.00500	0.00764	0.01200
	02/25/15	38	0.73	3.1	69	870	0.1300	0.00230	0.200	0.230	<0.00070	0.0016 J	<0.0023	<0.0053	<0.014	0.00050 J	<0.00120	<0.000049	0.00290 J	0.00560 J	<0.00740	<0.00280	0.00780 J	0.00860 J
(duplicate)	02/25/15	180	0.71	3.1	69	840	<0.0350	0.00230	0.200	0.220	<0.00070	0.0017 J	<0.0023	<0.0053	<0.014	0.00026 J	<0.00120	<0.000049	0.00110 J	0.00540 J	<0.00740	<0.00280	0.00800 J	0.01400 J
	08/25/15	211	0.693	2.96	72.6	**1,110**	<0.0350	0.00287	0.227	0.216	<0.00016	0.00160 J	0.00119 J	<0.000520	<0.0141	<0.00024	0.00279 J	<0.000049	<0.00160	0.00514	0.00109 J	<0.00031	0.00732 J	0.00472 J
(duplicate)	08/25/15	207	0.631	2.90	71.1	**1,140**	<0.0350	0.00296	0.231	0.214	<0.00016	0.00170 J	0.00113 J	0.00103 J	<0.0141	<0.00024	0.00287 J	<0.000049	<0.00160	0.00528	0.00102 J	<0.00031	0.00748 J	0.00497 J
MW-26	08/24/10	217	0.484	2.88	98.5	958	0.115	<0.00500	0.1310	0.169	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01560	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02540
	02/28/11	202	0.517	3.86	125	940	<0.0100	<0.00500	0.1100	0.187	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00890	<0.000200	<0.00500	0.00734	<0.00500	<0.00500	0.00602	0.03280
	07/14/11	184	<0.500	3.95	128	**1,030**	<0.0100	<0.00500	0.0994	0.192	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00679	<0.000200	<0.00500	0.00792	<0.00500	<0.00500	0.00546	0.00949
	02/01/12	196	0.568	3.68	131	952	<0.0100	<0.00500	0.0854	0.163	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01220	<0.000200	<0.00500	0.01330	<0.00500	<0.00500	<0.00500	0.01170
	07/26/12	179	0.647	3.11	121	940	0.0121	<0.00500	0.0966	0.214	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00694	<0.000200	<0.00500	0.00568	<0.00500	<0.00500	0.00559	0.02330
	02/26/13	144	0.640	4.78	138	760	0.0134	<0.00500	0.1030	0.189	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.06350	<0.000200	<0.00500	0.05580	<0.00500	<0.00500	<0.00500	0.00877
	08/22/13	222	0.611	5.55	133	**1,170**	0.0319	<0.00500	0.0910	0.209	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01740	<0.000200	<0.00500	0.00539	<0.00500	<0.00500	0.00577	<0.00500
	02/26/14	187	0.470	3.11	146	944	0.0236	<0.00500	0.0739	0.198	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00979	<0.000200	<0.00500	0.01280	<0.00500	<0.00500	0.00583	0.00770
	08/21/14	67.8	0.511	3.18	78.9	644	0.132	0.00816	0.1380	0.167	<0.00200	0.0152	<0.00500	<0.00500	<0.200	<0.00500	0.00938	<0.000200	<0.00500	0.00900	<0.00500	<0.00500	0.00548	0.01500
	02/25/15	190	0.71	2.3	110	790	0.051 J	0.00240	0.0990	0.18 J	<0.00070	<0.0014	<0.0023	<0.0053	0.058 J	<0.00024	0.00220 J	<0.000049	0.00110 J	<0.00490	<0.00740	<0.00280	0.00410 J	0.01500 J
	08/25/15	220	0.670	2.93	143	**1,160**	<0.0350	0.00263	0.0990	0.181 J	<0.00016	0.000822 J	0.000366 J	0.000593 J	<0.0141	<0.00024	0.00175 J	<0.000049	<0.00160	0.00104 J	<0.000380	<0.00031	0.00440 J	0.00418 J
MW-27	08/18/10	115	0.644	5.10	118	752	0.218	<0.00500	0.1000	0.152	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.05340	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00544	0.04530
	02/25/11	144	0.595	<0.500	78.5	746	<0.0100	<0.00500	0.0985	0.139	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.03360	<0.000200	<0.00500	0.00769	<0.00500	<0.00500	0.00625	0.02940
	07/20/11	150	0.510	1.69	73.2	812	0.0378	<0.00500	0.1120	0.165	<0.00200	0.0353	<0.00500	<0.00500	0.393	<0.00500	0.01790	<0.000200	<0.00500	0.04150	<0.00500	<0.00500	0.00571	0.01210
	02/01/12	164	0.691	2.43	99.8	676	<0.0100	<0.00500	0.0902	0.126	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00556	<0.008000	<0.00500	0.00533	<0.00500	<0.00500	<0.00500	0.01170
	07/26/12	164	0.680	2.95	65.3	754	0.0155	<0.00500	0.1180	0.172	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00587	<0.000200	<0.00500	0.00737	<0.00500	<0.00500	<0.00500	0.01040
	02/26/13	199	0.647	2.77	70.7	756	<0.0100	<0.00500	0.1200	0.184	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.05860	<0.000200	0.00513	0.05930	<0.00500	<0.00500	<0.00500	<0.00500
	08/20/13	**315**	0.562	7.12	75.5	**1,180**	0.0440	<0.00500	0.1620	0.222	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02390	<0.000200	<0.00500	0.01890	<0.00500	<0.00500	0.00899	0.00624
	02/27/14	**298**	0.415	8.00	89.3	**1,150**	<0.0100	<0.00500	0.1390	0.232	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01340	<0.000200	<0.00500	0.02860	<0.00500	<0.00500	0.00680	0.01820
	08/21/14	**256**	0.540	4.99	85.1	**1,100**	0.210	<0.00500	0.1260	0.160	<0.00200	0.0447	<0.00500	<0.00500	0.278	<0.00500	0.06360	<0.000200	<0.00500	0.05920	<0.00500	<0.00500	0.00648	<0.00590
	02/27/15	170	1.0	3.8	96	790	<0.035	0.00330	0.0840	0.30	<0.00070	0.0038 J	<0.0023	<0.0053	<0.014	<0.00024	<0.00120	<0.000049	0.00290 J	<0.00490	0.00800 J	<0.00280	0.00980 J	<0.00590
	08/26/15	139	**2.27**	2.94	95.2	690	<0.0350	0.00353	0.0571	0.264	<0.00016	0.00256	<0.000260	0.000627 J	<0.0141	<0.00024	0.00206 J	<0.000049	0.01390	0.00405	0.00318	<0.00031	0.00550 J	<0.00256
MW-28	08/24/10	71.2	**1.66**	1.70	60.3	440	0.1290	<0.00500	0.0846	0.153	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/23/11	106	1.57	<0.500	67.4	540	<0.0100	<0.00500	0.0923	0.147	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01900
	07/14/11	106	**1.28**	2.40	67.8	732	<0.0100	<0.00500	0.1030	0.172	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00658	<0.000200	<0.00500	0.00696	<0.00500	<0.00500	<0.00500	0.01130
	01/30/12	80.6	**1.68**	2.53	81.1	572	<0.0100	<0.00500	0.0746	0.152	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00812
	07/24/12	74.9	**1.79**	2.33	81.6	500	<0.0100	<0.00500	0.0830	0.204	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.04660
	02/19/13	65.5	**1.61**	2.57	88.4	468	<0.0100	<0.00500	0.0883	0.174	<0.00200	<0.00500	<0.00500	0.20300	<0.200	<0.00500	0.02750	<0.000200	0.01000	<0.00500	<0.00500	<0.00500	<0.00500	0.01680
	08/20/13	70.4	**1.77**	2.42	77.4	480	< 0.0100	<0.00500	0.0790	0.168	<0.00200	<0.00500	<0.00500	0.01010	<0.200	<0.00500	0.00874	<0.000200	<0.00500	0.00561	<0.00500	<0.00500	<0.00500	0.00674
	02/24/14	71.7	1.30	2.60	74.2	480	< 0.0100	<0.00500	0.0836	0.180	<0.00200	<0.00500	<0.00500	0.00514	<0.200	<0.00500	0.00509	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03350
	08/19/14	70.0	**1.65**	2.31	78.2	512	0.9470	<0.00500	0.1060	0.205	<0.00200	0.02380	<0.00500	0.03960	0.760	<0.00500	0.01280	<0.000200	<0.00500	0.01290	<0.00500	<0.00500	<0.00500	0.01700
	02/23/15	70.0	**1.60**	2.80	72.00	500	<0.035	0.00400	0.0900	0.170 J	<0.00070	<0.00140	<0.00230	0.00550 J	<0.014	<0.00024	<0.0012	<0.000049	0.00180 J	<0.00490	<0.00740	<0.00280	0.00250 J	0.01700 J
	08/27/15	142	**3.07**	3.08	143	549	<0.0350	0.00433	0.0849	0.171	<0.00016	<0.00054	<0.00026	0.00598	0.0385 J	<0.00024	0.000680 J	<0.000049	0.00186 J	<0.00035	0.00220	<0.00031	0.00238 J	0.00393 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-29	08/24/10	456	0.753	2.18	167	726	0.0261	<0.00500	0.0644	0.189	<0.00200	0.0317	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03750
(duplicate)	08/24/10	132	0.741	2.15	100	742	<0.0100	<0.00500	0.0652	0.186	<0.00200	0.0321	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03010
	02/28/11	119	0.819	3.05	101	670	<0.0100	<0.00500	0.0630	0.195	<0.00200	0.0694	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02670
	07/14/11	135	0.707	2.61	71.6	798	<0.0100	<0.00500	0.0652	0.189	<0.00200	0.162	<0.00500	<0.00500	<0.200	<0.00500	0.00532	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02400
	01/30/12	152	0.769	3.22	96.3	898	<0.0100	<0.00500	0.0580	0.181	<0.00200	0.106	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01620
	07/24/12	250	0.828	4.08	90.1	1,120	<0.0100	<0.00500	0.0978	0.249	<0.00200	0.261	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01320
	02/26/13	159	0.788	2.90	82.4	722	<0.0100	<0.00500	0.0857	0.182	<0.00200	0.069	<0.00500	<0.00500	<0.200	<0.00500	0.04710	<0.000200	<0.00500	0.03340	<0.00500	<0.00500	<0.00500	<0.00500
	08/20/13	152	0.934	2.95	96.2	654	< 0.0100	<0.00500	0.0738	0.187	<0.00200	0.117	<0.00500	<0.00500	<0.200	<0.00500	0.01590	<0.000200	<0.00500	0.00667	<0.00500	<0.00500	<0.00500	0.01150
	02/27/14	141	0.811	3.22	74.4	660	< 0.0100	<0.00500	0.0725	0.171	<0.00200	0.250	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00739
(duplicate)	02/27/14	141	0.819	3.37	74.3	690	< 0.0100	<0.00500	0.0764	0.183	<0.00200	0.261	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00902
	08/20/14	177	0.809	3.44	72.9	826	0.1880	<0.00500	0.1060	0.134	<0.00200	0.331	<0.00500	<0.00500	0.697	<0.00500	0.07540	<0.000200	0.00594	0.07770	<0.00500	<0.00500	<0.00500	0.01300
	02/25/15	250	0.950	5.60	90.0	1,000	<0.0350	0.00200	0.1300	0.260	<0.00070	0.240	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.00120 J	<0.00490	<0.00740	<0.00280	0.00620 J	0.01300 J
	08/27/15	247	0.573	6.77	81.8	1,220	<0.0350	0.00246	0.0884	0.238	<0.00016	0.130	<0.00026	0.000784 J	<0.0141	<0.00024	0.00153 J	<0.000049	0.00111 J	0.000629 J	0.00169 J	<0.00031	0.00641 J	0.00333 J
MW-30	06/21/13	51.2	1.87	3.51	96.7	426	0.0436	0.00588	0.0424	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.00913	<0.00500	0.00554	<0.00500	<0.00500	<0.00500
	08/20/13	63.7	1.59	2.85	87.0	438	< 0.0100	<0.00500	0.0761	0.159	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.05890	<0.000200	<0.00500	0.02630	<0.00500	<0.00500	<0.00500	<0.00500
	02/27/14	64.0	1.07	2.96	90.0	476	0.0201	<0.00500	0.0672	0.180	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.06440	<0.000200	0.00588	0.05160	<0.00500	<0.00500	<0.00500	<0.00500
	08/22/14	61.1	1.45	2.75	84.5	444	0.1320	<0.00500	0.0736	<0.0200	<0.00200	0.0137	<0.00500	<0.00500	<0.200	<0.00500	0.14800	<0.000200	0.00597	0.04850	<0.00500	<0.00500	<0.00500	<0.00590
	02/25/15	75.0	1.40	3.10	81.0	460	0.0770 J	0.00430	0.0730	0.16 J	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	<0.00024	0.00660 J	<0.000049	0.00270 J	<0.00490	<0.00740	<0.00280	0.0018 J	<0.00590
	08/28/15	83.6	1.61	3.97	86.2	525	<0.0350	0.00478	0.0757	0.163	<0.00016	<0.000540	<0.000260	0.000922 J	<0.0141	<0.00024	0.00315 J	<0.000049	0.00248 J	0.00109 J	0.00177 J	<0.00031	0.00203 J	<0.00256
RW-1	06/19/09	34.8	1.21	--	70.8	398	<0.0100	0.01000	0.160	0.161	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.03800	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	<0.00500
	02/02/10	34.2	0.913	1.52	66.0	388	<0.0200	0.00857	0.190	0.166	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.04670	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/19/10	27.8	0.991	1.42	72.3	380	0.0202	0.01040	0.162	0.154	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00854
	03/01/11	28.9	1.03	1.74	74.3	380	<0.0100	0.01210	0.148	0.153	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00933	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	07/20/11	26.4	0.883	1.36	72.5	484	<0.0100	0.01080	0.158	0.156	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00526
	02/02/12	29.6	1.11	1.44	79.9	384	<0.0100	0.01060	0.139	0.165	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00771	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00764
	07/27/12	27.3	1.18	<2.00	68.9	344	0.0532	0.01030	0.163	0.177	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01820	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00801
	02/27/13	28.0	1.09	<2.00	80.2	378	<0.0100	0.01030	0.132	0.159	<0.00200	<0.00500	<0.00500	<0.00500	0.655	<0.00500	0.00656	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/21/13	32.3	1.28	1.50	86.9	392	< 0.0100	0.01010	0.153	0.175	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02700	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/27/14	29.4	1.07	1.46	76.9	402	< 0.0100	0.00608	0.155	0.167	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.18600	<0.000200	<0.00500	0.01560	<0.00500	<0.00500	<0.00500	0.00581
	08/21/14	25.6	1.21	1.29	76.0	368	0.0156	0.00919	0.145	0.102	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00804	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00680
	02/25/15	26.0	1.20	1.60	74.0	370	<0.0350	0.01100	0.150	0.190 J	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	0.00042 J	<0.00120	<0.000049	0.00250 J	<0.00490	<0.00740	<0.00280	0.00180 J	0.00680 J
	08/27/15	28.0	1.04	1.74	76.8	407	<0.0350	0.00976	0.149	0.173	<0.00016	<0.000540	<0.000260	<0.000520	<0.0141	<0.00024	0.000376 J	<0.000049	0.00240 J	<0.000350	0.00289	<0.00031	0.00173 J	<0.00256
North Well	06/18/09	140	0.933	2.72	80.6	664	<0.0100	0.00536	0.0997	0.151	<0.00200	0.0104	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	<0.00500
	01/14/10	143	0.793	2.90	74.2	638	<0.0100	<0.00500	0.1070	0.172	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00134	0.00920
	08/24/10	127	0.932	1.81	80.4	594	<0.0100	0.00552	0.1000	0.147	<0.00200	<0.00500	<0.00500	0.00856	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.0161	<0.00500	<0.00500	<0.00500	<0.00500
	03/03/11	137	0.932	2.76	75.2	804	<0.0100	0.00503	0.0968	0.159	<0.00200	0.0199	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.06950
	07/20/11	124	0.803	2.07	76.5	628	<0.0100	<0.00500	0.1060	0.142	<0.00200	0.0140	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/02/12	149	0.977	2.54	82.1	656	0.0126	<0.00500	0.0944	0.132	<0.00200	0.0145	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01780
	07/30/12	121	0.986	2.63	72.7	528	<0.0100	0.00523	0.1060	0.159	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00873
	02/19/13	105	1.020	2.54	83.3	496	<0.0100	0.00693	0.0998	0.162	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00537	<0.00500	<0.00500	<0.00500	0.01190
	08/22/14	57.3	0.462	2.73	37.6	532	0.0170	0.00530	0.1060	<0.0200	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00315
	12/17/14	110	0.910	3.00	69.0	--	<0.0100	0.00579	0.0985	0.121	<0.00100	0.00101	<0.00100	0.00108	0.0180	<0.00100	<0.00100	<0.000200	0.00346	<0.00100	0.00359	<0.00100	0.00179	0.01500
	03/09/15	11.0	0.098	2.70	7.30	520	<0.0350	0.00550	0.1100	0.150	<0.00070	<0.0014	<0.0023	0.012 J	<0.014	0.00062 J	<0.00120	<0.000049	0.00320 J	<0.00490	0.00970 J	<0.00280	0.00160 J	0.01700 J
	05/19/15	110	0.880	3.20	73.0	550	<0.0350	0.00600	0.1100	0.14 J	<0.00070	0.0018 J	<0.0023	0.015 J	<0.014	0.00074 J	<0.00120	<0.000049	0.00420 J	<0.00490	0.00330	<0.00280	0.00180 J	0.01700 J
	08/28/15	193	1.55	4.34	127	593	<0.0350	0.00551	0.1030	0.155	<0.00016	0.000676 J	<0.000260	0.00121 J	<0.0141	<0.00024	0.000878 J	<0.000049	0.00306 J	<0.00035	0.00332	<0.00031	0.00156 J	<0.00256
	12/17/15	121	0.982	3.46	76.7	588	<0.0350	0.00572	0.1040	0.155 J	<0.00016	0.00103 J	<0.000260	0.00216 J	0.0158 J	<0.00024	0.000476 J	<0.000049	<0.00160	0.000388 J	0.00342	<0.00031	0.00160 J	0.00427 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
South Well	06/22/09	497	0.665	3.02	106	1,450	<0.0100	<0.00500	0.154	0.189	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	<0.00500
	01/14/10	498	0.686	3.27	113	1,520	0.0176	<0.00500	0.138	0.229	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02240	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00236	0.02070
	08/24/10	477	0.651	2.18	101	1,760	<0.0100	<0.00500	0.172	0.186	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00576	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03290
	03/03/11	549	0.647	3.24	122	1,840	<0.0100	<0.00500	0.147	0.261	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02260	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	07/20/11	420	0.687	2.48	103	1,600	<0.0100	<0.00500	0.157	0.195	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00777
	02/12/12	368	0.756	3.02	89.0	1,210	<0.0100	<0.00500	0.117	0.165	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.04010
	07/30/12	135	1.01	2.53	73.3	582	<0.0100	<0.00500	0.103	0.160	<0.00200	0.0111	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01720
	02/19/13	359	0.743	2.88	99.2	1,170	--	0.00576	0.149	0.197	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01550
	02/28/14	352	0.575	0.66	99.2	1,210	<0.0100	<0.00500	0.131	0.195	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00571	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01590
	08/22/14	435	0.720	3.00	100	1,480	<0.0100	<0.00500	0.136	0.144	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00670	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02140
(duplicate)	08/22/14	437	0.724	3.00	107	1,480	0.0689	<0.00500	0.145	<0.020	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01030	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01630
	12/17/14	390	0.63	3.20	91	--	<0.0100	0.00431	0.125	0.159	<0.00100	0.00178	<0.00100	0.00128	0.0277	<0.00100	0.00422	<0.000200	0.00242	<0.00100	0.00387	<0.00100	0.00227	0.01510
(duplicate)	12/17/14	390	0.63	3.20	90	--	<0.0100	0.00422	0.126	0.162	<0.00100	0.00179	<0.00100	0.00136	0.0226	<0.00100	0.00409	<0.000200	0.00203	<0.00100	0.00359	<0.00100	0.00217	0.04900
	03/09/15	340	0.82	2.70	99	1,100	<0.035	0.00400	0.140	0.200	<0.00070	0.0015 J	<0.0023	0.032	<0.014	0.00310	0.00460 J	<0.000049	0.00200 J	<0.00490	0.01200 J	<0.00280	0.00210 J	0.04900 J
(duplicate)	03/09/15	340	0.82	650	98	1,100	0.0370 J	0.00420	0.140	0.200	<0.00070	<0.0014	<0.0023	0.019 J	<0.014	0.00260	0.00300 J	<0.000049	0.00210 J	<0.00490	0.01500 J	<0.00280	0.00210 J	0.02500 J
	05/19/15	330	0.76	3.20	92	1,100	<0.0350	0.00230	0.140	0.18 J	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	<0.00024	0.00880 J	<0.000049	0.00220 J	<0.00490	<0.0028	<0.00280	0.00210 J	<0.00590
(duplicate)	05/19/15	340	0.76	3.10	95	1,000	<0.035	0.00240	0.140	0.18 J	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	<0.00024	0.00810 J	<0.000049	0.00230 J	<0.00490	0.00320	<0.00280	0.00210 J	<0.00590
	08/28/15	426	0.810	3.48	107	1,440	<0.0350	0.00436	0.137	0.194	<0.00070	0.00156 J	<0.00230	<0.00530	0.0168 J	0.000477 J	0.00776 J	<0.000049	0.00204 J	<0.00490	0.00360	<0.00280	0.00214 J	0.00662 J
(duplicate)	08/28/15	382	0.734	3.50	95.9	1,320	<0.0350	0.00430	0.133	0.197	<0.00016	0.00127 J	<0.000260	0.00376 J	<0.0141	<0.000240	0.00654	0.0000599 J	0.00199 J	<0.000350	<0.00328	<0.00031	0.00205 J	0.00638 J
	12/17/15	400	0.751	3.35	115	1,400	<0.0350	0.00426	0.138	0.235	<0.00016	0.00205	<0.000260	0.00257 J	<0.0141	<0.000240	0.00564	<0.000049	<0.00160	0.000645 J	0.00334	<0.00031	0.00238 J	0.00388 J
(duplicate)	12/17/15	402	0.752	3.47	114	1,360	<0.0350	0.00425	0.136	0.193 J	<0.00016	0.00160	<0.000260	0.00250 J	<0.0141	<0.000240	0.00546	<0.000049	<0.00160	0.000442 J	0.00343	<0.00031	0.00238 J	0.00430 J
East Well	06/18/09	107	0.980	2.59	84.0	554	0.0131	<0.00500	0.0820	0.143	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	--	0.02910
	01/14/10	138	0.991	2.70	72.7	676	<0.0100	<0.00500	0.0941	0.154	<0.00200	0.0119	<0.00500	0.00953	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00111	0.01460
	08/25/10	106	1.00	0.523	74.5	522	<0.0100	<0.00500	0.0873	0.136	<0.00200	0.0145	<0.00500	0.00745	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03470
	03/03/11	135	0.905	2.68	75.6	644	<0.0100	<0.00500	0.0970	0.152	<0.00200	0.0189	<0.00500	<0.00500	<0.200	0.00662	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00936
	07/20/11	124	0.810	1.83	73.8	596	<0.0100	<0.00500	0.1040	0.142	<0.00200	0.0200	<0.00500	<0.00500	<0.200	0.01160	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.09370
	02/02/12	150	0.967	2.56	81.4	664	0.0150	<0.00500	0.0993	0.145	<0.00200	0.0166	<0.00500	<0.00500	<0.200	0.00988	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01660
	07/30/12	144	0.962	2.40	80.9	636	<0.0100	<0.00500	0.0922	0.136	<0.00200	0.0157	<0.00500	0.00774	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01660
	02/28/14	138	0.899	0.564	80.6	658	0.0104	<0.00500	0.1160	0.158	<0.00200	0.0139	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03170
	08/22/14	124	0.914	2.71	78.5	614	<0.0100	<0.00500	0.1030	<0.0200	<0.00200	0.0119	<0.00500	<0.00500	<0.200	<0.00500	0.008120	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01560
	12/17/14	120	0.900	2.70	73.0	--	<0.0100	0.00436	0.0905	0.120	<0.00100	0.0112	<0.00100	<0.00100	0.143	<0.00100	0.004300	<0.00020	0.00241	<0.00100	0.00395	<0.00100	0.00181	0.01470
	03/09/15	120	1.10	2.60	81.0	570	<0.0350	0.00460	0.1000	0.150	<0.00070	0.0120	<0.0023	0.06800	<0.014	0.00120 J	0.00210 J	<0.000049	0.00230 J	<0.00490	0.01000 J	<0.00280	0.00180 J	0.08600
	05/19/15	120	0.900	2.80	78.0	560	<0.0350	0.00500	0.1000	0.140 J	<0.00070	0.0120	<0.0023	<0.00530	<0.014	<0.00024	0.00160 J	<0.000049	0.00280 J	<0.00490	0.00370	<0.00280	0.00190 J	0.01300 J
	08/28/15	206	1.75	3.00	145	603	<0.0350	0.00445	0.0981	0.149	<0.00070	0.00866 J	<0.00230	<0.00530	0.0248 J	0.000241 J	0.012900	<0.000049	0.00236 J	<0.00490	0.00388	<0.00280	0.00174 J	0.02840 J
	12/17/15	114	1.03	3.01	80.9	621	0.0668 J	0.00507	0.0997	0.167 J	<0.00016	0.00866	<0.00260	0.00143 J	<0.0141	<0.00024	0.00217 J	<0.000049	<0.00160	0.000365	0.00387	<0.00031	0.00188 J	0.01010 J

Notes:
Shading indicates detected result exceeded the New Mexico Water Quality Control Commission (WQCC) Human Health Standard
mg/L = milligrams per liter
< = Not reported above laboratory reporting limit
-- = Not Analyzed
(1)= Not analyzed due to insufficient water volume
J = analyte was detected below the laboratory reporting limit, reported value is estimated
Samples collected for metals analysis (except for Total Mercury) were field- or lab-filtered with 0.45 micron filter
June 2009 to August 2014 analyses performed by ALS Laboratory Group, Houston, Texas
December 2014 anlyses peformed by Hall Environmental Analysis Laboratory in Albuquerque, New Mexico
February 2015 to August 2015 analyses performed by ESC Lab Sciences in Mount Juliet, Tennessee

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, September 16, 2016 3:49 PM
To: 'Combs, Robert'
Cc: Griswold, Jim, EMNRD; Denton, Scott; Holder, Mike; Dade, Lewis (Randy); Brown, Maxey G, EMNRD
Subject: RE: C-141 form - Discovery of contamination at Lovington Refinery (AP-110)

Robert:

The New Mexico Oil Conservation Division (OCD) completed its review of the attached C-141 Form (Final) dated 9/15/16 with supplemental information.

Contamination was detected in BH-1 to the maximum depth of ~95 ft. with stained soils and hydrocarbon odors evident. OCD required in its e-mail msg. of 6/10/2016 below that a MW be installed into GW at the location of the 95 ft. boring with specified sampling.

HollyFrontier did not comply with the requirements of the OCD.

Therefore, the submittal does not meet OCD's requirements. Please complete the work specified by COB Tuesday, November 15, 2016 and provide the results of groundwater data with recommendations to the OCD.

Thank you.

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Thursday, September 15, 2016 3:21 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Denton, Scott <Scott.Denton@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>
Subject: RE: C-141 form - Discovery of contamination at Lovington Refinery

Carl,

Attached, please find our response letter to the email provided below. The attachments file contains the supporting documentation including the Final C-141 form, photos, boring log, analytical reports, disposal records, etc.

If you would like to discuss, please contact me or Scott. I will get these documents uploaded to the OCD server ASAP.

Thanks,
Robert

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Friday, June 10, 2016 3:33 PM
To: Combs, Robert
Cc: Griswold, Jim, EMNRD
Subject: RE: C-141 form - Discovery of contamination at Lovington Refinery

Robert:

FYI:

Good afternoon. I met with Jim G this afternoon.

Jim wants a MW installed into GW at the location of the 95 ft. boring with environmental analytical methods to determine any constituents of concern in GW. Analytical testing may include Gen. Chem. (Cations & Anions), 8260 full scan, 8270, Metals (RCRA 8) Dissolved with exception of Hg (total), TPH 418.1 or 8015- Extended (Range: C_6 - C_{36}). All sampling and analytical work shall comply with EPA QA/QC and DQOs.

There will need to be further work to investigate the horizontal and vertical extent of soil contamination.

If GW is impacted above WQCC Water Quality Standards, HF will likely need to propose additional investigation to determine the horizontal and vertical extent of any GW plume emanating from a source area.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
Environmental Engineer
Oil Conservation Division- Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
Phone: (505) 476-3490
Main Phone: (505) 476-3440
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: www.emnrd.state.nm.us/ocd
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From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Thursday, June 09, 2016 8:08 AM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Subject: RE: C-141 form - Discovery of contamination at Lovington Refinery

Thanks! I was looking to confirm the data needs discussed to make sure I get to you adequate info. I'll contact you to review prior to submittal.
Thanks again,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
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From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, June 09, 2016 7:02 AM
To: Combs, Robert
Subject: RE: C-141 form - Discovery of contamination at Lovington Refinery

Robert:

OCD will consider your notes, but will not review them for accuracy. If you would like to call back and communicate further that would be fine.

Thank you for the communication yesterday on this matter.

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From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Wednesday, June 08, 2016 4:53 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Denton, Scott <Scott.Denton@HollyFrontier.com>
Subject: RE: C-141 form - Discovery of contamination at Lovington Refinery

Carl,

I wanted to provide a write-up of our conversation from this morning to ensure that my notes are correct. Please see below.

RAC update:

- Discussed status of construction
  - HEP prepared for construction to expand their loading rack operations
  - Narrow strip of concrete (approx. 7' x 60') was removed from an existing concrete slab (approx. 50'x 65')
  - Discovery of legacy spill impacts during construction of Lovington HEP loading rack expansion
  - No diesel products have been loaded at this area since Navajo took ownership (1980s), only asphalt load out
  - Field kits/surface samples indicate DRO impacts
  - Would like approval to proceed with construction
  - Navajo awaiting construction details from HEP
  - Any additional soils removed for excavation purposes will be characterized and disposed as waste
  - No further removal of concrete is expected
  - No evidence of lateral impacts beyond extents of the concrete cover
- Discussed status of investigation
  - Sampled soils just below surface, TPH-DRO impacts
  - Installed 4 soil borings, deepest at approx. 4 ft bgs and samples collected

        - BTEX 10.8 mg/kg
        - GRO 343 mg/kg
        - DRO 7570 mg/kg
    - Installed soil boring, sampled every 10 ft interval for TPH-GRO/DRO, volatiles and semivolatiles, discussed some analytical results
        - Hydrocarbon impacts down to 95'
- Vicinity Monitor wells
    - MW-5 approx 500' east of the site. Downgradient/crossgradient relative to natural gradient
    - MW-21 approx 600' northwest of the site. Downgradient/crossgradient relative to induced gradient
    - GW monitoring analyzed for WQCC volatiles and semivolatiles
    - Sampling from both wells since 2009-2010 have non-detectable levels of these constituents – no evidence in analytical GW data of impacts from this area
- RAC action items:
    - Prepare email with proposed remediation plan
    - Provide
        - analytical reports
        - maps (aerial, potentiometric surfaces, etc.)
        - photos of the excavation
        - depth vs. concentration of DRO
        - GW results tables

Could you please let me know if there are any details that I may have overlooked?

Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
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office: 575-746-5382
cell: 575-308-2718
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From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Friday, December 04, 2015 4:49 PM
To: Combs, Robert
Subject: RE: C-141 form - Discovery of contamination at Lovington Refinery

Received. Thank you.

Carl J. Chavez, CHMM
Environmental Engineer
Oil Conservation Division- Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Phone: (505) 476-3490
Main Phone: (505) 476-3440
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Website: www.emnrd.state.nm.us/ocd
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From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Friday, December 04, 2015 4:22 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Denton, Scott <Scott.Denton@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>
Subject: C-141 form - Discovery of contamination at Lovington Refinery

Carl,
Please see the attached C-141 form prepared by HEP for this discovery. As I mentioned in our conversation, this has been reported to the OCD Hobbs office. Please call if you would like to discuss further.
Thanks,
Robert

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Chavez, Carl J, EMNRD

From: Combs, Robert <Robert.Combs@HollyFrontier.com>
Sent: Thursday, September 15, 2016 3:21 PM
To: Chavez, Carl J, EMNRD
Cc: Griswold, Jim, EMNRD; Denton, Scott; Holder, Mike; Dade, Lewis (Randy)
Subject: RE: C-141 form - Discovery of contamination at Lovington Refinery
Attachments: Navajo Lovington - Asphalt Loading Rack Letter FINAL to OCD 091516.pdf; Navajo Lovington - Asphalt Loading Rack 091516 Letter Attachments_reduced.pdf

Carl,

Attached, please find our response letter to the email provided below. The attachments file contains the supporting documentation including the Final C-141 form, photos, boring log, analytical reports, disposal records, etc.

If you would like to discuss, please contact me or Scott. I will get these documents uploaded to the OCD server ASAP.

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From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Friday, June 10, 2016 3:33 PM
To: Combs, Robert
Cc: Griswold, Jim, EMNRD
Subject: RE: C-141 form - Discovery of contamination at Lovington Refinery

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FYI:

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    - DRO 7570 mg/kg
  - Installed soil boring, sampled every 10 ft interval for TPH-GRO/DRO, volatiles and semivolatiles, discussed some analytical results
    - Hydrocarbon impacts down to 95'
- Vicinity Monitor wells
  - MW-5 approx 500' east of the site. Downgradient/crossgradient relative to natural gradient
  - MW-21 approx 600' northwest of the site. Downgradient/crossgradient relative to induced gradient
  - GW monitoring analyzed for WQCC volatiles and semivolatiles
  - Sampling from both wells since 2009-2010 have non-detectable levels of these constituents – no evidence in analytical GW data of impacts from this area
- RAC action items:
  - Prepare email with proposed remediation plan
  - Provide
    - analytical reports
    - maps (aerial, potentiometric surfaces, etc.)
    - photos of the excavation
    - depth vs. concentration of DRO
    - GW results tables

Could you please let me know if there are any details that I may have overlooked?

Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

CONFIDENTIALITY NOTICE: This e-mail, and any attachments, may contain information that is privileged and confidential. If you received this message in error, please advise the sender immediately by reply e-mail and do not retain any paper or electronic copies of this message or any attachments. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Friday, December 04, 2015 4:49 PM
To: Combs, Robert
Subject: RE: C-141 form - Discovery of contamination at Lovington Refinery

Received. Thank you.

Carl J. Chavez, CHMM
Environmental Engineer
Oil Conservation Division- Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
Phone: (505) 476-3490
Main Phone: (505) 476-3440
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: www.emnrd.state.nm.us/ocd
Why not prevent pollution, minimize waste, reduce operation costs, and move forward with the rest of the Nation? To see how, go to "Publications" and "Pollution Prevention" on the OCD Website.

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]
Sent: Friday, December 04, 2015 4:22 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Denton, Scott <Scott.Denton@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>
Subject: C-141 form - Discovery of contamination at Lovington Refinery

Carl,
Please see the attached C-141 form prepared by HEP for this discovery. As I mentioned in our conversation, this has been reported to the OCD Hobbs office. Please call if you would like to discuss further.
Thanks,
Robert

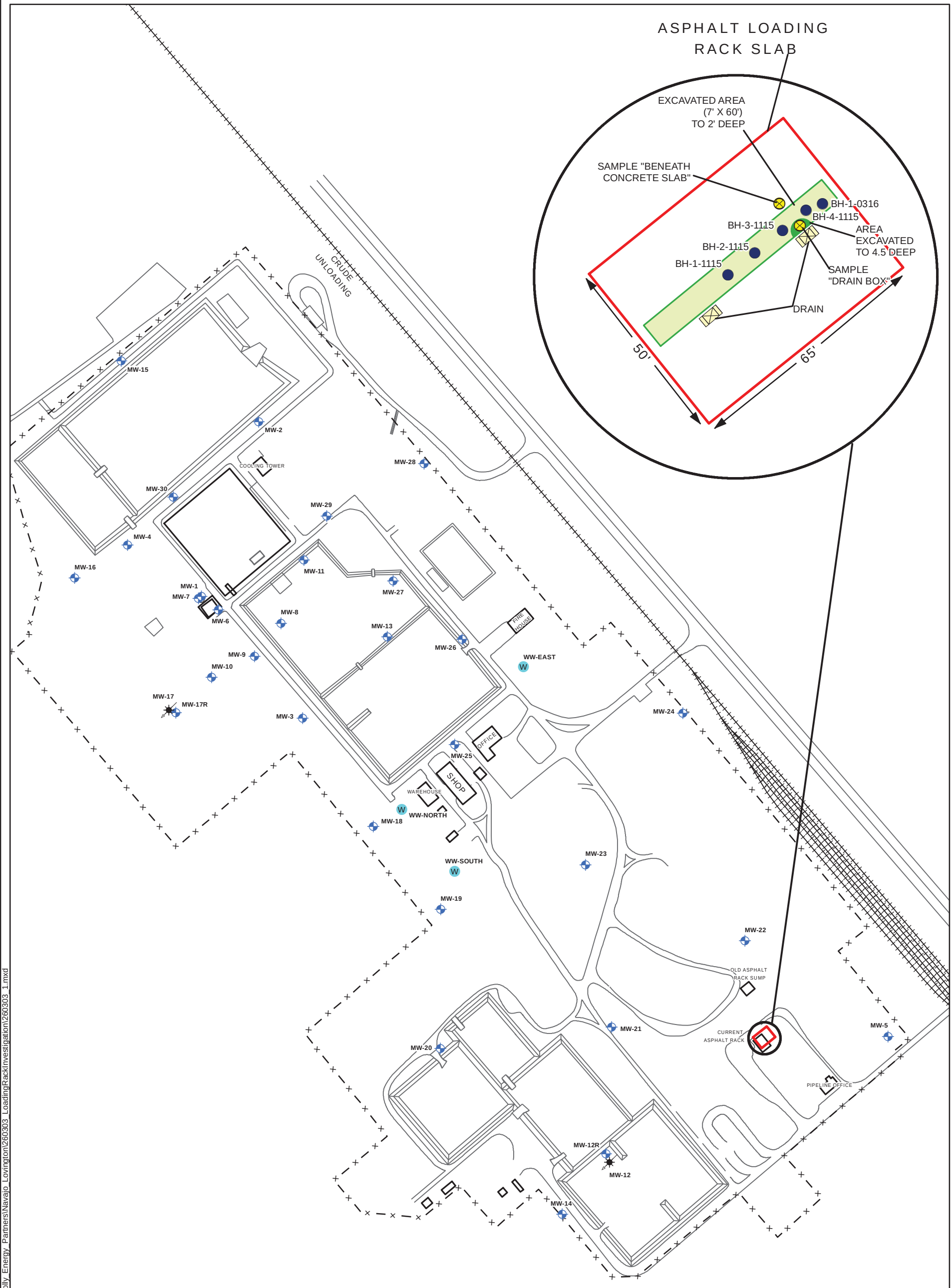
Robert Combs
Environmental Specialist
The HollyFrontier Companies

P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

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FIGURE



Document Path: J:\Holly_Energy_Partners\Navajo_Lovington\260303_LoadingRackInvestigation\260303_1.mxd

LEGEND

- MONITORING WELL
- PLUGGED WELL
- RECOVERY WELL
- WATER WELL
- SOIL BORING
- GRAB SOIL SAMPLE
- DRAINS
- RAIL
- FENCE
- EXCAVATED AREA
- BUILDINGS
- SITE

N

0 175 350 700

FEET

SITE PLAN AND SOIL BORING LOCATION MAP

HOLLYFRONTIER NAVAJO REFINING LLC
LEA REFINERY LOVINGTON, NM

PROJECT NO: 260303	MXD: 260303_1
AUTHOR: MLOVELACE	DATE: 9/1/2016

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE
1

Table

Table 1. Soil Analytical Results, Asphalt Loading Rack Investigation
HollyFrontier Navajo Refining, LLC, AP-110, Lovington, New Mexico

Sample Location:		BH-1-1115	BH-2-1115	BH-3-1115		BH-4-1115		Drain Box[1]	Beneath Concrete Slab[2]	BH-1-0316								
Depth (feet bgs):		0.8 - 1.4	1.1 - 1.7	2.3 - 2.7	4 - 4.3	0.7 - 1.0	1.5 - 1.7	4.7	2.2	10 - 15	20 - 25	30 - 35	40 - 45	50 - 55	60 - 65	70 -75	80 - 85	90 - 95
Sample Collection Date:		11/19/2015	11/19/2015	11/19/2015	11/19/2015	11/19/2015	11/19/2015	12/14/2015	12/14/2015	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016
Analyte	Screening Standard	ANALYTICAL RESULTS (mg/kg)																
		Total Petroleum Hydrocarbons (Method 8015)																
GRO C6-C10	--	44.9	43.1	30.5	343	265	<10.0	279	26.8	32.0	39.0	245	140	66.8	271	508	162	21.4
DRO >C10-C28	--	2,120	1,620	1,180	7,570	11,300	321	9,420	1,070	1,420	1,980	3,560	2,720	2,580	5,460	8,140	4,050	838
Total TPH	5,000 [3]	2,165	1,663	1,211	**7,913**	**11,565**	321	**9,699**	1,097	1,452	2,019	3,805	2,860	2,647	**5,731**	**8,648**	4,212	859
		Volatile Organic Compounds [4] (Method 8021 or 8260) [5]																
Benzene	10 [3]	<0.050	<0.050	<0.050	<0.200	<0.200	<0.050	<0.200	<0.200	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095
Toluene	15 [6]	<0.050	0.065	<0.050	0.270	0.289	<0.050	0.217	<0.200	<0.130	<0.130	<0.130	<0.130	<0.130	<0.130	0.264	<0.130	<0.130
Ethylbenzene	15 [6]	0.599	0.939	0.588	10.4	2.72	0.302	0.675	0.393	<0.085	<0.085	0.792	0.531	0.339	0.946	3.16	0.739	<0.085
Xylenes	12.4 [6]	<0.150	<0.150	<0.150	<0.600	1.87	0.250	1.99	1.25	<0.135	<0.135	2.31	1.60	0.474	2.70	8.55	1.80	<0.135
Total BTEX	50 [6]	0.645	1.04	0.659	10.80	4.88	0.581	2.88	1.65	--	--	3.10	2.13	0.813	3.65	11.97	2.54	--
n-Propylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.313	<0.030	0.537	0.707	0.430	1.64	3.74	1.04	<0.030
1,3,5-Trimetyhlbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.090	<0.090	1.61	1.09	0.783	2.36	4.37	1.36	<0.090
1,2,4-Trimethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.085	<0.085	5.19	3.82	2.89	8.43	14.8	4.87	0.724
sec-Butylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.338	<0.085	0.961	0.748	0.602	1.60	2.83	0.997	<0.085
p-Isopropyltoluene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.065	<0.065	2.11	1.43	1.19	2.91	4.88	1.88	0.314
n-Butylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.633	<0.090	1.06	2.91	2.71	4.50	9.36	3.80	0.693
Naphthalene	0.6 [6]	NA	NA	NA	NA	NA	NA	NA	NA	**1.04**	0.266	**2.11**	**2.73**	**3.09**	**5.08**	**7.03**	**3.44**	**0.910**
		Semivolatile Organic Compounds (Method 8270)																
Naphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.798	0.140	1.4	2.78	2.38	4.39	5.76	2.37	0.274
2-Methylnapthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	2.63	0.215	5.71	9.81	9.75	13.6	18.0	9.58	1.43
1-Methylnaphtalene	--	NA	NA	NA	NA	NA	NA	NA	NA	2.86	0.27	7.08	9.60	9.72	13.1	17.5	9.66	1.49
Total Naphthalene	0.6 [6]	NA	NA	NA	NA	NA	NA	NA	NA	**6.288**	**0.625**	**14.19**	**22.19**	**21.85**	**31.09**	**41.26**	**21.61**	**3.194**
Acephtylene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.031	<0.031	0.151	0.065	0.227	0.263	<0.310	0.623	0.041
Fluorene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.577	0.036	1.00	1.22	1.39	1.49	2.05	1.44	0.262
Phenanthrene	--	NA	NA	NA	NA	NA	NA	NA	NA	0.821	<0.060	1.37	1.78	1.99	2.22	3.42	2.07	0.438

1.04 Concentration exceeded applicable screening standard

mg/kg = milligrams per kilogram

NA = Not Analyzed

[1] Grab sample collected from north sidewall of area excavated immediately north of the easternmost drain box.

[2] Grab sample collected from beneath the loading rack concrete slab north of BH-3-1115 by hand digging 2.2 feet horizontally from the north excavation sidewall.

[3] Based on a total ranking score of zero points in accordance with New Mexico's Oil Conservation Division's *Guidelines for Remediation of Leaks, Spills and Releases* dated August 13, 1993. (>100' depth to groundwater, >200' from wellhead protection area, >1,000' from nearest surface water body)

[4] Only VOCs that were detected above the laboratory reporting limit are included in this table

[5] Soil samples collected on November 19, 2015 and December 14, 2015, were analyzed for VOCs by Method 8021. Soil samples collected on March 24, 2016, were analyzed for VOCs by Method 8260.

[6] New Mexico Water Quality Control Commission (WQCC) Human Health Standards (WQCC Standards) with an applied dilution factor (DF) of 20 (i.e., 20x DF), in accordance with the Release Response Guidance included as Appendix B of the December 2015 *Revised Facility-Wide Groundwater Monitoring Work Plan* that was approved by the OCD in an email on March 9, 2016.

ATTACHMENT A

Soil Waste Manifests

Contaminated Soils Shipment Manifest

1. Manifest Document No: 2915109 8

2. Page 1 of 1

GENERATOR

3. Generator Name and Mailing Address
Navajo Refining Co. LLC
PO Box 159
Artesia, NM 88211-0159

Truck 3

4. Generator Phone No.
575-748-3311

5. Generator Contact
Micki Schultz

6. Transporter 1 Company Name
S Brothers Waste Services Inc.

7. ID No.

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP-1041

12. Facility Phone No.
(575) 398-0107

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt./Vol.
a. Non-Hazardous Soil EXCAVATION SOIL	1	CM	17	Y
b.				
c.				

13a. Special Handling Instructions and Additional Information
Unit South ASPHT RACK
Bin # 37

25880165

18. Generator's Certification: *I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.*

FURTHER. I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Printed/Typed Name: Christie Coons | Signature: Christie Coons | Date:

TRANSPORTER

19. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Arthur Bustamante | Signature: [signature] | Date: 01/18/16

20. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: | Signature: | Date:

GMI

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.
Printed/Typed Name: Jim Thompson | Signature: Jim Thompson | Date: 01/18/16

Contaminated Soils Shipment Manifest

1. Manifest Document No. 2015125 0 — 2. Page 1 of ___

GENERATOR

3. Generator's Name and Mailing Address
Navajo Refining Co. LLC
PO Box 159
Artesia, NM 88211-0159
Lovington, NM Truck 4

4. Generator Phone No.
575-748-3311

5. Generator Contact
Richard Orosco

TRANSPORTER

6. Transporter 1 Company Name
S Brothers Waste Services Inc.

7. ID No.

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP-1041

12. Facility Phone No.
(575) 398-0107

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt.Vol.
a. EXCAVATED SOIL	1	CM	17	Y
b.				
c.				

17. Special Handling Instructions and Additional Information
Unit South Asphalt Rack
BIN 36
22460 165

18. Generator's Certification:
I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.

FURTHER. I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Printed/Typed Name	Signature	Date
Richard L. Orosco	Richard L Orosco	

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
Arthur Bustamantes	Arthur Bustamantes	01/11/16

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date

GMI

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21. 9:47 AM

Printed/Typed Name	Signature	Date
J TOLTON	J Tolton	01/11/16

Contaminated Soils Shipment Manifest

1. Manifest Document No. 20151206

2. Page ____ of ____

GENERATOR

3. Generator's Name and Mailing Address
Navajo Refining Co. L.L.C.
PO Box 159
Artesia NM 88211-0159

4. Generator Phone No.
575-748-3311

5. Generator Contact
Richard Orosco

6. Transporter 1 Company Name
S Brothers Waste Services Inc.

7. ID No.

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP-1041

12. Facility Phone No.
(575) 398-0107

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt.Vol.
a. EXCAVATED SOIL	1	DM	17	Y
b.				
c.				

17. Special Handling Instructions and Additional Information
Unit South Asphalt Rack Lovington, NM
BIN 57 Truck 4 24660 lbs

18. Generator's Certification: *I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.*

FURTHER. I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Printed/Typed Name	Signature	Date
Richard L. Orosio	Richard L Orosio	

TRANSPORTER

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
Arthur Bustamantes	Arthur Bustamantes	01/11/16

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date

GMI

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21. 1:13 PM

Printed/Typed Name	Signature	Date
J. TOLTON	J Tolton	01/11/16

Contaminated Soils Shipment Manifest

1. Manifest Document No. 20151205 | 2. Page ___ of ___

GENERATOR

3. Generator's Name and Mailing Address
Navajo Refining Co. L.L.C.
P.O. Box 159
Artesia NM 88211-0159

4. Generator Phone No.
575-748-3311

5. Generator Contact
Richard Orosco

6. Transporter 1 Company Name
S. Brothers Waste Services Inc.

7. ID No.

8. Transporter 2 Company Name
Loving tx, NM Truck 4

9. ID No.

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP-1041

12. Facility Phone No.
(575) 398-0107

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt.Vol.
a. Excavated Soil	1	cm	17	Y
b.				
c.				

17. Special Handling Instructions and Additional Information
Unit South Asphalt Rock
BTEX 66 15780 165

18. Generator's Certification: *I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.*

FURTHER. I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Printed/Typed Name	Signature	Date
Richard L. Orosco	Richard L Orosco	

TRANSPORTER

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
Arthur Bustamantes		04/21/16

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date

GMI

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21. 4:37 PM

Printed/Typed Name	Signature	Date
J TOLTON		

ATTACHMENT B

Soil Boring Log

Safety & Environmental Solutions, Inc.

LOG OF BORING BH-1

HollyFrontier Companies
Navajo Lea Refinery
NW/4 SW/4, Sec 31, T-16-S, R-37-E
Lea County, New Mexico
N32.875421°, W103.296815°

Date/Time Started	: 03/24/16, 1000	Drilled By	: HCI Drilling, Inc.
Date/Time Completed	: 03/24/16, 1430	Sampling Method	: Tube core w/teeth
Hole Diameter	: 5-1/2 in.	Logged By	: David Boyer, P.G., SESI
Drilling Method	: Air Rotary		
Drilling Equipment	: Ingersol-Rand T-60		

Sample Method:
SS Split Spoon (18" or 24")
RC Rock Coring
CT Air Cuttings
NR No recovery

Depth in Feet	Sample Method	Recovery (feet)	USCS	GRAPHIC	DESCRIPTION	GRO (mg/kg)	DRO (mg/kg)	Benzene (mg/Kg)	VOC Naphthalene (mg/kg)	Semi-VOC total Naphthalenes (mg/kg)
0					0-4 ft. Previously excavated					
5			CA		4-10 ft. CALICHE, not sampled					
10	RC	2	CA		10-15 ft. CALICHE, light gray to white, hard, H/C staining and odor	32.0	1,420	<0.095	1.04	6.29
15	RC	2.5	CA/GP		15-20 ft. CALICHE, with some gravels, H/C staining and odor					
20	RC	1	SP/GP		20-25 ft. GRAVELLY SAND, H/C staining and odor	39.0	1,980	<0.095	0.266	0.625
25	NR	--			25-30 ft. No Recovery					
30	RC	2.5	SS		30-35 ft. SANDSTONE, H/C staining and odor	245	3,560	<0.095	2.11	14.2
35	RC	2.5	SS		35-40 ft. SANDSTONE with fine grained sand at 40 ft., strong H/C odor					
40	RC	3	SS		40-45 ft. SANDSTONE, very fine grained, poorly cemented, broken by hammer for sample, staining on rock, strong H/C odor	140	2,720	<0.095	2.73	22.2
45	RC	0.8	SS		45-50 ft. SANDSTONE, fine grained, brown with staining in rock, strong H/C odor					
50										

Notes:
1. Samples below 85 ft. are air cuttings which are likely to have lower hydrocarbon concentrations due to mixing with ambient injection air.
2. Lab analyses every 10 feet by Cardinal Labs, Hobbs, NM
3.Semi-volatile naphthalene values are total of SVOC naphthalene, 1-methyl naphthalene and 2-methyl naphthalene as per NM WQCC direction.
4. Hole plugged back from 95 feet with 2 bags PBS brand bentonite then mixture of 14 bags concrete with 1.5 bags bentonite for 5% bentonite mix.

Z:\Company Files\Navajo\2015 Cleanups\NAV-15-001 Lea Refinery Asphalt Rack\BH-1 boring to 95 feet.bor

Safety & Environmental Solutions, Inc.

LOG OF BORING BH-1

HollyFrontier Companies
Navajo Lea Refinery
NW/4 SW/4, Sec 31, T-16-S, R-37-E
Lea County, New Mexico
N32.875421°, W103.296815°

Date/Time Started	: 03/24/16, 1000	Drilled By	: HCI Drilling, Inc.
Date/Time Completed	: 03/24/16, 1430	Sampling Method	: Tube core w/teeth
Hole Diameter	: 5-1/2 in.	Logged By	: David Boyer, P.G., SESI
Drilling Method	: Air Rotary		
Drilling Equipment	: Ingersol-Rand T-60		

Sample Method:
SS Split Spoon (18" or 24")
RC Rock Coring
CT Air Cuttings
NR No recovery

Depth in Feet	Sample Method	Recovery (feet)	USCS	GRAPHIC	DESCRIPTION	GRO (mg/kg)	DRO (mg/kg)	Benzene (mg/Kg)	VOC Naphthalene (mg/kg)	Semi-VOC total Naphthalenes (mg/kg)
50	RC	1	SS		50-55 ft. SANDSTONE, poor to medium cementing with H/C odor and staining seen in interior of core.	66.8	2,580	<0.095	3.09	21.8
55	RC	2	SS		55-60 ft. SANDSTONE, staining as seen above, broke core for lab sampling					
60	RC	2.8	SS		60-65 ft. SANDSTONE, softer, sand grains brown, fine grained, staining on core	271	5,460	<0.095	5.08	31.1
65	RC	4.4	SS		65-70 ft. SANDSTONE, fractured with H/C staining, possible different H/C odor, sample for lab broken by hammer					
70	RC	2.2	SS		70-75 ft. SANDSTONE, very fractured, lab sample mainly from loose sand between fractures	508	8,140	<0.095	7.03	41.3
75	RC	<1	SS		75-80 ft. Less than 1 ft. recovery, several hard SANDSTONE pieces, not broken further for sampling, H/C staining and odor on pieces.					
80	RC	~2	SS		80-85 ft. SANDSTONE as above, less than 2 ft. recovery, some smaller pieces have gray staining.	162	4,050	<0.095	3.44	21.6
85	CT	--	SP		85-90 ft. Sample from air cuttings due to possibility of losing core sampling tube and bit due to collasping sand. Cuttings are SAND, light brown, very fine grained, slightly damp, strong H/C odor					
90	CT	--	SP		90-95 ft. No core, cuttings, SAND, light brown, very fine grained, slightly damp, strong H/C odor	21.4	838	<0.095	0.910	3.19
95										
100										

Notes:
1. Samples below 85 ft. are air cuttings which are likely to have lower hydrocarbon concentrations due to mixing with ambient injection air.
2. Lab analyses every 10 feet by Cardinal Labs, Hobbs, NM
3.Semi-volatile naphthalene values are total of SVOC naphthalene, 1-methyl naphthalene and 2-methyl naphthalene as per NM WQCC direction.
4. Hole plugged back from 95 feet with 2 bags PBS brand bentonite then mixture of 14 bags concrete with 1.5 bags bentonite for 5% bentonite mix.

Z:\Company Files\Navajo\2015 Cleanups\NAV-15-001 Lea Refinery Asphalt Rack\BH-1 boring to 95 feet.bor

ATTACHMENT C

Photographic Logs of Soil Assessment Activities

Holly Energy Partners
Lovington Asphalt Rack Soils Investigation
Photographic Log of November 2015 Assessment Activities, Safety Environmental Solutions, Inc.



11-20-15 Sample points as flagged



11-20-15 Sample flags and diesel Staining



11-20-15 Sample points as flagged

Holly Energy Partners
Lovington Asphalt Rack Soils Investigation
Photographic Log of December 2015 Assessment Activities, Safety Environmental Solutions, Inc.



12-11-15 Excavated area



12-11-15 Excavated area



12-11-15 Excavated drain box



12-11-15 Excavated Area



12-11-15 Close up of Drain box with staining



12-14-15 Close up of Drain box. Water and minor product draining to sorbent pads

Holly Energy Partners
Lovington Asphalt Rack Soils Investigation
Photographic Log of 3-24-16 Assessment Activities, Safety Environmental Solutions, Inc.



HCI Drilling Rig



Small ramp for drilling rig



Drillers with drill pipe in excavation



Core 15 to 20 feet



Core 35 to 40 feet



Core Fragments 37 to38 feet with staining

Holly Energy Partners
Lovington Asphalt Rack Soils Investigation
Photographic Log of 3-24-16 Assessment Activities, Safety Environmental Solutions, Inc.



Core 40 to 45 feet showing staining



Core Fragments 55 to 60 feet



Core 60 to 65 feet, some staining



Core 70 to 75 feet, fractured sandstone

ATTACHMENT D

Final C-141 Form

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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

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: HollyFrontier Navajo Refining LLC	Contact: Robert Combs
Address: 501 E. Main St., Artesia, NM 88210	Telephone No.: 575-746-5382
Facility Name: HollyFrontier Navajo Refining LLC	Facility Type: Petroleum Refinery

Surface Owner: HollyFrontier Navajo Refining LLC	Mineral Owner N/A	API No. N/A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
SW/4	31	16S	37E					

Latitude 32°52'31.71"N **Longitude** 103°17'48.29"W

NATURE OF RELEASE

Type of Release: Unknown	Volume of Release: Unknown	Volume Recovered N/A
Source of Release: Appears to be sewer system at loading rack.	Date and Hour of Occurrence: Unknown	Date and Hour of Discovery: November 11, 2015; 12:00 pm
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. None	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.* While excavating for new construction, HEP discovered discolored soil with a hydrocarbon odor. Safety and Environmental Solutions (SESI) was contact to sample and delineate. SESI mobilized on 11/19/15 with Geoprobe and on 3/24/16 with a drilling rig for further vertical delineation. DRO impacts were observed to 95 ft bgs.

Describe Area Affected and Cleanup Action Taken.* The area observed as being affected is a dirt rectangle 60 ft. x 7 ft. The current owner HEP/HollyFrontier, only loads asphalt in the area but the previous operator reportedly loaded diesel and naphtha at this location (pre-1989). A total of 68 cubic-yards of soil was excavated, characterized as non-hazardous waste based on analytical results of composite samples, and transported to the Gandy Marley, Inc. Contaminated Soils Landfarm in Roswell, New Mexico. In addition to the soil investigation, groundwater samples from adjacent monitor wells were analyzed for DRO in August 2016 and historical monitoring results are presented in the attached letter report. Because hydrocarbon impacts are not observed in groundwater, limited leaching is observed. Furthermore, since the area is covered with concrete and/or pavement, further remediation is not practicable.

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:	OIL CONSERVATION DIVISION	
Printed Name: Robert Combs	Approved by Environmental Specialist:	
Title: Environmental Specialist	Approval Date:	Expiration Date:
E-mail Address: robert.combs@hollyfrontier.com	Conditions of Approval:	Attached ☐
Date: 9/15/16 Phone: 575-746-3311		

* Attach Additional Sheets If Necessary

ATTACHMENT E

Laboratory Analytical Reports

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

November 25, 2015

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: LEA REFINERY ASPHALT RACK SOILS

Enclosed are the results of analyses for samples received by the laboratory on 11/19/15 16:59.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Hope S. Moreno

Hope S. Moreno For Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	11/19/2015	Sampling Date:	11/19/2015
Reported:	11/25/2015	Sampling Type:	Soil
Project Name:	LEA REFINERY ASPHALT RACK SOILS	Sampling Condition:	** (See Notes)
Project Number:	HOL-15-008	Sample Received By:	Jodi Henson
Project Location:	LOOVINGTON, NM		

Sample ID: BH-1, 0.8 - 1.4' (H503070-01)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/23/2015	ND	1.84	91.9	2.00	1.55	
Toluene*	<0.050	0.050	11/23/2015	ND	2.10	105	2.00	1.90	
Ethylbenzene*	**0.599**	0.050	11/23/2015	ND	2.11	105	2.00	2.31	
Total Xylenes*	<0.150	0.150	11/23/2015	ND	6.21	104	6.00	2.09	
Total BTEX	**0.645**	0.300	11/23/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *136 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**44.9**	10.0	11/22/2015	ND	197	98.3	200	1.26	
DRO >C10-C28	**2120**	10.0	11/22/2015	ND	186	93.0	200	0.310	

Surrogate: 1-Chlorooctane *105 %* *35-147*

Surrogate: 1-Chlorooctadecane *137 %* *28-171*

Cardinal Laboratories *=Accredited Analyte

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Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	11/19/2015	Sampling Date:	11/19/2015
Reported:	11/25/2015	Sampling Type:	Soil
Project Name:	LEA REFINERY ASPHALT RACK SOILS	Sampling Condition:	** (See Notes)
Project Number:	HOL-15-008	Sample Received By:	Jodi Henson
Project Location:	LOOVINGTON, NM		

Sample ID: BH-2, 1.1 - 1.7' (H503070-02)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/23/2015	ND	1.84	91.9	2.00	1.55	
Toluene*	**0.065**	0.050	11/23/2015	ND	2.10	105	2.00	1.90	
Ethylbenzene*	**0.939**	0.050	11/23/2015	ND	2.11	105	2.00	2.31	
Total Xylenes*	<0.150	0.150	11/23/2015	ND	6.21	104	6.00	2.09	
Total BTEX	**1.04**	0.300	11/23/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *133 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**43.1**	10.0	11/22/2015	ND	197	98.3	200	1.26	
DRO >C10-C28	**1620**	10.0	11/22/2015	ND	186	93.0	200	0.310	

Surrogate: 1-Chlorooctane *102 %* *35-147*

Surrogate: 1-Chlorooctadecane *122 %* *28-171*

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Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	11/19/2015	Sampling Date:	11/19/2015
Reported:	11/25/2015	Sampling Type:	Soil
Project Name:	LEA REFINERY ASPHALT RACK SOILS	Sampling Condition:	** (See Notes)
Project Number:	HOL-15-008	Sample Received By:	Jodi Henson
Project Location:	LOOVINGTON, NM		

Sample ID: BH-3, 2.3 - 2.7' (H503070-03)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/23/2015	ND	1.84	91.9	2.00	1.55	
Toluene*	<0.050	0.050	11/23/2015	ND	2.10	105	2.00	1.90	
Ethylbenzene*	**0.588**	0.050	11/23/2015	ND	2.11	105	2.00	2.31	
Total Xylenes*	<0.150	0.150	11/23/2015	ND	6.21	104	6.00	2.09	
Total BTEX	**0.659**	0.300	11/23/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *122 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**30.5**	10.0	11/22/2015	ND	197	98.3	200	1.26	
DRO >C10-C28	**1180**	10.0	11/22/2015	ND	186	93.0	200	0.310	

Surrogate: 1-Chlorooctane *95.7 %* *35-147*

Surrogate: 1-Chlorooctadecane *110 %* *28-171*

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Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	11/19/2015	Sampling Date:	11/19/2015
Reported:	11/25/2015	Sampling Type:	Soil
Project Name:	LEA REFINERY ASPHALT RACK SOILS	Sampling Condition:	** (See Notes)
Project Number:	HOL-15-008	Sample Received By:	Jodi Henson
Project Location:	LOOVINGTON, NM		

Sample ID: BH-3, 4 - 4.3' (H503070-04)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	11/23/2015	ND	1.84	91.9	2.00	1.55	
Toluene*	**0.270**	0.200	11/23/2015	ND	2.10	105	2.00	1.90	
Ethylbenzene*	**10.4**	0.200	11/23/2015	ND	2.11	105	2.00	2.31	
Total Xylenes*	<0.600	0.600	11/23/2015	ND	6.21	104	6.00	2.09	
Total BTEX	**10.8**	1.20	11/23/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *127 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS** **S-04**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**343**	10.0	11/22/2015	ND	197	98.3	200	1.26	
DRO >C10-C28	**7570**	10.0	11/22/2015	ND	186	93.0	200	0.310	

Surrogate: 1-Chlorooctane *157 %* *35-147*

Surrogate: 1-Chlorooctadecane *194 %* *28-171*

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Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	11/19/2015	Sampling Date:	11/19/2015
Reported:	11/25/2015	Sampling Type:	Soil
Project Name:	LEA REFINERY ASPHALT RACK SOILS	Sampling Condition:	** (See Notes)
Project Number:	HOL-15-008	Sample Received By:	Jodi Henson
Project Location:	LOOVINGTON, NM		

Sample ID: BH-4, 0.7 - 1.0' (H503070-05)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	11/24/2015	ND	2.01	101	2.00	8.60	
Toluene*	**0.289**	0.200	11/24/2015	ND	2.00	99.9	2.00	11.2	
Ethylbenzene*	**2.72**	0.200	11/24/2015	ND	2.12	106	2.00	15.4	
Total Xylenes*	**1.87**	0.600	11/24/2015	ND	6.39	106	6.00	15.5	
Total BTEX	**4.88**	1.20	11/24/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS** **S-04**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**265**	10.0	11/22/2015	ND	197	98.3	200	1.26	
DRO >C10-C28	**11300**	10.0	11/22/2015	ND	186	93.0	200	0.310	

Surrogate: 1-Chlorooctane *149 %* *35-147*

Surrogate: 1-Chlorooctadecane *286 %* *28-171*

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Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	11/19/2015	Sampling Date:	11/19/2015
Reported:	11/25/2015	Sampling Type:	Soil
Project Name:	LEA REFINERY ASPHALT RACK SOILS	Sampling Condition:	** (See Notes)
Project Number:	HOL-15-008	Sample Received By:	Jodi Henson
Project Location:	LOOVINGTON, NM		

Sample ID: BH-4, 1.5 - 1.7' (H503070-06)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/24/2015	ND	2.01	101	2.00	8.60	
Toluene*	<0.050	0.050	11/24/2015	ND	2.00	99.9	2.00	11.2	
Ethylbenzene*	**0.302**	0.050	11/24/2015	ND	2.12	106	2.00	15.4	
Total Xylenes*	**0.250**	0.150	11/24/2015	ND	6.39	106	6.00	15.5	
Total BTEX	**0.581**	0.300	11/24/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *110 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/22/2015	ND	197	98.3	200	1.26	
DRO >C10-C28	**321**	10.0	11/22/2015	ND	186	93.0	200	0.310	

Surrogate: 1-Chlorooctane *94.2 %* *35-147*

Surrogate: 1-Chlorooctadecane *110 %* *28-171*

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Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

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Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(505) 393-2326 Fax (505) 393-2476

Page ____ of ____

Company Name:	Safety & Environmental Solutions, Inc.	BILL TO	
Project Manager:	Bob Allen	P.O. #:	
Address:	703 East Clinton	Company:	Same
City:	Hobbs State: NM Zip: 88240	Attn:	
Phone #:	575-397-0510 Fax #: 575-393-4388	Address:	
Project #:	HOL-15-008 Project Owner: Halliburton	City:	
Project Name:	Lea Refinery Asphalt Rack 5/21/15	State: Zip:	
Project Location:	Loving TX	Phone #:	
Sampler Name:	Brad Boyer	Fax #:	

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST			
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / (COOL)	OTHER	DATE	TIME	TPH (8015 Mod, GRO, DRO, ORO)	BTEX		
H503070													2015					
1	BH-1, 0.8-1.4 FT	G	1			X					X		11/19	0840	X	X		
2	BH-2, 1.1-1.7 FT	G	1			X					X			0905	|	|		
3	BH-3, 2.3-2.7 FT	G	1			X					X			0935	|	|		
4	BH-3, 4-4.3 FT	G	1			X					X			1000	|	|		
5	BH-4, 0.7-1.0 FT	G	1			X					X			1025	|	|		
6	BH-4, 1.5-1.7 FT	G	1			X					X		11/19	1030	X	X		

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished:	Date: 11/15/15	Received By: Jodi Henson	
Relinquished By:	Time: 4:59	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Temp. 15.2°C	Sample Condition Cool: Yes / Intact: Yes	CHECKED BY: (Initials)

Phone Result: ☐ Yes ☒ No Add'l Phone #:
Fax Result: ☐ Yes ☒ No Add'l Fax #:
REMARKS: Samples taken & brought directly to lab.

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.

#54

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

December 15, 2015

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: HEP ASPHALT RACK SOIL INVESTIGATION

Enclosed are the results of analyses for samples received by the laboratory on 12/14/15 16:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	12/14/2015	Sampling Date:	12/14/2015
Reported:	12/15/2015	Sampling Type:	Soil
Project Name:	HEP ASPHALT RACK SOIL INVESTIGATIC	Sampling Condition:	** (See Notes)
Project Number:	NAV-15-001	Sample Received By:	Jodi Henson
Project Location:	LEA REFINERY		

Sample ID: SE DRAIN BOX EXC N SIDE WALL 4.7' BELOW SURFACE (H50

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	12/15/2015	ND	1.70	85.2	2.00	0.0320	
Toluene*	**0.217**	0.200	12/15/2015	ND	1.72	85.8	2.00	0.311	
Ethylbenzene*	**0.675**	0.200	12/15/2015	ND	1.75	87.7	2.00	0.503	
Total Xylenes*	**1.99**	0.600	12/15/2015	ND	5.25	87.4	6.00	0.204	
Total BTEX	**2.88**	1.20	12/15/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *129 %* *73.6-140*

TPH 8015M mg/kg Analyzed By: MS **S-06**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**279**	50.0	12/15/2015	ND	189	94.3	200	1.55	
DRO >C10-C28	**9420**	50.0	12/15/2015	ND	176	88.0	200	3.61	

Surrogate: 1-Chlorooctane *149 %* *35-147*

Surrogate: 1-Chlorooctadecane *250 %* *28-171*

Cardinal Laboratories *=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	12/14/2015	Sampling Date:	12/14/2015
Reported:	12/15/2015	Sampling Type:	Soil
Project Name:	HEP ASPHALT RACK SOIL INVESTIGATIC	Sampling Condition:	** (See Notes)
Project Number:	NAV-15-001	Sample Received By:	Jodi Henson
Project Location:	LEA REFINERY		

Sample ID: N EXC SIDE WALL 2.2' UNDER CONCRETE (H503243-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	12/15/2015	ND	1.70	85.2	2.00	0.0320	
Toluene*	<0.200	0.200	12/15/2015	ND	1.72	85.8	2.00	0.311	
Ethylbenzene*	**0.393**	0.200	12/15/2015	ND	1.75	87.7	2.00	0.503	
Total Xylenes*	**1.25**	0.600	12/15/2015	ND	5.25	87.4	6.00	0.204	
Total BTEX	**1.65**	1.20	12/15/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *73.6-140*

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**26.8**	10.0	12/15/2015	ND	189	94.3	200	1.55	
DRO >C10-C28	**1070**	10.0	12/15/2015	ND	176	88.0	200	3.61	

Surrogate: 1-Chlorooctane *112 %* *35-147*

Surrogate: 1-Chlorooctadecane *111 %* *28-171*

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

RUSH!!

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(505) 393-2326 Fax (505) 393-2476

Page 1 of 1

Company Name:	Safety & Environmental Solutions, Inc.	BILL TO	
Project Manager:	Bob Allen	P.O. #:	
Address:	703 East Clinton	Company:	Same
City:	Hobbs State: NM Zip: 88240	Attn:	
Phone #:	575-397-0510 Fax #: 575-393-4388	Address:	
Project #:	NAV-15-001 HOL-15-005 Project Owner: HEP	City:	
Project Name:	HEP Asphalt Rack Soil Investigation	State: Zip:	
Project Location:	Lea County, NM	Phone #:	
Sampler Name:	DAVID BOYER	Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING DATE	SAMPLING TIME	BTEX	TPH 8015
H503243-1	SE Drain Box Excavation North Side Wall 4.7 FT Below surface DB	G	1			X						X	12/14	1535	X	X
-2	North Excavation Sidewall, 2.2' under concrete	G	1			X						X	12/14	1540	X	X

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Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished:	Date: 12/14/15	Received By: Jodi Henson	
Relinquished By:	Time: 4:55	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Temp. 17.6°C	Sample Condition Cool: Yes Intact: Yes / No	CHECKED BY: (Initials)

Phone Result: ☐ Yes ☒ No Add'l Phone #:
Fax Result: ☐ Yes ☒ No Add'l Fax #:
REMARKS: samples taken & brought directly to lab. JH

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.

#54

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

April 08, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: NAV-15-001

Enclosed are the results of analyses for samples received by the laboratory on 03/28/16 10:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-15-7. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-1, 10-15'	H600648-01	Soil	24-Mar-16 10:20	28-Mar-16 10:30
BH-1, 20-25'	H600648-02	Soil	24-Mar-16 10:40	28-Mar-16 10:30
BH-1, 30-35'	H600648-03	Soil	24-Mar-16 10:55	28-Mar-16 10:30
BH-1, 40-45'	H600648-04	Soil	24-Mar-16 11:20	28-Mar-16 10:30
BH-1, 50-55'	H600648-05	Soil	24-Mar-16 11:40	28-Mar-16 10:30
BH-1, 60-65'	H600648-06	Soil	24-Mar-16 12:15	28-Mar-16 10:30
BH-1, 70-75'	H600648-07	Soil	24-Mar-16 12:40	28-Mar-16 10:30
BH-1, 80-85'	H600648-08	Soil	24-Mar-16 13:05	28-Mar-16 10:30
BH-1, 90-95'	H600648-09	Soil	24-Mar-16 13:15	28-Mar-16 10:30

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 10-15'

H600648-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**32.0**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**1420**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*83.7 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*95.8 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**1.07**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 10-15'

H600648-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	<0.065	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Total Xylenes*	<0.135	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**0.313**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 10-15'

H600648-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**0.338**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
p-Isopropyltoluene*	<0.065	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**0.633**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**1.04**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*103 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*94.6 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*99.4 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**0.798**	0.018	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
2-Methylnaphthalene	**2.63**	0.029	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
1-Methylnaphthalene	**2.86**	0.011	0.200	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthylene	<0.031	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 10-15'

H600648-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**0.577**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Phenanthrene	**0.821**	0.060	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Carbazole	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]pyrene	<0.028	0.028	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*110 %*	*36.9-116*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: 2-Fluorobiphenyl			*74.9 %*	*29.5-132*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*68.4 %*	*35.1-158*		*6040103*	MS	*01-Apr-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 20-25'

H600648-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**39.0**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**1980**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*99.0 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*142 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**0.914**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 20-25'

H600648-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	<0.065	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Total Xylenes*	<0.135	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	<0.030	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 20-25'

H600648-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	<0.065	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**0.266**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*100 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*97.0 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*102 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**0.140**	0.018	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
2-Methylnaphthalene	**0.215**	0.029	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
1-Methylnaphthalene	**0.270**	0.011	0.200	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthylene	<0.031	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 20-25'

H600648-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**0.036**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Phenanthrene	<0.060	0.060	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Carbazole	**0.076**	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Chrysene	**0.090**	0.033	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Benzo[b]flouranthene	**0.264**	0.034	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]pyrene	**0.066**	0.028	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*109 %*	*36.9-116*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: 2-Fluorobiphenyl			*83.9 %*	*29.5-132*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*87.2 %*	*35.1-158*		*6040103*	MS	*01-Apr-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 30-35'

H600648-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**245**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**3560**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*131 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*121 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**0.843**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 30-35'

H600648-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	**0.792**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	**1.62**	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	**0.687**	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Total Xylenes*	**2.31**	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	**0.298**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**0.537**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 30-35'

H600648-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	**1.61**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**5.19**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**0.961**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	**2.11**	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**1.06**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**2.11**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*102 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*96.2 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*104 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**1.40**	0.018	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
2-Methylnaphthalene	**5.71**	0.029	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
1-Methylnaphthalene	**7.08**	0.011	0.200	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthylene	**0.151**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 30-35'

H600648-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**1.00**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Phenanthrene	**1.37**	0.060	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Carbazole	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]pyrene	<0.028	0.028	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*134 %*	*36.9-116*		*6040103*	MS	*01-Apr-16*	*8270C*	*S-06*
Surrogate: 2-Fluorobiphenyl			*84.8 %*	*29.5-132*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*91.6 %*	*35.1-158*		*6040103*	MS	*01-Apr-16*	*8270C*	

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 40-45'

H600648-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**140**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**2720**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*111 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*104 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**1.17**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 40-45'

H600648-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	**0.531**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	**1.10**	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	**0.492**	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
Total Xylenes*	**1.60**	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	**0.299**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**0.707**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 40-45'

H600648-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	**1.09**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**3.82**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**0.748**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	**1.43**	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**2.91**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**2.73**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*103 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*96.3 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*103 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**2.78**	0.018	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
2-Methylnaphthalene	**9.81**	0.029	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
1-Methylnaphthalene	**9.60**	0.011	0.200	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthylene	**0.065**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 40-45'

H600648-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**1.22**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Phenanthrene	**1.78**	0.060	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Carbazole	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]pyrene	<0.028	0.028	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*149 %*	*36.9-116*		*6040103*	MS	*01-Apr-16*	*8270C*	*S-06*
Surrogate: 2-Fluorobiphenyl			*99.0 %*	*29.5-132*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*103 %*	*35.1-158*		*6040103*	MS	*01-Apr-16*	*8270C*	

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 50-55'

H600648-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**66.8**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**2580**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*115 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*151 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**0.969**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 50-55'

H600648-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	**0.339**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	**0.474**	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
Total Xylenes*	**0.474**	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
o-Xylene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**0.430**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 50-55'

H600648-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	**0.783**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**2.89**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**0.602**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	**1.19**	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**2.71**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**3.09**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*102 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*98.2 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*101 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**2.38**	0.018	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
2-Methylnaphthalene	**9.75**	0.029	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
1-Methylnaphthalene	**9.72**	0.011	0.200	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthylene	**0.227**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 50-55'

H600648-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**1.39**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Phenanthrene	**1.99**	0.060	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Carbazole	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]pyrene	**0.070**	0.028	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*135 %*	*36.9-116*		*6040103*	MS	*01-Apr-16*	*8270C*	*S-06*
Surrogate: 2-Fluorobiphenyl			*88.2 %*	*29.5-132*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*95.7 %*	*35.1-158*		*6040103*	MS	*01-Apr-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 60-65'

H600648-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										**S-04**
GRO C6-C10	**271**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**5460**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*161 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*140 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**0.856**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 60-65'

H600648-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	**0.946**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	**1.76**	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	**0.947**	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Total Xylenes*	**2.70**	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	**0.652**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**1.64**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 60-65'

H600648-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	**2.36**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**8.43**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**1.60**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	**2.91**	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**4.50**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**5.08**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*102 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*95.1 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*107 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**4.39**	0.018	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
2-Methylnaphthalene	**13.6**	0.029	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
1-Methylnaphthalene	**13.1**	0.011	0.200	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Acenaphthylene	**0.263**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 60-65'

H600648-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**1.49**	0.031	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Phenanthrene	**2.22**	0.060	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Carbazole	**0.117**	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[a]pyrene	**0.072**	0.028	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	J
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	01-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*73.8 %*	*36.9-116*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: 2-Fluorobiphenyl			*82.8 %*	*29.5-132*		*6040103*	MS	*01-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*87.4 %*	*35.1-158*		*6040103*	MS	*01-Apr-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 70-75'

H600648-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										**S-04**
GRO C6-C10	**508**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**8140**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*181 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*174 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**1.10**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 70-75'

H600648-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	**0.264**	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	**3.16**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	**5.74**	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Total Xylenes*	**8.55**	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	**2.81**	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	**1.64**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**3.74**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 70-75'

H600648-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	**4.37**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**14.8**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**2.83**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	**4.88**	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**9.36**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**7.03**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*102 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*96.9 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*113 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**5.76**	0.176	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
2-Methylnaphthalene	**18.0**	0.287	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
1-Methylnaphthalene	**17.5**	0.111	2.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Acenaphthylene	<0.310	0.310	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Acenaphthene	<0.260	0.260	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 70-75'

H600648-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**2.05**	0.310	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	J
Phenanthrene	**3.42**	0.596	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	J
Anthracene	<0.323	0.323	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Carbazole	<0.368	0.368	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Fluoranthene	<0.712	0.712	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Pyrene	<0.302	0.302	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Benzo[a]anthracene	<1.56	1.56	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Chrysene	<0.331	0.331	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Benzo[b]flouranthene	<0.339	0.339	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Benzo[k]flouranthene	<0.367	0.367	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Benzo[a]pyrene	<0.284	0.284	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Indeno[1,2,3-cd]pyrene	<0.266	0.266	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.256	0.256	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Benzo[g,h,i]perylene	<2.96	2.96	4.00	mg/kg	4000	6040103	MS	05-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*204 %*	*36.9-116*		*6040103*	MS	*05-Apr-16*	*8270C*	*S-06*
Surrogate: 2-Fluorobiphenyl			*79.9 %*	*29.5-132*		*6040103*	MS	*05-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*81.1 %*	*35.1-158*		*6040103*	MS	*05-Apr-16*	*8270C*	

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 80-85'

H600648-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**162**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**4050**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*115 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*122 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acetone*	**0.935**	0.815	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 80-85'

H600648-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Ethylbenzene*	**0.739**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
m+p - Xylene*	**1.15**	0.065	1.00	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Total Xylenes*	**1.80**	0.135	1.50	mg/kg	500	6040607	MS	06-Apr-16	8260B	
o-Xylene*	**0.650**	0.070	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Isopropylbenzene*	**0.410**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	J
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Propylbenzene*	**1.04**	0.030	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 80-85'

H600648-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3,5-Trimethylbenzene*	**1.36**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**4.87**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
sec-Butylbenzene*	**0.997**	0.085	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
p-Isopropyltoluene*	**1.88**	0.065	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
n-Butylbenzene*	**3.80**	0.090	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Naphthalene*	**3.44**	0.080	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	06-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*100 %*	*90.4-111*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*96.1 %*	*85.3-114*		*6040607*	MS	*06-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*106 %*	*80.1-121*		*6040607*	MS	*06-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**2.37**	0.018	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
2-Methylnaphthalene	**9.58**	0.029	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
1-Methylnaphthalene	**9.66**	0.011	0.200	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Acenaphthylene	**0.208**	0.031	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	J
Acenaphthene	**0.623**	0.026	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 80-85'

H600648-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**1.44**	0.031	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Phenanthrene	**2.07**	0.060	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Carbazole	<0.037	0.037	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[a]pyrene	<0.028	0.028	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*141 %*	*36.9-116*		*6040103*	MS	*04-Apr-16*	*8270C*	*S-06*
Surrogate: 2-Fluorobiphenyl			*93.3 %*	*29.5-132*		*6040103*	MS	*04-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*108 %*	*35.1-158*		*6040103*	MS	*04-Apr-16*	*8270C*	

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 90-95'

H600648-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	**21.4**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
DRO >C10-C28	**838**		10.0	mg/kg	1	6032906	MS	29-Mar-16	8015B	
Surrogate: 1-Chlorooctane			*87.8 %*	*35-147*		*6032906*	MS	*29-Mar-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*88.2 %*	*28-171*		*6032906*	MS	*29-Mar-16*	*8015B*	
VOLATILES BY GC/MS										
Dichlorodifluoromethane*	<0.185	0.185	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Chloromethane*	<0.170	0.170	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Vinyl chloride*	<0.160	0.160	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Bromomethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Chloroethane*	<0.415	0.415	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Trichlorofluoromethane*	<0.410	0.410	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Carbon disulfide*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,1-Dichloroethene*	<0.315	0.315	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Iodomethane	<0.440	0.440	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Acrolein*	<1.20	1.20	25.0	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Methylene chloride*	<0.255	0.255	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Acetone*	**0.848**	0.815	2.50	mg/kg	500	6040607	MS	07-Apr-16	8260B	J
trans-1,2-Dichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Methyl t-Butyl Ether*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,1-Dichloroethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Acrylonitrile*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Vinyl acetate*	<0.075	0.075	2.50	mg/kg	500	6040607	MS	07-Apr-16	8260B	
cis-1,2-Dichloroethene*	<0.045	0.045	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
2,2-Dichloropropane*	<0.195	0.195	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Bromochloromethane*	<0.350	0.350	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Chloroform*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Carbon tetrachloride*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,1,1-Trichloroethane*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 90-95'

H600648-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1-Dichloropropene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
2-Butanone*	<0.215	0.215	2.50	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Benzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2-Dichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Trichloroethene*	<0.180	0.180	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Dibromomethane*	<0.205	0.205	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2-Dichloropropane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Bromodichloromethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
cis-1,3-Dichloropropene*	<0.040	0.040	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Toluene*	<0.130	0.130	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
4-Methyl-2-pentanone*	<0.130	0.130	2.50	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Tetrachloroethene*	<0.150	0.150	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
trans-1,3-Dichloropropene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,1,2-Trichloroethane*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Dibromochloromethane*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,3-Dichloropropane*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2-Dibromoethane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
2-Hexanone*	<0.090	0.090	2.50	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Chlorobenzene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Ethylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,1,1,2-Tetrachloroethane*	<0.175	0.175	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
m+p - Xylene*	<0.065	0.065	1.00	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Total Xylenes*	<0.135	0.135	1.50	mg/kg	500	6040607	MS	07-Apr-16	8260B	
o-Xylene*	<0.070	0.070	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Bromoform*	<0.250	0.250	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Styrene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Isopropylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Bromobenzene*	<0.115	0.115	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
n-Propylbenzene*	<0.030	0.030	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 90-95'

H600648-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
VOLATILES BY GC/MS										
1,1,2,2-Tetrachloroethane*	<0.140	0.140	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
2-Chlorotoluene*	<0.155	0.155	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1.2.3-trichloropropane*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,3,5-Trimethylbenzene*	<0.090	0.090	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
trans-1,4-Dichloro-2-butene	<0.160	0.160	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
4-Chlorotoluene*	<0.105	0.105	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
tert-Butylbenzene*	<0.050	0.050	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2,4-Trimethylbenzene*	**0.724**	0.085	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
sec-Butylbenzene*	<0.085	0.085	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
p-Isopropyltoluene*	**0.314**	0.065	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	J
1,3-Dichlorobenzene*	<0.135	0.135	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,4 Dichlorobenzene*	<0.125	0.125	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
n-Butylbenzene*	**0.693**	0.090	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2-Dichlorobenzene*	<0.055	0.055	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2-Dibromo-3-chloropropane*	<0.235	0.235	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Hexachlorobutadiene*	<0.320	0.320	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2,4-Trichlorobenzene*	<0.095	0.095	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Naphthalene*	**0.910**	0.080	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
1,2,3-Trichlorobenzene*	<0.075	0.075	0.500	mg/kg	500	6040607	MS	07-Apr-16	8260B	
Surrogate: Dibromofluoromethane			*102 %*	*90.4-111*		*6040607*	MS	*07-Apr-16*	*8260B*	
Surrogate: Toluene-d8			*97.2 %*	*85.3-114*		*6040607*	MS	*07-Apr-16*	*8260B*	
Surrogate: 4-Bromofluorobenzene			*103 %*	*80.1-121*		*6040607*	MS	*07-Apr-16*	*8260B*	
Semivolatile Organic Compounds by GCMS										
Naphthalene	**0.274**	0.018	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	J
2-Methylnaphthalene	**1.43**	0.029	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
1-Methylnaphthalene	**1.49**	0.011	0.200	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Acenaphthylene	**0.041**	0.031	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	J
Acenaphthene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

BH-1, 90-95'

H600648-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Semivolatile Organic Compounds by GCMS										
Fluorene	**0.262**	0.031	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	J
Phenanthrene	**0.438**	0.060	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Anthracene	<0.032	0.032	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Carbazole	<0.037	0.037	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Fluoranthene	<0.071	0.071	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Pyrene	<0.030	0.030	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[a]anthracene	<0.156	0.156	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Chrysene	<0.033	0.033	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[b]flouranthene	<0.034	0.034	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[k]flouranthene	<0.037	0.037	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[a]pyrene	**0.069**	0.028	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	J
Indeno[1,2,3-cd]pyrene	<0.027	0.027	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Dibenz[a,h]anthracene	<0.026	0.026	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Benzo[g,h,i]perylene	<0.296	0.296	0.400	mg/kg	400	6040103	MS	04-Apr-16	8270C	
Surrogate: Nitrobenzene-d5			*75.0 %*	*36.9-116*		*6040103*	MS	*04-Apr-16*	*8270C*	
Surrogate: 2-Fluorobiphenyl			*66.4 %*	*29.5-132*		*6040103*	MS	*04-Apr-16*	*8270C*	
Surrogate: Terphenyl-dl4			*73.9 %*	*35.1-158*		*6040103*	MS	*04-Apr-16*	*8270C*	

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6032906 - General Prep - Organics										
Blank (6032906-BLK1)				Prepared & Analyzed: 29-Mar-16						
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	*43.8*		mg/kg	*50.0*		*87.6*	*35-147*			
Surrogate: 1-Chlorooctadecane	*47.7*		mg/kg	*50.0*		*95.5*	*28-171*			
LCS (6032906-BS1)				Prepared: 29-Mar-16 Analyzed: 30-Mar-16						
GRO C6-C10	176	10.0	mg/kg	200		88.2	76.7-115			
DRO >C10-C28	166	10.0	mg/kg	200		83.1	78.3-122			
Total TPH C6-C28	343	10.0	mg/kg	400		85.6	79.8-117			
Surrogate: 1-Chlorooctane	*39.8*		mg/kg	*50.0*		*79.6*	*35-147*			
Surrogate: 1-Chlorooctadecane	*47.9*		mg/kg	*50.0*		*95.7*	*28-171*			
LCS Dup (6032906-BSD1)				Prepared & Analyzed: 29-Mar-16						
GRO C6-C10	187	10.0	mg/kg	200		93.7	76.7-115	6.12	9.42	
DRO >C10-C28	188	10.0	mg/kg	200		94.0	78.3-122	12.3	13.2	
Total TPH C6-C28	376	10.0	mg/kg	400		93.9	79.8-117	9.19	10.7	
Surrogate: 1-Chlorooctane	*47.6*		mg/kg	*50.0*		*95.2*	*35-147*			
Surrogate: 1-Chlorooctadecane	*47.2*		mg/kg	*50.0*		*94.5*	*28-171*			

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
Blank (6040607-BLK1)				Prepared & Analyzed: 06-Apr-16						
Dichlorodifluoromethane	ND	0.050	mg/kg							
Chloromethane	ND	0.050	mg/kg							
Vinyl chloride	ND	0.050	mg/kg							
Bromomethane	ND	0.050	mg/kg							
Chloroethane	ND	0.050	mg/kg							
Trichlorofluoromethane	ND	0.050	mg/kg							
1,1-Dichloroethene	ND	0.050	mg/kg							
Carbon disulfide	ND	0.050	mg/kg							
Iodomethane	ND	0.050	mg/kg							
Acrolein	ND	2.50	mg/kg							
Methylene chloride	ND	0.050	mg/kg							
Acetone	ND	0.250	mg/kg							
trans-1,2-Dichloroethene	ND	0.050	mg/kg							
Methyl t-Butyl Ether	ND	0.050	mg/kg							
1,1-Dichloroethane	ND	0.050	mg/kg							
Acrylonitrile	ND	0.050	mg/kg							
Vinyl acetate	ND	0.250	mg/kg							
cis-1,2-Dichloroethene	ND	0.050	mg/kg							
2,2-Dichloropropane	ND	0.050	mg/kg							
Bromochloromethane	ND	0.050	mg/kg							
Chloroform	ND	0.050	mg/kg							
Carbon tetrachloride	ND	0.050	mg/kg							
1,1,1-Trichloroethane	ND	0.050	mg/kg							
1,1-Dichloropropene	ND	0.050	mg/kg							
2-Butanone	ND	0.250	mg/kg							
Benzene	ND	0.050	mg/kg							
1,2-Dichloroethane	ND	0.050	mg/kg							
Trichloroethene	ND	0.050	mg/kg							
Dibromomethane	ND	0.050	mg/kg							
1,2-Dichloropropane	ND	0.050	mg/kg							
Bromodichloromethane	ND	0.050	mg/kg							
cis-1,3-Dichloropropene	ND	0.050	mg/kg							

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
Blank (6040607-BLK1)				Prepared & Analyzed: 06-Apr-16						
Toluene	ND	0.050	mg/kg							
4-Methyl-2-pentanone	ND	0.250	mg/kg							
Tetrachloroethene	ND	0.050	mg/kg							
trans-1,3-Dichloropropene	ND	0.050	mg/kg							
1,1,2-Trichloroethane	ND	0.050	mg/kg							
Dibromochloromethane	ND	0.050	mg/kg							
1,3-Dichloropropane	ND	0.050	mg/kg							
1,2-Dibromoethane	ND	0.050	mg/kg							
2-Hexanone	ND	0.250	mg/kg							
Chlorobenzene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
1,1,1,2-Tetrachloroethane	ND	0.050	mg/kg							
m+p - Xylene	ND	0.100	mg/kg							
o-Xylene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Bromoform	ND	0.050	mg/kg							
Styrene	ND	0.050	mg/kg							
Isopropylbenzene	ND	0.050	mg/kg							
Bromobenzene	ND	0.050	mg/kg							
n-Propylbenzene	ND	0.050	mg/kg							
1,1,2,2-Tetrachloroethane	ND	0.050	mg/kg							
2-Chlorotoluene	ND	0.050	mg/kg							
1.2.3-trichloropropane	ND	0.050	mg/kg							
1,3,5-Trimethylbenzene	ND	0.050	mg/kg							
trans-1,4-Dichloro-2-butene	ND	0.050	mg/kg							
4-Chlorotoluene	ND	0.050	mg/kg							
tert-Butylbenzene	ND	0.050	mg/kg							
1,2,4-Trimethylbenzene	ND	0.050	mg/kg							
sec-Butylbenzene	ND	0.050	mg/kg							
p-Isopropyltoluene	ND	0.050	mg/kg							
1,3-Dichlorobenzene	ND	0.050	mg/kg							
1,4 Dichlorobenzene	ND	0.050	mg/kg							

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
Blank (6040607-BLK1)				Prepared & Analyzed: 06-Apr-16						
n-Butylbenzene	ND	0.050	mg/kg							
1,2-Dichlorobenzene	ND	0.050	mg/kg							
1,2-Dibromo-3-chloropropane	ND	0.050	mg/kg							
Hexachlorobutadiene	ND	0.050	mg/kg							
1,2,4-Trichlorobenzene	ND	0.050	mg/kg							
Naphthalene	ND	0.050	mg/kg							
1,2,3-Trichlorobenzene	ND	0.050	mg/kg							
Surrogate: Dibromofluoromethane	*0.515*		mg/kg	*0.500*		*103*	*90.4-111*			
Surrogate: Toluene-d8	*0.482*		mg/kg	*0.500*		*96.4*	*85.3-114*			
Surrogate: 4-Bromofluorobenzene	*0.490*		mg/kg	*0.500*		*98.0*	*80.1-121*			
LCS (6040607-BS1)				Prepared & Analyzed: 06-Apr-16						
Dichlorodifluoromethane	1.78	0.050	mg/kg	2.00		89.1	27.7-127			
Chloromethane	1.89	0.050	mg/kg	2.00		94.7	39-143			
Vinyl chloride	1.87	0.050	mg/kg	2.00		93.6	38.9-132			
Bromomethane	1.60	0.050	mg/kg	2.00		80.2	44.2-129			
Chloroethane	1.41	0.050	mg/kg	2.00		70.6	24.2-192			
Trichlorofluoromethane	1.78	0.050	mg/kg	2.00		89.2	38-176			
1,1-Dichloroethene	2.05	0.050	mg/kg	2.00		102	51.1-157			
Carbon disulfide	2.13	0.050	mg/kg	2.00		106	18.6-235			
Iodomethane	2.02	0.050	mg/kg	2.00		101	69.6-113			
Acrolein	ND	2.50	mg/kg				0-200			
Methylene chloride	2.11	0.050	mg/kg	2.00		106	70-122			
Acetone	ND	0.250	mg/kg				0-200			
trans-1,2-Dichloroethene	2.34	0.050	mg/kg	2.00		117	69.9-124			
Methyl t-Butyl Ether	ND	0.050	mg/kg				0-200			
1,1-Dichloroethane	2.21	0.050	mg/kg	2.00		111	81.7-132			
Acrylonitrile	1.70	0.050	mg/kg				0-200			
Vinyl acetate	ND	0.250	mg/kg				0-200			
cis-1,2-Dichloroethene	2.02	0.050	mg/kg	2.00		101	66.7-123			
2,2-Dichloropropane	2.15	0.050	mg/kg	2.00		108	57.2-119			
Bromochloromethane	2.13	0.050	mg/kg	2.00		107	67.5-123			

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
LCS (6040607-BS1)				Prepared & Analyzed: 06-Apr-16						
Chloroform	2.20	0.050	mg/kg	2.00		110	77.2-124			
Carbon tetrachloride	2.34	0.050	mg/kg	2.00		117	76.3-132			
1,1,1-Trichloroethane	2.23	0.050	mg/kg	2.00		112	79.5-131			
1,1-Dichloropropene	2.18	0.050	mg/kg	2.00		109	77.7-125			
2-Butanone	ND	0.250	mg/kg				0-200			
Benzene	2.09	0.050	mg/kg	2.00		105	75.1-126			
1,2-Dichloroethane	2.05	0.050	mg/kg	2.00		102	73.1-121			
Trichloroethene	2.20	0.050	mg/kg	2.00		110	74.5-119			
Dibromomethane	2.08	0.050	mg/kg	2.00		104	73-123			
1,2-Dichloropropane	2.09	0.050	mg/kg	2.00		104	72.5-128			
Bromodichloromethane	2.22	0.050	mg/kg	2.00		111	74.6-129			
cis-1,3-Dichloropropene	1.89	0.050	mg/kg	2.00		94.4	61.6-122			
Toluene	2.11	0.050	mg/kg	2.00		106	71.7-121			
4-Methyl-2-pentanone	ND	0.250	mg/kg				0-200			
Tetrachloroethene	2.13	0.050	mg/kg	2.00		106	76.8-114			
trans-1,3-Dichloropropene	1.97	0.050	mg/kg	2.00		98.3	63-130			
1,1,2-Trichloroethane	1.93	0.050	mg/kg	2.00		96.5	71.5-113			
Dibromochloromethane	2.14	0.050	mg/kg	2.00		107	70.9-123			
1,3-Dichloropropane	1.93	0.050	mg/kg	2.00		96.7	70.6-114			
1,2-Dibromoethane	1.99	0.050	mg/kg	2.00		99.7	71.2-114			
2-Hexanone	ND	0.250	mg/kg				0-200			
Chlorobenzene	2.04	0.050	mg/kg	2.00		102	80.2-119			
Ethylbenzene	2.14	0.050	mg/kg	2.00		107	80.2-118			
1,1,1,2-Tetrachloroethane	2.01	0.050	mg/kg	2.00		101	72.9-113			
m+p - Xylene	3.95	0.100	mg/kg	4.00		98.8	83-124			
o-Xylene	2.03	0.050	mg/kg	2.00		102	84.7-121			
Total Xylenes	5.99	0.150	mg/kg	6.00		99.8	84.1-122			
Bromoform	2.10	0.050	mg/kg	2.00		105	66-120			
Styrene	1.96	0.050	mg/kg	2.00		98.1	76.3-110			
Isopropylbenzene	2.07	0.050	mg/kg	2.00		103	84.9-127			
Bromobenzene	1.94	0.050	mg/kg	2.00		97.1	70.8-117			
n-Propylbenzene	2.03	0.050	mg/kg	2.00		101	81.5-133			

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
LCS (6040607-BS1)				Prepared & Analyzed: 06-Apr-16						
1,1,2,2-Tetrachloroethane	1.88	0.050	mg/kg	2.00		93.8	61.8-110			
2-Chlorotoluene	1.93	0.050	mg/kg	2.00		96.3	79.8-121			
1.2.3-trichloropropane	1.83	0.050	mg/kg	2.00		91.4	50.6-118			
1,3,5-Trimethylbenzene	2.00	0.050	mg/kg	2.00		100	78.3-117			
trans-1,4-Dichloro-2-butene	1.30	0.050	mg/kg	2.00		65.2	8.5-181			
4-Chlorotoluene	1.93	0.050	mg/kg	2.00		96.3	81.1-120			
tert-Butylbenzene	1.97	0.050	mg/kg	2.00		98.7	78-120			
1,2,4-Trimethylbenzene	1.96	0.050	mg/kg	2.00		98.1	77-125			
sec-Butylbenzene	1.98	0.050	mg/kg	2.00		98.8	75.5-125			
p-Isopropyltoluene	1.90	0.050	mg/kg	2.00		94.9	69.4-126			
1,3-Dichlorobenzene	1.96	0.050	mg/kg	2.00		98.1	72.3-115			
1,4 Dichlorobenzene	1.97	0.050	mg/kg	2.00		98.4	73.6-115			
n-Butylbenzene	1.89	0.050	mg/kg	2.00		94.5	64-131			
1,2-Dichlorobenzene	1.97	0.050	mg/kg	2.00		98.6	78-113			
1,2-Dibromo-3-chloropropane	1.82	0.050	mg/kg	2.00		91.2	49.7-112			
Hexachlorobutadiene	2.14	0.050	mg/kg	2.00		107	54.4-131			
1,2,4-Trichlorobenzene	1.94	0.050	mg/kg	2.00		97.1	73.4-114			
Naphthalene	1.71	0.050	mg/kg	2.00		85.4	72.2-121			
1,2,3-Trichlorobenzene	1.67	0.050	mg/kg	2.00		83.6	76-112			
Surrogate: Dibromofluoromethane	*0.510*		mg/kg	*0.500*		*102*	*90.4-111*			
Surrogate: Toluene-d8	*0.476*		mg/kg	*0.500*		*95.2*	*85.3-114*			
Surrogate: 4-Bromofluorobenzene	*0.515*		mg/kg	*0.500*		*103*	*80.1-121*			
LCS Dup (6040607-BSD1)				Prepared & Analyzed: 06-Apr-16						
Dichlorodifluoromethane	1.76	0.050	mg/kg	2.00		88.0	27.7-127	1.28	19.5	
Chloromethane	1.82	0.050	mg/kg	2.00		91.2	39-143	3.68	23.1	
Vinyl chloride	1.85	0.050	mg/kg	2.00		92.5	38.9-132	1.11	19.3	
Bromomethane	1.54	0.050	mg/kg	2.00		76.8	44.2-129	4.39	21	
Chloroethane	1.36	0.050	mg/kg	2.00		67.8	24.2-192	4.04	23	
Trichlorofluoromethane	1.78	0.050	mg/kg	2.00		89.1	38-176	0.0477	29.2	
1,1-Dichloroethene	2.02	0.050	mg/kg	2.00		101	51.1-157	1.53	20.3	
Carbon disulfide	2.11	0.050	mg/kg	2.00		106	18.6-235	0.781	24.9	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
LCS Dup (6040607-BSD1)				Prepared & Analyzed: 06-Apr-16						
Iodomethane	2.22	0.050	mg/kg	2.00		111	69.6-113	9.48	17.7	
Acrolein	ND	2.50	mg/kg				0-200		50	
Methylene chloride	2.05	0.050	mg/kg	2.00		103	70-122	3.00	22.9	
Acetone	ND	0.250	mg/kg				0-200		50	
trans-1,2-Dichloroethene	2.27	0.050	mg/kg	2.00		114	69.9-124	2.84	16	
Methyl t-Butyl Ether	ND	0.050	mg/kg				0-200		50	
1,1-Dichloroethane	2.14	0.050	mg/kg	2.00		107	81.7-132	3.14	17.7	
Acrylonitrile	1.78	0.050	mg/kg				0-200	4.47	50	
Vinyl acetate	ND	0.250	mg/kg				0-200		50	
cis-1,2-Dichloroethene	1.94	0.050	mg/kg	2.00		96.8	66.7-123	4.38	16.2	
2,2-Dichloropropane	2.10	0.050	mg/kg	2.00		105	57.2-119	2.38	16.2	
Bromochloromethane	2.07	0.050	mg/kg	2.00		104	67.5-123	2.91	16.1	
Chloroform	2.13	0.050	mg/kg	2.00		106	77.2-124	3.36	14.3	
Carbon tetrachloride	2.49	0.050	mg/kg	2.00		125	76.3-132	6.35	17.1	
1,1,1-Trichloroethane	2.20	0.050	mg/kg	2.00		110	79.5-131	1.59	16.9	
1,1-Dichloropropene	2.13	0.050	mg/kg	2.00		107	77.7-125	2.18	16	
2-Butanone	ND	0.250	mg/kg				0-200		50	
Benzene	2.04	0.050	mg/kg	2.00		102	75.1-126	2.44	15.7	
1,2-Dichloroethane	1.98	0.050	mg/kg	2.00		99.2	73.1-121	3.16	16	
Trichloroethene	2.18	0.050	mg/kg	2.00		109	74.5-119	0.870	15	
Dibromomethane	2.01	0.050	mg/kg	2.00		101	73-123	3.19	18.5	
1,2-Dichloropropane	2.04	0.050	mg/kg	2.00		102	72.5-128	2.38	18.4	
Bromodichloromethane	2.13	0.050	mg/kg	2.00		106	74.6-129	4.41	15.4	
cis-1,3-Dichloropropene	1.87	0.050	mg/kg	2.00		93.5	61.6-122	0.941	17.3	
Toluene	2.10	0.050	mg/kg	2.00		105	71.7-121	0.466	14.4	
4-Methyl-2-pentanone	ND	0.250	mg/kg				0-200		50	
Tetrachloroethene	2.13	0.050	mg/kg	2.00		107	76.8-114	0.208	15.8	
trans-1,3-Dichloropropene	1.95	0.050	mg/kg	2.00		97.4	63-130	0.911	14.3	
1,1,2-Trichloroethane	1.96	0.050	mg/kg	2.00		98.0	71.5-113	1.49	14.7	
Dibromochloromethane	2.08	0.050	mg/kg	2.00		104	70.9-123	2.50	15	
1,3-Dichloropropane	1.91	0.050	mg/kg	2.00		95.6	70.6-114	1.17	17.8	
1,2-Dibromoethane	1.99	0.050	mg/kg	2.00		99.7	71.2-114	0.00452	22	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
LCS Dup (6040607-BSD1)				Prepared & Analyzed: 06-Apr-16						
2-Hexanone	ND	0.250	mg/kg				0-200		50	
Chlorobenzene	2.04	0.050	mg/kg	2.00		102	80.2-119	0.0309	16.2	
Ethylbenzene	2.10	0.050	mg/kg	2.00		105	80.2-118	1.76	14.1	
1,1,1,2-Tetrachloroethane	2.00	0.050	mg/kg	2.00		99.8	72.9-113	0.760	14.7	
m+p - Xylene	3.90	0.100	mg/kg	4.00		97.6	83-124	1.31	14.6	
o-Xylene	2.01	0.050	mg/kg	2.00		101	84.7-121	1.00	14	
Total Xylenes	5.91	0.150	mg/kg	6.00		98.6	84.1-122	1.20	14.1	
Bromoform	2.07	0.050	mg/kg	2.00		103	66-120	1.52	22.2	
Styrene	1.93	0.050	mg/kg	2.00		96.6	76.3-110	1.47	14.7	
Isopropylbenzene	2.07	0.050	mg/kg	2.00		103	84.9-127	0.0653	14.6	
Bromobenzene	1.94	0.050	mg/kg	2.00		96.8	70.8-117	0.263	16.9	
n-Propylbenzene	2.04	0.050	mg/kg	2.00		102	81.5-133	0.314	18.5	
1,1,2,2-Tetrachloroethane	1.88	0.050	mg/kg	2.00		94.2	61.8-110	0.499	28.6	
2-Chlorotoluene	1.92	0.050	mg/kg	2.00		95.9	79.8-121	0.420	17.8	
1.2.3-trichloropropane	1.86	0.050	mg/kg	2.00		92.9	50.6-118	1.56	30.8	
1,3,5-Trimethylbenzene	2.00	0.050	mg/kg	2.00		100	78.3-117	0.0170	18.3	
trans-1,4-Dichloro-2-butene	1.19	0.050	mg/kg	2.00		59.5	8.5-181	9.07	35.4	
4-Chlorotoluene	1.95	0.050	mg/kg	2.00		97.3	81.1-120	1.02	18.3	
tert-Butylbenzene	1.97	0.050	mg/kg	2.00		98.3	78-120	0.436	17.2	
1,2,4-Trimethylbenzene	1.95	0.050	mg/kg	2.00		97.7	77-125	0.351	17.4	
sec-Butylbenzene	1.97	0.050	mg/kg	2.00		98.5	75.5-125	0.335	17.8	
p-Isopropyltoluene	1.91	0.050	mg/kg	2.00		95.5	69.4-126	0.636	19.6	
1,3-Dichlorobenzene	1.95	0.050	mg/kg	2.00		97.7	72.3-115	0.480	18.7	
1,4 Dichlorobenzene	1.95	0.050	mg/kg	2.00		97.3	73.6-115	1.12	18.7	
n-Butylbenzene	1.91	0.050	mg/kg	2.00		95.5	64-131	0.986	19.6	
1,2-Dichlorobenzene	1.96	0.050	mg/kg	2.00		98.0	78-113	0.632	18.8	
1,2-Dibromo-3-chloropropane	1.75	0.050	mg/kg	2.00		87.6	49.7-112	4.08	45.4	
Hexachlorobutadiene	2.24	0.050	mg/kg	2.00		112	54.4-131	4.65	20.3	
1,2,4-Trichlorobenzene	1.91	0.050	mg/kg	2.00		95.3	73.4-114	1.88	21.6	
Naphthalene	1.68	0.050	mg/kg	2.00		83.8	72.2-121	1.87	25.6	
1,2,3-Trichlorobenzene	1.63	0.050	mg/kg	2.00		81.5	76-112	2.56	21.2	
Surrogate: Dibromofluoromethane	*0.509*		mg/kg	*0.500*		*102*	*90.4-111*			

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

VOLATILES BY GC/MS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040607 - Volatiles										
LCS Dup (6040607-BSD1)	Prepared & Analyzed: 06-Apr-16									
Surrogate: Toluene-d8	*0.484*		mg/kg	*0.500*		*96.8*	*85.3-114*			
Surrogate: 4-Bromofluorobenzene	*0.503*		mg/kg	*0.500*		*101*	*80.1-121*			

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Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

Semivolatile Organic Compounds by GCMS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040103 - SW-846 3550										
Blank (6040103-BLK1)				Prepared & Analyzed: 01-Apr-16						
Naphthalene	ND	0.040	mg/kg							
2-Methylnaphthalene	ND	0.040	mg/kg							
1-Methylnaphthalene	ND	0.020	mg/kg							
Acenaphthylene	ND	0.040	mg/kg							
Acenaphthene	ND	0.040	mg/kg							
Fluorene	ND	0.040	mg/kg							
Phenanthrene	ND	0.040	mg/kg							
Anthracene	ND	0.040	mg/kg							
Carbazole	ND	0.040	mg/kg							
Fluoranthene	ND	0.040	mg/kg							
Pyrene	ND	0.040	mg/kg							
Benzo[a]anthracene	ND	0.040	mg/kg							
Chrysene	ND	0.040	mg/kg							
Benzo[b]flouranthene	ND	0.040	mg/kg							
Benzo[k]flouranthene	ND	0.040	mg/kg							
Benzo[a]pyrene	ND	0.040	mg/kg							
Indeno[1,2,3-cd]pyrene	ND	0.040	mg/kg							
Dibenz[a,h]anthracene	ND	0.040	mg/kg							
Benzo[g,h,i]perylene	ND	0.040	mg/kg							
Surrogate: Nitrobenzene-d5	*2.22*		mg/kg	*2.00*		*111*	*36.9-116*			
Surrogate: 2-Fluorobiphenyl	*2.28*		mg/kg	*2.00*		*114*	*29.5-132*			
Surrogate: Terphenyl-dl4	*2.97*		mg/kg	*2.00*		*148*	*35.1-158*			
LCS (6040103-BS1)				Prepared: 01-Apr-16 Analyzed: 04-Apr-16						
Naphthalene	0.384	0.040	mg/kg	0.400		96.1	44.7-98			
2-Methylnaphthalene	0.348	0.040	mg/kg	0.400		87.0	38.9-112			
Acenaphthylene	0.418	0.040	mg/kg	0.400		104	40.8-111			
Acenaphthene	0.412	0.040	mg/kg	0.400		103	38.4-113			
Fluorene	0.347	0.040	mg/kg	0.400		86.7	35.2-119			
Phenanthrene	0.427	0.040	mg/kg	0.400		107	38.1-123			
Anthracene	0.406	0.040	mg/kg	0.400		102	40.3-118			
Carbazole	0.461	0.040	mg/kg	0.400		115	33-126			

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

Semivolatile Organic Compounds by GCMS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040103 - SW-846 3550										
LCS (6040103-BS1)				Prepared: 01-Apr-16 Analyzed: 04-Apr-16						
Fluoranthene	0.355	0.040	mg/kg	0.400		88.8	32.8-127			
Pyrene	0.524	0.040	mg/kg	0.400		131	39.4-120			BS1
Benzo[a]anthracene	0.417	0.040	mg/kg	0.400		104	43.9-111			
Chrysene	0.416	0.040	mg/kg	0.400		104	44.4-111			
Benzo[b]flouranthene	0.369	0.040	mg/kg	0.400		92.2	33.1-123			
Benzo[k]flouranthene	0.383	0.040	mg/kg	0.400		95.8	37.5-124			
Benzo[a]pyrene	0.360	0.040	mg/kg	0.400		90.1	41.6-117			
Indeno[1,2,3-cd]pyrene	0.319	0.040	mg/kg	0.400		79.8	35.7-115			
Dibenz[a,h]anthracene	0.326	0.040	mg/kg	0.400		81.5	40-113			
Benzo[g,h,i]perylene	0.316	0.040	mg/kg	0.400		79.1	31.4-115			
Surrogate: Nitrobenzene-d5	*2.18*		mg/kg	*2.00*		*109*	*36.9-116*			
Surrogate: 2-Fluorobiphenyl	*2.17*		mg/kg	*2.00*		*108*	*29.5-132*			
Surrogate: Terphenyl-dl4	*3.06*		mg/kg	*2.00*		*153*	*35.1-158*			
LCS Dup (6040103-BSD1)				Prepared: 01-Apr-16 Analyzed: 04-Apr-16						
Naphthalene	0.384	0.040	mg/kg	0.400		95.9	44.7-98	0.174	9.54	
2-Methylnaphthalene	0.357	0.040	mg/kg	0.400		89.2	38.9-112	2.49	15.5	
Acenaphthylene	0.419	0.040	mg/kg	0.400		105	40.8-111	0.399	14.2	
Acenaphthene	0.410	0.040	mg/kg	0.400		103	38.4-113	0.498	9.34	
Fluorene	0.350	0.040	mg/kg	0.400		87.4	35.2-119	0.836	12.6	
Phenanthrene	0.425	0.040	mg/kg	0.400		106	38.1-123	0.461	13.5	
Anthracene	0.407	0.040	mg/kg	0.400		102	40.3-118	0.263	18.3	
Carbazole	0.461	0.040	mg/kg	0.400		115	33-126	0.171	25.3	
Fluoranthene	0.351	0.040	mg/kg	0.400		87.8	32.8-127	1.11	19.6	
Pyrene	0.521	0.040	mg/kg	0.400		130	39.4-120	0.570	26.5	BS1
Benzo[a]anthracene	0.418	0.040	mg/kg	0.400		104	43.9-111	0.333	4.96	
Chrysene	0.419	0.040	mg/kg	0.400		105	44.4-111	0.792	4.96	
Benzo[b]flouranthene	0.402	0.040	mg/kg	0.400		100	33.1-123	8.54	24.2	
Benzo[k]flouranthene	0.344	0.040	mg/kg	0.400		86.0	37.5-124	10.8	23.1	
Benzo[a]pyrene	0.362	0.040	mg/kg	0.400		90.5	41.6-117	0.507	7.25	
Indeno[1,2,3-cd]pyrene	0.317	0.040	mg/kg	0.400		79.3	35.7-115	0.594	12.7	
Dibenz[a,h]anthracene	0.328	0.040	mg/kg	0.400		82.0	40-113	0.612	12.1	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions 703 East Clinton Hobbs NM, 88240	Project: NAV-15-001 Project Number: NOT GIVEN Project Manager: Bob Allen Fax To: (575) 393-4388	Reported: 08-Apr-16 09:04

Semivolatile Organic Compounds by GCMS - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6040103 - SW-846 3550										
LCS Dup (6040103-BSD1)				Prepared: 01-Apr-16 Analyzed: 04-Apr-16						
Benzo[g,h,i]perylene	0.318	0.040	mg/kg	0.400		79.6	31.4-115	0.630	12.4	
Surrogate: Nitrobenzene-d5	*2.21*		mg/kg	*2.00*		*110*	*36.9-116*			
Surrogate: 2-Fluorobiphenyl	*2.16*		mg/kg	*2.00*		*108*	*29.5-132*			
Surrogate: Terphenyl-dl4	*3.07*		mg/kg	*2.00*		*153*	*35.1-158*			

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
BS1	Blank spike recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Safety and Environmental Solutions
Project Manager:	Bob Allen
Address:	703 East Clinton, PO Box 1613
City:	Hobbs State: NM Zip: 88240
Phone #:	575 397-0510 Fax #: 575 393-4388
Project #:	NAV-15-001 Project Owner:
Project Name:	
Project Location:	
Sampler Name:	DAVID BOYER

BILL TO

P.O. #:	
Company:	Same
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING DATE	SAMPLING TIME	TPH 8015	Volatiles	Semi volatiles
H600648													2016				
1	BH-1, 10-15	G	1			X					X		3/24	1020	X	X	X
2	BH-1, 20-25													1040			
3	BH-1 30-35													1055			
4	BH-1 40-45													1120			
5	BH-1 50-55													1140			
6	BH-1 60-65													1215			
7	BH-1 70-75													1240			
8	BH-1 80-85													1305			
9	BH-1, 90-95	G	1			X					X		3/24	1315	X	X	X

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Relinquished By: D Boyer	Date: 3/25/16	Received By: Jodi Henson	
	Time: 10:30		
Relinquished By:	Date:	Received By:	
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 5.4°C

Sample Condition: Cool: Yes / No; Intact: Yes / No
CHECKED BY: (Initials)

Phone Result: ☐ Yes ☒ No Add'l Phone #:
Fax Result: ☐ Yes ☒ No Add'l Fax #:
REMARKS: No Pesticides / Herbicides

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Dissolved Solids	626		2.82	10.0	10.0	1	08/25/2016 01:32	WG901880

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Alkalinity	187	J6	2.71	20.0	20.0	1	08/26/2016 20:18	WG901268

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	5.76		0.0197	0.100	0.100	1	08/26/2016 11:59	WG901602

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	129		0.260	1.00	5.00	5	08/26/2016 23:03	WG902621
Fluoride	0.872		0.00990	0.100	0.100	1	08/26/2016 17:46	WG902621
Sulfate	70.9		0.0774	5.00	5.00	1	08/26/2016 17:46	WG902621

Mercury by Method 7470A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Mercury	0.0000503	B J	0.0000490	0.000200	0.000200	1	08/23/2016 12:54	WG901226

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	0.00295	B J	0.00200	0.100	0.100	1	08/26/2016 17:58	WG901756
Arsenic,Dissolved	0.00548		0.000250	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Barium,Dissolved	0.111		0.000360	0.00500	0.00500	1	08/26/2016 17:58	WG901756
Boron,Dissolved	0.157		0.00150	0.0200	0.0200	1	08/28/2016 21:01	WG901756
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/26/2016 17:58	WG901756
Calcium,Dissolved	97.3	V	0.0460	1.00	1.00	1	08/26/2016 17:58	WG901756
Chromium,Dissolved	0.00139	B J	0.000540	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Copper,Dissolved	0.00146	B J	0.000520	0.00500	0.00500	1	08/26/2016 17:58	WG901756
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Iron,Dissolved	U		0.0150	0.100	0.100	1	08/26/2016 17:58	WG901756
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Magnesium,Dissolved	12.1		0.100	1.00	1.00	1	08/26/2016 17:58	WG901756
Manganese,Dissolved	0.00101	B J	0.000250	0.00500	0.00500	1	08/26/2016 17:58	WG901756
Molybdenum,Dissolved	0.00293	J	0.000140	0.00500	0.00500	1	08/26/2016 17:58	WG901756
Nickel,Dissolved	0.00103	B J	0.000350	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Potassium,Dissolved	2.25		0.0370	1.00	1.00	1	08/26/2016 17:58	WG901756
Selenium,Dissolved	0.00367		0.000380	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/26/2016 17:58	WG901756
Sodium,Dissolved	62.9	O1	0.110	1.00	1.00	1	08/26/2016 17:58	WG901756
Uranium,Dissolved	0.00176	J	0.000330	0.0100	0.0100	1	08/26/2016 17:58	WG901756
Zinc,Dissolved	0.00285	B J	0.00256	0.0250	0.0250	1	08/26/2016 17:58	WG901756

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	U		0.0314	0.100	0.100	1	08/23/2016 23:22	WG901297

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
(S) α,α,α-Trifluorotoluene(FID)	*80.4*				*62.0-128*		*08/23/2016 23:22*	WG901297

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acetone	U		0.0100	1.00	1.00	1	08/26/2016 22:14	WG902356
Benzene	0.000425	J	0.000331	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/26/2016 22:14	WG902356
Bromoform	U		0.000469	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Bromomethane	U		0.000866	0.00500	0.00500	1	08/26/2016 22:14	WG902356
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/26/2016 22:14	WG902356
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/26/2016 22:14	WG902356
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Chloroethane	U		0.000453	0.00500	0.00500	1	08/26/2016 22:14	WG902356
Chloroform	U		0.000324	0.00500	0.00500	1	08/26/2016 22:14	WG902356
Chloromethane	U		0.000276	0.00250	0.00250	1	08/26/2016 22:14	WG902356
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/26/2016 22:14	WG902356
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/26/2016 22:14	WG902356
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/26/2016 22:14	WG902356
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/26/2016 22:14	WG902356
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/26/2016 22:14	WG902356
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/26/2016 22:14	WG902356
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/26/2016 22:14	WG902356
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/26/2016 22:14	WG902356
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/26/2016 22:14	WG902356
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/26/2016 22:14	WG902356
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/26/2016 22:14	WG902356
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Naphthalene	U		0.00100	0.00500	0.00500	1	08/26/2016 22:14	WG902356
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Styrene	U		0.000307	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Toluene	U		0.000780	0.00500	0.00500	1	08/26/2016 22:14	WG902356
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/26/2016 22:14	WG902356
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/26/2016 22:14	WG902356
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/26/2016 22:14	WG902356
(S) Toluene-d8	*95.2*				*90.0-115*		*08/26/2016 22:14*	WG902356
(S) Dibromofluoromethane	*102*				*79.0-121*		*08/26/2016 22:14*	WG902356
(S) 4-Bromofluorobenzene	*96.2*				*80.1-120*		*08/26/2016 22:14*	WG902356

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) High Fraction	U		0.0247	0.100	0.100	1	08/24/2016 20:17	WG901493
(S) o-Terphenyl	*89.8*				*50.0-150*		*08/24/2016 20:17*	WG901493

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Acetophenone	U		0.00247	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Anthracene	U		0.000291	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Atrazine	U		0.000260	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Benzaldehyde	U		0.00140	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/26/2016 00:42	WG901966
Biphenyl	U		0.000325	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/26/2016 00:42	WG901966
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/26/2016 00:42	WG901966
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Caprolactam	U		0.00259	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Carbazole	U		0.000260	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Chrysene	U		0.000332	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/26/2016 00:42	WG901966
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/26/2016 00:42	WG901966
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Fluorene	U		0.000323	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Isophorone	U		0.000272	0.0100	0.0100	1	08/26/2016 00:42	WG901966
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/26/2016 00:42	WG901966
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Naphthalene	U		0.000372	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/26/2016 00:42	WG901966
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/26/2016 00:42	WG901966
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/26/2016 00:42	WG901966
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/26/2016 00:42	WG901966
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300	0.00300	1	08/26/2016 00:42	WG901966
Di-n-butyl phthalate	0.000763	B J	0.000266	0.00300	0.00300	1	08/26/2016 00:42	WG901966
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/26/2016 00:42	WG901966
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/26/2016 00:42	WG901966
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/26/2016 00:42	WG901966
Pyrene	U		0.000330	0.00100	0.00100	1	08/26/2016 00:42	WG901966
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/26/2016 00:42	WG901966
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/26/2016 00:42	WG901966

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/26/2016 00:42	WG901966
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,4-Dinitrophenol	U		0.00325	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/26/2016 00:42	WG901966
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/26/2016 00:42	WG901966
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/26/2016 00:42	WG901966
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/26/2016 00:42	WG901966
4-Nitroaniline	U	J4	0.000349	0.0100	0.0100	1	08/26/2016 00:42	WG901966
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/26/2016 00:42	WG901966
Phenol	U		0.000334	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/26/2016 00:42	WG901966
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/26/2016 00:42	WG901966
(S) 2-Fluorophenol	*49.6*				*10.0-77.9*		*08/26/2016 00:42*	WG901966
(S) Phenol-d5	*37.3*				*5.00-70.1*		*08/26/2016 00:42*	WG901966
(S) Nitrobenzene-d5	*55.2*				*21.8-123*		*08/26/2016 00:42*	WG901966
(S) 2-Fluorobiphenyl	*66.4*				*29.5-131*		*08/26/2016 00:42*	WG901966
(S) 2,4,6-Tribromophenol	*78.6*				*11.2-130*		*08/26/2016 00:42*	WG901966
(S) p-Terphenyl-d14	*84.2*				*29.3-137*		*08/26/2016 00:42*	WG901966

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Dissolved Solids	1420		2.82	10.0	10.0	1	08/25/2016 01:32	WG901880

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Alkalinity	199	J6	2.71	20.0	20.0	1	08/26/2016 20:40	WG901268

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	3.18		0.0197	0.100	0.100	1	08/26/2016 12:18	WG901602

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	381		0.260	1.00	5.00	5	08/26/2016 23:17	WG902621
Fluoride	0.692		0.00990	0.100	0.100	1	08/26/2016 18:29	WG902621
Sulfate	98.2		0.0774	5.00	5.00	1	08/26/2016 18:29	WG902621

Mercury by Method 7470A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Mercury	0.0000764	B J	0.0000490	0.000200	0.000200	1	08/23/2016 13:03	WG901226

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	U		0.00200	0.100	0.100	1	08/26/2016 18:10	WG901756
Arsenic,Dissolved	0.00419		0.000250	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Barium,Dissolved	0.134		0.000360	0.00500	0.00500	1	08/26/2016 18:10	WG901756
Boron,Dissolved	0.224		0.00150	0.0200	0.0200	1	08/28/2016 21:15	WG901756
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/26/2016 18:10	WG901756
Calcium,Dissolved	170	V	0.0460	1.00	1.00	1	08/26/2016 18:10	WG901756
Chromium,Dissolved	0.00138	B J	0.000540	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Copper,Dissolved	0.00444	B J	0.000520	0.00500	0.00500	1	08/26/2016 18:10	WG901756
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Iron,Dissolved	U		0.0150	0.100	0.100	1	08/26/2016 18:10	WG901756
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Magnesium,Dissolved	24.7		0.100	1.00	1.00	1	08/26/2016 18:10	WG901756
Manganese,Dissolved	0.00250	B J	0.000250	0.00500	0.00500	1	08/26/2016 18:10	WG901756
Molybdenum,Dissolved	0.00188	J	0.000140	0.00500	0.00500	1	08/26/2016 18:10	WG901756
Nickel,Dissolved	0.00106	B J	0.000350	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Potassium,Dissolved	3.24		0.0370	1.00	1.00	1	08/26/2016 18:10	WG901756
Selenium,Dissolved	0.00326		0.000380	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/26/2016 18:10	WG901756
Sodium,Dissolved	139	V	0.110	1.00	1.00	1	08/26/2016 18:10	WG901756
Uranium,Dissolved	0.00257	J	0.000330	0.0100	0.0100	1	08/26/2016 18:10	WG901756
Zinc,Dissolved	0.00833	B J	0.00256	0.0250	0.0250	1	08/26/2016 18:10	WG901756

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	0.0343	J	0.0314	0.100	0.100	1	08/23/2016 20:47	WG901297

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
(S) α,α,α-Trifluorotoluene(FID)	*91.6*				*62.0-128*		*08/23/2016 20:47*	WG901297

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Acetone	U		0.0100	1.00	1.00	1	08/27/2016 19:04	WG902359
Benzene	0.000451	J	0.000331	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/27/2016 19:04	WG902359
Bromoform	U		0.000469	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Bromomethane	U		0.000866	0.00500	0.00500	1	08/27/2016 19:04	WG902359
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/27/2016 19:04	WG902359
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/27/2016 19:04	WG902359
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Chloroethane	U		0.000453	0.00500	0.00500	1	08/27/2016 19:04	WG902359
Chloroform	0.00135	J	0.000324	0.00500	0.00500	1	08/27/2016 19:04	WG902359
Chloromethane	U		0.000276	0.00250	0.00250	1	08/27/2016 19:04	WG902359
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/27/2016 19:04	WG902359
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/27/2016 19:04	WG902359
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/27/2016 19:04	WG902359
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/27/2016 19:04	WG902359
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/27/2016 19:04	WG902359
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/27/2016 19:04	WG902359
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/27/2016 19:04	WG902359
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/27/2016 19:04	WG902359
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/27/2016 19:04	WG902359
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/27/2016 19:04	WG902359
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/27/2016 19:04	WG902359
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Naphthalene	U		0.00100	0.00500	0.00500	1	08/27/2016 19:04	WG902359
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Styrene	U		0.000307	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Toluene	U		0.000780	0.00500	0.00500	1	08/27/2016 19:04	WG902359
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/27/2016 19:04	WG902359
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/27/2016 19:04	WG902359
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/27/2016 19:04	WG902359
(S) Toluene-d8	*93.6*				*90.0-115*		*08/27/2016 19:04*	WG902359
(S) Dibromofluoromethane	*101*				*79.0-121*		*08/27/2016 19:04*	WG902359
(S) 4-Bromofluorobenzene	*95.9*				*80.1-120*		*08/27/2016 19:04*	WG902359

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	0.0303	J	0.0247	0.100	0.100	1	08/24/2016 21:18	WG901493
(S) o-Terphenyl	*90.5*				*50.0-150*		*08/24/2016 21:18*	WG901493

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Acetophenone	U		0.00247	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Anthracene	U		0.000291	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Atrazine	U		0.000260	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Benzaldehyde	U		0.00140	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/26/2016 01:51	WG901966
Biphenyl	U		0.000325	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/26/2016 01:51	WG901966
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/26/2016 01:51	WG901966
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Caprolactam	U		0.00259	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Carbazole	U		0.000260	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Chrysene	U		0.000332	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/26/2016 01:51	WG901966
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/26/2016 01:51	WG901966
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Fluorene	U		0.000323	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Isophorone	U		0.000272	0.0100	0.0100	1	08/26/2016 01:51	WG901966
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/26/2016 01:51	WG901966
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Naphthalene	U		0.000372	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/26/2016 01:51	WG901966
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/26/2016 01:51	WG901966
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/26/2016 01:51	WG901966
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/26/2016 01:51	WG901966
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300	0.00300	1	08/26/2016 01:51	WG901966
Di-n-butyl phthalate	0.000690	B J	0.000266	0.00300	0.00300	1	08/26/2016 01:51	WG901966
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/26/2016 01:51	WG901966
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/26/2016 01:51	WG901966
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/26/2016 01:51	WG901966
Pyrene	U		0.000330	0.00100	0.00100	1	08/26/2016 01:51	WG901966
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/26/2016 01:51	WG901966
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/26/2016 01:51	WG901966

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/26/2016 01:51	WG901966
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,4-Dinitrophenol	U		0.00325	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/26/2016 01:51	WG901966
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/26/2016 01:51	WG901966
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/26/2016 01:51	WG901966
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/26/2016 01:51	WG901966
4-Nitroaniline	U	J4	0.000349	0.0100	0.0100	1	08/26/2016 01:51	WG901966
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/26/2016 01:51	WG901966
Phenol	U		0.000334	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/26/2016 01:51	WG901966
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/26/2016 01:51	WG901966
(S) 2-Fluorophenol	*47.8*				*10.0-77.9*		*08/26/2016 01:51*	WG901966
(S) Phenol-d5	*36.2*				*5.00-70.1*		*08/26/2016 01:51*	WG901966
(S) Nitrobenzene-d5	*53.9*				*21.8-123*		*08/26/2016 01:51*	WG901966
(S) 2-Fluorobiphenyl	*66.5*				*29.5-131*		*08/26/2016 01:51*	WG901966
(S) 2,4,6-Tribromophenol	*73.7*				*11.2-130*		*08/26/2016 01:51*	WG901966
(S) p-Terphenyl-d14	*86.7*				*29.3-137*		*08/26/2016 01:51*	WG901966

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Dissolved Solids	555		2.82	10.0	10.0	1	08/25/2016 01:32	WG901880

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Alkalinity	181		2.71	20.0	20.0	1	08/26/2016 21:02	WG901268

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	3.12		0.0197	0.100	0.100	1	08/26/2016 12:10	WG901602

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	104		0.260	1.00	5.00	5	08/26/2016 20:24	WG902621
Fluoride	0.915		0.00990	0.100	0.100	1	08/26/2016 20:10	WG902621
Sulfate	74.4		0.0774	5.00	5.00	1	08/26/2016 20:10	WG902621

Mercury by Method 7470A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Mercury	U		0.0000490	0.000200	0.000200	1	08/23/2016 13:58	WG901226

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	0.00258	B J	0.00200	0.100	0.100	1	08/27/2016 02:10	WG901756
Arsenic,Dissolved	0.00454		0.000250	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Barium,Dissolved	0.0939		0.000360	0.00500	0.00500	1	08/27/2016 02:10	WG901756
Boron,Dissolved	0.162		0.00150	0.0200	0.0200	1	08/28/2016 21:56	WG901756
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/27/2016 02:10	WG901756
Calcium,Dissolved	92.4		0.0460	1.00	1.00	1	08/27/2016 02:10	WG901756
Chromium,Dissolved	0.00451	B	0.000540	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Copper,Dissolved	0.00196	B J	0.000520	0.00500	0.00500	1	08/27/2016 02:10	WG901756
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Iron,Dissolved	0.0337	J	0.0150	0.100	0.100	1	08/27/2016 02:10	WG901756
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Magnesium,Dissolved	13.2		0.100	1.00	1.00	1	08/27/2016 02:10	WG901756
Manganese,Dissolved	0.00346	J	0.000250	0.00500	0.00500	1	08/27/2016 02:10	WG901756
Molybdenum,Dissolved	0.00288	J	0.000140	0.00500	0.00500	1	08/27/2016 02:10	WG901756
Nickel,Dissolved	0.00121	B J	0.000350	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Potassium,Dissolved	2.03		0.0370	1.00	1.00	1	08/27/2016 02:10	WG901756
Selenium,Dissolved	0.00386		0.000380	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/27/2016 02:10	WG901756
Sodium,Dissolved	55.2		0.110	1.00	1.00	1	08/28/2016 21:56	WG901756
Uranium,Dissolved	0.00194	J	0.000330	0.0100	0.0100	1	08/27/2016 02:10	WG901756
Zinc,Dissolved	0.0291	B	0.00256	0.0250	0.0250	1	08/27/2016 02:10	WG901756

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	U		0.0314	0.100	0.100	1	08/23/2016 23:44	WG901297

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*93.7*				*62.0-128*		*08/23/2016 23:44*	WG901297

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Acetone	U		0.0100	1.00	1.00	1	08/25/2016 12:45	WG901774
Benzene	U		0.000331	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/25/2016 12:45	WG901774
Bromoform	U		0.000469	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Bromomethane	U		0.000866	0.00500	0.00500	1	08/25/2016 12:45	WG901774
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/25/2016 12:45	WG901774
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/25/2016 12:45	WG901774
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Chloroethane	U		0.000453	0.00500	0.00500	1	08/25/2016 12:45	WG901774
Chloroform	U		0.000324	0.00500	0.00500	1	08/25/2016 12:45	WG901774
Chloromethane	U		0.000276	0.00250	0.00250	1	08/25/2016 12:45	WG901774
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/25/2016 12:45	WG901774
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/25/2016 12:45	WG901774
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/25/2016 12:45	WG901774
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/25/2016 12:45	WG901774
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/25/2016 12:45	WG901774
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/25/2016 12:45	WG901774
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/25/2016 12:45	WG901774
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/25/2016 12:45	WG901774
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/25/2016 12:45	WG901774
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/25/2016 12:45	WG901774
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/25/2016 12:45	WG901774
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Naphthalene	U		0.00100	0.00500	0.00500	1	08/25/2016 12:45	WG901774
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Styrene	U		0.000307	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Toluene	U		0.000780	0.00500	0.00500	1	08/25/2016 12:45	WG901774
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/25/2016 12:45	WG901774
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/25/2016 12:45	WG901774
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/25/2016 12:45	WG901774
(S) Toluene-d8	*104*				*90.0-115*		*08/25/2016 12:45*	WG901774
(S) Dibromofluoromethane	*97.2*				*79.0-121*		*08/25/2016 12:45*	WG901774
(S) 4-Bromofluorobenzene	*103*				*80.1-120*		*08/25/2016 12:45*	WG901774

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	0.0357	J	0.0247	0.100	0.100	1	08/24/2016 16:54	WG901493
(S) o-Terphenyl	*97.6*				*50.0-150*		*08/24/2016 16:54*	WG901493

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Acetophenone	U		0.00247	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Anthracene	U		0.000291	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Atrazine	U		0.000260	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Benzaldehyde	U		0.00140	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/26/2016 03:00	WG901966
Biphenyl	U		0.000325	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/26/2016 03:00	WG901966
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/26/2016 03:00	WG901966
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Caprolactam	U		0.00259	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Carbazole	U		0.000260	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Chrysene	U		0.000332	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/26/2016 03:00	WG901966
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/26/2016 03:00	WG901966
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Fluorene	U		0.000323	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Isophorone	U		0.000272	0.0100	0.0100	1	08/26/2016 03:00	WG901966
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/26/2016 03:00	WG901966
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Naphthalene	U		0.000372	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/26/2016 03:00	WG901966
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/26/2016 03:00	WG901966
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/26/2016 03:00	WG901966
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/26/2016 03:00	WG901966
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300	0.00300	1	08/26/2016 03:00	WG901966
Di-n-butyl phthalate	0.000533	B J	0.000266	0.00300	0.00300	1	08/26/2016 03:00	WG901966
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/26/2016 03:00	WG901966
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/26/2016 03:00	WG901966
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/26/2016 03:00	WG901966
Pyrene	U		0.000330	0.00100	0.00100	1	08/26/2016 03:00	WG901966
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/26/2016 03:00	WG901966
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/26/2016 03:00	WG901966

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/26/2016 03:00	WG901966
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,4-Dinitrophenol	U		0.00325	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/26/2016 03:00	WG901966
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/26/2016 03:00	WG901966
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/26/2016 03:00	WG901966
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/26/2016 03:00	WG901966
4-Nitroaniline	U	J4	0.000349	0.0100	0.0100	1	08/26/2016 03:00	WG901966
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/26/2016 03:00	WG901966
Phenol	U		0.000334	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/26/2016 03:00	WG901966
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/26/2016 03:00	WG901966
(S) 2-Fluorophenol	*39.7*				*10.0-77.9*		*08/26/2016 03:00*	WG901966
(S) Phenol-d5	*30.2*				*5.00-70.1*		*08/26/2016 03:00*	WG901966
(S) Nitrobenzene-d5	*43.9*				*21.8-123*		*08/26/2016 03:00*	WG901966
(S) 2-Fluorobiphenyl	*56.3*				*29.5-131*		*08/26/2016 03:00*	WG901966
(S) 2,4,6-Tribromophenol	*68.9*				*11.2-130*		*08/26/2016 03:00*	WG901966
(S) p-Terphenyl-d14	*85.9*				*29.3-137*		*08/26/2016 03:00*	WG901966

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Dissolved Solids	1390		2.82	10.0	10.0	1	08/25/2016 01:32	WG901880

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Alkalinity	197		2.71	20.0	20.0	1	08/26/2016 21:08	WG901268

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	3.18		0.0197	0.100	0.100	1	08/26/2016 12:11	WG901602

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	385		0.260	1.00	5.00	5	08/26/2016 20:53	WG902621
Fluoride	0.695		0.00990	0.100	0.100	1	08/26/2016 20:39	WG902621
Sulfate	97.6		0.0774	5.00	5.00	1	08/26/2016 20:39	WG902621

Mercury by Method 7470A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Mercury	0.0000788	B J	0.0000490	0.000200	0.000200	1	08/23/2016 14:00	WG901226

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	0.00377	B J	0.00200	0.100	0.100	1	08/27/2016 02:13	WG901756
Arsenic,Dissolved	0.00370		0.000250	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Barium,Dissolved	0.137		0.000360	0.00500	0.00500	1	08/27/2016 02:13	WG901756
Boron,Dissolved	0.233		0.00150	0.0200	0.0200	1	08/28/2016 22:00	WG901756
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/27/2016 02:13	WG901756
Calcium,Dissolved	171		0.0460	1.00	1.00	1	08/27/2016 02:13	WG901756
Chromium,Dissolved	0.00165	B J	0.000540	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Copper,Dissolved	0.00485	B J	0.000520	0.00500	0.00500	1	08/27/2016 02:13	WG901756
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Iron,Dissolved	U		0.0150	0.100	0.100	1	08/27/2016 02:13	WG901756
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Magnesium,Dissolved	24.5		0.100	1.00	1.00	1	08/27/2016 02:13	WG901756
Manganese,Dissolved	0.00270	B J	0.000250	0.00500	0.00500	1	08/27/2016 02:13	WG901756
Molybdenum,Dissolved	0.00201	J	0.000140	0.00500	0.00500	1	08/27/2016 02:13	WG901756
Nickel,Dissolved	0.00128	B J	0.000350	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Potassium,Dissolved	3.20		0.0370	1.00	1.00	1	08/27/2016 02:13	WG901756
Selenium,Dissolved	0.00318		0.000380	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/27/2016 02:13	WG901756
Sodium,Dissolved	142		0.110	1.00	1.00	1	08/28/2016 22:00	WG901756
Uranium,Dissolved	0.00262	J	0.000330	0.0100	0.0100	1	08/27/2016 02:13	WG901756
Zinc,Dissolved	0.00936	B J	0.00256	0.0250	0.0250	1	08/27/2016 02:13	WG901756

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	U		0.0314	0.100	0.100	1	08/24/2016 00:06	WG901297

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*92.1*				*62.0-128*		*08/24/2016 00:06*	WG901297

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Acetone	U		0.0100	1.00	1.00	1	08/25/2016 13:07	WG901774
Benzene	0.000509	J	0.000331	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/25/2016 13:07	WG901774
Bromoform	U		0.000469	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Bromomethane	U		0.000866	0.00500	0.00500	1	08/25/2016 13:07	WG901774
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/25/2016 13:07	WG901774
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/25/2016 13:07	WG901774
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Chloroethane	U		0.000453	0.00500	0.00500	1	08/25/2016 13:07	WG901774
Chloroform	0.00138	J	0.000324	0.00500	0.00500	1	08/25/2016 13:07	WG901774
Chloromethane	U		0.000276	0.00250	0.00250	1	08/25/2016 13:07	WG901774
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/25/2016 13:07	WG901774
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/25/2016 13:07	WG901774
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/25/2016 13:07	WG901774
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/25/2016 13:07	WG901774
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/25/2016 13:07	WG901774
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/25/2016 13:07	WG901774
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/25/2016 13:07	WG901774
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/25/2016 13:07	WG901774
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/25/2016 13:07	WG901774
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/25/2016 13:07	WG901774
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/25/2016 13:07	WG901774
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Naphthalene	U		0.00100	0.00500	0.00500	1	08/25/2016 13:07	WG901774
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Styrene	U		0.000307	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Toluene	U		0.000780	0.00500	0.00500	1	08/25/2016 13:07	WG901774
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/25/2016 13:07	WG901774
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/25/2016 13:07	WG901774
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/25/2016 13:07	WG901774
(S) Toluene-d8	*105*				*90.0-115*		*08/25/2016 13:07*	WG901774
(S) Dibromofluoromethane	*98.8*				*79.0-121*		*08/25/2016 13:07*	WG901774
(S) 4-Bromofluorobenzene	*104*				*80.1-120*		*08/25/2016 13:07*	WG901774

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	0.0482	J	0.0247	0.100	0.100	1	08/24/2016 17:36	WG901493
(S) o-Terphenyl	*92.5*				*50.0-150*		*08/24/2016 17:36*	WG901493

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Acetophenone	U		0.00247	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Anthracene	U		0.000291	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Atrazine	U		0.000260	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Benzaldehyde	U		0.00140	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/26/2016 03:24	WG901966
Biphenyl	U		0.000325	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/26/2016 03:24	WG901966
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/26/2016 03:24	WG901966
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Caprolactam	U		0.00259	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Carbazole	U		0.000260	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Chrysene	U		0.000332	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/26/2016 03:24	WG901966
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/26/2016 03:24	WG901966
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Fluorene	U		0.000323	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Isophorone	U		0.000272	0.0100	0.0100	1	08/26/2016 03:24	WG901966
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/26/2016 03:24	WG901966
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Naphthalene	U		0.000372	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/26/2016 03:24	WG901966
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/26/2016 03:24	WG901966
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/26/2016 03:24	WG901966
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/26/2016 03:24	WG901966
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300	0.00300	1	08/26/2016 03:24	WG901966
Di-n-butyl phthalate	0.000766	B J	0.000266	0.00300	0.00300	1	08/26/2016 03:24	WG901966
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/26/2016 03:24	WG901966
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/26/2016 03:24	WG901966
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/26/2016 03:24	WG901966
Pyrene	U		0.000330	0.00100	0.00100	1	08/26/2016 03:24	WG901966
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/26/2016 03:24	WG901966
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/26/2016 03:24	WG901966

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/26/2016 03:24	WG901966
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,4-Dinitrophenol	U		0.00325	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/26/2016 03:24	WG901966
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/26/2016 03:24	WG901966
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/26/2016 03:24	WG901966
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/26/2016 03:24	WG901966
4-Nitroaniline	U	J4	0.000349	0.0100	0.0100	1	08/26/2016 03:24	WG901966
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/26/2016 03:24	WG901966
Phenol	U		0.000334	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/26/2016 03:24	WG901966
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/26/2016 03:24	WG901966
(S) 2-Fluorophenol	*51.4*				*10.0-77.9*		*08/26/2016 03:24*	WG901966
(S) Phenol-d5	*37.7*				*5.00-70.1*		*08/26/2016 03:24*	WG901966
(S) Nitrobenzene-d5	*54.1*				*21.8-123*		*08/26/2016 03:24*	WG901966
(S) 2-Fluorobiphenyl	*66.5*				*29.5-131*		*08/26/2016 03:24*	WG901966
(S) 2,4,6-Tribromophenol	*67.8*				*11.2-130*		*08/26/2016 03:24*	WG901966
(S) p-Terphenyl-d14	*82.6*				*29.3-137*		*08/26/2016 03:24*	WG901966

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Dissolved Solids	449		2.82	10.0	10.0	1	08/22/2016 04:55	WG900644

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Alkalinity	354		2.71	20.0	20.0	1	08/25/2016 12:21	WG901093

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	2.15		0.0197	0.100	0.100	1	08/22/2016 18:30	WG900741

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	18.4		0.0519	1.00	1.00	1	08/23/2016 17:54	WG900748
Fluoride	1.62		0.00990	0.100	0.100	1	08/23/2016 17:54	WG900748
Sulfate	38.1		0.0774	5.00	5.00	1	08/23/2016 17:54	WG900748

Mercury by Method 7470A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Mercury	U		0.0000490	0.000200	0.000200	1	08/22/2016 10:32	WG900632

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	0.0155	B J	0.00200	0.100	0.100	1	08/29/2016 10:42	WG901124
Arsenic,Dissolved	0.00425		0.000250	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Barium,Dissolved	0.119		0.000360	0.00500	0.00500	1	08/29/2016 10:42	WG901124
Boron,Dissolved	0.108		0.00150	0.0200	0.0200	1	08/29/2016 10:42	WG901124
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/29/2016 10:42	WG901124
Calcium,Dissolved	64.3		0.0460	1.00	1.00	1	08/29/2016 10:42	WG901124
Chromium,Dissolved	0.00217	B	0.000540	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Copper,Dissolved	0.00122	B J	0.000520	0.00500	0.00500	1	08/29/2016 10:42	WG901124
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Iron,Dissolved	0.0974	B J	0.0150	0.100	0.100	1	08/29/2016 10:42	WG901124
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Magnesium,Dissolved	7.87		0.100	1.00	1.00	1	08/29/2016 10:42	WG901124
Manganese,Dissolved	0.000764	B J	0.000250	0.00500	0.00500	1	08/29/2016 10:42	WG901124
Molybdenum,Dissolved	0.00876		0.000140	0.00500	0.00500	1	08/29/2016 10:42	WG901124
Nickel,Dissolved	0.000540	B J	0.000350	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Potassium,Dissolved	3.50		0.0370	1.00	1.00	1	08/29/2016 10:42	WG901124
Selenium,Dissolved	0.000502	J	0.000380	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/29/2016 10:42	WG901124
Sodium,Dissolved	111		0.110	1.00	1.00	1	08/29/2016 10:42	WG901124
Uranium,Dissolved	0.00553	J	0.000330	0.0100	0.0100	1	08/29/2016 10:42	WG901124
Zinc,Dissolved	0.00590	J	0.00256	0.0250	0.0250	1	08/29/2016 10:42	WG901124

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	U		0.0314	0.100	0.100	1	08/21/2016 05:32	WG900637

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*106*				*62.0-128*		*08/21/2016 05:32*	WG900637

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Acetone	U		0.0100	1.00	1.00	1	08/24/2016 14:42	WG901614
Benzene	U		0.000331	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/24/2016 14:42	WG901614
Bromoform	U		0.000469	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Bromomethane	U		0.000866	0.00500	0.00500	1	08/24/2016 14:42	WG901614
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/24/2016 14:42	WG901614
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/24/2016 14:42	WG901614
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Chloroethane	U		0.000453	0.00500	0.00500	1	08/24/2016 14:42	WG901614
Chloroform	U		0.000324	0.00500	0.00500	1	08/24/2016 14:42	WG901614
Chloromethane	U		0.000276	0.00250	0.00250	1	08/24/2016 14:42	WG901614
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/24/2016 14:42	WG901614
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/24/2016 14:42	WG901614
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/24/2016 14:42	WG901614
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/24/2016 14:42	WG901614
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/24/2016 14:42	WG901614
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/24/2016 14:42	WG901614
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/24/2016 14:42	WG901614
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/24/2016 14:42	WG901614
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/24/2016 14:42	WG901614
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/24/2016 14:42	WG901614
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/24/2016 14:42	WG901614
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Naphthalene	U		0.00100	0.00500	0.00500	1	08/24/2016 14:42	WG901614
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Styrene	U		0.000307	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Toluene	U		0.000780	0.00500	0.00500	1	08/24/2016 14:42	WG901614
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/24/2016 14:42	WG901614
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/24/2016 14:42	WG901614
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/24/2016 14:42	WG901614
(S) Toluene-d8	*105*				*90.0-115*		*08/24/2016 14:42*	WG901614
(S) Dibromofluoromethane	*97.6*				*79.0-121*		*08/24/2016 14:42*	WG901614
(S) 4-Bromofluorobenzene	*104*				*80.1-120*		*08/24/2016 14:42*	WG901614

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) High Fraction	0.366		0.0247	0.100	0.100	1	08/24/2016 13:32	WG901047
(S) o-Terphenyl	*111*				*50.0-150*		*08/24/2016 13:32*	WG901047

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Acetophenone	U		0.00247	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Anthracene	U		0.000291	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Atrazine	U		0.000260	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Benzaldehyde	U	J3	0.00140	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/25/2016 15:41	WG902203
Biphenyl	U		0.000325	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/25/2016 15:41	WG902203
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/25/2016 15:41	WG902203
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Caprolactam	U		0.00259	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Carbazole	U		0.000260	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Chrysene	U		0.000332	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/25/2016 15:41	WG902203
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/25/2016 15:41	WG902203
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Fluorene	U		0.000323	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Isophorone	U		0.000272	0.0100	0.0100	1	08/25/2016 15:41	WG902203
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/25/2016 15:41	WG902203
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Naphthalene	U		0.000372	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/25/2016 15:41	WG902203
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/25/2016 15:41	WG902203
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/25/2016 15:41	WG902203
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/25/2016 15:41	WG902203
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300	0.00300	1	08/25/2016 15:41	WG902203
Di-n-butyl phthalate	0.000436	B J	0.000266	0.00300	0.00300	1	08/25/2016 15:41	WG902203
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/25/2016 15:41	WG902203
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/25/2016 15:41	WG902203
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/25/2016 15:41	WG902203
Pyrene	U		0.000330	0.00100	0.00100	1	08/25/2016 15:41	WG902203
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/25/2016 15:41	WG902203
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/25/2016 15:41	WG902203

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/25/2016 15:41	WG902203
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,4-Dinitrophenol	U	J3	0.00325	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/25/2016 15:41	WG902203
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/25/2016 15:41	WG902203
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/25/2016 15:41	WG902203
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/25/2016 15:41	WG902203
4-Nitroaniline	U		0.000349	0.0100	0.0100	1	08/25/2016 15:41	WG902203
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/25/2016 15:41	WG902203
Phenol	U		0.000334	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/25/2016 15:41	WG902203
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/25/2016 15:41	WG902203
(S) 2-Fluorophenol	*55.9*				*10.0-77.9*		*08/25/2016 15:41*	WG902203
(S) Phenol-d5	*39.0*				*5.00-70.1*		*08/25/2016 15:41*	WG902203
(S) Nitrobenzene-d5	*67.6*				*21.8-123*		*08/25/2016 15:41*	WG902203
(S) 2-Fluorobiphenyl	*78.6*				*29.5-131*		*08/25/2016 15:41*	WG902203
(S) 2,4,6-Tribromophenol	*89.5*				*11.2-130*		*08/25/2016 15:41*	WG902203
(S) p-Terphenyl-d14	*91.7*				*29.3-137*		*08/25/2016 15:41*	WG902203

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	4.05		0.0197	0.100	0.100	1	08/23/2016 21:43	WG901193

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	131		0.260	1.00	5.00	5	08/25/2016 09:34	WG901472
Fluoride	0.253		0.00990	0.100	0.100	1	08/25/2016 09:20	WG901472
Sulfate	71.7		0.0774	5.00	5.00	1	08/25/2016 09:20	WG901472

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	0.00210	J	0.00200	0.100	0.100	1	08/24/2016 20:22	WG901422
Arsenic,Dissolved	0.00147	J	0.000250	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Barium,Dissolved	0.171		0.000360	0.00500	0.00500	1	08/24/2016 20:22	WG901422
Boron,Dissolved	0.460		0.0150	0.0200	0.200	10	08/28/2016 23:50	WG901422
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/24/2016 20:22	WG901422
Calcium,Dissolved	206		0.0460	1.00	1.00	1	08/24/2016 20:22	WG901422
Chromium,Dissolved	0.00115	B J	0.000540	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Copper,Dissolved	0.000881	B J	0.000520	0.00500	0.00500	1	08/24/2016 20:22	WG901422
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Iron,Dissolved	U		0.0150	0.100	0.100	1	08/24/2016 20:22	WG901422
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Magnesium,Dissolved	21.1		0.100	1.00	1.00	1	08/24/2016 20:22	WG901422
Manganese,Dissolved	0.00793		0.000250	0.00500	0.00500	1	08/24/2016 20:22	WG901422
Molybdenum,Dissolved	0.000639	J	0.000140	0.00500	0.00500	1	08/24/2016 20:22	WG901422
Nickel,Dissolved	0.00167	B J	0.000350	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Potassium,Dissolved	2.75		0.0370	1.00	1.00	1	08/24/2016 20:22	WG901422
Selenium,Dissolved	0.000702	J	0.000380	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/24/2016 20:22	WG901422
Sodium,Dissolved	58.3		0.110	1.00	1.00	1	08/24/2016 20:22	WG901422
Uranium,Dissolved	0.00920	J	0.000330	0.0100	0.0100	1	08/24/2016 20:22	WG901422
Zinc,Dissolved	0.00432	J	0.00256	0.0250	0.0250	1	08/24/2016 20:22	WG901422

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	U		0.0314	0.100	0.100	1	08/21/2016 05:03	WG900637
(S) a,a,a-Trifluorotoluene(FID)	*106*				*62.0-128*		*08/21/2016 05:03*	WG900637

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acetone	U		0.0100	1.00	1.00	1	08/24/2016 03:30	WG901485
Benzene	U		0.000331	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/24/2016 03:30	WG901485
Bromoform	U		0.000469	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Bromomethane	U		0.000866	0.00500	0.00500	1	08/24/2016 03:30	WG901485
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/24/2016 03:30	WG901485
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/24/2016 03:30	WG901485
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/24/2016 03:30	WG901485

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Chloroethane	U		0.000453	0.00500	0.00500	1	08/24/2016 03:30	WG901485
Chloroform	U		0.000324	0.00500	0.00500	1	08/24/2016 03:30	WG901485
Chloromethane	U		0.000276	0.00250	0.00250	1	08/24/2016 03:30	WG901485
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/24/2016 03:30	WG901485
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/24/2016 03:30	WG901485
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/24/2016 03:30	WG901485
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/24/2016 03:30	WG901485
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/24/2016 03:30	WG901485
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/24/2016 03:30	WG901485
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/24/2016 03:30	WG901485
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/24/2016 03:30	WG901485
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/24/2016 03:30	WG901485
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/24/2016 03:30	WG901485
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/24/2016 03:30	WG901485
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Naphthalene	U		0.00100	0.00500	0.00500	1	08/24/2016 03:30	WG901485
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Styrene	U		0.000307	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Toluene	U		0.000780	0.00500	0.00500	1	08/24/2016 03:30	WG901485
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/24/2016 03:30	WG901485
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/24/2016 03:30	WG901485
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/24/2016 03:30	WG901485
(S) Toluene-d8	*97.2*				*90.0-115*		*08/24/2016 03:30*	WG901485
(S) Dibromofluoromethane	*91.3*				*79.0-121*		*08/24/2016 03:30*	WG901485
(S) 4-Bromofluorobenzene	*92.1*				*80.1-120*		*08/24/2016 03:30*	WG901485

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) High Fraction	0.624		0.0247	0.100	0.100	1	08/24/2016 13:16	WG901047
(S) o-Terphenyl	*115*				*50.0-150*		*08/24/2016 13:16*	WG901047

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Acetophenone	U		0.00247	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Anthracene	U		0.000291	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Atrazine	U		0.000260	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Benzaldehyde	U	J3	0.00140	0.0100	0.0100	1	08/25/2016 18:12	WG901058

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/25/2016 18:12	WG901058
Biphenyl	U		0.000325	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/25/2016 18:12	WG901058
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/25/2016 18:12	WG901058
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Caprolactam	U		0.00259	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Carbazole	U		0.000260	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Chrysene	U		0.000332	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/25/2016 18:12	WG901058
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/25/2016 18:12	WG901058
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Fluorene	U		0.000323	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Isophorone	U		0.000272	0.0100	0.0100	1	08/25/2016 18:12	WG901058
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/25/2016 18:12	WG901058
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Naphthalene	U		0.000372	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/25/2016 18:12	WG901058
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/25/2016 18:12	WG901058
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/25/2016 18:12	WG901058
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/25/2016 18:12	WG901058
Bis(2-ethylhexyl)phthalate	0.000848	J	0.000709	0.00300	0.00300	1	08/25/2016 18:12	WG901058
Di-n-butyl phthalate	0.000329	B J	0.000266	0.00300	0.00300	1	08/25/2016 18:12	WG901058
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/25/2016 18:12	WG901058
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/25/2016 18:12	WG901058
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/25/2016 18:12	WG901058
Pyrene	U		0.000330	0.00100	0.00100	1	08/25/2016 18:12	WG901058
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/25/2016 18:12	WG901058
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/25/2016 18:12	WG901058
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,4-Dinitrophenol	U	J3	0.00325	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/25/2016 18:12	WG901058
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/25/2016 18:12	WG901058
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/25/2016 18:12	WG901058
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/25/2016 18:12	WG901058
4-Nitroaniline	U		0.000349	0.0100	0.0100	1	08/25/2016 18:12	WG901058
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/25/2016 18:12	WG901058

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/25/2016 18:12	WG901058
Phenol	U		0.000334	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/25/2016 18:12	WG901058
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/25/2016 18:12	WG901058
(S) 2-Fluorophenol	*57.5*				*10.0-77.9*		*08/25/2016 18:12*	WG901058
(S) Phenol-d5	*37.9*				*5.00-70.1*		*08/25/2016 18:12*	WG901058
(S) Nitrobenzene-d5	*73.9*				*21.8-123*		*08/25/2016 18:12*	WG901058
(S) 2-Fluorobiphenyl	*77.3*				*29.5-131*		*08/25/2016 18:12*	WG901058
(S) 2,4,6-Tribromophenol	*103*				*11.2-130*		*08/25/2016 18:12*	WG901058
(S) p-Terphenyl-d14	*85.1*				*29.3-137*		*08/25/2016 18:12*	WG901058

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Dissolved Solids	827		2.82	10.0	10.0	1	08/22/2016 03:34	WG900642

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Alkalinity	411		2.71	20.0	20.0	1	08/25/2016 11:04	WG901093

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Nitrate-Nitrite	5.86		0.0985	0.100	0.500	5	08/22/2016 18:17	WG900741

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	128		0.260	1.00	5.00	5	08/25/2016 09:06	WG901472
Fluoride	0.577		0.00990	0.100	0.100	1	08/25/2016 08:51	WG901472
Sulfate	57.6		0.0774	5.00	5.00	1	08/25/2016 08:51	WG901472

Mercury by Method 7470A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Mercury	U		0.0000490	0.000200	0.000200	1	08/22/2016 10:11	WG900632

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Aluminum,Dissolved	0.00281	B J	0.00200	0.100	0.100	1	08/29/2016 10:07	WG901124
Arsenic,Dissolved	0.00241		0.000250	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Barium,Dissolved	0.150		0.000360	0.00500	0.00500	1	08/29/2016 10:07	WG901124
Boron,Dissolved	0.190		0.00150	0.0200	0.0200	1	08/29/2016 10:07	WG901124
Cadmium,Dissolved	U		0.000160	0.00100	0.00100	1	08/29/2016 10:07	WG901124
Calcium,Dissolved	169		0.0460	1.00	1.00	1	08/29/2016 10:07	WG901124
Chromium,Dissolved	0.00199	B J	0.000540	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Copper,Dissolved	0.000854	B J	0.000520	0.00500	0.00500	1	08/29/2016 10:07	WG901124
Cobalt,Dissolved	U		0.000260	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Iron,Dissolved	U		0.0150	0.100	0.100	1	08/29/2016 10:07	WG901124
Lead,Dissolved	U		0.000240	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Magnesium,Dissolved	20.9		0.100	1.00	1.00	1	08/29/2016 10:07	WG901124
Manganese,Dissolved	0.00134	B J	0.000250	0.00500	0.00500	1	08/29/2016 10:07	WG901124
Molybdenum,Dissolved	0.00142	B J	0.000140	0.00500	0.00500	1	08/29/2016 10:07	WG901124
Nickel,Dissolved	0.00143	B J	0.000350	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Potassium,Dissolved	3.43		0.0370	1.00	1.00	1	08/29/2016 10:07	WG901124
Selenium,Dissolved	0.000387	J	0.000380	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Silver,Dissolved	U		0.000310	0.00200	0.00200	1	08/29/2016 10:07	WG901124
Sodium,Dissolved	77.3		0.110	1.00	1.00	1	08/29/2016 10:07	WG901124
Uranium,Dissolved	0.00865	J	0.000330	0.0100	0.0100	1	08/29/2016 10:07	WG901124
Zinc,Dissolved	0.00380	J	0.00256	0.0250	0.0250	1	08/29/2016 10:07	WG901124

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	U		0.0314	0.100	0.100	1	08/21/2016 04:34	WG900637

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
(S) a,a,a-Trifluorotoluene(FID)	*107*				*62.0-128*		*08/21/2016 04:34*	WG900637

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Acetone	U		0.0100	1.00	1.00	1	08/22/2016 18:12	WG900942
Benzene	U		0.000331	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Bromodichloromethane	U		0.000380	0.00125	0.00125	1	08/22/2016 18:12	WG900942
Bromoform	U	J4	0.000469	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Bromomethane	U	J3	0.000866	0.00500	0.00500	1	08/22/2016 18:12	WG900942
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	08/22/2016 18:12	WG900942
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	08/22/2016 18:12	WG900942
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Carbon disulfide	U		0.000275	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Chlorobenzene	U		0.000348	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Chloroethane	U		0.000453	0.00500	0.00500	1	08/22/2016 18:12	WG900942
Chloroform	U		0.000324	0.00500	0.00500	1	08/22/2016 18:12	WG900942
Chloromethane	U		0.000276	0.00250	0.00250	1	08/22/2016 18:12	WG900942
1,2-Dibromoethane	U		0.000381	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	08/22/2016 18:12	WG900942
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	08/22/2016 18:12	WG900942
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	08/22/2016 18:12	WG900942
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	08/22/2016 18:12	WG900942
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Ethylbenzene	U		0.000384	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Hexachloro-1,3-butadiene	U		0.000256	0.00100	0.00100	1	08/22/2016 18:12	WG900942
2-Hexanone	U		0.00382	0.0100	0.0100	1	08/22/2016 18:12	WG900942
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	08/22/2016 18:12	WG900942
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	08/22/2016 18:12	WG900942
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	08/22/2016 18:12	WG900942
Methylene Chloride	U		0.00100	0.00500	0.00500	1	08/22/2016 18:12	WG900942
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	08/22/2016 18:12	WG900942
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Naphthalene	U		0.00100	0.00500	0.00500	1	08/22/2016 18:12	WG900942
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Styrene	U		0.000307	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Toluene	U		0.000780	0.00500	0.00500	1	08/22/2016 18:12	WG900942
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Trichloroethene	U		0.000398	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,2,4-Trimethylbenzene	U		0.000373	0.00100	0.00100	1	08/22/2016 18:12	WG900942
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Vinyl chloride	U		0.000259	0.00100	0.00100	1	08/22/2016 18:12	WG900942
Xylenes, Total	U		0.00106	0.00300	0.00300	1	08/22/2016 18:12	WG900942
(S) Toluene-d8	*106*				*90.0-115*		*08/22/2016 18:12*	WG900942
(S) Dibromofluoromethane	*103*				*79.0-121*		*08/22/2016 18:12*	WG900942
(S) 4-Bromofluorobenzene	*101*				*80.1-120*		*08/22/2016 18:12*	WG900942

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	0.819		0.0247	0.100	0.100	1	08/24/2016 12:59	WG901047
(S) o-Terphenyl	*109*				*50.0-150*		*08/24/2016 12:59*	WG901047

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

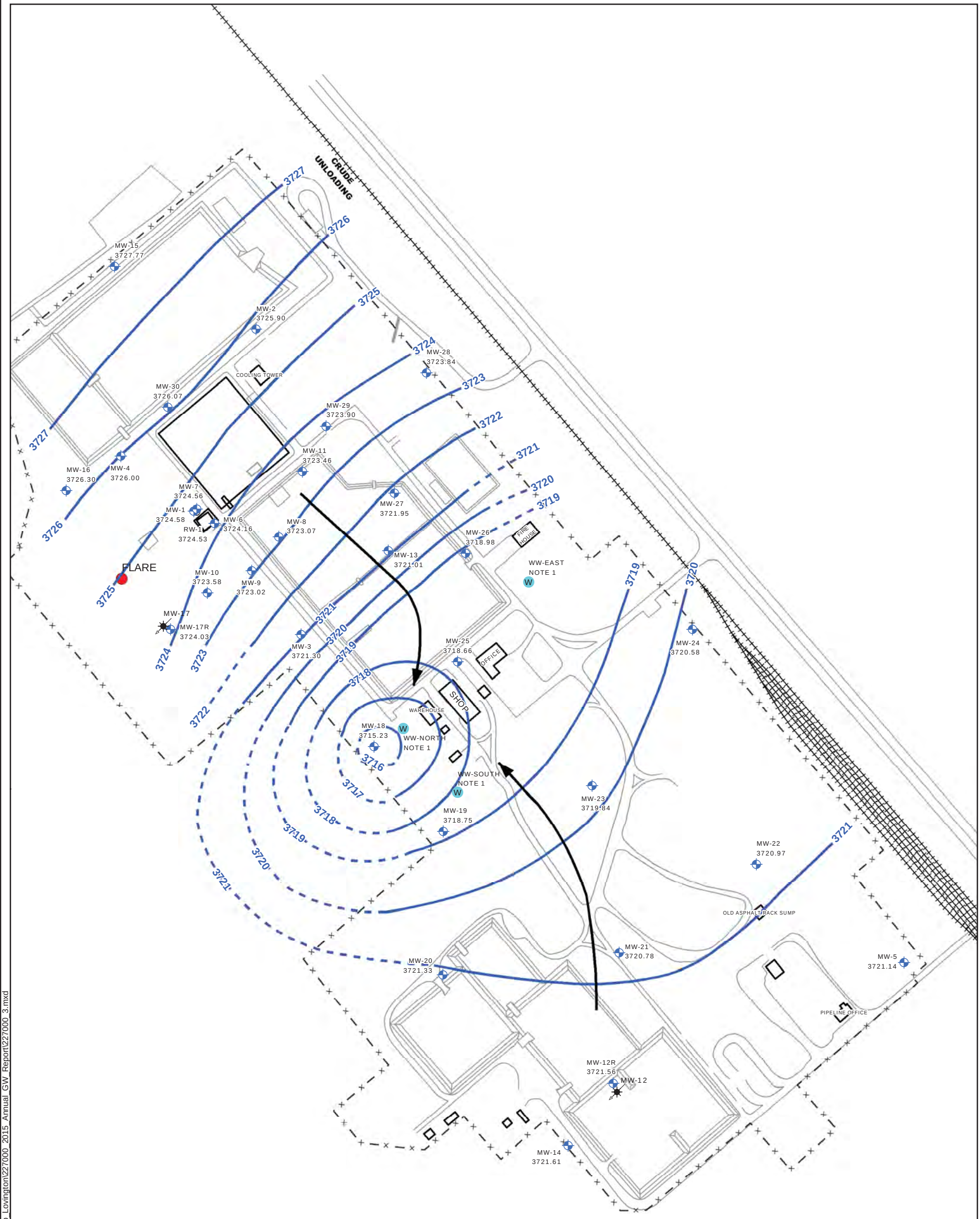
Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.000316	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Acenaphthylene	U		0.000309	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Acetophenone	U		0.00247	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Anthracene	U		0.000291	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Atrazine	U		0.000260	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Benzo(a)anthracene	U		0.0000510	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Benzaldehyde	U	J3	0.00140	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Benzo(b)fluoranthene	U		0.0000896	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Benzo(k)fluoranthene	U		0.000355	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Benzo(g,h,i)perylene	U		0.00000227	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Benzo(a)pyrene	U		0.0000381	0.000200	0.000200	1	08/25/2016 18:59	WG901058
Biphenyl	U		0.000325	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Bis(2-chlorethoxy)methane	U		0.000329	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Bis(2-chloroethyl)ether	U		0.00162	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100	0.0100	1	08/25/2016 18:59	WG901058
4-Bromophenyl-phenylether	U		0.000335	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2-Chloronaphthalene	U		0.000330	0.00100	0.00100	1	08/25/2016 18:59	WG901058
4-Chlorophenyl-phenylether	U		0.000303	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Caprolactam	U		0.00259	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Carbazole	U		0.000260	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Chrysene	U		0.000332	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Dibenz(a,h)anthracene	U		0.0000644	0.000200	0.000200	1	08/25/2016 18:59	WG901058
Dibenzofuran	U		0.000338	0.0100	0.0100	1	08/25/2016 18:59	WG901058
3,3-Dichlorobenzidine	U		0.00202	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,4-Dinitrotoluene	U		0.00165	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,6-Dinitrotoluene	U		0.000279	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Fluoranthene	U		0.000310	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Fluorene	U		0.000323	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Hexachlorobenzene	U		0.000341	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Hexachloro-1,3-butadiene	U		0.000329	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Hexachlorocyclopentadiene	U		0.00233	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Hexachloroethane	U		0.000365	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Isophorone	U		0.000272	0.0100	0.0100	1	08/25/2016 18:59	WG901058
1-Methylnaphthalene	U		0.000332	0.00100	0.00100	1	08/25/2016 18:59	WG901058
2-Methylnaphthalene	U		0.000311	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Naphthalene	U		0.000372	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Nitrobenzene	U		0.000367	0.0100	0.0100	1	08/25/2016 18:59	WG901058
n-Nitrosodiphenylamine	U		0.000304	0.0100	0.0100	1	08/25/2016 18:59	WG901058
n-Nitrosodi-n-propylamine	U		0.000403	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Phenanthrene	U		0.000366	0.00100	0.00100	1	08/25/2016 18:59	WG901058
Benzylbutyl phthalate	U		0.000275	0.00300	0.00300	1	08/25/2016 18:59	WG901058
Bis(2-ethylhexyl)phthalate	0.000894	J	0.000709	0.00300	0.00300	1	08/25/2016 18:59	WG901058
Di-n-butyl phthalate	0.000493	B J	0.000266	0.00300	0.00300	1	08/25/2016 18:59	WG901058
Diethyl phthalate	U		0.000282	0.00300	0.00300	1	08/25/2016 18:59	WG901058
Dimethyl phthalate	U		0.000283	0.00300	0.00300	1	08/25/2016 18:59	WG901058
Di-n-octyl phthalate	U		0.000278	0.00300	0.00300	1	08/25/2016 18:59	WG901058
Pyrene	U		0.000330	0.00100	0.00100	1	08/25/2016 18:59	WG901058
1,2,4-Trichlorobenzene	U		0.000355	0.0100	0.0100	1	08/25/2016 18:59	WG901058
4-Chloro-3-methylphenol	U		0.000263	0.0100	0.0100	1	08/25/2016 18:59	WG901058

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
2-Chlorophenol	U		0.000283	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,4-Dichlorophenol	U		0.000284	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,4-Dimethylphenol	U		0.000624	0.0100	0.0100	1	08/25/2016 18:59	WG901058
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,4-Dinitrophenol	U	J3	0.00325	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2-Nitrophenol	U		0.000320	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2-Nitroaniline	U		0.00190	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2-Methylphenol	U		0.000312	0.0100	0.0100	1	08/25/2016 18:59	WG901058
3&4-Methyl Phenol	U		0.000266	0.0100	0.0100	1	08/25/2016 18:59	WG901058
3-Nitroaniline	U		0.000308	0.0100	0.0100	1	08/25/2016 18:59	WG901058
4-Chloroaniline	U		0.000382	0.0100	0.0100	1	08/25/2016 18:59	WG901058
4-Nitroaniline	U		0.000349	0.0100	0.0100	1	08/25/2016 18:59	WG901058
4-Nitrophenol	U		0.00201	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Pentachlorophenol	U		0.000313	0.0100	0.0100	1	08/25/2016 18:59	WG901058
Phenol	U		0.000334	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,4,5-Trichlorophenol	U		0.000236	0.0100	0.0100	1	08/25/2016 18:59	WG901058
2,4,6-Trichlorophenol	U		0.000297	0.0100	0.0100	1	08/25/2016 18:59	WG901058
(S) 2-Fluorophenol	*60.8*				*10.0-77.9*		*08/25/2016 18:59*	WG901058
(S) Phenol-d5	*41.9*				*5.00-70.1*		*08/25/2016 18:59*	WG901058
(S) Nitrobenzene-d5	*83.2*				*21.8-123*		*08/25/2016 18:59*	WG901058
(S) 2-Fluorobiphenyl	*83.6*				*29.5-131*		*08/25/2016 18:59*	WG901058
(S) 2,4,6-Tribromophenol	*125*				*11.2-130*		*08/25/2016 18:59*	WG901058
(S) p-Terphenyl-d14	*83.6*				*29.3-137*		*08/25/2016 18:59*	WG901058

ATTACHMENT F

2015 Groundwater Gradient Maps



NOTE:
1. WELL NOT ACCESSIBLE FOR GAUGING.

LEGEND

- GROUNDWATER CONTOURS (DASHED WHERE INFERRED)
- MONITORING WELL
- PLUGGED AND ABANDONED MONITORING WELL
- RECOVERY WELL
- WATER WELL
- FLARE
- FENCE
- RAIL
- GROUNDWATER FLOW DIRECTION
- 3731.65 GROUNDWATER ELEVATION (FEET)
- BUILDINGS

GROUNDWATER POTENTIOMETRIC SURFACE MAP - FEBRUARY 2015

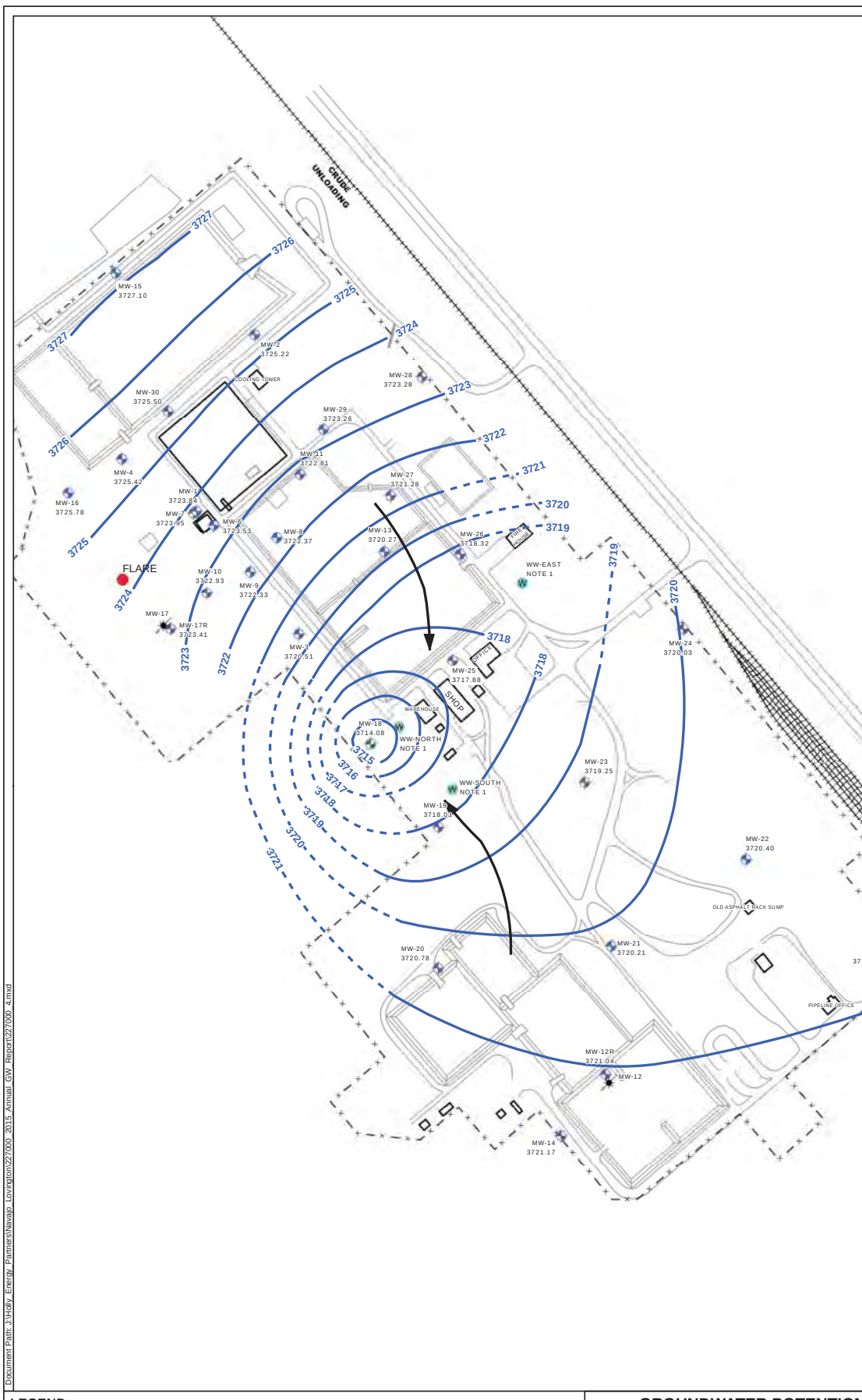
HOLLYFRONTIER NAVAJO REFINING LLC
AP-110, LOVINGTON, NEW MEXICO

PROJECT NO: 227000	MXD: 227000_3
AUTHOR: MREEVES	DATE: 3/25/2016

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 3

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Document Path: J:\Hally_Energy_Partners\Navajo_Lovington\227000_2015 Annual GW_Report\227000_4.mxd

LEGEND

- GROUNDWATER CONTOURS (DASHED WHERE INFERRED)
- MONITORING WELL
- PLUGGED AND ABANDONED MONITORING WELL
- RECOVERY WELL
- WATER WELL
- FLARE
- FENCE
- RAIL
- GROUNDWATER FLOW DIRECTION
- 3731.65 GROUNDWATER ELEVATION (FEET)
- BUILDINGS

N

0 175 350 700

FEET

GROUNDWATER POTENTIOM
SURFACE MAP - AUGUST

HOLLYFRONTIER NAVAJO REFINING
AP-110, LOVINGTON, NEW MEXIC

PROJECT NO: 227000	MXD: 227000_4
AUTHOR: MREEVES	DATE: 3/25/2016

TRC
505 EAST HUNTLAN
SUITE 250
AUSTIN, TEXAS 787
(512) 329-6080

ATTACHMENT G

Summary of Groundwater Analytical Results through 2015

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	WQCC Volatiles					WQCC Semi-Volatiles				
		Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		**0.010**	**0.75**	**0.75**	**0.62**	**0.03**	**0.03**	**- -**	**- -**	**- -**	**0.005**
MW-1	06/19/09	<0.0050	0.012	<0.0050	0.031	<0.0050	- -	- -	- -	- -	- -
	01/19/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	<0.00020	<0.00020	<0.00020
	08/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	03/01/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/27/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/24/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-2	06/22/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/19/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/16/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	03/03/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/14/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/19/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00022
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/28/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-3	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/14/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
(duplicate)	01/14/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/19/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/24/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/15/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
(duplicate)	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/26/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-4	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/13/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/19/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/15/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00044	0.00044	- -	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/28/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.0003723	<0.000332	<0.000311	<0.000334

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

		WQCC Volatiles					WQCC Semi-Volatiles				
Monitor Well	Sample Date	Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		**0.010**	**0.75**	**0.75**	**0.62**	**0.03**	**0.03**	**- -**	**- -**	**- -**	**0.005**
MW-5	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/20/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
(duplicate)	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/24/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000382 J
MW-6	06/18/09	<0.0050	<0.0050	<0.0050	<0.015	0.0075	- -	- -	- -	- -	- -
(duplicate)	06/18/09	<0.0050	<0.0050	<0.0050	<0.015	0.0074	- -	- -	- -	- -	- -
	02/02/10	<0.0050	0.013	<0.0050	<0.015	0.0099	- -	- -	- -	- -	- -
	08/19/10	<0.0050	0.015	<0.0050	<0.015	<0.0050	- -	0.0017	- -	0.0017	<0.0010
	03/01/11	<0.0050	0.018	<0.0050	<0.015	0.013	0.0094	0.0062	<0.00020	0.0032	0.0255
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.0008	0.0008	- -	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00116	0.00052	0.00064	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00292	0.00092	0.0020	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-7	06/19/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/02/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	03/01/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/27/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000507 J
MW-8	06/18/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/25/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/27/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000990 J

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	WQCC Volatiles					WQCC Semi-Volatiles				
		Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		**0.010**	**0.75**	**0.75**	**0.62**	**0.03**	**0.03**	**- -**	**- -**	**- -**	**0.005**
MW-9	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/14/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/19/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	03/01/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/15/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/26/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-10	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/13/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/19/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	<0.00020	<0.00020
	03/03/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00028	0.00028	<0.00020	<0.00020	<0.00020
	07/15/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00032
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/26/15	<0.000331	<0.000384	<0.00078	<0.00106	<0.0010	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-11	06/18/09	0.10	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/18/10	0.20 E	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/18/10	0.078	0.021	<0.0050	<0.015	<0.0050	0.00036	0.00036	- -	- -	0.00122
	02/25/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	1.2	<0.0050	<0.0050	<0.015	<0.0050	0.00036	0.00036	- -	<0.00020	0.00089
	02/01/12	7.8	0.051	<0.0050	0.200	0.096	0.0435	0.039	- -	0.0045	0.0035
	07/27/12	0.049	<0.0050	<0.0050	<0.015	<0.0050	0.00022	0.00022	<0.00020	<0.00020	0.00023
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/28/14	0.9600	0.250	<0.0050	0.200	0.0064	- -	- -	- -	- -	- -
	08/20/14	0.1100	0.011	<0.0050	0.030	<0.0050	- -	- -	- -	- -	- -
	02/27/15	0.0026	0.00099 J	<0.00078	0.0036	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	0.0010 J
	08/28/15	0.00856	0.00194	0.00283 J	0.0158	<0.00100	- -	- -	- -	- -	- -
(duplicate)	08/28/15	0.00922	0.00216	0.00305 J	0.0180	<0.00100	- -	- -	- -	- -	- -
MW-12	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/20/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	--	DAMAGED WELL - NO SAMPLES COLLECTED									
MW-12R	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000362 J

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

		WQCC Volatiles					WQCC Semi-Volatiles				
Monitor Well	Sample Date	Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		**0.010**	**0.75**	**0.75**	**0.62**	**0.03**	**0.03**	**- -**	**- -**	**- -**	**0.005**
MW-13	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/18/10	0.016	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/25/11	0.0057	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00091
	07/19/11	0.0063	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/27/15	0.00034 J	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/26/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000379 J
MW-14	06/16/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/20/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/18/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.000205	<0.00020	<0.000205	<0.000205	<0.000205
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/28/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/20/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/27/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000530 J
MW-15	08/20/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/24/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/14/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/19/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/24/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/24/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
(duplicate)	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000997 J
(duplicate)	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000595 J
MW-16	08/20/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/24/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/15/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00030	0.00030	- -	<0.00020	<0.00020
(duplicate)	07/15/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	0.00037	0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000397 J

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	WQCC Volatiles					WQCC Semi-Volatiles				
		Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		**0.010**	**0.75**	**0.75**	**0.62**	**0.03**	**0.03**	**- -**	**- -**	**- -**	**0.005**
MW-17	08/20/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/24/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/18/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	--	DAMAGED WELL - NO SAMPLES COLLECTED									
MW-17R	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000465 J
MW-18	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/24/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/18/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00021	0.00021	- -	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/14	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00056
	08/20/14	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000507 J
MW-19	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/24/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/18/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00034
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
(duplicate)	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
(duplicate)	02/26/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/26/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000610 J
MW-20	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/25/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/18/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/25/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/15/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000508 J

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

		WQCC Volatiles					WQCC Semi-Volatiles				
Monitor Well	Sample Date	Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		**0.010**	**0.75**	**0.75**	**0.62**	**0.03**	**0.03**	**- -**	**- -**	**- -**	**0.005**
MW-21	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00031	<0.00020	<0.00020	0.00031	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000497 J
MW-22	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/31/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/24/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-23	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/19/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/25/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-24	08/24/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/14/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	07/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000405 J

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	WQCC Volatiles					WQCC Semi-Volatiles				
		Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		**0.010**	**0.75**	**0.75**	**0.62**	**0.03**	**0.03**	**- -**	**- -**	**- -**	**0.005**
MW-25	08/23/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/18/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
(duplicate)	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
(duplicate)	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000728 J
(duplicate)	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000581 J
MW-26	08/24/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/14/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00061
	02/26/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/25/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-27	08/18/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/25/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00099
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	0.00034
	02/01/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/26/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/27/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/26/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-28	08/28/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/23/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/14/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/19/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00086
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	0.00022
	02/24/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/19/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/23/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	0.00033 J
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	0.000774 J

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

		WQCC Volatiles					WQCC Semi-Volatiles				
Monitor Well	Sample Date	Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		**0.010**	**0.75**	**0.75**	**0.62**	**0.03**	**0.03**	**- -**	**- -**	**- -**	**0.005**
MW-29	08/24/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
(duplicate)	08/24/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/28/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/14/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	01/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	0.00050	0.00050	- -	<0.00020	<0.00020
	07/24/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/26/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
(duplicate)	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	0.00039 J
	08/27/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
MW-30	06/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/20/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/28/15	<0.000331	<0.000384	<0.000780	0.00142 J	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
RW-1	06/19/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	02/02/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/19/10	<0.0050	<0.0050	<0.0050	0.015	<0.0050	- -	- -	- -	- -	- -
	03/01/11	<0.0050	<0.0050	<0.0050	0.0054	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/27/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/27/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/21/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	02/25/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	08/27/15	<0.000331	<0.000384	<0.00078	<0.00106	<0.0010	<0.000372	<0.000372	<0.000332	<0.000311	0.000398 J
North Well	06/18/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/14/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/24/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	03/03/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/19/13	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/11/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	12/17/14	<0.0010	<0.0010	<0.0010	<0.0015	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	03/09/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	05/19/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00033	<0.00031	<0.00033
	08/28/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
	12/17/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334

Table 2. Organic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	WQCC Volatiles					WQCC Semi-Volatiles				
		Benzene (mg/L)	Ethyl-benzene (mg/L)	Toluene (mg/L)	Total Xylenes (mg/L)	Total Naphthalene (8260, mg/L)	Total Naphthalenes (8270, mg/L)	Naphthalene (8270, mg/L)	1-Methylnaphthalene (mg/L)	2-Methylnaphthalene (mg/L)	Total Phenols (mg/L)
NM WQCC Groundwater Standards:		**0.010**	**0.75**	**0.75**	**0.62**	**0.03**	**0.03**	**- -**	**- -**	**- -**	**0.005**
South Well	06/22/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/14/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/24/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	03/03/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/19/13	0.0052	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	02/28/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
(duplicate)	08/22/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	12/17/14	0.0023	<0.0010	<0.0010	<0.0015	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
(duplicate)	12/17/14	0.0023	<0.0010	<0.0010	<0.0015	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	03/09/15	0.0014	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
(duplicate)	03/09/15	0.0016	<0.00038	<0.00078	<0.0011	<0.0010	<0.0037	<0.0037	<0.00031	<0.00031	<0.00033
	5/19/2015	0.0010 J	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00033	<0.00031	<0.00033
(duplicate)	5/19/2015	0.00091 J	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00033	<0.00031	<0.00033
	8/28/2015	0.00113	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
(duplicate)	8/28/2015	0.000921 J	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
	12/17/2015	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
(duplicate)	12/17/2015	0.00119	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
East Well	06/18/09	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	01/14/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	08/25/10	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	- -	- -	- -	- -	- -
	03/03/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	07/20/11	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	02/02/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	- -	<0.00020	<0.00020
	07/30/12	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/27/12	<0.0050	<0.0050	<0.0050	<0.015	--	<0.00020	<0.00020	<0.00020	--	<0.00020
	09/26/12	<0.0050	<0.0050	<0.0050	<0.015	--	<0.00020	<0.00020	<0.00020	--	<0.00020
	10/22/12	<0.0050	<0.0050	<0.0050	<0.015	--	<0.00020	<0.00020	<0.00020	--	<0.00020
	12/27/12	<0.0050	<0.0050	<0.0050	<0.015	--	<0.00020	<0.00020	<0.00020	--	<0.00020
	02/28/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	08/22/14	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
	12/17/14	<0.0010	<0.0010	<0.0010	<0.0015	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	03/09/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00031	<0.00031	<0.00033
	05/19/15	<0.00033	<0.00038	<0.00078	<0.0011	<0.0010	<0.00037	<0.00037	<0.00033	<0.00031	<0.00033
	08/28/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334
	12/17/15	<0.000331	<0.000384	<0.000780	<0.00106	<0.00100	<0.000372	<0.000372	<0.000332	<0.000311	<0.000334

Notes:

Shading indicates detected result exceeded the New Mexico Water Quality Control Commission (WQCC) Human Health Standard

mg/L = milligrams per liter

< = Not reported above laboratory reporting limit

-- = Not Analyzed

J = analyte was detected below the laboratory reporting limit, reported value is estimated

June 2009 to August 2014 analyses performed by ALS Laboratory Group in Houston, Texas

December 2014 anlyses peformed by Hall Environmental Analysis Laboratory in Albuquerque, New Mexico

February 2015 to August 2015 analyses performed by ESC Lab Sciences in Mount Juliet, Tennessee

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-1	06/19/09	131	0.827	3.75	123	694	<0.0100	0.00914	0.1470	0.175	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.974	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	0.01240
	01/19/10	266	0.249	5.84	145	1,240	0.0202	0.00634	0.1640	0.236	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	2.72	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00615	0.00989
	08/18/10	126	0.623	2.59	111	694	<0.0100	0.00841	0.1170	0.182	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	1.62	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00538
	03/01/11	100	0.502	1.84	83.4	580	<0.0100	0.00821	0.0984	0.189	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	1.62	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00689
	07/20/11	34.7	0.623	1.14	73.9	492	<0.0100	0.00808	0.0903	0.168	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.485	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00832
	02/02/12	29.9	0.773	<1.00	65.4	392	<0.0100	0.00782	0.0843	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.780	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00766
	07/27/12	27.3	0.944	<2.00	59.5	358	0.0249	0.00870	0.0917	0.193	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	1.05	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00759
	02/27/13	30.0	0.872	<2.00	67.2	400	<0.0100	0.00857	0.0974	0.184	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.662	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01070
	08/21/13	33.2	1.03	<1.00	70.5	406	0.0158	0.00589	0.1020	0.187	<0.00200	0.01600	<0.00500	<0.00500	<0.200	<0.00500	1.32	<0.000200	<0.00500	0.01640	<0.00500	<0.00500	<0.00500	0.00641
	02/27/14	30.0	0.758	0.710	63.2	418	<0.0100	0.00750	0.1110	0.169	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.690	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00874
	08/21/14	26.6	1.10	1.23	68.0	395	0.0135	0.01020	0.1380	0.109	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0172	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02420
	02/25/15	26.0	1.10	1.50	66.0	390	<0.0350	0.01200	0.1300	0.180 J	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	0.00048 J	<0.0012	<0.000049	0.00250	<0.00490	<0.00740	<0.00280	0.00220 J	0.00670 J
	08/27/15	27.3	0.961	1.70	72.2	441	<0.0350	0.01200	0.1220	0.170	<0.00016	<0.00054	<0.00026	<0.00052	<0.0141	<0.000240	0.00191 J	<0.000049	0.00236 J	<0.00035	0.00268	<0.00031	0.00187 J	<0.00256
MW-2	06/22/09	252	0.765	2.69	66.8	988	0.0657	0.03860	0.0803	0.190	<0.00200	<0.00500	<0.00500	0.00621	<0.200	<0.00500	0.00583	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	0.1100
	01/19/10	246	0.672	3.39	55.1	966	<0.0100	<0.00500	0.005	0.191	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00538	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0166
	08/16/10	276	0.824	3.23	55.9	1,180	0.1367	<0.00500	0.193	0.155	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0204
	03/03/11	221	0.763	3.49	57.6	1,010	<0.0100	<0.00500	0.176	0.171	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0117
	07/14/11	190	0.647	2.98	58.4	966	<0.0100	<0.00500	0.160	0.192	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0230
	01/30/12	214	0.784	3.43	75.1	1,230	<0.0100	<0.00500	0.130	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0255
	07/24/12	201	0.898	3.24	76.3	908	<0.0100	<0.00500	0.140	0.233	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0191
	02/19/13	213	0.810	3.90	86.6	834	0.0102	<0.00500	0.141	0.197	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0436
	08/20/13	178	0.920	5.33	88.9	682	0.0346	<0.00500	0.118	0.216	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00721
	02/25/14	139	0.693	5.25	79.4	616	0.0133	<0.00500	0.125	0.203	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0130
	08/21/14	122	0.812	6.17	82.3	588	0.0143	<0.00500	0.112	0.147	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0214
	02/24/15	130	0.920	7.90	94.0	710	<0.035	0.00370	0.090	0.210	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.0034 J	<0.00490	<0.00740	<0.00280	0.00260 J	<0.0059
	08/28/15	343	1.41	8.33	152	1,000	<0.0350	0.00355	0.111	0.213	<0.00016	0.000625 J	<0.00026	0.000548 J	<0.0141	<0.00024	0.000533 J	<0.000049	0.00254 J	0.00115 J	0.00147 J	<0.000310	0.00340 J	0.00382 J
MW-3	06/16/09	29.1	3.38	2.19	64.6	504	0.3080	0.00815	0.1150	0.160	<0.00200	0.00709	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.01510	<0.00500	<0.00500	<0.00500	- -	<0.0100
	01/14/10	49.9	3.18	2.11	76.5	540	0.1440	0.00703	0.1190	0.148	<0.00200	0.00977	<0.00500	0.12100	<0.200	<0.00500	0.00597	<0.000200	0.02000	0.00842	<0.00500	<0.00500	0.000625	0.01950
(duplicate)	01/14/10	49.8	3.18	2.11	75.0	552	0.1420	0.00798	0.1250	0.167	<0.00200	0.01050	<0.00500	0.14800	<0.200	<0.00500	0.00699	<0.000200	0.02160	0.00960	<0.00500	<0.00500	0.000721	0.02300
	08/19/10	72.7	2.99	1.52	77.7	518	0.0767	0.00935	0.1270	0.151	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.00790	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/24/11	88.2	2.58	3.02	80.5	566	<0.0100	0.00892	0.1240	0.178	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.05240
	07/15/11	67.3	2.37	2.59	74.7	568	<0.0100	0.01250	0.1130	0.202	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.00510	<0.00500	<0.00500	<0.00500	<0.00500	0.01560
	01/30/12	65.6	2.94	2.37	86.3	472	<0.0100	0.01170	0.0831	0.168	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.00621	<0.00500	<0.00500	<0.00500	<0.00500	0.00886
	07/25/12	35.0	2.70	<2.00	81.3	436	<0.0100	0.01520	0.0773	0.209	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00673
	02/27/13	54.2	2.47	2.30	89.5	478	<0.0100	0.01560	0.1010	0.186	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.00546	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/22/13	46.1	2.4	2.06	81.9	456	0.0185	0.01690	0.0782	0.178	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/26/14	36.9	1.84	2.08	79.1	430	<0.0100	0.01790	0.0655	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00560	<0.00500	<0.00500	<0.00500	0.00527
	08/21/14	30.0	1.84	1.53	78.0	420	0.0128	0.01830	0.0545	0.104	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/26/15	31.0	1.50	1.90	74.0	420	<0.0350	0.01900	0.0610	0.160	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.00094	<0.00490	<0.00740	<0.00280	0.000570	<0.00590
(duplicate)	02/26/15	32.0	1.60	2.00	74.0	420	<0.0350	0.02000	0.0620	0.160 J	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.00110 J	<0.00490	0.00850 J	<0.00280	0.000560 J	0.00880 J
	08/26/15	27.3	1.55	1.88	77.6	520	<0.0350	0.01950	0.0529	0.166 J	<0.00016	0.000912 J	<0.00026	0.00101 J	<0.0141	<0.00024	0.000572 J	<0.000049	<0.00160	0.000483 J	0.00269	<0.00031	0.000567 J	0.00296 J
MW-4	06/16/09	28.9	0.841	1.84	61.5	422	0.1800	<0.00500	0.1740	0.160	<0.00200	0.00534	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	0.01200
	01/13/10	29.3	1.10	1.67	66.7	416	0.0345	<0.00500	0.0932	0.177	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00102	<0.00500
	08/19/10	26.1	1.10	1.10	65.8	324	0.0607	<0.00500	0.0862	0.136	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/28/11	27.1	1.02	1.91	64.4	378	0.0131	<0.00500	0.0951	0.163	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00533
	07/15/11	25.8	1.12	1.57	63.6	422	0.1440	<0.00500	0.1410	0.172	<0.00200	0.00619	<0.00500	<0.00500	<0.200	<0.00500	0.01140	<0.000200	<0.00500	0.01030	<0.00500	<0.00500	<0.00500	0.02110
	01/30/12	30.0	1.08	1.71	73.4	388	0.0119	<0.00500	0.0796	0.150	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01470
	07/24/12	28.9	1.18	<2.00	69.4	414	<0.0100	<0.00500	0.0883	0.199	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01020
	02/21/13	26.6	1.05	<2.00	75.5	360	<0.0100	0.00525	0.0841	0.157	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01160
	08/20/13	26.4	1.20	1.72	71.6	382	< 0.0100	0.00500	0.0902	0.156	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00506
	02/25/14	26.9	0.877	2.02	75.5	390	<0.0100	<0.00500	0.0897	0.148	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00801
	08/20/14	24.1	1.15	1.64	70.2	372	0.6030	0.00501	0.2130	0.111	<0.00200	<0.00500	<0.00500	<0.00500	0.241	<0.00500	0.00595	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02210
	02/24/15	24.0	1.10	2.10	66.00	390	<0.0350	0.00460	0.0900	0.150 J	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	0.00025 J	<0.00120	0.00011 J	0.00340 J	<0.00490	<0.00740	<0.00280	0.00160 J	<0.00590
	08/28/15	28.8	1.26	2.32	63.8	479	<0.0350	0.00526	0.0930	0.157	<0.00016	<0.00054	<0.00026	<0.00052	<0.0141	<0.00024	0.00114 J	<0.000049	0.00319 J	0.000482 J	0.00228	<0.00031	0.00168 J	0.00269 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-5	06/16/09	186	1.39	3.31	131	952	0.7960	0.02330	0.0639	0.1160	<0.00200	<0.00500	<0.00500	<0.00500	0.399	<0.00500	0.00670	<0.000200	0.01030	<0.00500	<0.00500	<0.00500	- -	<0.01000
	01/18/10	26.4	0.781	4.91	80.6	508	<0.0100	<0.00500	0.0966	0.1350	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/20/10	18.5	1.13	3.43	77.7	440	0.0814	<0.00500	0.0967	0.0986	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/28/11	29.8	1.03	2.91	70.5	570	0.1230	<0.00500	0.1000	0.0854	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01420	<0.000200	<0.00500	0.01120	<0.00500	<0.00500	<0.00500	0.03680
	07/19/11	20.9	0.858	2.72	59.0	524	<0.0100	<0.00500	0.0968	0.0871	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03090
	01/31/12	26.9	1.04	2.49	61.2	504	<0.0100	<0.00500	0.0972	0.0557	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00948
(duplicate)	01/31/12	27.1	1.05	2.54	62.0	436	<0.0100	<0.00500	0.0947	0.0728	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01190
	07/25/12	15.9	1.10	2.22	50.1	434	0.0205	<0.00500	0.0931	0.1340	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.05620
	02/21/13	10.9	1.04	2.01	40.8	412	0.0487	<0.00500	0.1040	0.0997	<0.00200	<0.00500	<0.00500	0.04340	<0.200	<0.00500	0.01580	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00582	0.02890
	08/20/13	13.9	1.16	2.05	44.2	448	< 0.0100	<0.00500	0.1050	0.1000	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00507	0.02080
	02/25/14	11.8	0.877	2.52	48.4	436	< 0.0100	<0.00500	0.1160	0.0893	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01140
	08/19/14	8.71	1.16	1.68	44.6	478	0.1480	<0.00500	0.1230	<0.0200	<0.00200	0.00744	<0.00500	<0.00500	<0.200	<0.00500	0.00532	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00535	0.00626
	02/24/15	21.0	1.40	2.20	43.0	520	0.038 J	0.00290	0.1200	0.0910 J	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.00450 J	<0.00490	<0.00740	<0.00280	0.00400 J	0.00890 J
	08/25/15	19.9	1.52	1.97	39.9	586	<0.0350	0.00410	0.1210	0.0899 J	<0.00016	0.00111 J	<0.00026	0.00102 J	<0.0141	<0.00024	<0.00025	<0.000049	0.00476 J	0.000814 J	<0.00038	<0.00031	0.00410 J	0.00539 J
MW-6	06/18/09	188	0.113	0.678	101	844	<0.0100	0.0201	0.186	0.175	<0.00200	<0.00500	<0.00500	<0.00500	0.418	<0.00500	2.86	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	0.00996
(duplicate)	06/18/09	168	<0.100	0.682	90.4	812	<0.0100	0.0221	0.200	0.192	<0.00200	<0.00500	<0.00500	<0.00500	0.219	<0.00500	2.76	<0.000200	<0.00500	0.00653	<0.00500	<0.00500	- -	0.01410
	02/02/10	334	<0.100	0.822	90.2	1,400	<0.0200	0.0250	0.499	0.234	<0.00200	<0.00500	<0.00500	<0.00500	2.08	<0.00500	4.51	<0.000200	<0.00500	0.00634	<0.00500	<0.00500	0.01130	<0.00500
	08/19/10	285	<0.100	<1.00	111	1,350	0.0152	0.0456	0.376	0.244	<0.00200	<0.00500	<0.00500	<0.00500	1.86	<0.00500	6.61	<0.000200	<0.00500	0.00766	<0.00500	<0.00500	0.00785	<0.00500
	03/01/11	282	<0.100	0.750	80.7	1,340	<0.0100	0.0390	0.404	0.271	<0.00200	<0.00500	<0.00500	<0.00500	0.711	<0.00500	5.58	<0.000200	<0.00500	0.00896	<0.00500	<0.00500	0.00659	<0.00500
	07/20/11	174	<0.500	<0.500	114	970	<0.0100	0.0336	0.220	0.223	<0.00200	0.00972	<0.00500	<0.00500	1.57	<0.00500	4.51	<0.000200	<0.00500	0.00576	<0.00500	<0.00500	<0.00500	0.01760
	02/02/12	58.4	0.313	<1.00	88.0	398	<0.0100	<0.00500	0.0827	0.190	<0.00200	<0.00500	<0.00500	<0.00500	0.488	<0.00500	1.25	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00599	0.00858
	07/24/12	77.7	0.217	<2.00	80.1	690	<0.0100	0.0128	0.143	0.265	<0.00200	<0.00500	<0.00500	<0.00500	1.28	<0.00500	2.53	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.01020	0.01940
	02/27/13	65.4	0.368	<2.00	77.1	542	<0.0100	0.0126	0.154	0.214	<0.00200	<0.00500	<0.00500	<0.00500	1.31	<0.00500	1.97	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00789	0.01230
(duplicate)	02/27/13	65.7	0.370	<2.00	77.6	556	<0.0100	0.0124	0.158	0.216	<0.00200	<0.00500	<0.00500	<0.00500	1.33	<0.00500	2.02	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00833	0.01060
	08/21/13	43.3	0.441	<0.200	76.6	502	0.0244	<0.00500	0.129	0.198	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	1.68	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00606	<0.00500
	02/27/14	124	0.309	<0.500	51.0	814	<0.0100	0.0458	0.263	0.220	<0.00200	<0.00500	<0.00500	<0.00500	3.42	<0.00500	2.71	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00882	0.00622
	08/21/14	132	0.230	<1.00	34.4	832	0.0330	0.0185	0.363	0.167	<0.00200	<0.00500	<0.00500	<0.00500	0.268	<0.00500	3.06	<0.000200	<0.00500	0.00651	<0.00500	<0.00500	0.00744	0.01510
	02/25/15	42.0	0.580	0.170	67.0	500	0.0920 J	0.0061	0.190	0.190 J	<0.00070	<0.0014	<0.00230	<0.00530	0.015 J	0.00072 J	1.00	<0.000049	0.00260 J	<0.00490	<0.00740	<0.00280	0.00660 J	0.02000
	08/27/15	32.4	0.505	0.835	66.5	473	<0.0350	0.00539	0.152	0.181	<0.00016	<0.000540	<0.00026	0.00054 J	<0.0141	<0.00024	0.411	<0.000049	0.00192 J	0.00134 J	0.00242	<0.00031	0.00463 J	0.00347 J
MW-7	06/19/09	30.6	1.12	1.66	67.2	384	<0.0100	0.00923	0.169	0.161	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.127	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	0.01370
	02/02/10	28.0	0.854	1.72	62.2	350	<0.0200	0.00869	0.199	0.169	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.125	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/18/10	27.2	0.570	1.12	60.2	370	0.0223	0.00532	0.252	0.161	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.343	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	03/01/11	26.5	0.599	1.91	58.2	376	<0.0100	0.00525	0.237	0.161	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.441	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00593
	07/20/11	23.3	0.626	1.35	56.8	396	<0.0100	0.00669	0.246	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.617	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/02/12	25.5	0.633	1.66	61.5	356	<0.0100	<0.00500	0.229	0.166	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.550	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00746
	07/27/12	23.6	0.796	2.01	55.2	342	0.0727	<0.00500	0.234	0.196	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.642	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01140
	02/27/13	25.8	0.709	<2.00	67.3	286	<0.0100	<0.00500	0.227	0.178	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.300	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00844
	08/21/13	26.9	0.748	1.62	60.8	290	< 0.0100	<0.00500	0.220	0.178	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.365	<0.000200	<0.00500	<0.00500	0.00600	<0.00500	<0.00500	<0.00500
	02/27/14	31.0	0.501	1.50	62.1	408	0.0159	<0.00500	0.208	0.168	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.781	<0.000200	<0.00500	<0.00500	0.00540	<0.00500	<0.00500	0.00818
	08/21/14	30.8	0.642	1.72	62.2	380	< 0.0100	<0.00500	0.207	0.110	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.470	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00566
	02/25/15	35.0	0.710	2.00	60.0	420	<0.0350	0.00550	0.240	0.180 J	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	0.00041 J	0.011	<0.000049	0.00110 J	<0.00490	<0.00740	<0.00280	0.00330 J	0.00830 J
	08/27/15	38.4	0.866	2.28	66.9	471	<0.0350	0.00650	0.215	0.180	<0.00016	<0.00054	<0.00026	<0.00052	<0.0141	<0.00024	0.0184	<0.000049	0.00175 J	<0.00035	0.00334	<0.00031	0.00236 J	<0.00256
MW-8	06/18/09	219	0.730	3.46	73.3	798	<0.0100	0.00501	0.181	0.228	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00919	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	0.04580
	01/18/10	151	0.493	3.80	67.6	742	<0.0100	0.00726	0.157	0.215	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00545
	08/18/10	279	0.560	7.08	65.3	1,260	0.0377	0.00676	0.204	0.170	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00501	0.00760
	02/25/11	144	0.820	<0.500	87.5	694	<0.0100	<0.00500	0.106	0.175	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.28100	<0.000200	<0.00500	0.00620	<0.00500	<0.00500	<0.00500	0.03160
	07/19/11	313	0.522	4.49	72.4	1,460	<0.0100	<0.00500	0.229	0.278	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00928	0.02130
	02/01/12	376	0.498	8.21	102	1,530	<0.0100	<0.00500	0.221	0.219	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00636	<0.000200	<0.00500	0.01190	<0.00500	<0.00500	0.00745	0.03390
	07/27/12	224	0.490	8.55	122	1,080	<0.0100	<0.00500	0.160	0.294	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00523	<0.00500	<0.00500	0.00714	0.00888
	02/26/13	246	0.371	11.1	118	1,080	<0.0100	0.00627	0.170	0.380	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00592	<0.000200	<0.00500	0.00999	<0.00500	<0.00500	0.00690	0.01880
	08/21/13	101	0.513	9.49	129	788	< 0.0100	<0.00500	0.119	0.266	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02080	<0.000200	<0.00500	0.01350	<0.00500	<0.00500	<0.00500	0.01070
	02/27/14	368	0.417	1.43	88.1	1,440	0.7470	<0.00500	0.233	0.284	<0.00200	0.04170	<0.00500	<0.00500	0.541	<0.00500	0.02400	<0.000200	<0.00500	0.03390	<0.00500	<0.00500	0.00916	0.01020
	08/21/14	360	0.268	4.42	76.6	1,310	0.3140	<0.00500	0.212	0.230	<0.00200	0.04040	<0.00500	<0.00500	0.274	<0.00500	0.01280	<0.000200	<0.00500	0.02580	<0.00500	<0.00500	0.00639	0.01810
	02/26/15	220	0.490	7.00	86.0	960	0.1100	0.00550	0.200	0.230	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.000830 J	<0.00490	<0.00740	<0.00280	0.00730 J	0.00590 J
	08/27/15	258	0.368 J	8.80	88.5	1,260	<0.0350	0.00537	0.232	0.245	<0.00016	0.000562 J	0.000346 J	0.000544 J	<0.0141	<0.00024	0.00141 J	<0.000049	0.000854 J	0.00204	0.00224	<0.00031	0.00891 J	0.00316 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-9	06/16/09	23.0	1.69	0.748	73.2	380	0.0468	0.0373	0.0911	0.122	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	<0.0100
	01/14/10	23.9	1.78	1.72	74.4	450	0.0164	0.0351	0.0676	0.139	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.000656	<0.00500
	08/19/10	21.8	1.64	1.32	75.2	412	0.1150	0.0358	0.0649	0.121	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00961	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	03/01/11	24.1	1.63	2.01	74.6	414	0.0112	0.0382	0.0586	0.131	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00662
	07/15/11	24.9	1.65	1.78	70.2	434	0.0371	0.0374	0.0647	0.166	<0.00200	0.00741	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00511	<0.00500	<0.00500	<0.00500	0.00932
	01/31/12	31.5	2.22	1.43	80.5	484	<0.0100	0.0341	0.0653	0.108	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00529
	07/25/12	30.4	1.99	<2.00	77.8	420	0.0306	0.0292	0.0721	0.182	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00708	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00716
	02/27/13	31.3	1.11	2.82	79.1	440	<0.0100	0.0171	0.0766	0.154	<0.00200	<0.00500	<0.00500	<0.00500	0.702	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01670
	08/22/13	35.7	1.80	3.01	74.0	466	0.0467	0.0246	0.0736	0.153	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/26/14	54.0	1.48	3.17	71.5	452	0.0161	0.0224	0.0737	0.152	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00588	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/21/14	197	0.655	2.35	111	932	2.47	<0.00500	0.1740	0.124	<0.00200	0.205	<0.00500	0.00644	2.22	<0.00500	0.09030	<0.000200	0.00662	0.11100	<0.00500	<0.00500	<0.00500	0.03340
	02/25/15	49.0	0.690	3.50	69.0	440	<0.0350	0.0087	0.1000	0.180 J	<0.00070	<0.0014	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.00140 J	<0.00490	<0.00740	<0.00280	0.00310 J	<0.00590
	08/26/15	46.6	0.527	4.17	67.5	495	<0.0350	0.00744	0.1080	0.163 J	<0.00016	<0.000540	<0.00026	0.000626 J	<0.0141	<0.00024	<0.00025	<0.000049	<0.00160	0.000566 J	<0.00297	<0.00031	0.00285 J	0.00258 J
MW-10	06/16/09	32.2	0.878	1.83	76.5	378	<0.0200	<0.00500	0.1130	0.138	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	0.01270
	01/13/10	33.4	1.05	1.84	77.9	436	<0.0100	<0.00500	0.0815	0.162	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.000911	0.01330
	08/19/10	31.7	1.07	1.91	79.8	508	0.0556	<0.00500	0.0798	0.129	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00569
	03/03/11	32.8	0.945	2.06	79.1	422	<0.0100	<0.00500	0.0772	0.159	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01330
	07/15/11	30.7	1.06	1.68	75.7	470	0.0318	<0.00500	0.0855	0.177	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	01/31/12	42.9	1.00	1.85	87.4	444	<0.0100	<0.00500	0.0865	0.109	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02520
	07/25/12	42.7	1.10	<2.00	82.6	382	<0.0100	0.00516	0.0882	0.186	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00861
	02/27/13	48.0	0.960	<2.00	83.5	416	<0.0100	0.00546	0.0972	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00633
	08/22/13	95.0	0.994	2.12	72.2	516	< 0.0100	<0.00500	0.1040	0.168	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00671
	02/26/14	112	0.674	2.43	70.9	568	< 0.0100	<0.00500	0.1060	0.147	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00979
	08/21/14	156	0.856	2.08	68.5	750	< 0.0100	<0.00500	0.1340	0.0998	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00939	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01140
	02/26/15	120	0.71	2.10	68.0	540	<0.0350	0.00430	0.1200	0.170 J	<0.00070	0.00160 J	<0.00230	<0.0053	<0.014	0.00030 J	<0.00120	<0.000049	0.00260 J	<0.00490	<0.0074	<0.00280	0.00190 J	0.00600 J
	08/26/15	115	1.19	1.92	102	551	<0.0350	0.00466	0.0982	0.154	<0.00016	0.000709 J	<0.00026	0.000803 J	<0.0141	<0.00024	<0.00025	<0.000049	0.00258 J	<0.00035	0.00283	<0.00031	0.00158 J	<0.00256
MW-11	06/18/09	204	0.579	1.23	43.1	994	<0.0100	<0.00500	0.194	0.199	<0.00200	<0.00500	<0.00500	<0.00500	0.571	<0.00500	0.3870	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	0.02120
	01/18/10	164	0.527	1.37	71.4	842	<0.0100	<0.00500	0.147	0.238	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0559	<0.000200	<0.00500	0.01260	<0.00500	<0.00500	0.00635	<0.00500
	08/18/10	146	0.616	2.38	50.6	802	0.0125	<0.00500	0.471	0.255	<0.00200	<0.00500	<0.00500	<0.00500	0.347	<0.00500	0.5710	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00718	<0.00500
	02/25/11	415	0.549	<0.500	82.3	1,510	<0.0100	<0.00500	0.241	0.244	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0101	<0.000200	<0.00500	0.00856	<0.00500	<0.00500	0.00878	0.09820
	07/19/11	134	0.575	0.778	57.0	894	<0.0100	<0.00500	0.150	0.232	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0301	<0.000200	<0.00500	0.00846	<0.00500	<0.00500	0.00616	0.02650
	02/01/12	175	0.749	<0.500	4.96	966	<0.0100	0.0176	1.40	0.288	<0.00200	<0.00500	<0.00500	<0.00500	1.77	<0.00500	1.05	<0.000200	<0.00500	0.01690	<0.00500	<0.00500	0.01380	0.01890
	07/27/12	133	0.708	<2.00	59.7	784	<0.0100	0.0128	0.827	0.374	<0.00200	<0.00500	<0.00500	<0.00500	2.02	<0.00500	2.54	<0.000200	<0.00500	0.03510	<0.00500	<0.00500	0.03300	<0.00500
	02/27/13	140	0.576	3.11	32.6	908	<0.0100	0.00802	0.561	0.349	<0.00200	<0.00500	0.00604	<0.00500	<0.200	<0.00500	5.24	<0.000200	0.00631	0.08610	<0.00500	<0.00500	0.01270	0.02260
(duplicate)	02/27/13	143	0.585	3.23	32.0	908	<0.0100	0.00787	0.574	0.349	<0.00200	<0.00500	0.00574	<0.00500	<0.200	<0.00500	5.47	<0.000200	0.00619	0.08110	<0.00500	<0.00500	0.01250	0.01990
	08/21/13	182	0.668	4.04	75.3	854	< 0.0100	<0.00500	0.195	0.283	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	2.62	<0.000200	<0.00500	0.00869	<0.00500	<0.00500	0.00723	0.00547
(duplicate)	08/21/13	172	0.673	4.19	76.2	868	< 0.0100	<0.00500	0.198	0.29	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	2.92	<0.000200	<0.00500	0.00906	<0.00500	<0.00500	0.00714	0.00592
	02/28/14	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]
	08/20/14	--[1]	--[1]	<1.0	--[1]	--[1]	0.0129	<0.00500	0.820	0.361	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	1.10	<0.000200	<0.00500	0.02170	<0.00500	<0.00500	0.02690	0.01040
	02/27/15	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]
	08/28/15	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]
MW-12	06/16/09	23.0	1.16	1.98	49.6	354	<0.0200	0.00516	0.0775	0.200	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	<0.0100
	01/18/10	26.1	1.05	2.31	49.8	398	<0.0100	<0.00500	0.0755	0.235	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02190	<0.000200	<0.00500	0.01820	<0.00500	<0.00500	<0.00500	<0.00500
	08/20/10	25.8	1.22	2.00	50.3	340	0.1150	0.00550	0.0756	0.176	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/25/11	28.5	1.14	<0.500	50.8	402	<0.0100	0.00504	0.0760	0.198	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01850
	07/19/11	26.8	0.856	2.91	51.2	410	<0.0100	<0.00500	0.0828	0.215	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00976	<0.000200	0.00575	0.00684	<0.00500	<0.00500	<0.00500	<0.00500
	--	DAMAGED WELL - NO SAMPLES COLLECTED																						
MW-12R	08/21/13	31.2	1.40	8.14	71.1	404	< 0.0100	<0.00500	0.0937	0.194	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01290	<0.000200	0.00647	0.01030	<0.00500	<0.00500	<0.00500	0.00956
	02/27/14	28.3	0.886	7.38	63.4	432	< 0.0100	<0.00500	0.0767	0.193	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00992	<0.00500	<0.00500	<0.00500	<0.00500
	08/20/14	24.5	1.05	6.98	67.2	410	1.31	<0.00500	0.1450	0.223	<0.00200	0.0516	<0.00500	<0.00500	0.867	<0.00500	0.04830	<0.000200	0.00554	0.03500	<0.00500	<0.00500	<0.00500	0.00962
	02/24/15	29	1.1	7.0	63	500	0.0370 J	0.00380	0.0950	0.200	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	<0.00024	<0.0012	<0.000049	0.0042 J	<0.00490	<0.00740	<0.00280	0.00190 J	0.00810 J
	08/25/15	19.8	1.02	7.36	71.1	527	<0.0350	0.00413	0.1020	0.233	<0.00016	<0.000540	<0.000260	<0.000520	<0.0141	<0.00024	0.00203 J	<0.000049	0.00294 J	0.00191 J	0.000707 J	<0.00031	0.00270 J	0.00291 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-13	06/16/09	425	0.220	2.65	138	1,790	<0.0200	<0.00500	0.0692	0.253	<0.00200	<0.00500	0.0285	<0.00500	<0.200	<0.00500	0.0176	<0.000200	<0.00500	0.0126	<0.00500	<0.00500	- -	0.02690
	01/18/10	604	0.170	1.08	79.8	2,210	<0.0100	<0.00500	0.1110	0.231	<0.00200	0.00728	0.00624	<0.00500	<0.200	<0.00500	0.0591	<0.000200	<0.00500	0.0110	<0.00500	<0.00500	0.0119	0.00769
	08/18/10	390	0.278	<1.00	144	1,720	0.0196	<0.00500	0.1060	0.221	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.256	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.0128	0.00618
	02/25/11	340	0.281	<0.500	235	1,540	<0.0100	<0.00500	0.0692	0.242	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.225	<0.000200	<0.00500	0.0144	<0.00500	<0.00500	0.0170	0.07440
	07/19/11	351	0.327	<0.500	244	1,960	<0.0100	<0.00500	0.0800	0.249	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.302	<0.000200	<0.00500	0.0121	<0.00500	<0.00500	0.0188	0.00785
	02/01/12	418	0.322	<0.500	122	1,590	<0.0100	<0.00500	0.0752	0.228	<0.00200	<0.00500	0.00663	<0.00500	<0.200	<0.00500	0.341	<0.000200	<0.00500	0.0136	<0.00500	<0.00500	0.0128	0.05530
	07/26/12	462	0.422	<2.00	123	2,150	<0.0100	<0.00500	0.1120	0.284	<0.00200	<0.00500	0.00644	<0.00500	<0.200	<0.00500	0.459	<0.000200	<0.00500	0.0108	<0.00500	<0.00500	0.0158	0.03610
	02/26/13	430	0.366	<2.00	135	1,610	0.0139	<0.00500	0.1290	0.270	<0.00200	<0.00500	0.00657	<0.00500	<0.200	<0.00500	0.571	<0.000200	0.00568	0.0820	<0.00500	<0.00500	0.0123	0.03590
	08/21/13	548	0.389	< 1.00	108	2,000	< 0.0100	0.00590	0.1590	0.265	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.705	<0.000200	<0.00500	0.0209	<0.00500	<0.00500	0.0153	0.00931
	02/27/14	588	0.282	<0.500	106	2,380	0.0110	<0.00500	0.1910	0.258	<0.00200	0.01400	0.00541	<0.00500	0.321	<0.00500	1.01	<0.000200	<0.00500	0.0300	<0.00500	<0.00500	0.0173	0.02910
	08/19/14	485	<1.00	< 1.00	87.2	1,900	0.0737	<0.00500	0.2070	0.287	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.940	<0.000200	<0.00500	0.0065	<0.00500	<0.00500	0.0151	0.01150
	02/27/15	550	0.38	0.056 J	59	1,600	<0.0350	0.00340	0.2300	0.240	<0.00070	<0.00140	0.00470 J	<0.00530	<0.014	<0.00024	0.820	<0.000049	0.00100 J	<0.00490	<0.00740	<0.00280	0.0140	0.01900 J
	08/26/15	396	0.505	0.956	107	1,890	<0.0350	0.00301	0.1970	0.231	<0.00016	<0.00054	0.00163 J	0.00208 J	<0.0141	<0.00024	0.383	--[1]	0.00143 J	0.00276	0.000710 J	<0.00031	0.0112	0.00592 J
MW-14	06/16/09	93.0	0.851	5.16	60.9	540	<0.0200	<0.00500	0.0770	0.132	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01990	<0.000200	0.02150	<0.00501	<0.00500	<0.00500	- -	0.0255
	01/18/10	103	0.810	6.03	59.0	598	<0.0100	<0.00500	<0.00500	<0.020	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/20/10	74.1	0.986	2.76	61.3	340	0.1030	<0.00500	0.0774	0.131	<0.00200	0.0119	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.00964	0.0480	<0.00500	<0.00500	0.00527	<0.00500
	02/25/11	58.2	0.918	2.32	58.7	440	0.0101	<0.00500	0.0778	0.151	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02340	<0.000200	0.00903	0.0138	<0.00500	<0.00500	0.00541	0.0532
	07/18/11	48.4	1.05	1.36	53.0	482	0.1760	0.00615	0.110	0.156	<0.00200	12.5	0.122	0.21800	54.9	<0.00500	1.45	<0.000200	0.08600	6.81	<0.00500	<0.00500	0.00544	0.0446
	01/31/12	59.7	0.984	1.58	58.3	444	<0.0100	<0.00500	0.0802	0.129	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02760	<0.000200	0.00608	0.0186	<0.00500	<0.00500	<0.00500	0.0287
	07/25/12	69.3	1.03	<2.00	54.8	446	0.0116	<0.00500	0.0905	0.216	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.03210	<0.000200	<0.00500	0.0240	<0.00500	<0.00500	<0.00500	0.0448
	02/22/13	71.9	0.795	<2.00	52.9	428	<0.0100	<0.00500	0.0900	0.174	<0.00200	<0.00500	<0.00500	0.07050	<0.200	<0.00500	0.03490	<0.000200	0.01210	0.0106	<0.00500	<0.00500	0.00591	0.1480
	02/28/14	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]	--[1]
	08/20/14	--[1]	--[1]	1.10	--[1]	534	0.5730	<0.00500	0.125	0.203	<0.00200	0.02470	<0.00500	<0.00500	0.314	<0.00500	0.00919	<0.000200	0.00533	0.0178	<0.00500	<0.00500	0.00502	0.0134
	02/27/15	--[1]	--[1]	--[1]	--[1]	--[1]	<0.0350	0.0023	0.100	0.200 J	<0.00070	0.00260 J	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	--	0.00400 J	<0.00490	<0.00740	<0.0028	0.00470 J	0.0070 J
	08/27/15	104	0.940	1.96	44.6	611	<0.0350	0.00271	0.0998	0.188	<0.00016	0.00261	0.000326 J	0.00122 J	<0.0141	<0.00024	<0.000250	--[1]	0.00429 J	0.00190 J	0.00123 J	<0.00031	0.00485 J	0.00334 J
MW-15	08/20/10	221	0.921	3.22	77.6	776	0.0790	<0.00500	0.145	0.175	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01980
	02/24/11	190	0.885	4.28	67.0	738	<0.0100	<0.00500	0.127	0.165	<0.00200	0.0102	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03850
	07/14/11	236	0.701	4.18	60.9	940	<0.0100	<0.00500	0.173	0.201	<0.00200	0.0132	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00657	<0.00500	<0.00500	<0.00500	0.01220
	01/30/12	304	0.840	4.09	78.6	1,330	<0.0100	<0.00500	0.180	0.178	<0.00200	0.00644	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00967
	07/24/12	291	0.965	8.22	80.3	1,060	<0.0100	<0.00500	0.178	0.227	<0.00200	0.0110	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00636
	02/19/13	254	0.819	5.12	76.0	882	0.0682	<0.00500	0.178	0.191	<0.00200	0.129	<0.00500	<0.00500	0.610	<0.00500	0.01980	<0.000200	<0.00500	0.07040	<0.00500	<0.00500	<0.00500	0.01600
	08/20/13	379	0.910	6.82	71.3	1,280	< 0.0100	<0.00500	0.232	0.194	<0.00200	0.00594	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00854
(duplicate)	08/20/13	381	0.931	6.83	72.7	1,230	< 0.0100	<0.00500	0.232	0.188	<0.00200	0.00582	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00619
	02/24/14	256	0.715	7.86	83.0	858	< 0.0100	<0.00500	0.178	0.175	<0.00200	0.00910	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
(duplicate)	02/24/14	263	0.832	8.07	82.5	810	< 0.0100	<0.00500	0.178	0.174	<0.00200	0.00961	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/21/14	148	1.02	8.52	97.5	690	0.0102	<0.00500	0.146	0.117	<0.00200	0.00513	<0.00500	<0.00500	<0.200	<0.00500	0.00509	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01490
(duplicate)	08/21/14	150	1.01	8.53	95.6	706	0.0136	<0.00500	0.153	0.119	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02130
	02/24/15	150	0.90	8.4	94	650	0.0520 J	0.00400	0.150	0.170 J	<0.00070	0.0034 J	<0.0023	<0.0053	<0.014	<0.00024	<0.00120	<0.000049	0.00240 J	<0.00490	<0.00740	<0.00280	0.0021 J	0.01200 J
	08/27/15	181	1.13	8.48	123	728	<0.0350	0.00424	0.146	0.167	<0.00016	0.00285	<0.00026	0.00109 J	<0.0141	0.000373 J	0.000492 J	<0.000049	0.00249 J	0.000825 J	0.00232	<0.00031	0.00220 J	<0.00256
(duplicate)	08/27/15	234	1.46	8.47	158	729	<0.0350	0.00443	0.146	0.174	<0.00016	0.00272	<0.00026	<0.000520	0.0144 J	<0.000240	0.000276 J	<0.000049	0.00254 J	0.000688 J	0.00253	<0.00031	0.00200 J	<0.00256
MW-16	08/20/10	25.3	0.930	1.13	73.7	406	0.0746	<0.00500	0.1090	0.156	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00554	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01450
	02/24/11	28.1	0.928	2.36	73.7	412	<0.0100	<0.00500	0.1070	0.162	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00671	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02480
	07/15/11	25.5	1.04	1.82	72.0	484	0.188	<0.00500	0.1290	0.181	<0.00200	0.11500	<0.00500	<0.00500	0.613	<0.00500	0.01640	<0.000200	<0.00500	0.05910	<0.00500	<0.00500	<0.00500	0.01760
(duplicate)	07/15/11	21.0	0.733	1.98	54.1	476	0.0374	<0.00500	0.1180	0.185	<0.00200	0.02510	<0.00500	<0.00500	0.241	<0.00500	0.00820	<0.000200	<0.00500	0.02340	<0.00500	<0.00500	<0.00500	0.01660
	01/30/12	27.9	0.994	1.79	77.6	398	<0.0100	<0.00500	0.0964	0.166	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00899
	07/24/12	26.6	1.14	<2.00	72.6	404	0.0102	<0.00500	0.0966	0.202	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01620	<0.000200	<0.00500	0.01120	<0.00500	<0.00500	<0.00500	0.01670
	02/20/13	24.0	0.966	<2.00	68.1	316	<0.0100	0.00547	0.0968	0.172	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00693
	08/20/13	24.7	1.02	1.75	64.0	392	0.026	<0.00500	0.1050	0.192	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02190	<0.000200	<0.00500	0.01770	<0.00500	<0.00500	<0.00500	<0.00500
	02/25/14	23.9	0.766	1.83	62.3	362	<0.0100	<0.00500	0.0938	0.172	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02250	<0.000200	0.00516	0.02950	<0.00500	<0.00500	<0.00500	0.00786
	08/19/14	21.7	0.975	1.41	64.9	362	0.335	<0.00500	0.1040	0.209	<0.00200	0.00751	<0.00500	<0.00500	<0.200	<0.00500	0.00544	<0.000200	<0.00500	0.00667	<0.00500	<0.00500	<0.00500	0.00897
	02/24/15	20	1.0	1.9	61	360	0.042 J	0.00510	0.0980	0.170 J	<0.00070	<0.00140	<0.00230	<0.0053	<0.014	<0.00024	0.00420 J	<0.000049	0.00350 J	<0.00490	<0.00740	<0.00280	0.00160 J	0.01400 J
	08/27/15	21.3	1.07	2.34	66.0	408	<0.0350	0.00528	0.0936	0.176	<0.00016	<0.00054	<0.00026	0.000638 J	<0.0141	<0.00024	0.000312 J	<0.000049	0.00293 J	<0.00035	0.00228	<0.00031	0.00156 J	0.00343 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-17	08/20/10	426	0.517	4.27	72.6	1,650	0.146	<0.00500	0.180	0.157	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0142
	02/24/11	412	0.435	5.33	80.0	1,634	<0.0100	<0.00500	0.152	0.162	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0478
	07/18/11	336	0.753	4.07	82.7	1,850	<0.0100	<0.00500	0.141	0.165	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0126
	- -	DAMAGED WELL - NO SAMPLES COLLECTED																						
MW-17R	08/22/13	246	0.602	3.44	81.7	1,190	0.0302	<0.00500	0.154	0.188	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0819	<0.000200	0.00531	0.0189	<0.00500	<0.00500	<0.00500	<0.00500
	02/27/14	184	0.425	0.629	92.5	904	0.2540	<0.00500	0.121	0.193	<0.00200	0.0121	<0.00500	<0.00500	<0.200	<0.00500	0.0342	<0.000200	<0.00500	0.0273	<0.00500	<0.00500	<0.00500	<0.00500
	08/22/14	170	0.602	2.70	94.8	860	0.0459	<0.00500	0.153	0.120	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0989	<0.000200	<0.00500	0.0378	<0.00500	<0.00500	<0.00500	0.02430
	02/26/15	150	0.65	2.6	75	670	0.0460 J	0.00280	0.120	--	<0.00070	0.0022 J	<0.00230	<0.0053	<0.014	0.00030 J	<0.0012	<0.000049	0.00130 J	<0.0049	<0.00740	<0.00280	0.00300 J	0.02300 J
	08/27/15	110	0.859	2.86	87.4	658	<0.0350	0.00320	0.0972	0.171	<0.00016	0.000967 J	<0.00026	0.000632 J	0.0218 J	<0.000240	0.00123 J	<0.000049	0.00163 J	0.000779 J	0.00203	<0.00031	0.00267 J	<0.00256
MW-18	08/23/10	176	0.456	0.733	287	1,080	0.0787	<0.00500	0.0575	0.334	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.31400	<0.000200	0.00561	0.0298	0.00548	<0.00500	0.0123	0.07720
	02/24/11	286	0.514	4.14	298	1,240	0.0157	<0.00500	0.0766	0.330	<0.00200	0.0186	<0.00500	<0.00500	<0.200	<0.00500	0.00536	<0.000200	<0.00500	0.0144	0.00501	<0.00500	0.00883	0.04390
	07/18/11	218	0.800	5.74	234	1,290	0.0244	<0.00500	0.05636	0.396	<0.00200	0.0111	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.0129	<0.00500	<0.00500	0.00666	0.06610
	01/31/12	106	0.722	3.89	94.3	584	0.0113	<0.00500	0.0645	0.133	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01910
	07/25/12	103	0.753	2.01	63.4	562	0.0110	<0.00500	0.0780	0.230	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00684
	02/22/13	181	0.564	4.02	116	782	0.0742	<0.00500	0.1050	0.249	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01290	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.0138	0.01870
	08/22/13	197	0.531	5.59	130	1,100	< 0.0100	<0.00500	0.1100	0.243	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00509	<0.00500	<0.00500	<0.00500	<0.00500
	02/26/14	145	0.514	4.36	89.1	680	0.0213	<0.00500	0.0766	0.244	<0.00200	<0.00500	<0.00500	0.0215	<0.200	<0.00500	0.01770	<0.000200	<0.00500	0.00681	<0.00500	<0.00500	0.00701	0.04650
	08/20/14	143	0.590	1.97	123	678	1.31	<0.00500	0.1450	0.242	<0.00200	0.00506	<0.00500	<0.00500	0.637	<0.00500	0.03780	<0.000200	<0.00500	0.00634	<0.00500	<0.00500	<0.00500	0.03630
	02/26/15	130	0.68	3.5	97	670	0.069 J	0.0026	0.1000	0.260	<0.00070	<0.0014	<0.00230	0.0061 J	0.022 J	0.00026 J	<0.00120	<0.000049	0.00200 J	<0.00490	<0.00740	<0.00280	0.00390 J	0.01700 J
	08/25/15	136	0.703	2.73	65.8	844	<0.0350	0.00288	0.1160	0.188 J	<0.00016	0.00118 J	<0.00026	0.000646 J	<0.0141	<0.00024	0.00120 J	<0.000049	0.00612	0.00151 J	0.00178 J	<0.00031	0.00434 J	0.00669 J
MW-19	08/23/10	469	0.536	2.94	178	1,650	0.1010	0.04760	0.2290	<0.020	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00666	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02270
	02/24/11	235	0.713	2.87	90.7	828	<0.0100	<0.00500	0.0764	0.180	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03180
	07/18/11	688	0.734	3.66	142	2,880	<0.0100	<0.00500	0.0920	0.266	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00781	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.05530
	01/31/12	610	0.568	4.12	121	1,770	<0.0100	<0.00500	0.0688	0.350	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00553	<0.000200	<0.00500	0.00525	<0.00500	<0.00500	<0.00500	0.03450
	07/25/12	1,130	0.450	5.11	117	3,570	0.0114	<0.00500	0.1060	0.535	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00593	<0.000200	<0.00500	0.00664	<0.00500	<0.00500	<0.00500	0.07140
	02/26/13	540	0.519	4.21	115	1,650	<0.0100	<0.00500	0.0870	0.300	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00566	<0.00500	<0.00500	<0.00500	0.06290
	08/22/13	487	0.645	3.43	92.6	1,430	<0.0100	<0.00500	0.0857	0.241	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00512
(duplicate)	08/22/13	475	0.672	3.38	95.7	1,670	0.0182	<0.00500	0.0864	0.237	<0.00200	0.0143	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00900	<0.00500	<0.00500	<0.00500	<0.00500
	02/26/14	264	0.576	2.34	72.3	850	0.0120	<0.00500	0.0793	0.227	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01570	<0.000200	<0.00500	0.01220	<0.00500	<0.00500	<0.00500	0.03330
(duplicate)	02/26/14	288	0.555	2.51	76.0	950	0.0435	<0.00500	0.0753	0.204	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01650	<0.000200	<0.00500	0.01230	<0.00500	<0.00500	<0.00500	0.03500
	08/19/14	233	0.592	2.48	84.5	774	0.0461	<0.00500	0.2690	0.279	<0.00200	0.0352	<0.00500	<0.00500	0.263	<0.00500	0.02040	<0.000200	<0.00500	0.02610	<0.00500	<0.00500	<0.00500	0.00854
(duplicate)	08/19/14	241	0.627	2.59	84.7	820	0.0208	<0.00500	0.0846	0.236	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01060	<0.000200	<0.00500	0.00943	<0.00500	<0.00500	<0.00500	0.00640
	02/26/15	140	0.87	2.3	82	630	<0.0350	0.00460	0.0700	0.220	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	<0.00024	<0.00120	<0.000049	0.00320 J	<0.00490	<0.00740	<0.00280	0.00250 J	0.01400 J
(duplicate)	02/26/15	130	0.86	2.4	85	660	0.089 J	0.00460	0.0690	0.210	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	<0.00024	<0.00120	<0.000049	0.00320 J	<0.00490	<0.00740	<0.00280	0.00250 J	0.01300 J
	08/26/15	236	0.789	2.86	70.9	888	<0.0350	0.00422	0.0875	0.185 J	<0.00016	0.00105 J	<0.000260	0.000732 J	<0.0141	<0.00024	<0.00025	<0.000049	0.01070	0.00168 J	0.00138 J	<0.00031	0.00179 J	0.00486 J
MW-20	08/23/10	169	0.570	1.74	65.1	868	0.0891	<0.00500	0.122	0.143	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00970
	02/25/11	187	0.603	2.58	66.3	840	<0.0100	<0.00500	0.120	0.150	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.06430
	07/18/11	148	0.765	2.06	51.3	1,020	<0.0100	<0.00500	0.134	0.159	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02780
	01/31/12	174	0.641	2.51	61.4	726	<0.0100	<0.00500	0.114	0.149	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01710
	07/25/12	189	0.742	2.24	56.0	848	<0.0100	<0.00500	0.107	0.217	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01870
	02/22/13	155	0.570	2.26	55.8	600	0.0294	<0.00500	0.102	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01650
	08/20/13	180	0.755	2.40	60.4	736	0.0104	<0.00500	0.102	0.172	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00966	<0.000200	<0.00500	0.0112	<0.00500	<0.00500	<0.00500	0.02420
	02/26/14	159	0.664	2.70	53.4	696	<0.0100	<0.00500	0.112	0.173	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01070	<0.000200	<0.00500	0.0080	<0.00500	<0.00500	<0.00500	0.00954
	08/19/14	138	0.574	2.09	58.5	672	0.2900	<0.00500	0.108	0.194	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01160
	02/24/15	120	0.65	2.6	56	690	0.0380 J	0.00310	0.110	0.170 J	<0.00070	0.00200 J	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.0024 J	<0.00490	<0.00740	<0.00280	0.00260 J	0.02300 J
	08/25/15	130	0.822	2.61	65.7	750	<0.0350	0.00396	0.108	0.180 J	<0.00016	0.000955 J	<0.000260	0.00109 J	<0.0141	<0.00024	<0.00025	<0.000049	0.00167 J	0.000669 J	0.00141 J	<0.00031	0.00254 J	0.00578 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-21	08/23/10	115	0.250	2.12	52.7	966	0.1950	<0.00500	0.232	0.208	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0567	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00898	0.0307
	02/28/11	182	0.257	3.02	56.7	1,050	<0.0100	<0.00500	0.258	0.257	<0.00200	0.00620	<0.00500	<0.00500	<0.200	<0.00500	0.1020	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.0101	0.0184
(duplicate)	02/28/11	183	0.249	2.99	56.3	1,000	<0.0100	<0.00500	0.256	0.252	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.1010	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00975	0.0213
	07/19/11	191	0.163	2.62	57.0	1,250	<0.0100	<0.00500	0.242	0.225	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0346	<0.000200	<0.00500	0.00836	<0.00500	<0.00500	0.00873	0.0286
	01/31/12	200	0.229	2.84	64.7	1,040	<0.0100	<0.00500	0.245	0.216	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0375	<0.000200	<0.00500	0.00746	<0.00500	<0.00500	0.00704	0.0170
	07/26/12	186	0.306	2.64	60.4	1,130	<0.0100	<0.00500	0.244	0.261	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0380	<0.000200	<0.00500	0.00827	<0.00500	<0.00500	0.00862	0.0163
	02/22/13	160	0.246	2.86	78.3	968	0.0818	<0.00500	0.224	0.286	<0.00200	0.03640	<0.00500	<0.00500	0.403	<0.00500	0.0467	<0.000200	<0.00500	0.04090	<0.00500	<0.00500	0.00962	0.0319
	08/20/13	156	0.268	3.96	82.5	972	< 0.0100	<0.00500	0.179	0.308	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0668	<0.000200	<0.00500	0.02190	<0.00500	<0.00500	0.00936	0.0195
	02/25/14	134	0.213	3.78	75.9	918	< 0.0100	<0.00500	0.187	0.335	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.0709	<0.000200	<0.00500	0.01710	<0.00500	<0.00500	0.00939	0.0531
	08/19/14	156	0.250	3.35	72.7	938	0.0299	<0.00500	0.180	0.350	<0.00200	<0.00500	<0.00500	<0.00500	0.344	<0.00500	0.0439	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00844	0.0208
	02/24/15	160	0.32	3.70	70.0	1,100	<0.0350	0.00170 J	0.210	0.360	<0.00070	<0.00140	<0.00230	<0.00530	<0.014	0.00032 J	0.0280	<0.000049	0.00074 J	<0.00490	<0.00740	<0.00280	0.0089 J	0.02500 J
	08/25/15	197	0.341	3.06	77.0	1,430	<0.0350	0.00221	0.224	0.369	<0.00016	0.000810 J	<0.000260	0.000702 J	<0.0141	0.000854 J	0.0110	<0.000049	<0.00160	0.00180 J	0.000525 J	<0.00031	0.00837 J	0.00615 J
MW-22	08/23/10	115	0.552	1.76	62.3	726	0.1210	<0.00500	0.165	0.174	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.03060	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00604	0.09160
	02/28/11	117	0.587	2.36	68.6	678	<0.0100	<0.00500	0.146	0.173	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01080	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00616	0.04870
	07/19/11	107	0.568	2.06	64.1	740	<0.0100	<0.00500	0.150	0.178	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00721	<0.000200	<0.00500	0.00546	<0.00500	<0.00500	0.00638	0.02030
	01/31/12	141	0.570	2.26	74.3	766	<0.0100	<0.00500	0.151	0.141	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01030	<0.000200	<0.00500	0.00762	<0.00500	<0.00500	0.00501	0.01830
	07/26/12	149	0.628	2.09	68.3	830	<0.0100	<0.00500	0.143	0.196	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00949	<0.000200	<0.00500	0.00839	<0.00500	<0.00500	0.00564	0.00680
	02/21/13	178	0.500	2.30	80.4	798	0.0231	<0.00500	0.145	0.180	<0.00200	0.0305	<0.00500	<0.00500	0.269	<0.00500	0.03860	<0.000200	<0.00500	0.05200	<0.00500	<0.00500	0.00590	0.02080
	08/21/13	176	0.606	2.94	83.0	890	< 0.0100	<0.00500	0.137	0.210	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02330	<0.000200	<0.00500	0.02090	<0.00500	<0.00500	0.00658	0.00566
	02/25/14	172	0.416	3.53	85.2	842	< 0.0100	<0.00500	0.143	0.204	<0.00200	0.0133	<0.00500	<0.00500	<0.200	<0.00500	0.02380	<0.000200	<0.00500	0.02660	<0.00500	<0.00500	0.00632	0.01500
	08/20/14	120	1.00	2.36	127	738	40.3	0.00642	0.141	0.239	<0.00200	0.1840	<0.00500	0.00983	4.32	0.00743	0.07150	<0.000200	0.00881	0.09990	<0.00500	<0.00500	0.0336	0.03700
	02/24/15	110	0.57	3.30	81.0	820	0.0370 J	0.00250	0.180	0.210	<0.00070	<0.00140	<0.0023	<0.0053	<0.014	0.00077 J	0.00260 J	<0.000049	0.00140 J	<0.00490	<0.00740	<0.00280	0.01200	0.01900 J
	08/25/15	118	0.618	4.85	81.1	928	0.0452 J	0.00279	0.167	0.208	<0.00016	0.00139 J	0.000337 J	0.000760 J	<0.0141	<0.00024	0.00253 J	<0.000049	<0.00160	0.00240	<0.00038	<0.00031	0.00934 J	0.00438 J
MW-23	08/23/10	645	0.782	2.92	121	2,260	0.2370	<0.00500	0.245	0.157	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00669	<0.000200	<0.00500	0.00859	<0.00500	<0.00500	<0.00500	0.05700
	02/28/11	511	0.676	3.47	81.9	1,540	<0.0100	<0.00500	0.164	0.151	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00831	<0.000200	<0.00500	0.00930	<0.00500	<0.00500	<0.00500	0.04630
	07/19/11	712	0.670	3.79	108	3,090	<0.0100	<0.00500	0.272	0.181	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00647	<0.000200	<0.00500	0.00912	<0.00500	<0.00500	<0.00500	0.02130
	02/01/12	887	0.697	4.07	85.4	2,720	0.0108	<0.00500	0.268	0.159	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00658	<0.000200	<0.00500	0.00714	<0.00500	<0.00500	<0.00500	0.02070
	07/26/12	774	0.750	3.45	100	3,060	<0.0100	<0.00500	0.252	0.198	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01010
	02/26/13	662	0.690	3.46	93.9	2,040	<0.0100	<0.00500	0.170	0.196	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00944	<0.000200	<0.00500	0.01550	<0.00500	<0.00500	<0.00500	0.01790
	08/21/13	530	0.808	3.29	115	1,910	< 0.0100	<0.00500	0.141	0.207	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.03150	<0.000200	<0.00500	0.02860	<0.00500	<0.00500	0.00533	0.00919
	02/25/14	574	0.605	3.41	89.0	1,860	< 0.0100	<0.00500	0.162	0.198	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.04860	<0.000200	<0.00500	0.04100	<0.00500	<0.00500	<0.00500	0.02240
	08/21/14	443	0.792	2.89	98.1	1,680	0.0606	<0.00500	0.147	0.138	<0.00200	0.0129	<0.00500	<0.00500	<0.200	<0.00500	0.15700	<0.000200	0.00522	0.07190	<0.00500	<0.00500	<0.00500	0.01040
	02/25/15	57.0	0.630	3.10	92.0	1,000	0.0420 J	0.00240	0.110	0.210	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	0.00031 J	<0.00120	<0.000049	0.00170 J	<0.00490	<0.00740	<0.00280	0.00520 J	0.04600 J
	08/25/15	431	0.874	4.39	91.9	2,190	<0.0350	0.00255	0.152	0.195 J	<0.00016	0.00188 J	<0.000260	0.00198 J	<0.0141	0.000316 J	0.00167 J	<0.000049	<0.00160	0.00187 J	0.00147 J	<0.00031	0.00508 J	0.00494 J
MW-24	08/24/10	34.6	2.31	2.40	53.9	422	0.187	<0.00500	0.0867	0.140	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00922
	02/28/11	39.6	2.16	2.94	55.3	414	<0.0100	<0.00500	0.0878	0.154	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00634	<0.00500	<0.00500	<0.00500	0.02450
	07/14/11	43.1	1.55	2.38	48.1	504	<0.0100	<0.00500	0.0932	0.173	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00543	<0.00500	<0.00500	<0.00500	0.02490
	02/01/12	50.6	2.42	2.32	62.3	418	<0.0100	<0.00500	0.0946	0.127	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00760	<0.000200	<0.00500	0.00725	<0.00500	<0.00500	<0.00500	0.01010
	07/30/12	51.8	2.42	2.39	55.1	420	<0.0100	<0.00500	0.0889	0.179	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00508	<0.000200	<0.00500	0.00758	<0.00500	<0.00500	<0.00500	0.01270
(duplicate)	07/30/12	55.5	2.34	2.34	58.8	446	<0.0100	<0.00500	0.0851	0.160	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00731	<0.00500	<0.00500	<0.00500	0.01550
	02/26/13	46.6	2.39	2.05	68.6	442	<0.0100	<0.00500	0.0913	0.187	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01060	<0.000200	<0.00500	0.01650	<0.00500	<0.00500	<0.00500	0.01510
	08/21/13	56.5	2.77	2.04	55.6	426	< 0.0100	<0.00500	0.0856	0.183	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01460	<0.000200	<0.00500	0.01570	<0.00500	<0.00500	<0.00500	0.00684
	02/27/14	37.3	2.28	2.11	51.3	396	0.0247	<0.00500	0.0803	0.197	<0.00200	0.0128	<0.00500	<0.00500	<0.200	<0.00500	0.01390	<0.000200	<0.00500	0.02130	<0.00500	<0.00500	<0.00500	0.02070
	08/21/14	29.2	2.76	2.39	44.0	368	0.2700	<0.00500	0.0901	0.117	<0.00200	0.2580	<0.00500	0.00634	1.28	<0.00500	0.03830	<0.000200	0.00911	0.13500	<0.00500	<0.00500	<0.00500	0.01140
	02/25/15	24.0	2.70	2.80	42.0	360	0.0400 J	0.00550	0.0780	0.190 J	<0.00070	<0.0014	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.00250 J	<0.00490	<0.00740	<0.00280	0.00260 J	0.01300 J
	08/25/15	25.5	2.75	2.95	43.2	494	<0.0350	0.00600	0.0765	0.177 J	<0.00016	<0.000540	<0.00026	0.000742 J	<0.0141	<0.00024	0.000287 J	<0.000049	0.00185 J	0.00058 J	0.00102 J	<0.00031	0.00239 J	0.00575 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-25	08/23/10	178	0.871	2.42	182	946	0.2440	<0.00500	0.246	0.174	<0.00200	0.0476	<0.00500	<0.00500	<0.200	<0.00500	0.01090	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01940
	02/28/11	256	0.729	2.83	93.9	998	<0.0100	<0.00500	0.205	0.198	<0.00200	0.0537	<0.00500	<0.00500	<0.200	<0.00500	0.00715	<0.000200	<0.00500	0.00516	<0.00500	<0.00500	0.00535	0.04240
	07/18/11	77.8	1.12	3.64	96.2	634	0.0444	<0.00500	0.186	0.173	<0.00200	0.00732	<0.00500	<0.00500	<0.200	<0.00500	0.00608	<0.000200	<0.00500	0.00832	<0.00500	<0.00500	<0.00500	0.00556
	02/01/12	175	0.813	4.56	84.4	820	<0.0100	<0.00500	0.228	0.175	<0.00200	0.00744	<0.00500	<0.00500	<0.200	<0.00500	0.00804	<0.000200	<0.00500	0.00708	<0.00500	<0.00500	0.00602	0.00582
	07/26/12	133	0.892	37.1	144	1,110	<0.0100	<0.00500	0.178	0.220	<0.00200	0.00961	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01020
	02/26/13	109	0.710	19.4	113	788	<0.0100	<0.00500	0.149	0.241	<0.00200	0.00822	<0.00500	<0.00500	<0.200	<0.00500	0.01040	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00807	0.01480
	08/22/13	314	0.696	3.36	74.7	1,350	< 0.0100	<0.00500	0.224	0.262	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01220	<0.000200	<0.00500	0.02100	<0.00500	<0.00500	0.00862	<0.00500
(duplicate)	08/22/13	310	0.684	3.42	74.3	1,350	< 0.0100	<0.00500	0.226	0.263	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01270	<0.000200	<0.00500	0.02100	<0.00500	<0.00500	0.00860	0.00607
	02/26/14	293	0.476	2.98	69.3	1,100	< 0.0100	<0.00500	0.220	0.231	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00881	<0.000200	<0.00500	0.00775	<0.00500	<0.00500	0.00724	0.02100
(duplicate)	02/26/14	289	0.546	2.98	68.6	1,090	< 0.0100	<0.00500	0.213	0.218	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00882	<0.000200	<0.00500	0.00701	<0.00500	<0.00500	0.00645	0.02050
	08/19/14	302	<0.500	3.06	79.5	1,230	0.2850	<0.00500	0.198	0.265	<0.00200	0.154	<0.00500	<0.00500	0.814	<0.00500	0.04560	<0.000200	0.00573	0.10000	<0.00500	<0.00500	0.00749	0.01060
(duplicate)	08/19/14	319	<0.500	2.76	83.5	1,200	0.2910	<0.00500	0.201	0.263	<0.00200	0.185	<0.00500	0.00504	0.968	<0.00500	0.05110	<0.000200	0.00638	0.11300	<0.00500	<0.00500	0.00764	0.01200
	02/25/15	38	0.73	3.1	69	870	0.1300	0.00230	0.200	0.230	<0.00070	0.0016 J	<0.0023	<0.0053	<0.014	0.00050 J	<0.00120	<0.000049	0.00290 J	0.00560 J	<0.00740	<0.00280	0.00780 J	0.00860 J
(duplicate)	02/25/15	180	0.71	3.1	69	840	<0.0350	0.00230	0.200	0.220	<0.00070	0.0017 J	<0.0023	<0.0053	<0.014	0.00026 J	<0.00120	<0.000049	0.00110 J	0.00540 J	<0.00740	<0.00280	0.00800 J	0.01400 J
	08/25/15	211	0.693	2.96	72.6	1,110	<0.0350	0.00287	0.227	0.216	<0.00016	0.00160 J	0.00119 J	<0.000520	<0.0141	<0.00024	0.00279 J	<0.000049	<0.00160	0.00514	0.00109 J	<0.00031	0.00732 J	0.00472 J
(duplicate)	08/25/15	207	0.631	2.90	71.1	1,140	<0.0350	0.00296	0.231	0.214	<0.00016	0.00170 J	0.00113 J	0.00103 J	<0.0141	<0.00024	0.00287 J	<0.000049	<0.00160	0.00528	0.00102 J	<0.00031	0.00748 J	0.00497 J
MW-26	08/24/10	217	0.484	2.88	98.5	958	0.115	<0.00500	0.1310	0.169	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01560	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02540
	02/28/11	202	0.517	3.86	125	940	<0.0100	<0.00500	0.1100	0.187	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00890	<0.000200	<0.00500	0.00734	<0.00500	<0.00500	0.00602	0.03280
	07/14/11	184	<0.500	3.95	128	1,030	<0.0100	<0.00500	0.0994	0.192	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00679	<0.000200	<0.00500	0.00792	<0.00500	<0.00500	0.00546	0.00949
	02/01/12	196	0.568	3.68	131	952	<0.0100	<0.00500	0.0854	0.163	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01220	<0.000200	<0.00500	0.01330	<0.00500	<0.00500	<0.00500	0.01170
	07/26/12	179	0.647	3.11	121	940	0.0121	<0.00500	0.0966	0.214	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00694	<0.000200	<0.00500	0.00568	<0.00500	<0.00500	0.00559	0.02330
	02/26/13	144	0.640	4.78	138	760	0.0134	<0.00500	0.1030	0.189	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.06350	<0.000200	<0.00500	0.05580	<0.00500	<0.00500	<0.00500	0.00877
	08/22/13	222	0.611	5.55	133	1,170	0.0319	<0.00500	0.0910	0.209	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01740	<0.000200	<0.00500	0.00539	<0.00500	<0.00500	0.00577	<0.00500
	02/26/14	187	0.470	3.11	146	944	0.0236	<0.00500	0.0739	0.198	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00979	<0.000200	<0.00500	0.01280	<0.00500	<0.00500	0.00583	0.00770
	08/21/14	67.8	0.511	3.18	78.9	644	0.132	0.00816	0.1380	0.167	<0.00200	0.0152	<0.00500	<0.00500	<0.200	<0.00500	0.00938	<0.000200	<0.00500	0.00900	<0.00500	<0.00500	0.00548	0.01500
	02/25/15	190	0.71	2.3	110	790	0.051 J	0.00240	0.0990	0.18 J	<0.00070	<0.0014	<0.0023	<0.0053	0.058 J	<0.00024	0.00220 J	<0.000049	0.00110 J	<0.00490	<0.00740	<0.00280	0.00410 J	0.01500 J
	08/25/15	220	0.670	2.93	143	1,160	<0.0350	0.00263	0.0990	0.181 J	<0.00016	0.000822 J	0.000366 J	0.000593 J	<0.0141	<0.00024	0.00175 J	<0.000049	<0.00160	0.00104 J	<0.000380	<0.00031	0.00440 J	0.00418 J
MW-27	08/18/10	115	0.644	5.10	118	752	0.218	<0.00500	0.1000	0.152	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.05340	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00544	0.04530
	02/25/11	144	0.595	<0.500	78.5	746	<0.0100	<0.00500	0.0985	0.139	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.03360	<0.000200	<0.00500	0.00769	<0.00500	<0.00500	0.00625	0.02940
	07/20/11	150	0.510	1.69	73.2	812	0.0378	<0.00500	0.1120	0.165	<0.00200	0.0353	<0.00500	<0.00500	0.393	<0.00500	0.01790	<0.000200	<0.00500	0.04150	<0.00500	<0.00500	0.00571	0.01210
	02/01/12	164	0.691	2.43	99.8	676	<0.0100	<0.00500	0.0902	0.126	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00556	<0.008000	<0.00500	0.00533	<0.00500	<0.00500	<0.00500	0.01170
	07/26/12	164	0.680	2.95	65.3	754	0.0155	<0.00500	0.1180	0.172	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00587	<0.000200	<0.00500	0.00737	<0.00500	<0.00500	<0.00500	0.01040
	02/26/13	199	0.647	2.77	70.7	756	<0.0100	<0.00500	0.1200	0.184	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.05860	<0.000200	0.00513	0.05930	<0.00500	<0.00500	<0.00500	<0.00500
	08/20/13	315	0.562	7.12	75.5	1,180	0.0440	<0.00500	0.1620	0.222	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02390	<0.000200	<0.00500	0.01890	<0.00500	<0.00500	0.00899	0.00624
	02/27/14	298	0.415	8.00	89.3	1,150	<0.0100	<0.00500	0.1390	0.232	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01340	<0.000200	<0.00500	0.02860	<0.00500	<0.00500	0.00680	0.01820
	08/21/14	256	0.540	4.99	85.1	1,100	0.210	<0.00500	0.1260	0.160	<0.00200	0.0447	<0.00500	<0.00500	0.278	<0.00500	0.06360	<0.000200	<0.00500	0.05920	<0.00500	<0.00500	0.00648	<0.00590
	02/27/15	170	1.0	3.8	96	790	<0.035	0.00330	0.0840	0.30	<0.00070	0.0038 J	<0.0023	<0.0053	<0.014	<0.00024	<0.00120	<0.000049	0.00290 J	<0.00490	0.00800 J	<0.00280	0.00980 J	<0.00590
	08/26/15	139	2.27	2.94	95.2	690	<0.0350	0.00353	0.0571	0.264	<0.00016	0.00256	<0.000260	0.000627 J	<0.0141	<0.00024	0.00206 J	<0.000049	0.01390	0.00405	0.00318	<0.00031	0.00550 J	<0.00256
MW-28	08/24/10	71.2	1.66	1.70	60.3	440	0.1290	<0.00500	0.0846	0.153	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/23/11	106	1.57	<0.500	67.4	540	<0.0100	<0.00500	0.0923	0.147	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01900
	07/14/11	106	1.28	2.40	67.8	732	<0.0100	<0.00500	0.1030	0.172	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00658	<0.000200	<0.00500	0.00696	<0.00500	<0.00500	<0.00500	0.01130
	01/30/12	80.6	1.68	2.53	81.1	572	<0.0100	<0.00500	0.0746	0.152	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00812
	07/24/12	74.9	1.79	2.33	81.6	500	<0.0100	<0.00500	0.0830	0.204	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.04660
	02/19/13	65.5	1.61	2.57	88.4	468	<0.0100	<0.00500	0.0883	0.174	<0.00200	<0.00500	<0.00500	0.20300	<0.200	<0.00500	0.02750	<0.000200	0.01000	<0.00500	<0.00500	<0.00500	<0.00500	0.01680
	08/20/13	70.4	1.77	2.42	77.4	480	< 0.0100	<0.00500	0.0790	0.168	<0.00200	<0.00500	<0.00500	0.01010	<0.200	<0.00500	0.00874	<0.000200	<0.00500	0.00561	<0.00500	<0.00500	<0.00500	0.00674
	02/24/14	71.7	1.30	2.60	74.2	480	< 0.0100	<0.00500	0.0836	0.180	<0.00200	<0.00500	<0.00500	0.00514	<0.200	<0.00500	0.00509	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03350
	08/19/14	70.0	1.65	2.31	78.2	512	0.9470	<0.00500	0.1060	0.205	<0.00200	0.02380	<0.00500	0.03960	0.760	<0.00500	0.01280	<0.000200	<0.00500	0.01290	<0.00500	<0.00500	<0.00500	0.01700
	02/23/15	70.0	1.60	2.80	72.00	500	<0.035	0.00400	0.0900	0.170 J	<0.00070	<0.00140	<0.00230	0.00550 J	<0.014	<0.00024	<0.0012	<0.000049	0.00180 J	<0.00490	<0.00740	<0.00280	0.00250 J	0.01700 J
	08/27/15	142	3.07	3.08	143	549	<0.0350	0.00433	0.0849	0.171	<0.00016	<0.00054	<0.00026	0.00598	0.0385 J	<0.00024	0.000680 J	<0.000049	0.00186 J	<0.00035	0.00220	<0.00031	0.00238 J	0.00393 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
MW-29	08/24/10	456	0.753	2.18	167	726	0.0261	<0.00500	0.0644	0.189	<0.00200	0.0317	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03750
(duplicate)	08/24/10	132	0.741	2.15	100	742	<0.0100	<0.00500	0.0652	0.186	<0.00200	0.0321	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03010
	02/28/11	119	0.819	3.05	101	670	<0.0100	<0.00500	0.0630	0.195	<0.00200	0.0694	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02670
	07/14/11	135	0.707	2.61	71.6	798	<0.0100	<0.00500	0.0652	0.189	<0.00200	0.162	<0.00500	<0.00500	<0.200	<0.00500	0.00532	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02400
	01/30/12	152	0.769	3.22	96.3	898	<0.0100	<0.00500	0.0580	0.181	<0.00200	0.106	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01620
	07/24/12	250	0.828	4.08	90.1	1,120	<0.0100	<0.00500	0.0978	0.249	<0.00200	0.261	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01320
	02/26/13	159	0.788	2.90	82.4	722	<0.0100	<0.00500	0.0857	0.182	<0.00200	0.069	<0.00500	<0.00500	<0.200	<0.00500	0.04710	<0.000200	<0.00500	0.03340	<0.00500	<0.00500	<0.00500	<0.00500
	08/20/13	152	0.934	2.95	96.2	654	< 0.0100	<0.00500	0.0738	0.187	<0.00200	0.117	<0.00500	<0.00500	<0.200	<0.00500	0.01590	<0.000200	<0.00500	0.00667	<0.00500	<0.00500	<0.00500	0.01150
	02/27/14	141	0.811	3.22	74.4	660	< 0.0100	<0.00500	0.0725	0.171	<0.00200	0.250	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00739
(duplicate)	02/27/14	141	0.819	3.37	74.3	690	< 0.0100	<0.00500	0.0764	0.183	<0.00200	0.261	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00902
	08/20/14	177	0.809	3.44	72.9	826	0.1880	<0.00500	0.1060	0.134	<0.00200	0.331	<0.00500	<0.00500	0.697	<0.00500	0.07540	<0.000200	0.00594	0.07770	<0.00500	<0.00500	<0.00500	0.01300
	02/25/15	250	0.950	5.60	90.0	1,000	<0.0350	0.00200	0.1300	0.260	<0.00070	0.240	<0.00230	<0.00530	<0.014	<0.00024	<0.00120	<0.000049	0.00120 J	<0.00490	<0.00740	<0.00280	0.00620 J	0.01300 J
	08/27/15	247	0.573	6.77	81.8	1,220	<0.0350	0.00246	0.0884	0.238	<0.00016	0.130	<0.00026	0.000784 J	<0.0141	<0.00024	0.00153 J	<0.000049	0.00111 J	0.000629 J	0.00169 J	<0.00031	0.00641 J	0.00333 J
MW-30	06/21/13	51.2	1.87	3.51	96.7	426	0.0436	0.00588	0.0424	0.164	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	0.00913	<0.00500	0.00554	<0.00500	<0.00500	<0.00500
	08/20/13	63.7	1.59	2.85	87.0	438	< 0.0100	<0.00500	0.0761	0.159	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.05890	<0.000200	<0.00500	0.02630	<0.00500	<0.00500	<0.00500	<0.00500
	02/27/14	64.0	1.07	2.96	90.0	476	0.0201	<0.00500	0.0672	0.180	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.06440	<0.000200	0.00588	0.05160	<0.00500	<0.00500	<0.00500	<0.00500
	08/22/14	61.1	1.45	2.75	84.5	444	0.1320	<0.00500	0.0736	<0.0200	<0.00200	0.0137	<0.00500	<0.00500	<0.200	<0.00500	0.14800	<0.000200	0.00597	0.04850	<0.00500	<0.00500	<0.00500	<0.00590
	02/25/15	75.0	1.40	3.10	81.0	460	0.0770 J	0.00430	0.0730	0.16 J	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	<0.00024	0.00660 J	<0.000049	0.00270 J	<0.00490	<0.00740	<0.00280	0.0018 J	<0.00590
	08/28/15	83.6	1.61	3.97	86.2	525	<0.0350	0.00478	0.0757	0.163	<0.00016	<0.000540	<0.000260	0.000922 J	<0.0141	<0.00024	0.00315 J	<0.000049	0.00248 J	0.00109 J	0.00177 J	<0.00031	0.00203 J	<0.00256
RW-1	06/19/09	34.8	1.21	- -	70.8	398	<0.0100	0.01000	0.160	0.161	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.03800	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	<0.00500
	02/02/10	34.2	0.913	1.52	66.0	388	<0.0200	0.00857	0.190	0.166	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.04670	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/19/10	27.8	0.991	1.42	72.3	380	0.0202	0.01040	0.162	0.154	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00854
	03/01/11	28.9	1.03	1.74	74.3	380	<0.0100	0.01210	0.148	0.153	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00933	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	07/20/11	26.4	0.883	1.36	72.5	484	<0.0100	0.01080	0.158	0.156	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00526
	02/02/12	29.6	1.11	1.44	79.9	384	<0.0100	0.01060	0.139	0.165	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00771	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00764
	07/27/12	27.3	1.18	<2.00	68.9	344	0.0532	0.01030	0.163	0.177	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01820	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00801
	02/27/13	28.0	1.09	<2.00	80.2	378	<0.0100	0.01030	0.132	0.159	<0.00200	<0.00500	<0.00500	<0.00500	0.655	<0.00500	0.00656	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	08/21/13	32.3	1.28	1.50	86.9	392	< 0.0100	0.01010	0.153	0.175	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02700	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/27/14	29.4	1.07	1.46	76.9	402	< 0.0100	0.00608	0.155	0.167	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.18600	<0.000200	<0.00500	0.01560	<0.00500	<0.00500	<0.00500	0.00581
	08/21/14	25.6	1.21	1.29	76.0	368	0.0156	0.00919	0.145	0.102	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00804	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00680
	02/25/15	26.0	1.20	1.60	74.0	370	<0.0350	0.01100	0.150	0.190 J	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	0.00042 J	<0.00120	<0.000049	0.00250 J	<0.00490	<0.00740	<0.00280	0.00180 J	0.00680 J
	08/27/15	28.0	1.04	1.74	76.8	407	<0.0350	0.00976	0.149	0.173	<0.00016	<0.000540	<0.000260	<0.000520	<0.0141	<0.00024	0.000376 J	<0.000049	0.00240 J	<0.000350	0.00289	<0.00031	0.00173 J	<0.00256
North Well	06/18/09	140	0.933	2.72	80.6	664	<0.0100	0.00536	0.0997	0.151	<0.00200	0.0104	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	<0.00500
	01/14/10	143	0.793	2.90	74.2	638	<0.0100	<0.00500	0.1070	0.172	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00134	0.00920
	08/24/10	127	0.932	1.81	80.4	594	<0.0100	0.00552	0.1000	0.147	<0.00200	<0.00500	<0.00500	0.00856	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.0161	<0.00500	<0.00500	<0.00500	<0.00500
	03/03/11	137	0.932	2.76	75.2	804	<0.0100	0.00503	0.0968	0.159	<0.00200	0.0199	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.06950
	07/20/11	124	0.803	2.07	76.5	628	<0.0100	<0.00500	0.1060	0.142	<0.00200	0.0140	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	02/02/12	149	0.977	2.54	82.1	656	0.0126	<0.00500	0.0944	0.132	<0.00200	0.0145	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01780
	07/30/12	121	0.986	2.63	72.7	528	<0.0100	0.00523	0.1060	0.159	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00873
	02/19/13	105	1.020	2.54	83.3	496	<0.0100	0.00693	0.0998	0.162	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	0.00537	<0.00500	<0.00500	<0.00500	0.01190
	08/22/14	57.3	0.462	2.73	37.6	532	0.0170	0.00530	0.1060	<0.0200	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00315
	12/17/14	110	0.910	3.00	69.0	--	<0.0100	0.00579	0.0985	0.121	<0.00100	0.00101	<0.00100	0.00108	0.0180	<0.00100	<0.00100	<0.000200	0.00346	<0.00100	0.00359	<0.00100	0.00179	0.01500
	03/09/15	11.0	0.098	2.70	7.30	520	<0.0350	0.00550	0.1100	0.150	<0.00070	<0.0014	<0.0023	0.012 J	<0.014	0.00062 J	<0.00120	<0.000049	0.00320 J	<0.00490	0.00970 J	<0.00280	0.00160 J	0.01700 J
	05/19/15	110	0.880	3.20	73.0	550	<0.0350	0.00600	0.1100	0.14 J	<0.00070	0.0018 J	<0.0023	0.015 J	<0.014	0.00074 J	<0.00120	<0.000049	0.00420 J	<0.00490	0.00330	<0.00280	0.00180 J	0.01700 J
	08/28/15	193	1.55	4.34	127	593	<0.0350	0.00551	0.1030	0.155	<0.00016	0.000676 J	<0.000260	0.00121 J	<0.0141	<0.00024	0.000878 J	<0.000049	0.00306 J	<0.00035	0.00332	<0.00031	0.00156 J	<0.00256
	12/17/15	121	0.982	3.46	76.7	588	<0.0350	0.00572	0.1040	0.155 J	<0.00016	0.00103 J	<0.000260	0.00216 J	0.0158 J	<0.00024	0.000476 J	<0.000049	<0.00160	0.000388 J	0.00342	<0.00031	0.00160 J	0.00427 J

Table 3. Inorganic Constituent Concentrations in Groundwater, HollyFrontier Navajo Refining LLC, AP-110, Lovington, New Mexico

Monitor Well	Sample Date	Chloride (mg/L)	Fluoride (mg/L)	Nitrate-Nitrite (as N, mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Total Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Uranium (mg/L)	Zinc (mg/L)
NM WQCC Groundwater Standards:		**250**	**1.6**	**10**	**600**	**1,000**	**5.0**	**0.1**	**1.0**	**0.75**	**0.01**	**0.05**	**0.05**	**1.0**	**1.0**	**0.05**	**0.20**	**0.002**	**1.0**	**0.2**	**0.05**	**0.05**	**0.03**	**10.0**
South Well	06/22/09	497	0.665	3.02	106	1,450	<0.0100	<0.00500	0.154	0.189	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	- -	<0.00500
	01/14/10	498	0.686	3.27	113	1,520	0.0176	<0.00500	0.138	0.229	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02240	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00236	0.02070
	08/24/10	477	0.651	2.18	101	1,760	<0.0100	<0.00500	0.172	0.186	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00576	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03290
	03/03/11	549	0.647	3.24	122	1,840	<0.0100	<0.00500	0.147	0.261	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.02260	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
	07/20/11	420	0.687	2.48	103	1,600	<0.0100	<0.00500	0.157	0.195	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00777
	02/12/12	368	0.756	3.02	89.0	1,210	<0.0100	<0.00500	0.117	0.165	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.04010
	07/30/12	135	1.01	2.53	73.3	582	<0.0100	<0.00500	0.103	0.160	<0.00200	0.0111	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01720
	02/19/13	359	0.743	2.88	99.2	1,170	--	0.00576	0.149	0.197	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01550
	02/28/14	352	0.575	0.66	99.2	1,210	<0.0100	<0.00500	0.131	0.195	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00571	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01590
	08/22/14	435	0.720	3.00	100	1,480	<0.0100	<0.00500	0.136	0.144	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.00670	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.02140
(duplicate)	08/22/14	437	0.724	3.00	107	1,480	0.0689	<0.00500	0.145	<0.020	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	0.01030	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01630
	12/17/14	390	0.63	3.20	91	--	<0.0100	0.00431	0.125	0.159	<0.00100	0.00178	<0.00100	0.00128	0.0277	<0.00100	0.00422	<0.000200	0.00242	<0.00100	0.00387	<0.00100	0.00227	0.01510
(duplicate)	12/17/14	390	0.63	3.20	90	--	<0.0100	0.00422	0.126	0.162	<0.00100	0.00179	<0.00100	0.00136	0.0226	<0.00100	0.00409	<0.000200	0.00203	<0.00100	0.00359	<0.00100	0.00217	0.04900
	03/09/15	340	0.82	2.70	99	1,100	<0.035	0.00400	0.140	0.200	<0.00070	0.0015 J	<0.0023	0.032	<0.014	0.00310	0.00460 J	<0.000049	0.00200 J	<0.00490	0.01200 J	<0.00280	0.00210 J	0.04900 J
(duplicate)	03/09/15	340	0.82	650	98	1,100	0.0370 J	0.00420	0.140	0.200	<0.00070	<0.0014	<0.0023	0.019 J	<0.014	0.00260	0.00300 J	<0.000049	0.00210 J	<0.00490	0.01500 J	<0.00280	0.00210 J	0.02500 J
	05/19/15	330	0.76	3.20	92	1,100	<0.0350	0.00230	0.140	0.18 J	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	<0.00024	0.00880 J	<0.000049	0.00220 J	<0.00490	<0.0028	<0.00280	0.00210 J	<0.00590
(duplicate)	05/19/15	340	0.76	3.10	95	1,000	<0.035	0.00240	0.140	0.18 J	<0.00070	<0.0014	<0.0023	<0.0053	<0.014	<0.00024	0.00810 J	<0.000049	0.00230 J	<0.00490	0.00320	<0.00280	0.00210 J	<0.00590
	08/28/15	426	0.810	3.48	107	1,440	<0.0350	0.00436	0.137	0.194	<0.00070	0.00156 J	<0.00230	<0.00530	0.0168 J	0.000477 J	0.00776 J	<0.000049	0.00204 J	<0.00490	0.00360	<0.00280	0.00214 J	0.00662 J
(duplicate)	08/28/15	382	0.734	3.50	95.9	1,320	<0.0350	0.00430	0.133	0.197	<0.00016	0.00127 J	<0.000260	0.00376 J	<0.0141	<0.000240	0.00654	0.0000599 J	0.00199 J	<0.000350	<0.00328	<0.00031	0.00205 J	0.00638 J
	12/17/15	400	0.751	3.35	115	1,400	<0.0350	0.00426	0.138	0.235	<0.00016	0.00205	<0.000260	0.00257 J	<0.0141	<0.000240	0.00564	<0.000049	<0.00160	0.000645 J	0.00334	<0.00031	0.00238 J	0.00388 J
(duplicate)	12/17/15	402	0.752	3.47	114	1,360	<0.0350	0.00425	0.136	0.193 J	<0.00016	0.00160	<0.000260	0.00250 J	<0.0141	<0.000240	0.00546	<0.000049	<0.00160	0.000442 J	0.00343	<0.00031	0.00238 J	0.00430 J
East Well	06/18/09	107	0.980	2.59	84.0	554	0.0131	<0.00500	0.0820	0.143	<0.00200	<0.00500	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	- -	0.02910
	01/14/10	138	0.991	2.70	72.7	676	<0.0100	<0.00500	0.0941	0.154	<0.00200	0.0119	<0.00500	0.00953	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	0.00111	0.01460
	08/25/10	106	1.00	0.523	74.5	522	<0.0100	<0.00500	0.0873	0.136	<0.00200	0.0145	<0.00500	0.00745	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03470
	03/03/11	135	0.905	2.68	75.6	644	<0.0100	<0.00500	0.0970	0.152	<0.00200	0.0189	<0.00500	<0.00500	<0.200	0.00662	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00936
	07/20/11	124	0.810	1.83	73.8	596	<0.0100	<0.00500	0.1040	0.142	<0.00200	0.0200	<0.00500	<0.00500	<0.200	0.01160	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.09370
	02/02/12	150	0.967	2.56	81.4	664	0.0150	<0.00500	0.0993	0.145	<0.00200	0.0166	<0.00500	<0.00500	<0.200	0.00988	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01660
	07/30/12	144	0.962	2.40	80.9	636	<0.0100	<0.00500	0.0922	0.136	<0.00200	0.0157	<0.00500	0.00774	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01660
	02/28/14	138	0.899	0.564	80.6	658	0.0104	<0.00500	0.1160	0.158	<0.00200	0.0139	<0.00500	<0.00500	<0.200	<0.00500	<0.00500	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.03170
	08/22/14	124	0.914	2.71	78.5	614	<0.0100	<0.00500	0.1030	<0.0200	<0.00200	0.0119	<0.00500	<0.00500	<0.200	<0.00500	0.008120	<0.000200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01560
	12/17/14	120	0.900	2.70	73.0	--	<0.0100	0.00436	0.0905	0.120	<0.00100	0.0112	<0.00100	<0.00100	0.143	<0.00100	0.004300	<0.00020	0.00241	<0.00100	0.00395	<0.00100	0.00181	0.01470
	03/09/15	120	1.10	2.60	81.0	570	<0.0350	0.00460	0.1000	0.150	<0.00070	0.0120	<0.0023	0.06800	<0.014	0.00120 J	0.00210 J	<0.000049	0.00230 J	<0.00490	0.01000 J	<0.00280	0.00180 J	0.08600
	05/19/15	120	0.900	2.80	78.0	560	<0.0350	0.00500	0.1000	0.140 J	<0.00070	0.0120	<0.0023	<0.00530	<0.014	<0.00024	0.00160 J	<0.000049	0.00280 J	<0.00490	0.00370	<0.00280	0.00190 J	0.01300 J
	08/28/15	206	1.75	3.00	145	603	<0.0350	0.00445	0.0981	0.149	<0.00070	0.00866 J	<0.00230	<0.00530	0.0248 J	0.000241 J	0.012900	<0.000049	0.00236 J	<0.00490	0.00388	<0.00280	0.00174 J	0.02840 J
	12/17/15	114	1.03	3.01	80.9	621	0.0668 J	0.00507	0.0997	0.167 J	<0.00016	0.00866	<0.00260	0.00143 J	<0.0141	<0.00024	0.00217 J	<0.000049	<0.00160	0.000365	0.00387	<0.00031	0.00188 J	0.01010 J

Notes:
Shading indicates detected result exceeded the New Mexico Water Quality Control Commission (WQCC) Human Health Standard
mg/L = milligrams per liter
< = Not reported above laboratory reporting limit
-- = Not Analyzed
(1)= Not analyzed due to insufficient water volume
J = analyte was detected below the laboratory reporting limit, reported value is estimated
Samples collected for metals analysis (except for Total Mercury) were field- or lab-filtered with 0.45 micron filter
June 2009 to August 2014 analyses performed by ALS Laboratory Group, Houston, Texas
December 2014 anlyses peformed by Hall Environmental Analysis Laboratory in Albuquerque, New Mexico
February 2015 to August 2015 analyses performed by ESC Lab Sciences in Mount Juliet, Tennessee

September 15, 2016

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

Re: Historical Asphalt Loading Rack Release, HollyFrontier Navajo Refining LLC, Lovington, New Mexico, AP-110

Dear Mr. Chavez:

HollyFrontier Navajo Refining LLC (Navajo) is submitting this letter to document abatement and investigation activities completed to date in response to historical soil impacts discovered at the asphalt loading rack at the Navajo facility (refinery) in Lovington, New Mexico. This letter supplements recent communication between Navajo and the New Mexico Oil Conservation Division (NMOCD) and recommends a path forward regarding the historical soil impacts.

BACKGROUND

Holly Energy Partners (HEP) operates the asphalt loading rack located at the southeastern portion of the refinery. Loading rack operations consist of the loading of asphalt into transport trucks from the loading rack to Navajo's refinery in Artesia, New Mexico for additional processing. The transfer of this asphalt between the Lovington and Artesia refineries is completed by truck because pipeline transfer of asphalt is not possible. Only asphalt has been managed at the loading rack since Navajo acquired ownership of the refinery in 1989. No diesel fuel was stored, handled, or transferred at the loading rack or loading rack area since Navajo has owned and operated the refinery. A 7-inch thick concrete slab underlies the extent of the loading rack and a concrete curb bounds the loading rack as secondary containment. The loading rack, including the slab and an associated subgrade drainage line, was constructed prior to Navajo's ownership and operation of the refinery.

In November 2015, HEP commenced construction activities to expand the loading rack operations. The activities included the removal of a 7-foot by 60-foot section of concrete slab from the existing 50-foot by 65-foot concrete slab, as shown in Figure 1. This portion of the concrete slab was being removed to allow for the installation of structural foundations for additional loading and pipe racks. Upon removal of the slab, stained soil with a hydrocarbon odor was encountered beneath the removed section of the concrete slab. This discovery was reported to the NMOCD District I Office in Hobbs, New Mexico on December 1, 2015, by HEP submitting a C-141 Form.

HEP contracted Safety Environmental Solutions, Inc. (SESI) to assess the discovered soil impacts. SESI conducted soil assessment activities in November 2015, December 2015, and March 2016. Results of the soil assessment activities indicated Total Petroleum Hydrocarbons (TPH) Diesel Range Organics (DRO) and naphthalene are present in soil. The greatest concentrations were determined to be located near one of two drain boxes (i.e, the easternmost drain box) located immediately southeast of the removed concrete slab (Figure 1). These two drain boxes were connected to a subgrade drainage line that runs along the southern boundary of where the concrete slab was removed. The increased levels of TPH DRO concentrations near the easternmost drain box indicates that this drain box was the potential source of the historical soil impacts.

Soil removal activities were completed in conjunction with the soil assessment activities. This included excavation of soil within the area where the concrete slab was removed to an approximate depth of 2 feet below ground surface (bgs), at which depth native well-compacted caliche was encountered. HEP also further excavated soil from around the easternmost drain box to an approximate depth of 4.5 feet bgs. The two drain boxes and associated drainage line adjacent to the excavation were emptied of fluids (i.e., storm water from recent rainfall) with a vacuum truck and were plugged with concrete. Details of the assessment and response activities and the associated analytical results are discussed in the sections below. The locations of the asphalt rack, concrete slab cut, soil borings, excavated area, and drain boxes are presented on Figure 1.

Only asphalt has been handled at the loading rack since Navajo acquired ownership of the refinery in 1989. Thus, the impacted soil is considered to be the result of historical refinery operations conducted prior to Navajo ownership.

HEP ceased construction activities pending soil response and assessment activities. Navajo will be managing future soil remediation and assessment activities associated with the impacted soil at the asphalt loading rack.

SOIL RESPONSE AND ASSESSMENT ACTIVITIES

On behalf of HEP, SESI completed initial soil assessment activities on November 11, 2015. The assessment activities consisted of advancing four shallow soil borings (BH-1-1115 through BH-4-1115) spaced approximately 10 feet apart along the concrete slab cut using direct push technology (DPT) drilling techniques. Soil boring locations are depicted on Figure 1. Soil samples were continuously collected from each boring and observed for hydrocarbon odor and staining. DPT refusal was encountered at approximately 2 to 4 feet bgs at each soil boring. Soil samples were collected from select intervals for laboratory analysis based on observations of odor and staining. The soil samples were submitted to Cardinal Laboratories in Hobbs, New

Mexico for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX) by Method 8021 and TPH Gasoline Range Organics (GRO) and DRO by Method 8015.

On December 10 and 11, 2015, HEP mechanically excavated impacted soil within the concrete slab cut area to an approximate depth of 2 feet, the depth that the native caliche was encountered. Stained soil around and beneath the easternmost drain box was also removed via hand digging to approximately 4.5 feet bgs. A total of 68 cubic-yards of excavated soil was placed in steel roll-off bins, characterized as non-hazardous waste based on analytical results of composite samples, and transported to the Gandy Marley, Inc. Contaminated Soils Landfarm in Roswell, New Mexico. Soil manifests are presented in Attachment A.

SESI conducted additional soil assessment activities on behalf of HEP on December 14, 2015. Two soil samples were collected for laboratory analysis. One grab soil sample was collected from the north sidewall of the excavated area around/beneath the easternmost drain box. A second grab sample was collected from beneath the in-place concrete slab north of boring BH-3-1115 by hand digging horizontally from the north excavation sidewall. The two soil samples were submitted to Cardinal Laboratories in Hobbs, New Mexico for analysis of BTEX by Method 8021 and TPH GRO and DRO by Method 8015.

After completion of sampling activities on December 14, 2015, HEP removed any fluids present in the drain boxes and drainage line located along the excavated area via vacuum truck and backfilled them with concrete as they are no longer needed.

SESI drilled an additional boring (BH-1-0316) to 95 feet bgs using air-rotary drilling techniques on March 24, 2016, to determine the vertical extent of historical hydrocarbon impacts beneath the loading rack. Soil cores were continuously collected, logged, and observed for hydrocarbon odor and staining. Nine soil and rock samples were collected for laboratory analysis every ten feet from 10 feet bgs to 90 feet bgs. The soil and rock samples were submitted to Cardinal Laboratories in Hobbs, New Mexico for analysis of volatile organic compounds (VOCs) by Method 8260, semi-volatile organic compounds (SVOCs) by Method 8270, and TPH GRO and DRO by Method 8015. Groundwater was not encountered in the boring. A boring log for BH-1-0316 is provided as Attachment B. Photographic logs of soil assessment activities are provided as Attachment C.

A final C-141 Form documenting the response activities is provided as Attachment D.

SOIL ASSESSMENT RESULTS

Laboratory analytical results from the soil assessment activities are summarized in Table 1. Laboratory analytical reports are provided as Attachment E. The soil analytical results were compared to screening levels in accordance with the “Release Response Guidance” included as Appendix B of the December 2015 *Revised Facility-Wide Groundwater Monitoring Work Plan*

(Revised FWGWMWP) that was approved by NMOCD in an email on March 9, 2016. Soil analytical results for BTEX and TPH were compared to NMOCD Remediation Action Levels (RALs) as determined using the ranking system found in the NMOCD *Guidelines for the Remediation of Leaks and Spills* dated August 13, 1993. A ranking score of "0" was determined for the historical soil impacts discovered at the asphalt loading rack based on the following:

- The average depth to groundwater across the refinery is 109.99 feet bgs based on March 2016 groundwater gauging results. The March 2016 groundwater gauging results are consistent with historical groundwater levels measured at the refinery. Further, groundwater was not encountered in boring BH-1-0316, which was drilled to a depth of 95 feet.

- The asphalt loading rack is located more than 1,000 feet from the nearest water source (e.g., a public water supply well) and more than 200 feet from the nearest private domestic water source (e.g., a private water supply well). Portions of the refinery are located within the wellhead protection areas of City of Lovington public supply wells and water supply wells used on behalf of Navajo at the refinery; however, the asphalt loading rack is not located within any wellhead protection area.

- The asphalt loading rack is located more than 1,000 feet from the nearest surface water body.

The NMOCD RALs for a ranking score of "0" are provided in Table 1. TPH was detected at concentrations above the RAL of 5,000 milligrams per kilogram (mg/kg) in soil samples collected from soil borings BH-3-1115 at 4.3 feet bgs, BH-4-1115 at 1 feet bgs, and BH-1-0316 from 60 to 65 feet bgs and 70 to 75 feet bgs; and from the grab soil sample collected from the excavated area around the easternmost drain box at 4.7 feet bgs. The soil that was present in exceedance of the TPH RAL at soil boring BH-4-1115 was removed by HEP during excavation activities conducted on December 10-11, 2015. TPH concentrations in soil samples collected from 80 to 95 feet bgs at soil boring BH-1-0316 were below the RAL.

Analytical results of constituents of concern (COCs) other than BTEX and TPH were compared to their respective New Mexico Water Quality Control Commission (WQCC) Human Health Standards (WQCC Standards) with an applied dilution factor (DF) of 20 (i.e., 20x DF) in accordance with the Revised FWGWMWP. Total combined naphthalene concentrations (naphthalene, 1-methylnaphthalene, and 2- methylnaphthalene) were greater than the respective WQCC Standard with a 20x DF in all soil samples collected from soil boring BH-0316, with the greatest concentration reported from 70 to 75 feet bgs (41.26 mg/kg). All total naphthalene concentrations were less than the New Mexico Environmental Department (NMED) Soil Screening Level (SSL) for residential soil (49.7 mg/kg).

GROUNDWATER CONDITIONS

Navajo implements a robust facility-wide groundwater monitoring program that includes semi-annual groundwater monitoring of wells located throughout the refinery and quarterly sampling of the three refinery water supply wells. Semi-annual groundwater gauging events conducted at the refinery since at least 2012 indicate groundwater flows south/southeast across the refinery (i.e., natural gradient) with radial flow towards a cone of depression near the three water supply wells located within the central portion of the refinery (i.e., induced gradient). Groundwater gradient maps based on groundwater gauging data collected during the 2015 semi-annual monitoring events were provided to the NMOCD in the *2015 Annual Facility-Wide Groundwater Monitoring Report* (2015 GW Report) and are included as Attachment F to this letter for reference. The groundwater monitoring program includes gauging and sampling of monitoring wells in both the natural downgradient direction and the induced downgradient direction of the asphalt loading rack (i.e., towards the refinery water supply wells). Groundwater samples are submitted for laboratory analysis of VOCs, SVOCs, anions, cations, metals, and total dissolved solids (TDS). A summary of analytical results of groundwater monitoring events conducted from 2010 to 2015 were provided to the NMOCD in tables in the 2015 GW Report and are included as Attachment G to this letter for reference.

Naphthalene has never been detected above its WQCC Standard in any refinery monitoring well with the exception of one anomalous result in monitoring well MW-11 in February 2012. However, MW-11 is located approximately 2,400 feet upgradient of the asphalt loading rack and therefore the historical soil impacts present beneath the asphalt loading rack could not be the source of the anomalous exceedance of naphthalene in MW-11. Naphthalene has never been detected in wells MW-5, MW-21, or MW-22 that are located immediately in the natural downgradient direction and the induced downgradient direction of the asphalt loading rack. In addition, naphthalene has never been detected in any of the three water supply wells. 2-Methylnaphtahelene was detected at a concentration of 0.00031 milligrams per liter (mg/L) in MW-21 in February 2013, but the concentration is significantly lower than the WQCC Standard for total naphthalene (0.03 mg/L) and 2-methylnaphthalene was not detected in this well during any other sampling event.

TPH is not included in the facility-wide groundwater monitoring program. During the August 2016 semi-annual groundwater monitoring event, groundwater samples collected from the three water-supply wells and from monitoring wells MW-5, MW-21, and MW-22, which are located immediately in the natural downgradient direction and/or the induced downgradient direction of the asphalt loading rack, were submitted for laboratory analysis of TPH GRO and DRO. The results indicate that TPH DRO was detected in water-supply wells WW-South and WW-East at respective J-flagged concentrations of 0.0482 mg/L (DUP-4) and 0.0357 mg/L and in monitoring wells MW-5, MW-21, and MW-22 at respective concentrations of 0.366 mg/L, 0.624 mg/L, and 0.819 mg/L. TPH GRO was only detected at a J-flagged concentration of 0.0343 J mg/L in WW-

South, but it was not detected in the duplicate sample (DUP-4). No VOCs or SVOCs were detected above reporting limits in these wells with the exception of benzene in WW-South at a J-flagged concentration of 0.000509 mg/L (DUP-4), which is consistent with historical monitoring results. The August 2016 groundwater laboratory analytical reports for wells MW-5, MW-21, and MW-22 and the three water-supply wells are provided as Attachment E. The August 2016 groundwater analytical results are not included on the groundwater tables provided in Attachment G. The August 2016 monitoring results will be documented in the annual groundwater monitoring report due to OCD by April 15, 2017.

Groundwater monitoring results indicate VOCs and/or SVOCs associated with the historical soil impacts discovered at the asphalt loading rack have not leached into groundwater at the refinery. Diesel products have not been stored, handled, or transferred at the asphalt loading rack for at least 27 years since Navajo acquired ownership of the refinery, and therefore, the soil impacts were sourced at least 27 years ago. If naphthalene in soil at the asphalt loading rack had leached into groundwater, it would have been persistently detected in nearby monitoring wells during historical groundwater monitoring events conducted by Navajo. In addition, no other COC has been detected above WQCC standards in nearby wells MW-5, MW-21, and MW-22, with the exception of TDS in MW-21 and select metals (aluminum, chromium, iron, and uranium) in MW-22 in August 2014. The August 2014 metal results in MW-22 were highly anomalous compared to all other monitoring events.

PATH FORWARD

The results of the 2015 and 2016 soil assessment activities conducted at the asphalt loading rack and the results of historical groundwater monitoring data do not indicate further remediation actions for TPH DRO and naphthalene in soil are warranted at this time. Navajo recommends the following path forward to address the historical soil impacts at the asphalt loading rack:

- HEP will continue loading rack construction activities, including backfill of the excavation and repair of the concrete slab.

- Navajo will continue to implement the groundwater monitoring program in accordance with the Revised FWGWMWP. The three water supply wells and monitoring wells MW-5, MW-21, and MW-22 will be additionally analyzed for TPH GRO and DRO by Method 8015 for a period of two years. Additional response or monitoring activities associated with the historical loading rack release will be determined based on the groundwater monitoring results at these wells.

- Navajo or HEP will inspect and maintain the integrity of the loading rack concrete slab on a quarterly basis following asphalt rack construction and concrete slab repair activities.

These recommendations are based on the following:

- The age of the release that caused the historical soil impacts is at least 27 years old because Navajo has not stored, handled, or transferred any products containing diesel since it acquired ownership of the refinery in 1989.

- The likely source of the historical soil impacts has been removed and the drainage boxes and drain line have been plugged and abandoned.

- The concrete slab present beneath the asphalt loading rack serves as a "cap" over the historical soil impacts, effectively preventing worker exposure to impacted soil and preventing vertical migration of fluids from the surface through the impacted soil zone (i.e., prevents precipitation from percolating through the soil impacts and leaching to groundwater).

- Excavation of impacted soil in this area is not feasible due to the existence of loading rack infrastructure, active loading rack operations, and the depth of soil impacts (95 feet bgs). Loading rack operation, which includes active truck traffic and loading, occurs on a 24-hour basis.

- Historical groundwater monitoring results indicate VOCs and/or SVOCs have not leached into groundwater at the southeastern portion of the refinery. The current groundwater monitoring program effectively monitors VOCs and SVOCs in all directions of the asphalt loading rack (i.e., installation of any additional wells would be redundant).

- Installation of a monitoring well at the location of the historical soil impacts is not feasible because installation and sampling activities would interfere with active loading operations and pose potential environmental and safety risks. Heavy truck traffic over this location could potentially damage the well surface completions over time and the presence of the well would provide a potential vertical conduit through the concrete slab "cap" and to groundwater. Accessing the well during active loading operations would pose significant safety risks for sampling personnel.

Navajo requests NMOCD to approve this recommended path forward for the historical soil impacts at the asphalt loading rack. HEP will continue loading rack construction activities, including backfill of the excavation and repair of the concrete slab. If you have any questions or concerns, please do not hesitate to contact me at (575) 746-5487 or Robert Combs of Navajo at (575) 746-5382.

Sincerely,

Scott M. Denton
Environmental Manager

Attachments
Figure 1 – Site Plan and Soil Boring Location Map
Table 1 – Soil Analytical Results, Asphalt Loading Rack Investigation

Attachment A – Soil Waste Manifests
Attachment B – Soil Boring Log
Attachment C – Photographic Logs of Soil Assessment Activities
Attachment D – Final C-141 Form
Attachment E – Laboratory Analytical Reports
Attachment F – 2015 Groundwater Gradient Maps
Attachment G – Summary of Groundwater Analytical Results through 2015

cc: Jim Griswold, NMOCD Environmental Bureau, Santa Fe, New Mexico
Robert Combs, NRC, Artesia, New Mexico
Julie Speer, TRC, Austin, Texas
Bryan Gilbert, TRC, Austin, Texas

Chavez, Carl J, EMNRD

From: Speer, Julie <JSpeer@trcsolutions.com>
Sent: Monday, February 09, 2015 2:43 PM
To: Chavez, Carl J, EMNRD
Cc: Griswold, Jim, EMNRD; Robert.Combs@hollyfrontier.com; Stone, Brian (Brian.Stone@HollyFrontier.com); Gilbert, Bryan; Sahba, Arsin
Subject: Navajo Lovington Refinery (AP-110) - April 2012 Cooling Tower Release Request for Closure
Attachments: Lovington Cooling Tower Release - Request for Closure FINAL to OCD 020915.pdf

Carl,

Attached please find the letter documenting additional soil investigation and liner assessment related to the April 2012 cooling tower release at Navajo Refining Company's Lovington Refinery. No hard copy will be sent unless otherwise requested.

Thank you,

Julie Speer, PG, EIT
Associate Project Manager

505 East Huntland Drive, Suite 250, Austin, TX 78752
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February 9, 2015

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

Re: April 2012 Cooling Tower Release - Request for Closure, Navajo Refining Company, Lea Refinery, Lovington, New Mexico, AP-110

Dear Mr. Chavez:

On behalf of Navajo Refining Company (NRC), TRC Environmental Corporation (TRC) is submitting this letter to document results of additional investigations related to the April 2012 cooling tower release at the NRC Lovington Refinery (refinery). In addition, this letter supplements recent communication between NRC and the New Mexico Oil Conservation Division (NMOCD) regarding the presence of a liner that was previously installed adjacent to the cooling tower by the previous refinery owner/operator.

BACKGROUND

The NRC cooling tower release occurred on April 30, 2012, as operators were adding "makeup water" (reverse osmosis permeate supplemented with freshwater) to the basin of the refinery cooling tower. The cooling tower water level increased more quickly than anticipated and approximately 10 barrels of cooling water overflowed to the ground surface along the northeast and northwest sides of the cooling tower.

Initial release investigation activities were conducted by NRC personnel on January 16, 2013, and included the collection of two surface soil samples (Cooling Tower Background sample and Cooling Tower Spill Area sample [CTSA]). Additional soil investigation was conducted by TRC on June 20 and 21, 2013, based on the January 2013 soil sample analytical results. The June 2013 investigation included the advancement of a soil boring (TB-1) to 15 feet below ground surface (bgs), collection of surface soil samples (TB-1 through TB-5), and collection of a vertical delineation sample (TB-1 [14-15 feet bgs]). The results of the January 2013 and June 2013 investigations were documented in a letter report that was submitted to NMOCD on July 29,

2013, and indicated further investigation was required to delineate the lateral extent of chloride in surface soil.

The NMOCD provided comments to the July 2013 letter report in e-mails dated August 20, 2013, and January 15, 2014, and requested the removal of impacted surface soils surrounding the cooling tower using best professional judgment and confirmation sampling. TRC conducted additional surface soil investigation activities on August 20, 2014, to better define the potential excavation limits. The August 2014 investigation included the collection and field-screening of surface soil samples from within and adjacent to the cooling tower release area. Select soil samples were submitted for laboratory analysis based on the field-screening results. During the August 2014 investigation, a heavy-duty plastic liner was encountered at three of the sample locations (TB-1, TB-2, and CTSA) at depths ranging from approximately 1 to 2 feet bgs.

The liner encountered during the August 2014 investigation was determined to be part of two liners that were installed by the former refinery owner/operator (Southern Union Company) during backfilling activities associated with remedial excavation of metal-impacted soils in 1990. According to the October 1990 "Cooling Tower Supplemental Remedial Report" prepared by Geraghty & Miller, Inc. for Southern Union Company, 30-mil plastic liners were installed immediately northwest and northeast of the cooling tower at a depth of approximately 1.5 feet bgs between two one-foot thick compacted clay layers. The clay layers and liners installed at these locations were collectively referred to as a "cap" in the October 1990 Geraghty & Miller report. The October 1990 Geraghty & Miller report was provided to NMOCD in an e-mail dated November 21, 2014. The approximate location of the liners relative to the cooling tower, April 2012 NRC cooling tower spill area, and the 2013 and 2014 soil sample locations are shown in Figure 1. As shown on Figure 1, the liners are present over a majority of the area impacted by the April 2012 NRC cooling tower spill.

NRC notified the NMOCD regarding the discovery of the 30-mil liners and the August 2014 investigation results in an e-mail on November 10, 2014. NRC and NMOCD conducted a conference call and discussed the potential of leaving the impacted soil and liners surrounding the cooling tower in place on November 21, 2014. The NMOCD indicated during the conference call that the soil and liners may be allowed to remain in place if the integrity of the liners is intact and the liners can be shown to be effectively preventing the vertical migration of contaminants. The NMOCD also indicated that the appropriate clean-up level for chloride is 600 milligrams per kilogram (mg/kg).

A summary of the August 2014 soil investigation activities and December 2014 liner assessment and request for closure regarding the April 2012 NRC cooling tower spill are provided below.

AUGUST 2014 SOIL INVESTIGATION ACTIVITIES

Additional soil investigation was conducted by TRC on August 20, 2014. The investigation included the collection of surface soil samples using a decontaminated shovel or hand auger at locations immediately adjacent to previous soil sample locations (TB-1, TB-2, TB-3, and CTSA) within the release area and adjacent to the release area (TB-6 through TB-11). The intent of collecting additional samples at previous sample locations was to better define the vertical extent of impacted soil at these locations. However, the maximum sample depth that could be reached using a shovel or hand auger at these locations was restricted by the hardness of the surface soil. The location of soil samples collected during the 2013 and 2014 investigations are presented on Figure 1.

Surface soil samples were field-screened using a soil salinity meter (Myron L Agri-Meter™). Select soil samples were submitted for laboratory analysis based on field screening results for chloride and/or sulfate by Method E300. Select soil samples were also analyzed for chloride and/or sulfate synthetic precipitation leaching potential (SPLP) as follows:

- TB-1 (0 to 1 feet bgs and above liner) was analyzed for chloride and sulfate SPLP; and
- TB-1 (1 to 1.1 feet bgs and below liner) was analyzed for chloride SPLP.

As stated above, a heavy-duty plastic liner was encountered during sampling activities at sample locations TB-1, TB-2, and CTSA at depths ranging from approximately 1 to 2 feet bgs. Soil samples were collected from immediately beneath the liner at these three locations. A knife was utilized in order to bypass the liner as the shovel and hand auger could not penetrate the liner due to the strength of the liner and the hardness of the underlying soil.

August 2014 Soil Investigation Results

The 2013 and 2014 field and laboratory investigation results are presented in Table 1. The laboratory analytical report for the August 2014 samples is provided as Attachment A (laboratory analytical reports for the other samples shown on Table 1 have been previously provided to NMOCD). The laboratory results were compared to site-specific cleanup levels previously agreed upon by NMOCD in a January 15, 2014, e-mail and during the November 21, 2014, conference call.

The samples and depths at which the liner was encountered are indicated on Table 1 with a red dashed line. As shown on the table, the liner appears to have effectively prevented the vertical migration of chloride and sulfate at concentrations above the cleanup levels to the soils beneath the liner at two of the sample locations (TB-2 and CTSA). The liner at sample location TB-1 effectively prevented the vertical migration of sulfate and reduced the chloride concentration beneath the liner by 77 percent at a depth of 1-1.1 feet bgs and by 99 percent at a depth of 14-15

feet bgs. SPLP chloride results of two soil samples collected at TB-1 (one from a depth above the liner [0-1 feet] and one from a depth immediately below the liner [1-1.1 feet bgs]) show the soil above the liner at TB-1 could leach at concentrations above the New Mexico Water Quality Control Commission (WQCC) human health groundwater standards (absent the liner), but the soil beneath the liner (1-1.1 feet bgs) would not leach at concentrations above the WQCC human health groundwater standards.

LINER ASSESSMENT

On December 16, 2014, TRC collected a sample of the liner to assess the integrity and physical condition of the liner. An approximate one square foot sample was collected from the northeastern corner of the liner using a backhoe. The location of the liner sample is shown on Figure 1. The liner sample was visually inspected for structural integrity and determined to be free of any cracks, pinholes, stains, deformation, or any other indication of degradation or damage (except where damaged by the backhoe bucket teeth) that would indicate the integrity of the liner has been compromised. The physical strength of the liner was assessed by attempting to tear or deform the sample by hand. The sample could not be stretched or deformed by hand. Photographic documentation of the liner sample is provided as Attachment B.

The October 1990 Geraghty & Miller report did not include any additional specifications of the 30-mil liners. Based on the installation descriptions and photographs provided in the October 1990 Geraghty & Miller report and TRC's observations, the liners were installed in general agreement with the International Association of Geosynthetic Installers' (IAGI's) "HDPE and LLDPE Geomembrane Installation Specification".

REQUEST FOR CLOSURE

The results of the 2013 and 2014 investigations and the December 2014 liner assessment indicate that the liners installed by Southern Union Company in 1990 are in good condition and the "cap" (liners and clay layers) is effectively preventing the potential vertical migration of chloride and sulfate associated with April 2012 cooling tower release. NRC requests no further action be required in regards to the April 2012 cooling tower release based on the following:

- The "cap" is effectively preventing vertical migration of chloride and sulfate to underlying soils at concentrations above the soil cleanup levels.
- The "cap" is effectively preventing the leaching of chloride and sulfate to groundwater at concentrations above New Mexico WQCC human health groundwater standards.
- The "cap" is present over a majority of the area impacted by the April 2012 NRC cooling tower spill.
- The chloride- and sulfate-impacted surface soils around the cooling tower do not pose a risk to refinery workers.

- The uppermost groundwater-bearing unit beneath the site is greater than 100 feet bgs, including at wells located near the cooling tower.
- Chloride has not been detected above WQCC human health standards in wells MW-11, MW-28, and MW-29, the nearest down-gradient monitor wells, since the April 2012 cooling tower spill.

Pending NMOCD's approval of this closure request, NRC will submit a final "Release Notification and Corrective Action" Form C-141.

If you have any questions or concerns, please do not hesitate to contact Robert Combs of NRC at (575) 746-5382, Bryan Gilbert of TRC at (512) 684-3104, or Julie Speer of TRC at (512) 684-3148.

Sincerely,

Bryan Gilbert, P.G.
Project Manager

Sincerely,

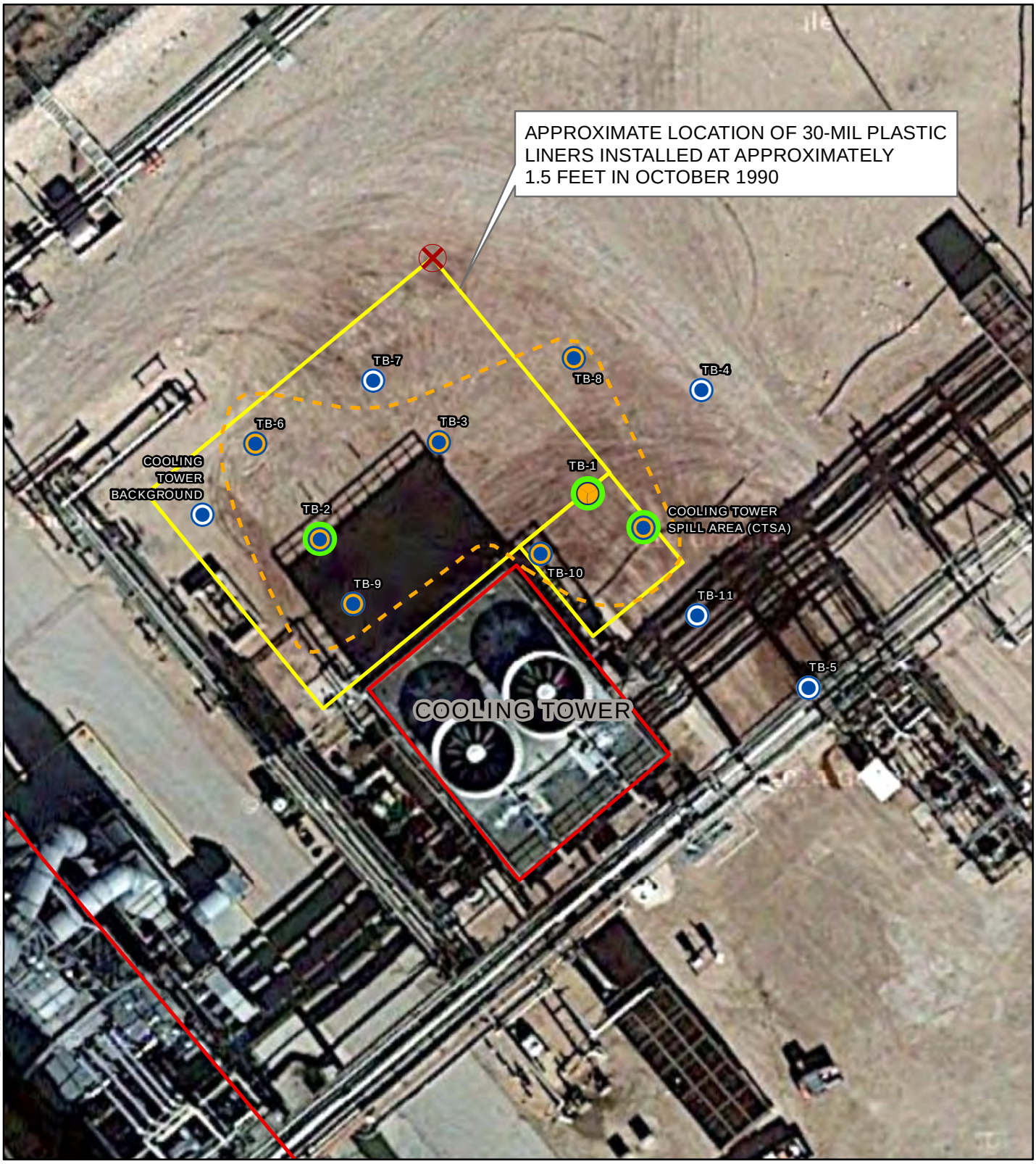
Julie Speer, P.G., E.I.T.
Associate Project Manager

Attachments:

Figure 1 – April 2012 Cooling Tower Spill Soil Sampling Location Map
Table 1 – Summary of April 2012 Cooling Tower Spill Soil Sample Results
Attachment A – Hall Environmental Laboratory Analytical Report
Attachment B – Photograph of Liner Sample

cc: Jim Griswold, NMOCD Environmental Bureau, Santa Fe, New Mexico
Robert Combs, NRC, Artesia, New Mexico
Brian Stone, NRC, Artesia, New Mexico
Arsin Sahba, TRC, Austin, Texas

FIGURE



Document Path: J:\Holly_Energy_Partners\Navajo_Lovington\216293_Lovington_Cooling_Tower_Remediation\216293_1.mxd

LEGEND

- Soil Boring
- Surface Soil Samples
- Sample Exceeded Clean-Up Levels
- Vertical Delineation
- Plastic Liner Sample
- Approximate Extent of 30-Mil Plastic Liners
- Area of Impacted Soil (Approximate)
- Buildings

N

0 15 30

FEET

1 inch = 30 feet

Service Layer Credits: GOOGLE AND THEIR DATA PARTNERS.

APRIL 2012 COOLING TOWER SPILL SOIL SAMPLE LOCATION MAP

NAVAJO REFINING COMPANY
LEA REFINERY LOVINGTON, NM

PROJECT NO: 216293	MXD: 216293_1
AUTHOR: KVILLATORO	DATE: 1/30/2015

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 1

Table

Table 1. Summary of April 2012 Cooling Tower Spill Soil Sample Results
Navajo Lovington Refinery, Lovington, NM

Sample Location	Date	Depth	Field readings		Lab Results			
			Meter Reading (mmhos/cm)	Total Salt Equivalent (ppm)	Total Chloride (mg/kg)	Total Sulfate (mg/kg)	SPLP Chloride (mg/L)	SPLP Sulfate (mg/L)
Cooling Tower Background Sample					419	1,310	WQCC GW Standard[3] (mg/L)	
Cleanup Level (mg/Kg)					600	2,080	250	600
TB-1	Aug 2014	0-1	5.0	3,200	**5,600**	**3,500**	**370**	120
	Aug 2014	1.0-1.1[1]	-[2]	-	**1,300**	600	48	-
	June 2013	14-15	-	-	82.8	99.5	-	-
TB-1 (Duplicate)	Aug 2014	0-1	-	-	**5,200**	**2,900**	-	-
TB-2	Jan 2013	0-0.5	-	-	**2,080**	**2,650**	-	-
	Aug 2014	0-1	3.9	2,496	-	-	-	-
	Aug 2014	1-2	0.7	448	-	-	-	-
	Aug 2014	2.0-2.1[1]	-[2]	-	410	500	-	-
TB-3	Jan 2013	0-0.5	-	-	**1,530**	1,990	-	-
	Aug 2014	0-1	3.1	1,984	-	-	-	-
	Aug 2014	1-1.1	-[2]	-	**1,200**	830	-	-
TB-4	Jan 2013	0-0.5	-	-	47.7	83.3	-	-
TB-5	Jan 2013	0-0.5	-	-	12.8	20.0	-	-
TB-6	Aug 2014	0-1	1.5	960	**970**	780	-	-
TB-7	Aug 2014	0-1	0.8	512	400	820	-	-
TB-8	Aug 2014	0-1	1.4	896	**670**	510	-	-
TB-9	Aug 2014	0-1	1.9	1,216	**1,400**	780	-	-
TB-10	Aug 2014	0-1	2.4	1,536	**1,500**	1,400	-	-
TB-11	Aug 2014	0-1	0.5	320	370	510	-	-
CTSA	Jan 2013	0-1	-	-	**2,140**	536	-	-
	Aug 2014	0-1	4.0	2,560	-	-	-	-
	Aug 2014	1.0-1.1[1]	-[2]	-	450	960	-	-

Notes:

Highlighted and bold cells exceed applicable cleanup level or standard

Sulfate soil cleanup level based on Oil Conservation Division's email dated 1/15/2014

Chloride soil cleanup level based on November 21, 2014, conference call between NRC and NMOCD.

Dissolved salt equivalency determined using the conversion 1 mmho/cm = 640 ppm

(1) Sample depth interval limited due to hand auger refusal and limited sample recovery.

(2) Insufficient sample volume recovered to conduct field reading.

(3) New Mexico Water Quality Control Commission Human Health Standards for Groundwater

- Not analyzed

ppm - parts per million

mmho/cm - millimhos per centimeter

SPLP - Synthetic Precipitation Leaching Procedure

30-mil plastic liner present

ATTACHMENT A

Hall Environmental Laboratory Analytical Report

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

October 02, 2014

Robert Combs

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Loving to Lea Refinery OrderNo.: 1408C59

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 13 sample(s) on 8/26/2014 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued September 03, 2014.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. 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 don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,



Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Case Narrative

WO#: **1408C59**
Date: **10/2/2014**

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery

Analytical Notes Regarding SPLP:
The following samples were leached using EPA method 1312:
TB-1 0.0'-1.0' SPLP
TB-1 1.0'-1.1' SPLP

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-001A

Client Sample ID: TB-2 2.0'-2.1'
Collection Date: 8/20/2014 3:40:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	410	30		mg/Kg	20	8/26/2014 4:02:28 PM	14961
Sulfate	500	30		mg/Kg	20	8/26/2014 4:02:28 PM	14961

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-002A

Client Sample ID: CTSA 1.0'-1.1'
Collection Date: 8/20/2014 3:45:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	450	30		mg/Kg	20	8/26/2014 4:39:41 PM	14961
Sulfate	960	30		mg/Kg	20	8/26/2014 4:39:41 PM	14961

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-003A

Client Sample ID: TB-1 1.0'-1.1'
Collection Date: 8/20/2014 3:50:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	1300	75		mg/Kg	50	8/28/2014 6:51:39 PM	14961
Sulfate	600	30		mg/Kg	20	8/26/2014 4:52:06 PM	14961

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-003B

Client Sample ID: TB-1 1.0'-1.1'
Collection Date: 8/20/2014 3:50:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	48	3.3		mg/L	20	10/1/2014 3:35:35 AM	R21571

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-004A

Client Sample ID: TB-3 1.0'-1.1'
Collection Date: 8/20/2014 3:55:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	1200	30		mg/Kg	20	8/26/2014 5:04:31 PM	14961
Sulfate	830	30		mg/Kg	20	8/26/2014 5:04:31 PM	14961

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-005A

Client Sample ID: TB-6 0.0'-1.0'
Collection Date: 8/20/2014 4:00:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	970	30		mg/Kg	20	8/26/2014 5:16:56 PM	14961
Sulfate	780	30		mg/Kg	20	8/26/2014 5:16:56 PM	14961

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-006A

Client Sample ID: TB-7 0.0'-1.0'
Collection Date: 8/20/2014 4:05:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	400	30		mg/Kg	20	8/26/2014 5:29:20 PM	14961
Sulfate	820	30		mg/Kg	20	8/26/2014 5:29:20 PM	14961

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-007A

Client Sample ID: TB-8 0.0'-1.0'
Collection Date: 8/20/2014 4:10:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	670	30		mg/Kg	20	8/26/2014 5:41:45 PM	14961
Sulfate	510	30		mg/Kg	20	8/26/2014 5:41:45 PM	14961

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-008A

Client Sample ID: TB-9 0.0'-1.0'
Collection Date: 8/20/2014 4:15:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	1400	75		mg/Kg	50	8/28/2014 7:04:04 PM	14961
Sulfate	780	30		mg/Kg	20	8/26/2014 5:54:09 PM	14961

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-009A

Client Sample ID: TB-10 0.0'-1.0'
Collection Date: 8/20/2014 4:20:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	1500	75		mg/Kg	50	8/28/2014 7:16:29 PM	14961
Sulfate	1400	30		mg/Kg	20	8/26/2014 6:31:23 PM	14961

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-010A

Client Sample ID: TB-11 0.0'-1.0'
Collection Date: 8/20/2014 4:25:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	370	30		mg/Kg	20	8/26/2014 6:43:48 PM	14961
Sulfate	510	30		mg/Kg	20	8/26/2014 6:43:48 PM	14961

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-011A

Client Sample ID: TB-1 0.0'-1.0'
Collection Date: 8/20/2014 4:50:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	5600	750		mg/Kg	500	8/28/2014 7:28:53 PM	14961
Sulfate	3500	750		mg/Kg	500	8/28/2014 7:28:53 PM	14961

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: DUP-1
Project: Loving to Lea Refinery
Collection Date: 8/20/2014 11:59:00 PM
Lab ID: 1408C59-012A
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	5200	300		mg/Kg	200	8/28/2014 7:41:17 PM	14961
Sulfate	2900	30		mg/Kg	20	8/26/2014 7:08:38 PM	14961

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Loving to Lea Refinery
Lab ID: 1408C59-013A

Client Sample ID: TB-1 0.0'-1.0' SPLP
Collection Date: 8/26/2014
Matrix: Leachate

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	370	10	*	mg/L	20	8/27/2014 1:11:48 AM	R20831
Sulfate	120	10		mg/L	20	8/27/2014 1:11:48 AM	R20831

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1408C59**

02-Oct-14

Client: Navajo Refining Company

Project: Loving to Lea Refinery

Sample ID	**MB-14961**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**14961**	RunNo:	**20829**					
Prep Date:	**8/26/2014**	Analysis Date:	**8/26/2014**	SeqNo:	**606221**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								
Sulfate	ND	1.5								

Sample ID	**LCS-14961**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**14961**	RunNo:	**20829**					
Prep Date:	**8/26/2014**	Analysis Date:	**8/26/2014**	SeqNo:	**606222**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.1	90	110			
Sulfate	29	1.5	30.00	0	96.9	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1408C59**

02-Oct-14

Client: Navajo Refining Company

Project: Loving to Lea Refinery

Sample ID	**MB**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R20831**	RunNo:	**20831**					
Prep Date:		Analysis Date:	**8/26/2014**	SeqNo:	**606285**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID	**LCS**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSW**	Batch ID:	**R20831**	RunNo:	**20831**					
Prep Date:		Analysis Date:	**8/26/2014**	SeqNo:	**606286**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.4	90	110			
Sulfate	9.8	0.50	10.00	0	97.7	90	110			

Sample ID	**MB**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R20831**	RunNo:	**20831**					
Prep Date:		Analysis Date:	**8/26/2014**	SeqNo:	**606339**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID	**LCS**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSW**	Batch ID:	**R20831**	RunNo:	**20831**					
Prep Date:		Analysis Date:	**8/26/2014**	SeqNo:	**606340**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.6	90	110			
Sulfate	9.9	0.50	10.00	0	98.5	90	110			

Sample ID	**MB**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R21571**	RunNo:	**21571**					
Prep Date:		Analysis Date:	**9/30/2014**	SeqNo:	**632137**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID	**LCS**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSW**	Batch ID:	**R21571**	RunNo:	**21571**					
Prep Date:		Analysis Date:	**9/30/2014**	SeqNo:	**632138**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.5	90	110			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1408C59 RcptNo: 1

Received by/date: CS 08/25/14

Logged By: **Celina Sessa** 8/25/2014 8:35:00 AM Celina Sessa

Completed By: **Celina Sessa** 8/25/2014 9:11:29 AM Celina Sessa

Reviewed By: 08/25/14

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	Good	Yes			

Chain-of-Custody Record

Client: Navajo Refining Company

Mailing Address: PO Box 159 Artesia NM 88211

Phone #: 575-746-5382

email or Fax#: robert.combs@hollyfrontier.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Loving to Lea Refinery

Project #:

Project Manager: Robert Combs

Sampler: John Allen

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.7°

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. 1408C59	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)		E300 - Cl, SO4	SPLP Cl, SO4		Air Bubbles (Y or N)
8/20/14	1540	S	TB-2 2.0'-2.1'	4-oz glass	none	-001													X			
8/20/14	1545	S	~~TB~~ CISA 1.0'-1.1'	4-oz glass	none	-002													X			
8/20/14	1550	S	TB-1 1.0'-1.1'	4oz glass	none	-003													X			
8/20/14	1555	S	TB-3 1.0'-1.1'	4oz glass	none	-004													X			
8/20/14	1600	S	TB-6 0.0'-1.0'	4oz glass	none	-005													X			
8/20/14	1605	S	TB-7 0.0'-1.0'	4oz glass	none	-006													X			
8/20/14	1610	S	TB-8 0.0'-1.0'	4oz glass	none	-007													X			
8/20/14	1615	S	TB-9 0.0'-1.0'	4oz glass	none	-008													X			
8/20/14	1620	S	TB-10 0.0'-1.0'	4oz glass	none	-009													X			
8/20/14	1625	S	TB-11 0.0'-1.0'	4oz glass	none	-010													X			
8/20/14	1650	S	TB-1 0.0'-1.0'	4oz glass	none	-011													X	X		
8/20/14	2400	S	Dup-1	4oz glass	none	-012													X			

Date:	Time:	Relinquished by:	Received by:	Date	Time
8/22/14	1240	John Allen	Celina Sena	08/25/14	0835
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: -TB-1 0.0'-1.0' SPLP-013

AT 08/25/14

Add SPLP Cl to TB-1 1.0'-1.1' per Julie 9/9/14

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.

ATTACHMENT B

Photograph of Liner Sample



Chavez, Carl J, EMNRD

From: Speer, Julie <JSpeer@trcsolutions.com>
Sent: Friday, November 21, 2014 10:23 AM
To: Chavez, Carl J, EMNRD
Cc: Griswold, Jim, EMNRD; Robert.Combs@hollyfrontier.com; Stone, Brian (Brian.Stone@HollyFrontier.com); Gilbert, Bryan
Subject: RE: Lea Refinery, Lovington - Cooling Tower Release Soil Investigation (AP-110)
Attachments: Cooling Tower Supplemental Remedial Report.pdf

Carl,

Thank you for your time today to discuss the cooling tower at the Navajo Refining Company's Lovington Refinery. Attached is the October 1990 "Cooling Tower Supplemental Remedial Report" that was prepared by Geraghty & Miller, Inc. for Southern Union Company and documents the installation of the 30-mm plastic liners around the cooling tower. The file is almost 12 MB, but hopefully it will make it through via this email. Please let me know if it does not and I will try to submit over ftp.

Thank you,
Julie Speer, E.I.T.
Associate Project Manager

505 East Huntland Drive, Suite 250, Austin, TX 78752
T: 512.684.3148| F: 512.329.8750| C: 512.431.8184
jspeer@trcsolutions.com | www.trcsolutions.com

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Friday, November 21, 2014 9:41 AM
To: Speer, Julie
Subject: RE: Lea Refinery, Lovington - Cooling Tower Release Soil Investigation (AP-110)

Julie:

I need the attached figure and table referenced in your e-mail of 11/10/2014 in advance of the meeting. Your e-mail lacked attachments. Also, is the diagrams from the Geraghty & Miller October 1990 report are needed.

Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
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"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental



From: Speer, Julie [mailto:JSpeer@trcsolutions.com]
Sent: Wednesday, November 19, 2014 9:23 AM
To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD
Cc: Robert.Combs@hollyfrontier.com; Gilbert, Bryan; Stone, Brian (Brian.Stone@HollyFrontier.com)
Subject: RE: Lea Refinery, Lovington - Cooling Tower Release Soil Investigation (AP-110)

Good Morning Carl,

I am following up with our request below to schedule a call to discuss recent soil assessment results related to the cooling tower at the Navajo Lovington Refinery. Do you have time this week to discuss?

Thank you,
Julie Speer, E.I.T.
Associate Project Manager

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From: Speer, Julie
Sent: Monday, November 10, 2014 12:39 PM
To: 'Chavez, Carl J, EMNRD'; Jim.Griswold@state.nm.us
Cc: Robert.Combs@hollyfrontier.com; Gilbert, Bryan; Stone, Brian (Brian.Stone@HollyFrontier.com)
Subject: RE: Lea Refinery, Lovington - Cooling Tower Release Soil Investigation (AP-110)

Carl,

TRC completed additional assessment of the surface soils adjacent to the cooling tower at Navajo Refining Company's Lovington Refinery in August 2014. The assessment consisted of collecting surface soil samples with a shovel or hand auger, field-screening the soil with a soil salinity tester and PID, and submitting select soil samples for laboratory analysis. During the assessment, a plastic liner was encountered at some of the sample locations at depths ranging from approximately 1 to 2 feet below ground surface. As stated previously in communication below, the former owner/operator of the Lovington Refinery (Southern Union Company) had completed extensive excavation of metal-impacted soils surrounding the cooling tower in 1990 and backfilled with clean fill. According to the October 1990 "Cooling Tower Supplemental Remedial Report" prepared by Geraghty & Miller, Inc. for Southern Union Company, two large 30-millimeter (mm) plastic liners were installed immediately northwest and northeast of the cooling tower at approximately 1.5 feet deep as part of the remedial backfilling activities.

The approximate location of the plastic liners relative to the 2013 and 2014 soil sample locations are shown on the attached figure. As shown on the figure, the liners are present over a majority of the area impacted by the 2012 cooling tower spill. Soil samples were collected from immediately below the liner at three sample locations (TB-1 [1.0'-1.1'], TB-2 [2.0'-2.1'], and CTSA [1.0-1.1]) and submitted for laboratory analysis. Soil sample analytical results from the 2013 and 2014 cooling tower assessments are summarized in the attached table. As shown on the table, the liner effectively

prevented the vertical migration of chloride at concentrations above the cleanup level to the soils beneath the liner at two of the sample locations (TB-2 and CTSA). The liner at sample location TB-1 effectively prevented the vertical migration of sulfate and reduced the chloride concentration beneath the liner by 77%. Two soil samples collected at TB-1 (one from a depth above the liner [0-1 feet] and one from a depth immediately below the liner [1-1.1 feet]) were submitted to the laboratory for synthetic precipitation leaching procedure (SPLP) of chloride. The SPLP results showed the soil above the liner at TB-1 could leach at concentrations above the WQCC human health groundwater standards (absent the liner), but the soil below the liner would not leach at concentrations above the WQCC human health groundwater standards.

Based on the August 2014 analytical results, we would like to schedule a call with you to discuss leaving the liners and soils surrounding the cooling tower in place due to the following:

- The liners are effectively preventing vertical migration of chloride and sulfate to underlying soils at concentrations above the soil cleanup levels.
- The liner is effectively preventing the leaching of chloride and sulfate to groundwater at concentrations above WQCC human health groundwater standards.
- Leaving chloride- and sulfate-impacted surface soils in placed around the cooling tower does not pose a risk to refinery workers.
- Groundwater at the site is greater than 100 feet below ground surface, including at wells located near the cooling tower.
- Chloride has not been detected above WQCC human health standards in wells MW-11, MW-29, and MW-28, the nearest down-gradient monitor wells, since the April 2012 cooling tower spill.

Please let us know which day and time would work best for you to discuss this matter.

Thank you,
Julie Speer, E.I.T.
Associate Project Manager

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From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, January 30, 2014 12:19 PM
To: Gilbert, Bryan
Cc: Robert.Combs@hollyfrontier.com; Speer, Julie
Subject: RE: Lea Refinery, Lovington - Cooling Tower Release Soil Investigation (AP-110)

Bryan:

Good morning. I just reviewed the Investigation Report from Dec. 2013.

I am available today from 1:30 – 4:30 p.m. (GMT). Let me know a good time for you within this period today and send me the call in number.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau

1220 South St. Francis Drive, Santa Fe, New Mexico 87505
O: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
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"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental

---

From: Gilbert, Bryan [mailto:BGilbert@trcsolutions.com]
Sent: Thursday, January 30, 2014 9:48 AM
To: Chavez, Carl J, EMNRD
Cc: Robert.Combs@hollyfrontier.com; Speer, Julie
Subject: RE: Lea Refinery, Lovington - Cooling Tower Release Soil Investigation (AP-110)

Hey Carl – do you have a few minutes to discuss your e-mail over the phone? We are available at 2 MST/3 CST. Let me know if that works and I'll send a call-in number.

Thanks!

Bryan Gilbert, PG
Project Manager

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From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, January 22, 2014 4:51 PM
To: Gilbert, Bryan
Cc: Holder, Mike (Michael.Holder@hollyfrontier.com); Robert.Combs@hollyfrontier.com; Speer, Julie; VonGonten, Glenn, EMNRD
Subject: RE: Lea Refinery, Lovington - Cooling Tower Release Soil Investigation (AP-110)

Bryan:

Yes, that is correct. I'm looking over the 2012 Annual Facility-Wide GW Monitoring Report.

Nice work on the report. I see you are looking at sources from water quality results.

I notice MW-25 is showing elevated nitrates (37.1 mg/L on 7/26/2012) likely from the septic system. Is the septic system pumped out annually?

The presence of Naphthalene (Toxic Pollutant under 20.6.2.7(ww) NMAC and BTEX at MW-11. Do you know the source? Tanks 1201A and 1201B?

The cones of depression needs to be factored into potential sources. WW-East appears to be seated within a cone of depression with flow toward the SW in the opposite direction of the natural hydrogeologic gradient.

Is there a practical method of addressing the MW-11 water quality issues based on the refinery treatment system? Could Navajo utilize a SWD Well to address the BTEX, Naphthalene, Chloride and Fluoride problem at the facility? Chromium at MW-14 & 29?

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
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http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental

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From: Gilbert, Bryan [mailto:BGilbert@trcsolutions.com]
Sent: Wednesday, January 22, 2014 2:49 PM
To: Chavez, Carl J, EMNRD
Cc: Holder, Mike (Michael.Holder@hollyfrontier.com); Robert.Combs@hollyfrontier.com; Speer, Julie
Subject: RE: Lea Refinery, Lovington - Cooling Tower Release Soil Investigation

Carl –

Thank you for taking the time to discuss the Lea Refinery cooling tower response today. As we discussed, we previously analyzed soil in the vicinity of the cooling tower release area for sulfate, a naturally occurring ion that is common in New Mexico groundwater and soil, and not sulfur. The July 2013 letter entitled "April 2012 Cooling Tower Release Soil Investigation" proposed a Leaching to Groundwater Pathway SSL of 2,080 mg/kg. The leaching to groundwater pathway SSL was developed in accordance with the NMED's "Risk Assessment Guidance for Site Investigation and Remediation."

Per our discussion, the Leaching to Groundwater Pathway SSL of 2,080 mg/kg will be used for sulfate during soil confirmation sampling activities. Laboratory analysis of TPH, which is not associated with cooling water, will not be conducted unless hydrocarbon-impacted soils are suspected during excavation activities based on potential hydrocarbon odor and staining.

Please let me know if you have any questions or comments.

Thank you,

Bryan Gilbert, PG
Project Manager

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From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, January 22, 2014 2:41 PM
To: Gilbert, Bryan
Subject: RE: Lea Refinery, Lovington - Cooling Tower Release Soil Investigation

Bryan:

Good afternoon. Do you have any suggestions on a criteria for Sulfur in soil? Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
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E-mail: CarlJ.Chavez@State.NM.US
Website: http://www.emnrd.state.nm.us/ocd/
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http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental

---

From: Gilbert, Bryan [mailto:BGilbert@trcsolutions.com]
Sent: Wednesday, January 22, 2014 12:55 PM
To: Chavez, Carl J, EMNRD
Cc: Robert.Combs@hollyfrontier.com; Holder, Mike (Michael.Holder@hollyfrontier.com); Speer, Julie
Subject: RE: Lea Refinery, Lovington - Cooling Tower Release Soil Investigation

Carl,

Thank you for your prompt response. I understand the following from your January 15, 2014, e-mail:

1. Laboratory analysis of sulfate is not necessary during soil confirmation sampling.
2. Confirmation soil samples may be analyzed for TPH pending NRC/TRC's best professional judgment. Best professional judgment will based on potential hydrocarbon odor and staining.

Please clarify if our understanding is not consistent with your e-mail.

Thank you,

Bryan Gilbert, PG
Project Manager

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From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, January 15, 2014 10:48 AM
To: Gilbert, Bryan
Cc: Robert.Combs@hollyfrontier.com; Holder, Mike (Michael.Holder@hollyfrontier.com); Speer, Julie
Subject: RE: Lea Refinery, Lovington - Cooling Tower Release Soil Investigation

Bryan:

Good morning. In response to your e-mail, please find the New Mexico Oil Conservation Division (OCD) comments in red text below where necessary. OCD proposes TPH analysis with Best Professional Judgment (BPJ) for sulfate contamination cleanup.

Please contact me if you have questions.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
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http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental

---

From: Gilbert, Bryan [mailto:BGilbert@trcsolutions.com]
Sent: Wednesday, January 15, 2014 8:51 AM
To: Chavez, Carl J, EMNRD
Cc: Robert.Combs@hollyfrontier.com; Holder, Mike (Michael.Holder@hollyfrontier.com); Speer, Julie
Subject: Lea Refinery, Lovington - Cooling Tower Release Soil Investigation

Carl,

We appreciate OCD's response to the July 29, 2013, letter summarizing the results of the April 2012 cooling tower release soil investigation. OCD's August 20, 2013, comments are provided below in blue while NRC's responses are provided in black italics.

The OCD has completed its review of the above subject investigation with recommendations.

The recommendation states: "Additional surface soil samples will be collected to delineate the lateral extent of elevated chloride and sulfate concentrations. Proposed additional surface soil sample locations are depicted in Fig. 2. The path forward will be determined based on the analytical results of the additional soil samples. Chloride and surface concentrations in groundwater at well MW-29 will be watched closely during the next GW monitoring event."

OCD review of the investigation report and figures indicates the following:

1) Historical operator ground water monitoring reports indicate the water table is at about 90 ft. below ground level and the facility is within the Well Head Protection Area (WHPA) of the City of Lovington.

   NRC Response
   Groundwater gauging measurements from the August 2013 semi-annual groundwater monitoring event indicate the average water table depth across the site is 107.5 feet below ground level. This site-wide average for August 2013 is also consistent with historical water level elevations in nearby wells MW-2 and MW-29, located northwest and southeast of the cooling tower, respectively. Historical groundwater elevations in wells MW-2 and MW-29 average 106.9 feet bgs and 108.0 feet bgs, respectively.

2) The WQCC Chloride and Sulfate limits in water media are: 250 mg/L and 600 mg/L respectively.

   No NRC Response

3) Figure 2 exhibits the cooling tower stained soils from the release, which appears to contain elevated levels of chlorides and sulfates at less than 1 ft. depth in soil.

NRC Response

NRC concurs that there are elevated levels of chlorides and sulfates in soil at less than 1 foot below ground level. However, it should be noted that any darker soils apparent on the aerial photograph provided in Figure 2 is not associated with the April 2012 cooling tower release. The aerial photograph provided in Figure 2 is dated April 2011, one year prior to the April 2012 cooling tower release. The darker soil (red clay) apparent in the vicinity of the April 2012 release area is fill material used to backfill a previous excavation prior to Navajo ownership. No soil staining in the release area was observed during the spill response or assessment activities; the release area depicted on Figure 2 is based on accumulated cooling tower water (i.e., puddle) observed immediately following the release. The spill material (cooling water) is clear and does not stain soils.

4) The TBs recommended to delineate the spill are clearly outside of the Fig. 2 map to scale.

NRC Response

The proposed surface sample locations shown on Figure 2 (provided in NRC's July 2013 letter) were based on the proximity to elevated chloride or sulfate concentrations and the background sample location in addition to the release area. Additional soil samples will be collected from within and adjacent to the cooling tower release area to provide additional vertical and horizontal delineation of potential impacts. The sample locations and sample depths may be modified based on the results of field kit analyses, which will also be conducted at locations with existing laboratory analytical data. The field kit and laboratory analytical results will be compared to determine the accuracy of the field results. Pending the field test kit analytical results, select soil samples will be submitted for laboratory analysis of chloride and/or sulfate in addition to synthetic precipitation leaching procedure (SPLP) to determine the leachability of the compounds for comparison to WQCC groundwater standards. The OCD will be notified If the SPLP analytical results indicate the soils do not pose a leaching risk to groundwater. A revised Figure 2 depicting the planned sample locations and depths (pending field kit analytical results) is attached.

OCD requires the following:

1) OCD recommends removal of the stained soils as depicted in Fig. 2 map to the cleanup level of at least 500 mg/kg chlorides. Conduct a 5-point composite for chlorides and sulfates after the removal to reassess the cleanup of chlorides and sulfate.

NRC Response

As noted above, there are no stained soils associated with the April 2012 cooling tower release. NRC would appreciate clarification on OCD's recommended chloride clean-up level of 500 mg/kg. What is the basis for the recommended chloride clean-up level? The OCD did not provide a recommended clean-up level for sulfate in their August 20, 2013, response. Is the proposed leaching-to-groundwater SSL of 2,080 mg/kg for sulfate an appropriate cleanup level for soil removal?

For chloride characterization, a 250 mg/kg and is used. The 500 mg/kg cleanup limit was derived from an OCD site-specific review of the type of facility, location, depth to water, distance of water supply wells, well head protection area, etc. In addition, OCD Part 36 has some chloride limits for land treatment facilities that OCD considers based on depth to water when assessing cleanup limits. The WQCC Sulfate limit in ground water is 600 mg/L; however, no soil limit exists from OCD. Sulfate in soil media may be handled under the OCD TPH (418.1 or 8015M Methods) criteria.

Discrete confirmation soil samples will be collected from the excavation bottom and sidewalls during excavation activities to ensure all affected soils have been adequately removed. Soil samples will be analyzed for total concentrations of chloride and sulfate in addition to SPLP analysis.

2) The operator should flag areas within the Fig. 2 map for removal. The operator may utilize field kits to assist with the removal of chloride contaminated soils and soils observed by "Best Professional Judgment" to be stained, exhibit olfactory odor, etc.

NRC Response
The initial excavation limits associated with the April 2012 release will be based on existing and planned soil sample field kit analytical results and pending concurrence on the clean-up levels for chloride and sulfate. Discrete confirmation soil samples will be collected during excavation activities to ensure all affected soils have been adequately removed. The samples will be analyzed for total concentrations of chloride and sulfate in addition to SPLP analysis.

OCD recommends TPH analysis with BPJ for physical staining, olefactory senses, etc., be conducted instead of sulfate analysis for verification of soil remediation.

3) A final C-141 with analytical laboratory data summary sheet and QA/QC and DQO information from the final verification of soil remediation sampling post removal (see No. 1 above) be attached with final photo of the Fig. 2 area after the removal.

NRC Response
A final C-141 will be provided with a brief letter report summarizing excavation activities, laboratory analytical results, and field kit analyses. The report will include photographs, figure, laboratory analytical reports, quality assurance/quality control (QA/QC), and waste manifests. NRC will provide this documentation after removal and disposal of the impacted soils has been completed.

4) Contaminated soils shall be disposed at an OCD Permitted facility.

NRC Response
Following excavation activities, the affected soils will be transported for disposal at an OCD-permitted disposal facility.

Please let us know if you have any questions or comments regarding this response.

Thank you,

Bryan Gilbert, PG
Project Manager

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DRAFT

Summary of April 2012 Cooling Tower Spill Soil Sample Results
Navajo Lovington Refinery, Lovington, NM

Sample Location	Date	Depth	Field readings		Lab Results			
			Meter Reading (mmhos/cm)	Total Salt Equivalent (ppm)	Chloride (mg/kg)	Sulfate (mg/kg)	SPLP Chloride (mg/L)	SPLP Sulfate (mg/L)
Cooling Tower Background Sample					419	1,310	WQCC GW Standard[3] (mg/L)	
Cleanup Level (mg/Kg)					500	2,080	250	600
TB-1	Aug 2014	0-1	5.0	3,200	**5,600**	**3,500**	**370**	120
	Aug 2014	1.0-1.1[1]	-[2]	-	**1,300**	600	48	-
	June 2013	14-15	-	-	82.8	99.5	-	-
TB-1-D	Aug 2014	0-1	-	-	**5,200**	**2,900**	-	-
TB-2	Jan-13	0-0.5	-	-	**2,080**	**2,650**	-	-
	Aug 2014	0-1	3.9	2,496	-	-	-	-
	Aug 2014	1-2	0.7	448	-	-	-	-
	Aug 2014	2.0-2.1[1]	-[2]	-	410	500	-	-
TB-3	Jan-13	0-0.5	-	-	**1,530**	1,990	-	-
	Aug 2014	0-1	3.1	1,984	-	-	-	-
	Aug 2014	1-1.1	-[2]	-	**1,200**	830	-	-
TB-4	Jan-13	0-0.5	-	-	47.7	83.3	-	-
TB-5	Jan-13	0-0.5	-	-	12.8	20.0	-	-
TB-6	Aug 2014	0-1	1.5	960	**970**	780	-	-
TB-7	Aug 2014	0-1	0.8	512	400	820	-	-
TB-8	Aug 2014	0-1	1.4	896	**670**	510	-	-
TB-9	Aug 2014	0-1	1.9	1,216	**1,400**	780	-	-
TB-10	Aug 2014	0-1	2.4	1,536	**1,500**	1,400	-	-
TB-11	Aug 2014	0-1	0.5	320	370	510	-	-
CTSA	Jan-13	0-1	-	-	**2,140**	536	-	-
	Aug 2014	0-1	4.0	2,560	-	-	-	-
	Aug 2014	1.0-1.1[1]	-[2]	-	450	960	-	-

Notes:

Highlighted and bold cells exceed applicable cleanup level or standard

Soil cleanup levels based on Oil Conservation Division's email dated 1/15/2014

Dissolved salt equivalency determined using the conversion 1 mmho/cm = 640 ppm

(1) Sample depth interval limited due to hand auger refusal and limited sample recovery. Sample collected from top of caliche interval below clay fill.

(2) Insufficient sample volume recovered to conduct field reading.

(3) New Mexico Water Quality Control Commission Human Health Standards for Groundwater

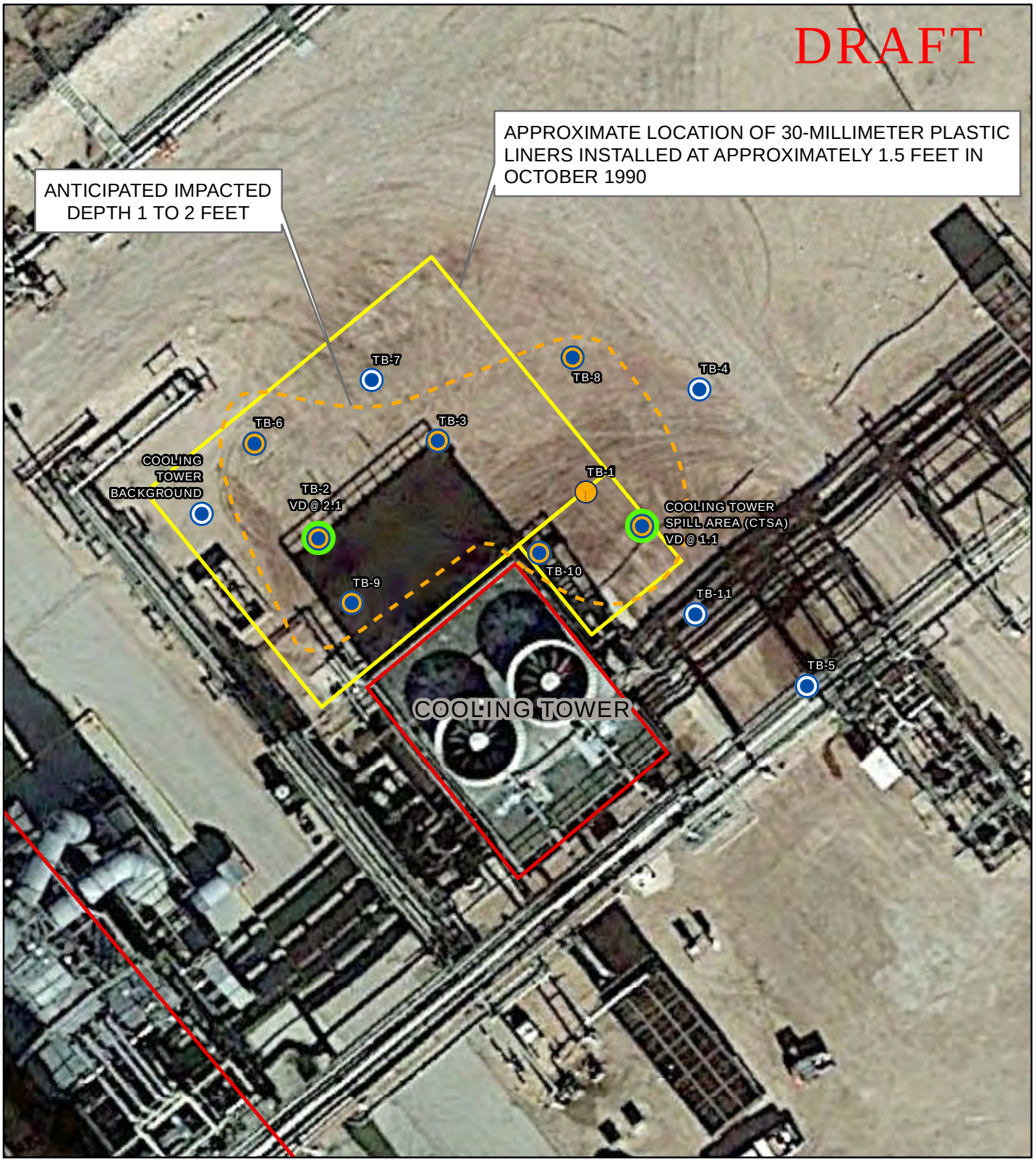
- Not analyzed

ppm - parts per million

mmho/cm - millimhos per centimeter

SPLP - Synthetic Precipitation Leaching Procedure

30-millimeter plastic liner present



Document Path: J:\Holly_Energy_Partners\Navajo_Lovington\216293_Lovington_Cooling_Tower_Remediation\216293_1.mxd

LEGEND

- Soil Boring
- Surface Soil Samples
- Sample Exceeded Clean-Up Levels
- Vertical Deliniation
- Approximate Extent of 30-Millimeter Plastic Liners
- Area of Impacted Soil (Approximate)
- Buildings

N

0 15 30

FEET

1 inch = 30 feet

Service Layer Credits: GOOGLE AND THEIR DATA PARTNERS.

APRIL 2012 COOLING TOWER SPILL SOIL SAMPLE LOCATION MAP

NAVAJO REFINING COMPANY
LEA REFINERY LOVINGTON, NM

PROJECT NO: 216293	MXD: 216293_1
AUTHOR: MLOVELACE	DATE: 11/4/2014

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 1

COOLING TOWER SUPPLEMENTAL REMEDIAL REPORT LEA REFINERY LOVINGTON, NEW MEXICO

PREPARED FOR
SOUTHERN UNION COMPANY

OCTOBER, 1990

GERAGHTY & MILLER, INC.
Environmental Services

COOLING TOWER SUPPLEMENTAL REMEDIAL REPORT LEA REFINERY LOVINGTON, NEW MEXICO

Prepared For

SOUTHERN UNION COMPANY

LOVINGTON, NEW MEXICO

OCTOBER, 1990

GERAGHTY & MILLER, INC.

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COOLING TOWER SUPPLEMENTAL REMEDIAL REPORT
LEA REFINERY
LOVINGTON, NEW MEXICO

EXECUTIVE SUMMARY

Remedial activities designed to remove chromium contaminated soils from the cooling tower area at the Lea Refinery commenced in early March of 1990. Excavation of soils identified as chromium impacted continued in a series of steps controlled by soil confirmation sampling until mid-October, 1990. The area of impacted soils was delineated in the spring of 1989 by Western Technologies, Inc. and outlined in a report by Geraghty & Miller, Inc. (formerly Reed & Associates) in August of 1989. This report also outlined the remedial action plan which was submitted to and received by the New Mexico Environmental Improvement Division.

As a first step, the area identified as containing hazardous levels of chromium was excavated and stockpiled separately. In the second step, the surface soils on the north, east and south sides of the cooling tower were removed to a depth of 1 to 2 feet. In the third step, this excavation was then expanded to remove chromium impacted, non-hazardous soils to a depth of about 19 feet. The deep excavation revealed that chromium impacted soils extended beneath the cooling tower structure at depth.

An angle hole drilling program was designed to identify the affected area beneath the tower. Eight borings were drilled at angles spread to cover the area behind the excavation face. Hazardous soils were identified in a few borehole samples and the impacted area was defined.

In the fourth step, the excavation walls were expanded to provide a slope to OSHA safety standards and the sidewall below the tower was shored. A window was placed in the shoring to excavate soils with a unique "vac-hoe" system. This compressed air-vacuum system

removed impacted soil using the cement grouted boreholes as a guide. When clay sediments were encountered, a trackhoe was used to finish the final soil removal to a depth of 42 feet.

The excavation was closed by grouting the area beneath the tower with concrete. The main excavation was backfilled with soil from the caliche pit identified in the remedial plan.

A 30-millimeter thick synthetic liner was installed over a clay layer at the top of the backfilled excavated area and sloped away from the tower for drainage. Another clay layer was spread on top of the liner and capped with caliche pavement.

A total of 1,457 cubic yards of soil were removed from the cooling tower area. Seventy-seven cubic yards of soil were removed from areas containing EP Toxicity chromium greater than 5 milligrams per liter (mg/L) and transported to a hazardous waste disposal facility in Carlyss, Louisiana. The remaining excavated soils, some 1,372 cubic yards, did not contain hazardous levels of chromium and were transported to the Rio Rancho Sanitary Landfill near Albuquerque, New Mexico. Approximately $600,000 was expended on remediation and soil disposal.

INTRODUCTION

This report documents the remedial activities conducted in the area adjacent to and beneath the cooling tower at the Lea Refinery on State Highway 18 south of Lovington, Lea County, New Mexico. A location map and site plan may be found on Figures 1 and 2, respectively. Site photographs may be found in Appendix A. The Lea Refinery was formerly owned and operated by Southern Union Company of Dallas, Texas. The property was purchased by The Holly Corporation (Navajo Refining), also of Dallas, in 1989. The refinery is not in operation at this time.

The cooling tower operation from 1974 to 1981 involved the use of zinc chromate solution for corrosion and bacteriological control. The solution was stored in an aboveground

storage tank adjacent to the cooling tower. Levels of chromium above background were identified in the soils near this tank.

Southern Union Company employed Geraghty & Miller, Inc. (G&M), formerly Reed and Associates, to oversee characterization sampling of the soils near the cooling tower. Chemical Waste Management, Inc. (CWMI) and their subcontractor Western Technologies, Inc. performed the initial characterization sampling of the soils.

G&M developed a remedial plan, dated August 1, 1989, for the cooling tower soils at the request of Southern Union. The plan was submitted to the New Mexico Environmental Improvement Division (EID). CWMI was contracted by Southern Union to excavate and properly dispose of chromium impacted soils in accordance with the remedial plan. G&M provided input for identification of areas to be excavated as remediation progressed. This input included control of the confirmation soil sampling and analyses used to direct the steps of the removal process. Excavated materials were characterized for waste disposal and transported to EID approved landfill facilities by TAD Trucking of Hobbs, New Mexico. A total of 1,380 cubic yards of soils were transported to the Rio Rancho Sanitary Landfill near Albuquerque, New Mexico and a total of 77 cubic yards were taken to the Chemical Waste Management, Inc. hazardous waste landfill at Carlyss, Louisiana.

SITE SUBSURFACE CHARACTERISTICS

The subsurface materials in the area of the cooling tower include caliche, silt, sand and clay. A thin 0 to 1 foot layer of sandy soil exists at the surface. This soil is underlain by caliche that extends to a depth of about 16 feet. The caliche is indurated in the upper 3 to 8 feet and difficult to excavate. Below this level, the caliche is less hard and contains sand and silt.

The caliche grades into a layer of intermixed silt and fine sand sediment. This silt and sand is interrupted by lenses of soft plastic clay from 5 to 20 feet in depth. Below 20 feet, fine unconsolidated to friable sand is found in lenses interfingered with cemented sandstone.

This material was found to at least 42 feet, the maximum depth of excavation at the cooling tower.

Ground water at the cooling tower site is found at a depth of approximately 79 feet. A separate ground water report authored by Pilko & Associates, Inc. will be submitted separately. This report is entitled "Environmental Sampling and Testing of Soils and Groundwater at Selected Locations, Lovington, New Mexico Refinery".

REMEDIAL METHODOLOGY

The G&M cooling tower remedial plan, dated August 1, 1989, identified three areas of chromium contaminated soils. The remediation of the cooling tower followed the procedure proposed in the plan. The plan called for the excavation of the contaminated soils in three steps:

Step 1: Excavate by backhoe the yellow stained soils in the area near the north wall of the cooling tower as delineated by a 5 milligram per liter (mg/L) chromium EP Toxicity contour line on Figure 3 of the remedial plan.

Step 2: Excavate the surface soils by scraping the areas surrounding the cooling tower with a front-end loader. These soils are delineated on Figure 4 of the remedial plan.

Step 3: Excavate the area near the north wall of the cooling tower as delineated by D5, D6, and E5 on Figure 6 of the remedial plan.

The figures mentioned in the steps above may be found in Appendix B.

The remedial plan also described supplemental investigation and remediation beneath the cooling tower if warranted. Step 3 indicated that soils beneath the tower were impacted. A soil boring program beneath the cooling tower delineated a small quantity of

contaminated soil. The remedial plan was expanded to include a fourth step to address these impacted soils. This step involved excavation by trackhoe and through a unique soil vacuum extraction method.

Step 1 soils were disposed of at an approved hazardous waste disposal facility located in Carlyss, Louisiana. Step 2 and Step 3 soils were sampled for EP Toxicity chromium to verify the non-hazardous character as indicated by earlier delineation and were disposed of at an authorized non-hazardous waste landfill. Step 4 soils were sampled for EP Toxicity and disposed of according to this waste characterization and Toxicity Characteristic Leachate Procedure (TCLP) parameters.

HEALTH & SAFETY PLAN

The Health & Safety Plan for the Lea Refinery cooling tower remedial program was provided by CWMI. A copy of the CWMI Environmental Management Department Approval Package can be found in Appendix C along with copies of the Daily Safety Briefing Reports.

The companies and all personnel directly involved with the Lea Refinery cooling tower remediation are listed below. Not all of the listed personnel were involved in the excavation process.

Chemical Waste Management, Inc.

- Don Shosky
- Bob Hulet
- Larry Youngless
- Dan Oskarson
- John Meier
- Darrell Hellman
- Manuel Hoyos

Shawn Nay

Geraghty & Miller, Inc.

Allan Schmidt

Steve Tischer

Miller Pipeline Corporation

Darrin Unger

Tim Reily

Copies of the Certificates of Completion for health and safety requirements of the 29 CFR 1910.120 OSHA/RCRA Off-Site Safety Training 40 Hour Course may be found in Appendix C for the various personnel directly involved with the excavation process.

The Lea Refinery is totally enclosed by a security fence with locking gates. These gates were secured and locked at the end of each work day. Additional security provisions included the use of caution tape around the perimeter of the cooling tower and the use of the heavy machinery to block any access to the excavation.

The walls of the excavation (Step 3) were inclined to OSHA requirements before any personnel entered the area. Shoring was constructed according to a plan developed by a civil engineer with Parkhill, Smith & Cooper (PS&C) of Lubbock, Texas. The shoring and bracing were placed in the excavation by CWMI personnel. The majority of the shoring protected the excavation's south wall below the cooling tower from possible soil failure. An additional shoring wall was constructed along the west wall of the excavation where a sloped wall was not possible. After the shoring was in place the PS&C engineer inspected the structure.

A system of fire hydrants exist around the cooling tower. The fire hydrants were charged every working day by turning on a 50 horsepower pump located at the refinery. The water from the hydrants was used periodically for dust abatement.

There were no incompatible materials handled during this remediation program.

There was a telephone accessible at the Lea Refinery office which was approximately one-eighth mile away. Also, a siren is centrally located on the facility and may be used in case of emergency.

FIELD PROGRAM

A complete chronology of remediation activities is summarized in Appendix D. The discussion below outlines the procedures followed in the field program.

Excavation (Steps 1, 2 & 3)

The excavation of Step 1 soils was conducted March 5-8, 1990 (Figure 3, Photograph 1). The yellow stained soils were stockpiled east of the cooling tower and covered. The maximum depth of the excavation was 3.5 feet. The volume of soil excavated was 77 cubic yards. This material was considered hazardous and segregated from other soils for disposal at the Carlyss, Louisiana landfill.

The Step 2 excavation, scraping of soils around the tower, began on March 8, 1990 and was completed on March 26th (Figures 3 and 4, Photograph 2). The maximum excavation depth was 2 feet. The volume of soil excavated was 601 cubic yards. The excavated soils were stockpiled on plastic sheeting north of the Step 1 soils.

The deep Step 3 excavation was conducted on March 12, 1990 (Figure 4, Photograph 3). The soils were removed to a depth ranging from 18 to 19 feet. The volume of soil excavated was 717 cubic yards. These soils were stockpiled on plastic sheeting north of the Step 2 soils.

Soil samples were taken during and after completion of the excavation steps. This

confirmation sampling was done to determine if the soil removal was proceeding to the proper width and depth to remove all hazardous soils and/or those containing non-hazardous chrome above background levels. In several areas, this process was repeated as many as 3 times to assure that all of the impacted materials were removed.

The Step 1 soil stockpile was considered hazardous based on previous chemical analyses. For this reason, a composite sample was not collected. Steps 2 and 3 soils were stockpiled and representative composite samples were collected for analysis. Representative samples of excavated soils were collected for every 200 cubic yards.

The Step 3 excavation revealed some yellow staining along the south face. A soil sample, SCT-1, collected on February 12, 1990, prior to Step 3 did not reveal chromium contamination below the cooling tower near the surface. Following Step 3 excavation, angle borings were drilled to determine the extent of impacted soils beneath the cooling tower.

Angle Borings

A drilling program was initiated following the completion of Step 3 excavation to delineate the area of impacted soils beneath the cooling tower. Eight angle borings, BD-1 thru BD-8 were drilled beneath the cooling tower and soil samples were collected and analyzed for total and EP Toxicity chromium (Photograph 4). BD-1 thru BD-4 were drilled March 27-29, 1990 and borings BD-5 thru BD-8 were drilled June 26-29, 1990. The drilling was performed by Southwestern Laboratories under the direction of G&M.

Boring locations and orientations were designed to give the best maximum coverage of the cooling tower subsurface (Figure 5). Hollow stem augers were advanced and 4-inch diameter continuous core samples were collected and analyzed.

Drilling equipment was decontaminated between borings. Stainless steel sampling equipment was decontaminated between sample intervals. All borings were grouted to the

surface with neat cement following completion.

The borings were advanced to vertical depths ranging from 28 to 48 feet. Boring angles of depression ranged from 45 to 75 degrees. Lithologic information obtained from the borings indicates that caliche varies from 5 to 16 feet in thickness below the tower. The caliche is underlain by silts and/or clays. Sands were encountered at depths ranging from 12 to 20 feet. Ground water was not encountered in any of the borings. Boring logs can be found in Appendix E .

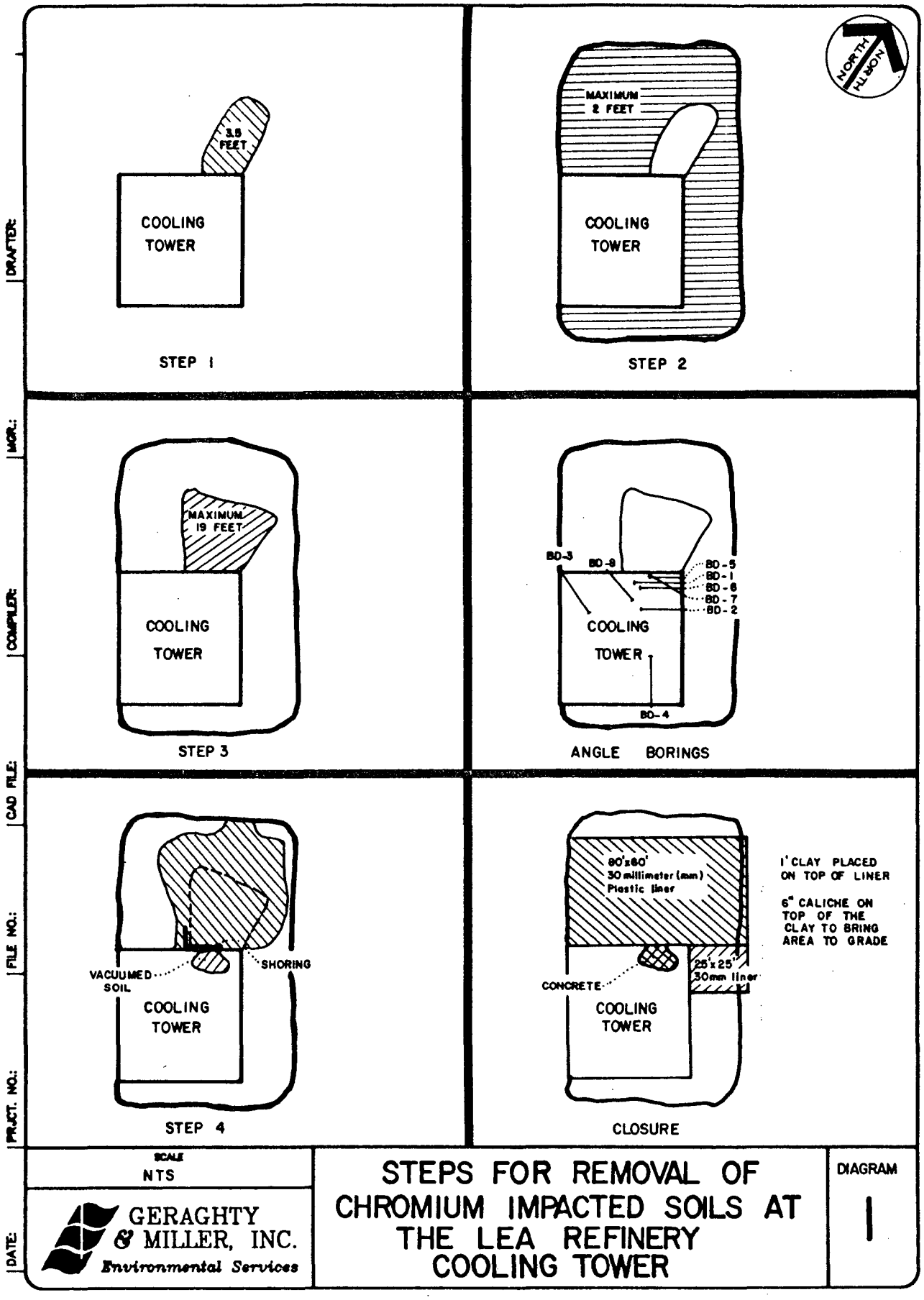
Samples from the boring program indicated some chromium impacted sediments beneath the tower. Chromium EP Toxicity levels above 5 mg/L were encountered in borings BD-1 and BD-5. A plan for removal of these impacted soils from beneath the cooling tower was engineered by CWMI with input from G&M. Step 4 excavation followed this plan.

Excavation (Step 4)

On August 29, 1990, the walls of the Step 3 excavation were cut back to a 3:1 slope to meet U.S. Occupational Safety & Health Administration (OSHA) requirements (Photograph 5 and 6). The Step 3 excavation was shored according to OSHA standards and inspected on September 7, 1990 by Mr. Michael Cartwright, a professional engineer with Parkhill, Smith and Cooper of Lubbock, Texas.

A unique soil vacuum process (vac-hoe) was used to keep the removal of soil below the tower to a minimum to prevent structural damage . This system employs compressed air to break loose unconsolidated and friable sediments which are then brought to the surface with a vacuum line. A minimum amount of unimpacted soil was removed, thus limiting the need for special support structures.

Vacuum extraction of the Step 4 soils was conducted during the period September 10-19, 1990 by CWMI subcontractor, Miller Pipeline Corporation (Photographs 7, 8 and 9). A


DRAFTER:
MGR.:
COMPILER:
CAD FILE:
FILE NO.:
PRJCT. NO.:
DATE:
NORTH
3.5 FEET
COOLING TOWER
STEP 1
MAXIMUM 2 FEET
COOLING TOWER
STEP 2
MAXIMUM 19 FEET
COOLING TOWER
STEP 3
BD-3
BD-9
BD-5
BD-1
BD-6
BD-7
BD-2
COOLING TOWER
BD-4
ANGLE BORINGS
VACUUMED SOIL
SHORING
COOLING TOWER
STEP 4
80'x80' 30 millimeter (mm) Plastic liner
1' CLAY PLACED ON TOP OF LINER
6" CALICHE ON TOP OF THE CLAY TO BRING AREA TO GRADE
CONCRETE
25'x25' 30mm liner
COOLING TOWER
CLOSURE
SCALE
NTS
GERAGHTY & MILLER, INC.
Environmental Services
STEPS FOR REMOVAL OF CHROMIUM IMPACTED SOILS AT THE LEA REFINERY COOLING TOWER
DIAGRAM
1

window was opened in the south face of the Step 3 excavation and the impacted soils were located by following the grouted boreholes from the exploratory phase. This operation continued to a depth of 35 feet where clays were encountered. These clays could not be vacuumed out and a trackhoe was brought in to complete the excavation. Excavation of Step 4 soils was completed by trackhoe on October 4, 1990 (Figure 5). The maximum depth of the excavation was 1 foot below the bottom of boring BD-5 at a depth of 42 feet. Confirmation samples were collected during the Step 4 excavation. Confirmation samples were analyzed for EP Toxicity, TCLP, and total chromium. Stockpile samples were analyzed for EP Toxicity and TCLP chromium.

Soil Sampling

Excavation and stockpile soil samples were collected by Geraghty & Miller personnel using clean stainless steel sampling equipment (trowel and hand auger). Angle boring samples consisted of near-surface auger cuttings followed by continuous cores. The angle boring samples were collected in 5 foot intervals and composited into one sample container. Step 1, 2, 3 and 4 excavation soil samples were collected from a depth of about 6 inches in the sidewalls and the excavation floors. Stockpile soil samples were collected for approximately every 200 yards for each stockpile from Steps 2, 3 and 4. The stockpile samples were collected by digging into the pile to a depth of about 1 foot at randomly spaced locations and composited in one sample container. A total of 42 excavation (Table 1), 10 stockpile (Table 2) and 41 angle boring (Table 3) samples were collected and analyzed.

Samples were placed in polyethylene or glass jars with teflon lined caps, labeled and sealed. Samples were shipped to Southwestern Laboratories facilities in Midland and Dallas, Texas via overnight mail for analysis. Quality control and chain of custody procedures were employed. Soil samples were analyzed for EP Toxicity and total chromium. Step 4 excavation and stockpile soil samples were analyzed for EP Toxicity, TCLP and Total chromium. Laboratory analyses can be found in Appendix F. A diagram presenting each of the steps involved may be seen on the following page.

RESULTS

Step 1

Eight grab and two composite samples were collected for confirmation of the Step 1 excavation (Figure 3, Table 1). Wall samples S-CT1 and S-CT2 were collected on February 12, and March 7, 1990, respectively, at depths of 2 to 3 feet below grade and 3 to 23 inches into the wall below the cooling tower. S-CT1 and S-CT2 were analyzed for EP Toxicity and total chromium. EP Toxicity chromium values were less than detection limits of 1 mg/L for both samples. Total chromium concentrations ranged from less than 20 milligrams per kilogram (mg/kg) to 37 mg/kg. Eight floor samples, S-CT3 thru S-CT10, were collected on March 8, 1990 and analyzed for EP Toxicity chromium. The sample depths ranged from 1 to 3.5 feet. EP Toxicity chromium results ranged from less than 1 mg/L (detection limit) to a high of 1.5 mg/L (S-CT9).

A total of 77 cubic yards of soil were excavated in Step 1. The excavated material was considered to be hazardous based on earlier sample analyses. No stockpile samples were obtained.

Step 2

A total of 14 grab samples were collected and analyzed for confirmation of the Step 2 excavation (Table 1). Six samples, S-CT11 thru S-CT16 were obtained on March 9, 1990 and analyzed for total chromium (Figure 3). The results ranged from 57 to 404 mg/kg chromium for depths ranging from 6 to 10 inches. Additional scraping was conducted and samples S-CT11B through S-CT16B were collected on March 16, 1990 and analyzed for EP Toxicity and total chromium (Figure 4). EP Toxicity results for all samples were less than the laboratory detection limit of 0.1 mg/L for chromium. Total chromium values ranged from 18 to 36 mg/kg. The depths of the March 16 samples ranged from 1 to 1.5 feet below original grade. The final confirmation samples, S-CT12C and S-CT13C were collected on

March 26, 1990 after additional scraping down to depths of 1.5 to 2 feet (Figure 4). Total chromium results were 17.7 mg/kg and 22.0 mg/kg.

A total of 601 cubic yards of soil was excavated from the Step 2 area. One stockpile sample, S-CT17, was collected on March 13 and analyzed for EP Toxicity and total chromium. The EP Toxicity concentration was less than 0.5 mg/L (detection limit) and total chromium measured 844 mg/kg. Two additional stockpile samples, S-CT31 and S-CT32, were collected on March 23 and March 26, respectively, and analyzed for EP Toxicity and total chromium. Sample S-CT31 results were 2.29 mg/L (EP Toxicity) and 78.0 mg/kg (total) chromium. Sample S-CT32 results were 1.44 mg/L (EP Toxicity) and 51.5 mg/kg (total) chromium (Table 2).

Step 3

Ten soil samples, S-CT20 thru S-CT29, were collected on March 13, 1990 and analyzed for confirmation of the Step 3 excavation (Figure 4, Table 1). All samples were analyzed for EP Toxicity and total chromium. Composite wall samples were collected from each wall at depths of 8 feet and 15 feet. The eight wall sample EP Toxicity results ranged from less than 1.0 mg/L up to 1.6 mg/L and total chromium ranged from 8.2 mg/kg to 61.0 mg/kg. Two floor samples, S-CT22 and S-CT27 were collected at depths of 18 and 19 feet. EP Toxicity results were less than 1.0 mg/L for both samples. Total chromium results were 15.0 mg/kg (S-CT22) and 5.7 mg/kg(S-CT27).

A total of 717 cubic yards of soil were excavated in Step 3. Three stockpile samples, S-CT18, S-CT19 and S-CT30, were collected on March 13. The samples were analyzed for EP Toxicity and total chromium (Table 2). EP Toxicity results were less than 1.0 mg/L for all three samples. Total chromium ranged from 33 to 61 mg/kg for the Step 3 stockpile soils.

Angle Borings

A total of 41 soil boring samples were collected from borings (BD-1 thru BD-8) during March 27-29 and June 26-29, 1990 and analyzed for EP Toxicity and total chromium (Table 3). Total chromium results ranged from less than laboratory detection limits of 5 mg/kg to a high of 76.8 mg/kg. EP Toxicity chromium results ranged from less than 0.30 mg/L (detection limit) to a high 8.90 mg/L. EP Toxicity chromium concentrations greater than 5 mg/L were found in borings BD-1 and BD-5. Samples BD-1 (27-32') and BD-5 (39-44') had EP Toxicity chromium concentrations of 6.60-8.90 and 6.48 mg/L, respectively. The locations of BD-1 (27-32') and BD-5 (39-44') are shown in Figure 5. The results of the chemical analyses can be found in Table 3. Additional excavation was conducted in Step 4 based on these sample results.

Step 4

A total of eight grab soil samples were collected from September 11 to October 4, 1990 and analyzed for EP Toxicity, TCLP and total chromium for confirmation of the Step 4 excavation (Figure 5, Table 1). Confirmation samples, S-CT36 and S-CT37 were collected on September 11 after excavation in the area of BD-1. S-CT36 results were 4.0 mg/L (EP Toxicity), 3.12 mg/L (TCLP) and 38 mg/kg (total) chromium. S-CT37 results were 4.1 mg/L (EP Toxicity), 2.46 mg/L (TCLP) and 51.5 mg/kg (total) chromium. Samples S-CT39 and S-CT40 were collected on September 15 after excavating around BD-6. S-CT39 results were 3.76 mg/L (EP Toxicity) and 3.73 mg/L (TCLP). S-CT40 results were 1.91 mg/L (EP Toxicity) and 1.42 mg/L (TCLP) chromium. Total chromium concentrations for S-CT39 and S-CT40 were 10 mg/kg and 25 mg/kg, respectively. Samples S-CT41 and S-CT42 were collected on September 19 after excavating down to a zone approximately 1 foot above BD-5 soils with EP Toxicity chromium concentrations greater than 5 mg/L. S-CT41 results were 4.21 mg/L (EP Toxicity) and 2.50 mg/L (TCLP) chromium. S-CT42 results were 3.58 mg/L (EP Toxicity) and 2.15 mg/L (TCLP) chromium. On October 4, 1990, final confirmation samples S-CT45 and S-CT46 were collected below BD-5 after excavation of the soils with

EP Toxicity chromium concentrations greater than 5 mg/L. Sample S-CT45 results were 0.14 mg/L (EP Toxicity), less than 0.05 mg/L (TCLP) and less than 5 mg/kg (total) chromium. Sample S-CT46 results were 0.32 mg/L (EP Toxicity), less than 0.05 mg/L (TCLP) and less than 5 mg/kg (total) chromium.

A total of 62 cubic yards of Step 4 soils were excavated. Four stockpile samples, S-CT35, S-CT38, S-CT43 and S-CT44 were collected on September 11-12 and 19, and October 4, 1990. The stockpile samples were analyzed for EP Toxicity and TCLP chromium (Table 2). The EP Toxicity results ranged from less than 0.1 mg/L up to 1.87 mg/L chromium. The TCLP results ranged from 0.16 mg/L to 1.68 mg/L.

Backfill Operations

Backfilling operations began on October 5, 1990 and were completed on October 10, 1990. The Step 4 excavation beneath the cooling tower was filled with concrete. Shoring was removed and the Step 3 excavation was backfilled with clean fill from a borrow pit located southwest of the site. The fill was brought up to within 2 feet of the original grade. The Step 2 shallow excavation was backfilled to original grade. A one foot layer of clay was placed over the Step 1 and 3 areas. A 30-mil synthetic liner was placed over the clay (Photograph 10). Another one foot of clay was placed over the liner. Six inches of caliche pavement were placed over the clay (Photograph 11). The cap measured 25 feet by 25 feet along the east side and 60 feet by 80 feet along the north side of the cooling tower.

Soil Disposal

Excavated soils from Steps 2, 3 and 4 were characterized as non-hazardous chromium contaminated soils and written approval was received from the New Mexico EID for disposal of the soils at the Rio Rancho sanitary landfill located near Albuquerque, New Mexico (Appendix G). TAD Trucking of Hobbs, New Mexico, loaded and transported 1,380 cubic yards of non-hazardous Steps 2, 3 and 4 soils during the periods of March 20-22,

April 13-16 and October 9, 1990 to the Rio Rancho sanitary landfill (Photograph 12). Non-hazardous Special Waste Manifests are in Appendix G.

Step 1 excavated soils were transported off-site for disposal to Chemical Waste Management's Carlyss, Louisiana disposal facility on April 20, 1990. TAD Trucking of Hobbs, New Mexico, loaded and transported 77 cubic yards of hazardous Step 1 soils to this CWMI facility. Uniform Hazardous Waste Manifests for the Step 1 soils are in Appendix G.

EP Toxicity values for the stockpile composite samples ranged from less than laboratory detection limits of 0.1 mg/L to a high of 2.29 mg/L chromium. Total chromium values ranged from 19 mg/kg to 844 mg/kg. Step 4 stockpile soils TCLP chromium results ranged from 0.16 to 1.68 mg/L. A summary of soil stockpile analyses can be found in Table 2.

CONCLUSIONS

The remedial activities at the Lea Refinery cooling tower are completed. The remedial plan of August 1989 was expanded to include the removal of chromium impacted soils beneath the tower. These soils were delineated in an angle hole drilling program which involved the installation of eight boreholes beneath the tower.

All identified soils containing levels of EP Toxicity chrome above 5 mg/L were removed from beneath and around the cooling tower. Additional soils containing non-hazardous levels of chrome were also removed. Extensive sampling of the deep soils remaining beneath the cooling tower indicated no total chromium levels above 38 mg/kg. One shallow soil confirmation sample, S-CT23, measured 61 mg/kg total chromium. This sample was collected from a well-indurated caliche zone along the south face of the Step 3 excavation at a depth of 8 feet. These soils could not be removed without risking damage to the tower structure and the safety of the workers in the excavation.

A cap was installed over the area of the excavation and the surface pavement sloped away from the cooling tower. This cap should effectively prevent the subsurface infiltration of rainfall in the area of the tower.

All excavated soils were transported from the site and properly disposed of in approved landfills.

Respectfully submitted,

GERAGHTY & MILLER, INC.

Steve Maryn/clb

Steve Maryn
Geologist

Steven P. Tischer

Steven P. Tischer
Staff Geologist

Allan T. Schmidt

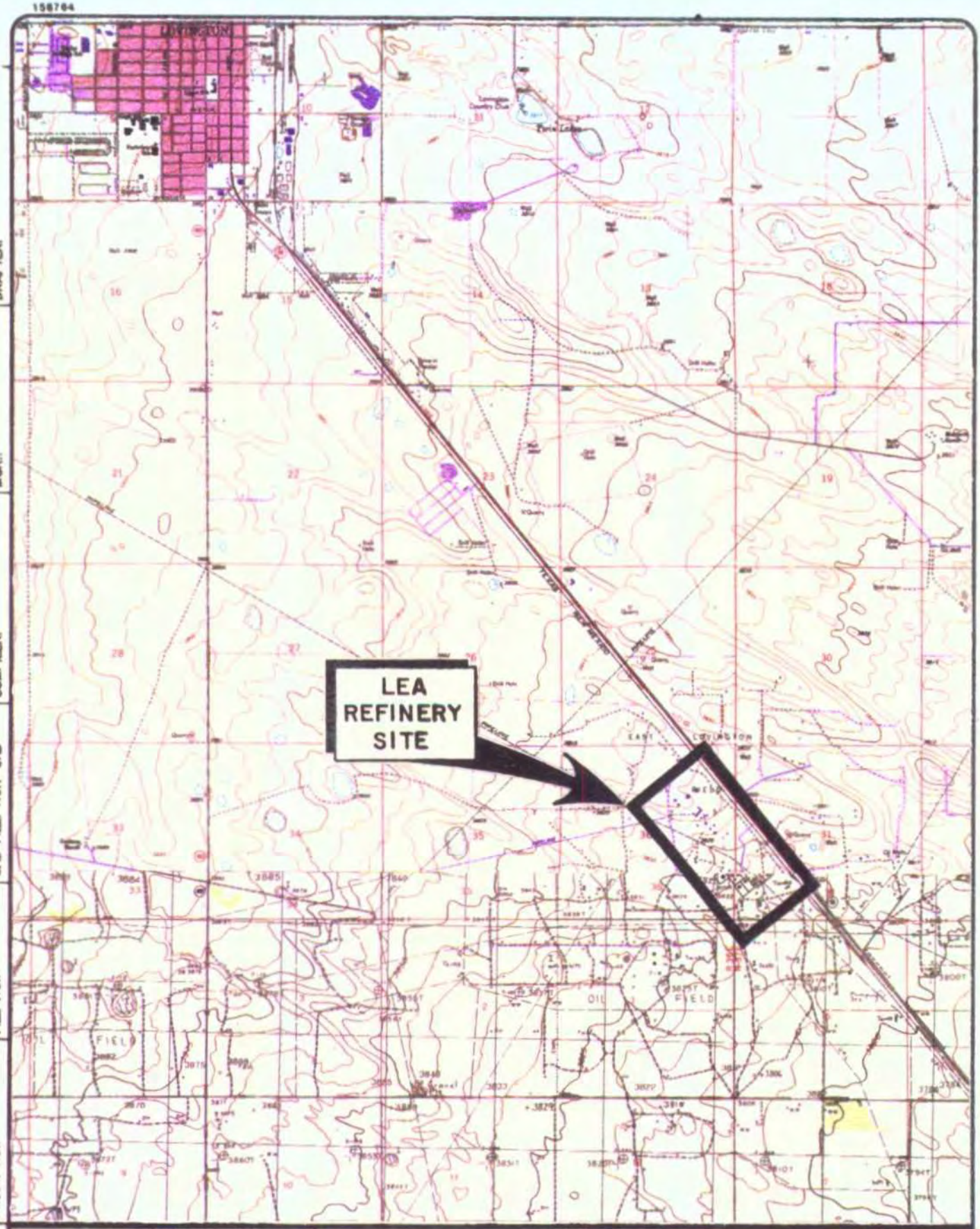
Allan T. Schmidt
Project Manager

Anchor E. Holm

Anchor E. Holm, P. E.
Office Manager/Associate

ATS/clb

FIGURES



SCALE
0 4000'

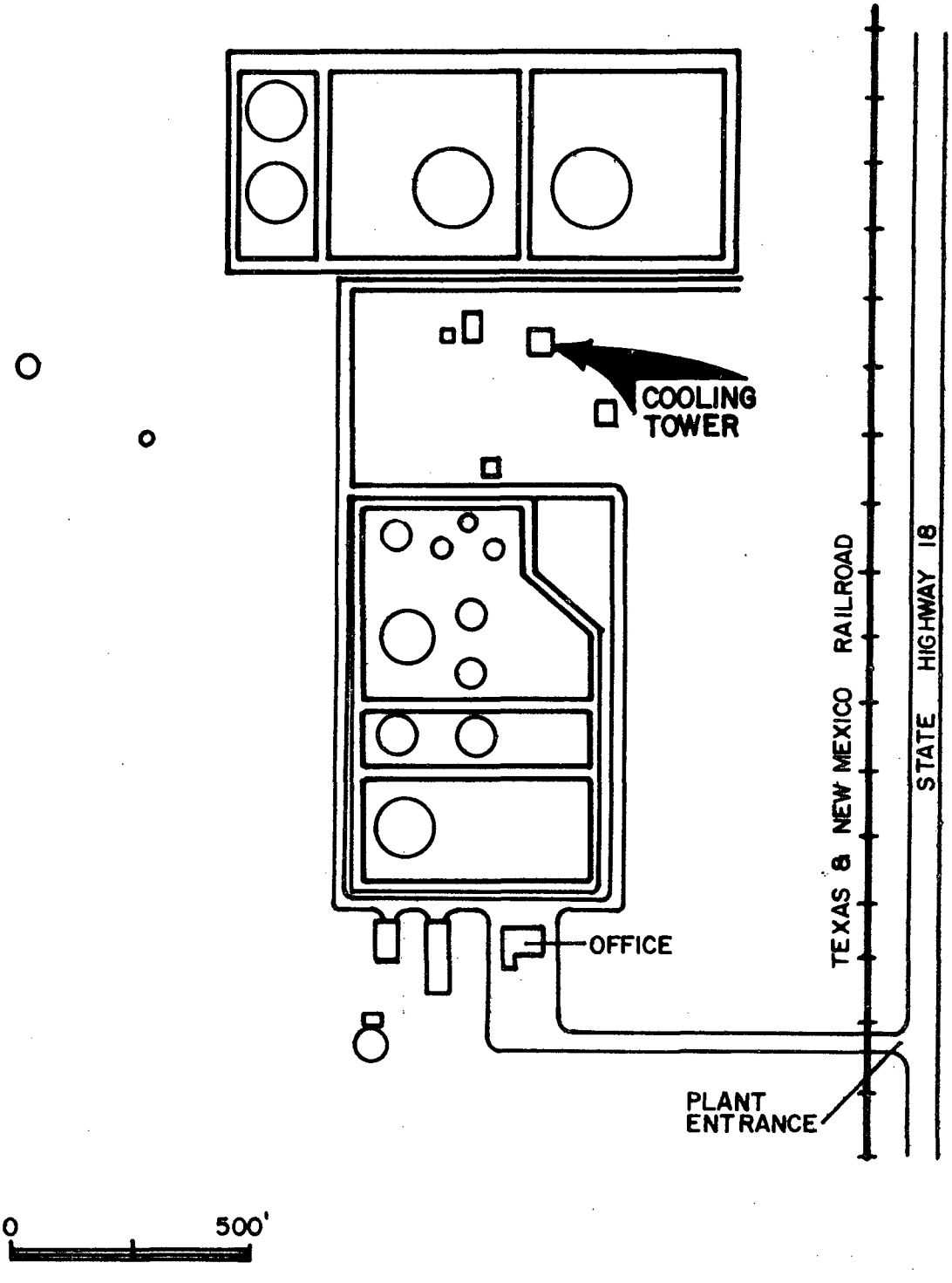
GERAGHTY & MILLER, INC.
Environmental Services

LEA REFINERY SITE
LOCATION MAP

SOUTHERN UNION COMPANY LEA COUNTY, NEW MEXICO

FIGURE
1

156764



DRAFTER: R.A.C. | MGR.: A. Schmidt | COMPILER: S. Maryn | CAD FILE: NON-CAD | FILE NO.: | PROJ. NO.: CC052.01 | DATE: 10/90

SCALE 10 / 90

GERAGHTY & MILLER, INC.
Environmental Services

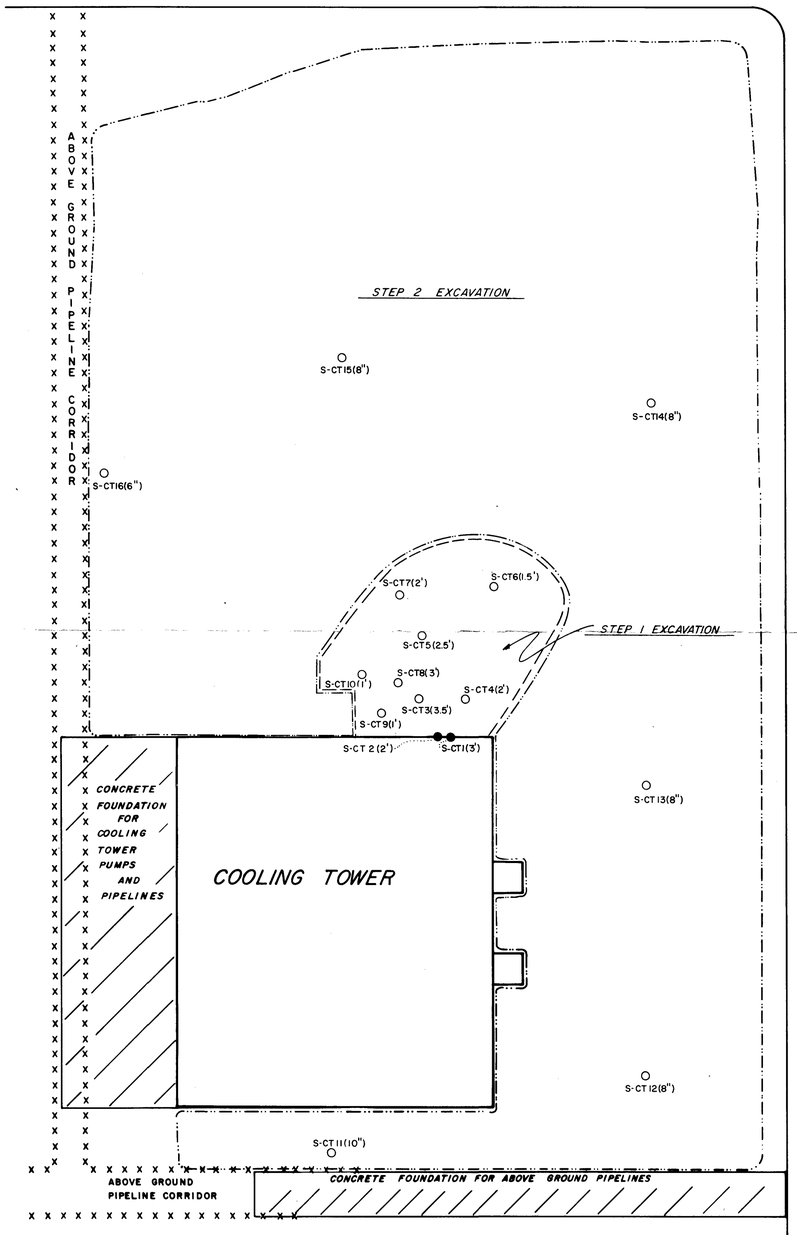
SOUTHERN UNION COMPANY

LEA REFINERY
SITE PLAN
(Northern Half)

LEA COUNTY, NEW MEXICO

FIGURE 2

DATE: 6-15-90 | PROJT. NO.: CC052.01 | FILE NO.: | CAD FILE: | COMPILER: S. TISCHER | MGR.: A. SCHMIDT | DRAFTER: J.T. CHILDERS



SOIL ANALYTICAL DATA

STEP 1 EXCAVATION CONFIRMATION

DATE SAMPLED	SAMPLE I.D.	SAMPLE DEPTH ft.	EP TOX mg/L	CHROMIUM TCLP mg/L	CHROMIUM TOTAL mg/kg
02-12-90	S-CT1	3	<1	--	<20
03-07-90	S-CT2	2	<1	--	37
03-08-90	S-CT3	3.5	1.3	--	--
03-08-90	S-CT4	2	<1	--	--
03-08-90	S-CT5	2.5	<1	--	--
03-08-90	S-CT6	1.5	<1	--	--
03-08-90	S-CT7	2	<1	--	--
03-08-90	S-CT8	3	<1	--	--
03-08-90	S-CT9	1	1.5	--	--
03-08-90	S-CT10	1	<1	--	--

STEP 2 EXCAVATION CONFIRMATION

DATE SAMPLED	SAMPLE I.D.	SAMPLE DEPTH ft.	EP TOX mg/L	CHROMIUM TCLP mg/L	CHROMIUM TOTAL mg/kg
03-09-90	S-CT11	0.8	--	--	57
03-09-90	S-CT12	0.7	--	--	122
03-09-90	S-CT13	0.7	--	--	261
03-09-90	S-CT14	0.7	--	--	404
03-09-90	S-CT15	0.7	--	--	102
03-09-90	S-CT16	0.5	--	--	58

LEGEND

- STEP 1 EXCAVATION (MAXIMUM DEPTH 3.5 FEET)
- STEP 2 EXCAVATION (MAXIMUM DEPTH 0.8 FEET)
- ○ SOIL SAMPLE (FLOOR SAMPLE WITH DEPTH INDICATED)
- ● SOIL SAMPLE (WALL SAMPLE WITH DEPTH INDICATED)

SCALE 0 10'

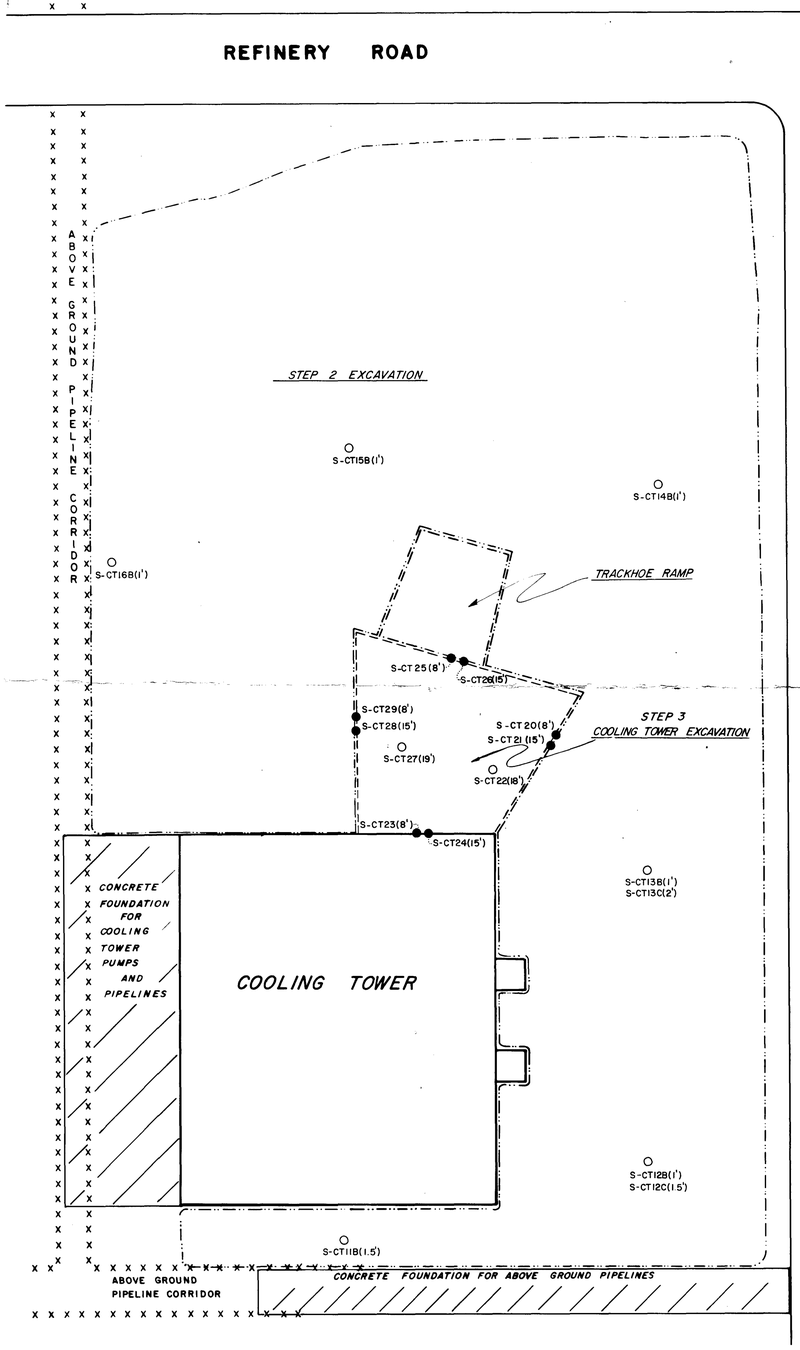
GERAGHTY & MILLER, INC.
Environmental Services

LEA REFINERY COOLING TOWER
STEPS 1 & 2 (3-9-90)

SOUTHERN UNION COMPANY — LEA COUNTY, NEW MEXICO

FIGURE 3

DATE: 6-15-90 | PRJCT. NO.: CC052.01 | FILE NO.: | CAD FILE: | COMPILER S TISCHER | MGR A SCHMIDT | DRAFTER J T CHILDERS



SOIL ANALYTICAL DATA

STEP 2 EXCAVATION CONFIRMATION

DATE SAMPLED	SAMPLE I.D.	SAMPLE DEPTH ft.	EP TOX mg/L	CHROMIUM TCLP mg/L	CHROMIUM TOTAL mg/kg
03-19-90	S-CT11B	1.5	<0.1	--	18
03-19-90	S-CT12B	1	<0.1	--	26
03-19-90	S-CT13B	1	<0.1	--	36
03-19-90	S-CT14B	1	<0.1	--	19
03-19-90	S-CT15B	1	<0.1	--	18
03-19-90	S-CT16B	1	<0.1	--	25
03-26-90	S-CT12C	1.5	--	--	17.7
03-26-90	S-CT13C	2	--	--	22.0

STEP 3 EXCAVATION CONFIRMATION

DATE SAMPLED	SAMPLE I.D.	SAMPLE DEPTH ft.	EP TOX mg/L	CHROMIUM TCLP mg/L	CHROMIUM TOTAL mg/kg
03-13-90	S-CT20	8	<1.0	--	8.2
03-13-90	S-CT21	15	<1.0	--	9.6
03-13-90	S-CT22	18	<1.0	--	15
03-13-90	S-CT23	8	<1.0	--	61
03-13-90	S-CT24	15	1.6	--	52
03-13-90	S-CT25	8	<0.1	--	16
03-13-90	S-CT26	15	<0.1	--	3.2
03-13-90	S-CT27	19	<0.1	--	5.7
03-13-90	S-CT28	15	<0.1	--	23
03-13-90	S-CT29	8	<0.1	--	25

LEGEND

- STEP 2 EXCAVATION (MAXIMUM DEPTH 2 FEET)
- STEP 3 EXCAVATION (MAXIMUM DEPTH 19 FEET)
- SOIL SAMPLE (FLOOR SAMPLE WITH DEPTH INDICATED)
- SOIL SAMPLE (WALL SAMPLE WITH DEPTH INDICATED)

SCALE 0 — 10'

GERAGHTY & MILLER, INC.
Environmental Services

LEA REFINERY COOLING TOWER

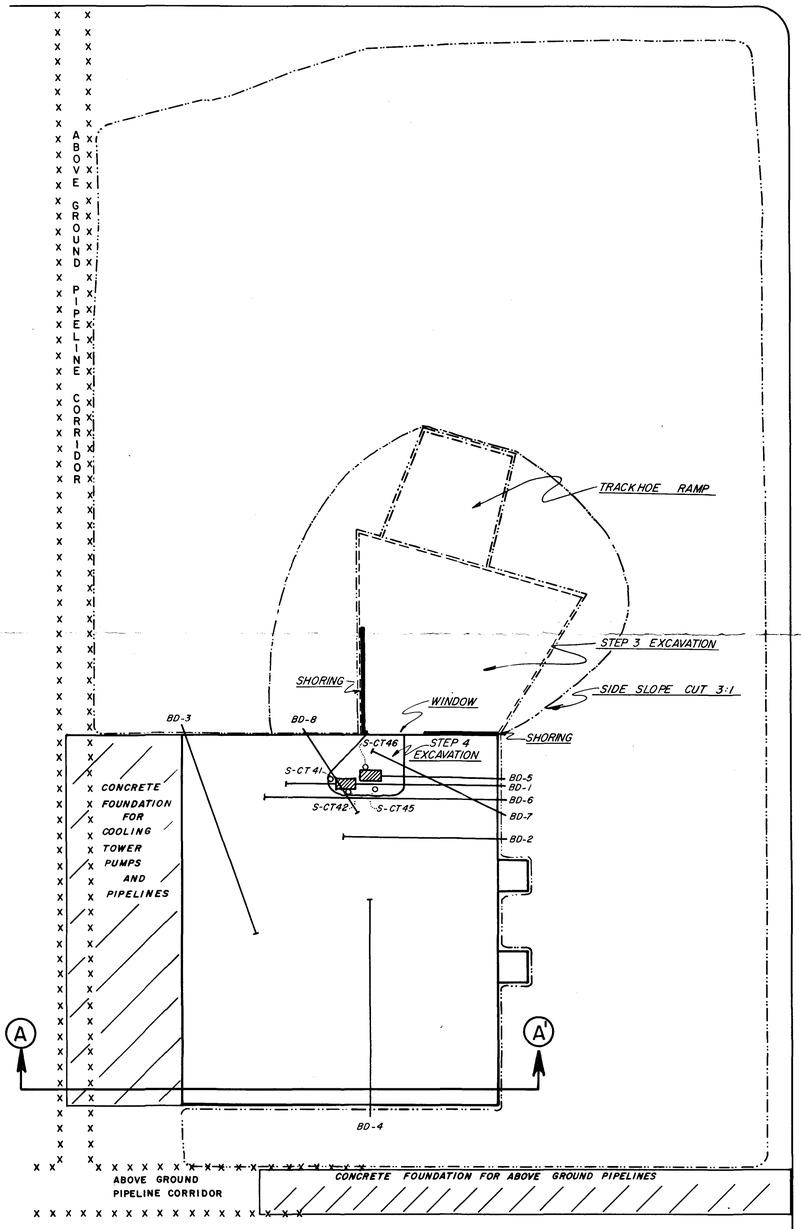
STEPS 2 & 3 (3-23-90)

SOUTHERN UNION COMPANY

LEA COUNTY, NEW MEXICO

FIGURE 4

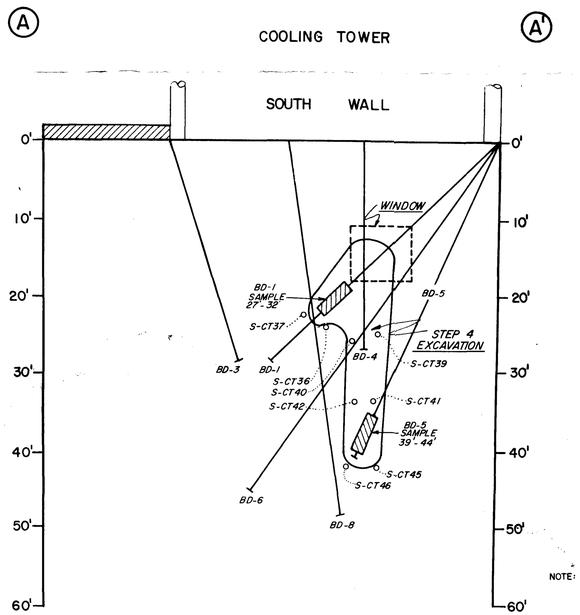
DATE: 6-15-90 | PROJT. NO.:CC052.01 | FILE NO.: | CAD FILE: | COMPILER: S. TISCHER | MGR.: A. SCHMIDT | DRAFTER: J.T. CHILDERS



REFINERY ROAD

LEGEND

- STEP 2 EXCAVATION
- STEP 3 EXCAVATION
- 3:1 SLOPE CUT
- SOIL SAMPLE, EP TOX >5 mg/L



PROJECTED CROSS-SECTION

NOTE: BD-2 AND BD-7 ARE APPROX. COINCIDENT WITH BD-1 AND BD-5 RESPECTIVELY ON ELEVATION VIEW.

SOIL ANALYTICAL DATA

ANGLE BORINGS

DATE SAMPLED	SAMPLE I.D.	BOREHOLE INTERVAL ft.	VERTICAL DEPTH ft.	CHROMIUM EP TOX mg/L	CHROMIUM TCLP mg/L	CHROMIUM TOTAL mg/kg
03-27-90	BD-1	0-5	0-3.5	0.28	--	15.4
03-27-90	BD-1	7-12	5-8.5	0.17	--	9.1
03-27-90	BD-1	17-22	12-15.6	2.75	--	33.2
03-27-90	BD-1	22-27	15.6-19.1	2.04	--	23.9
03-27-90	BD-1	27-32	19.1-22.6	6.60	--	76.8
03-27-90	BD-1	32-37	19.1-26.2	0.082	--	25.53
03-27-90	BD-1	37-40	26.2-28.3	2.1	--	26.17
03-27-90	BD-2	0-5	0-3.5	0.22	--	10.32
03-28-90	BD-2	7-12	5-8.5	0.18	--	7.36
03-28-90	BD-2	17-22	12-15.6	0.23	--	16.91
03-28-90	BD-2	27-30	19.1-21.2	0.16	--	26.76
03-28-90	BD-3	5-10	3.5-7.1	0.31	--	11.96
03-28-90	BD-3	15-20	10.6-14.1	0.20	--	5.46
03-28-90	BD-3	25-30	17.7-21.2	0.21	--	<5.0
03-28-90	BD-3	35-40	24.8-28.3	0.124	--	5.55
03-29-90	BD-4	6-9	4.2-6.4	1.25	--	7.92
03-29-90	BD-4	14-18	9.9-12.7	0.32	--	6.29
03-29-90	BD-4	23-28	16.3-19.8	0.19	--	<5
03-29-90	BD-4	33-38	23.3-26.9	1.43	--	17.29
06-29-90	BD-5	14-19	12.7-17.2	0.74	--	<10.00
06-29-90	BD-5	24-29	21.8-26.3	2.06	--	13.99
06-29-90	BD-5	29-34	26.3-30.8	3.44	--	37.76
06-26-90	BD-5	39-44	35.4-39.9	6.48	--	59.36
06-26-90	BD-6	5-10	4.1-8.2	0.56	--	11.40
06-26-90	BD-6	15-20	12.3-16.4	1.04	--	10.19
06-26-90	BD-6	20-25	16.4-20.5	0.96	--	10.83
06-26-90	BD-6	25-30	20.5-24.6	4.02	--	21.91
06-26-90	BD-6	30-35	24.6-28.7	2.86	--	26.65
06-27-90	BD-6	40-45	32.8-36.9	0.99	--	<10.00
06-27-90	BD-6	50-55	41-45	0.36	--	<10.00
06-27-90	BD-7	20-25	18.1-22.7	1.23	--	<5.00
06-27-90	BD-7	25-30	22.7-27.2	1.47	--	34.3
06-27-90	BD-7	30-35	27.2-31.7	0.69	--	6.88
06-27-90	BD-7	40-45	36.2-40.8	4.09	--	34.6
06-27-90	BD-8	0-5	0-4.8	0.76	--	26.5
06-27-90	BD-8	5-10	4.8-9.7	<0.30	--	10.66
06-28-90	BD-8	15-20	14.5-19.3	0.60	--	<5.00
06-28-90	BD-8	20-25	19.3-24.2	0.64	--	<5.00
06-28-90	BD-8	25-30	24.2-29	1.14	--	15.8
06-28-90	BD-8	35-40	33.8-38.6	1.66	--	11.2
06-28-90	BD-8	45-50	43.5-48.3	<0.30	--	<5.0

SOIL ANALYTICAL DATA

STEP 4 - EXCAVATION CONFIRMATION

DATE SAMPLED	SAMPLE I.D.	SAMPLE DEPTH ft.	CHROMIUM EP TOX mg/L	CHROMIUM TCLP mg/L	CHROMIUM TOTAL mg/kg
09-11-90	S-CT36	26	4.0	3.12	38
09-11-90	S-CT37	26	4.1	2.46	34
09-15-90	S-CT39	25	3.76	3.73	10
09-15-90	S-CT40	26	1.91	1.42	25
09-19-90	S-CT41	35	4.21	2.50	--
09-19-90	S-CT42	35	3.58	2.15	--
10-04-90	S-CT45	42	0.14	<0.05	<5
10-04-90	S-CT46	42	0.32	<0.05	<5

SCALE 0 — 10'

GERAGHTY & MILLER, INC.
Environmental Services

LEA REFINERY COOLING TOWER

STEPS 3 & 4 (10-4-90)

SOUTHERN UNION COMPANY — LEA COUNTY, NEW MEXICO

FIGURE 5

TABLES

TABLE 1

SOIL CONFIRMATION ANALYSES

DATE SAMPLED	SAMPLE I.D.	TYPE/DEFINITION	STEP LOCATION	BELOW GROUND LEVEL DEPTH (ft.)	CHROMIUM EP TOX	CHROMIUM TCLP	CHROMIUM TOTAL
02-12-90	S-CT-1	CONFIRMATION	1	2	<1	--	<20
03-07-90	S-CT-2	CONFIRMATION	1	3	<1	--	37
03-08-90	S-CT-3	CONFIRMATION	1	3.5	1.3	--	--
03-08-90	S-CT-4	CONFIRMATION	1	2	<1	--	--
03-08-90	S-CT-5	CONFIRMATION	1	2.5	<1	--	--
03-08-90	S-CT-6	CONFIRMATION	1	1.5	<1	--	--
03-08-90	S-CT-7	CONFIRMATION	1	2	<1	--	--
03-08-90	S-CT-8	CONFIRMATION	1	3	<1	--	--
03-08-90	S-CT-9	CONFIRMATION	1	1	1.5	--	--
03-08-90	S-CT-10	CONFIRMATION	1	1	<1	--	--
03-09-90	S-CT-11	CONFIRMATION	2	0.8	--	--	57
03-19-90	S-CT-11B	CONFIRMATION	2	1.5	<0.1	--	18
03-09-90	S-CT-12	CONFIRMATION	2	0.7	--	--	122
03-19-90	S-CT-12B	CONFIRMATION	2	1	<0.1	--	26
03-26-90	S-CT-12C	CONFIRMATION	2	1.5	--	--	17.7
03-09-90	S-CT-13	CONFIRMATION	2	0.7	--	--	261
03-19-90	S-CT-13B	CONFIRMATION	2	1	<0.1	--	36
03-26-90	S-CT-13C	CONFIRMATION	2	2	--	--	22.0
03-09-90	S-CT-14	CONFIRMATION	2	0.7	--	--	404
03-19-90	S-CT-14B	CONFIRMATION	2	1	<0.1	--	19
03-09-90	S-CT-15	CONFIRMATION	2	0.5	--	--	102
03-19-90	S-CT-15B	CONFIRMATION	2	1	<0.1	--	18
03-09-90	S-CT-16	CONFIRMATION	2	0.5	--	--	58
03-19-90	S-CT-16B	CONFIRMATION	2	1	<0.1	--	25
03-13-90	S-CT-20	CONFIRMATION	3	8	<1.0	--	8.2
03-13-90	S-CT-21	CONFIRMATION	3	15	<1.0	--	9.6
03-13-90	S-CT-22	CONFIRMATION	3	20	<1.0	--	15
03-13-90	S-CT-23	CONFIRMATION	3	8	<1.0	--	61
03-13-90	S-CT-24	CONFIRMATION	3	15	1.6	--	52
03-13-90	S-CT-25	CONFIRMATION	3	8	<1.0	--	16
03-13-90	S-CT-26	CONFIRMATION	3	15	<1.0	--	3.2
03-13-90	S-CT-27	CONFIRMATION	3	21	<1.0	--	5.7
03-13-90	S-CT-28	CONFIRMATION	3	15	<1.0	--	23
03-13-90	S-CT-29	CONFIRMATION	3	8	<1.0	--	25

TABLE 1

SOIL CONFIRMATION ANALYSES

DATE SAMPLED	SAMPLE I.D.	TYPE/DEFINITION	STEP LOCATION	BELOW GROUND LEVEL DEPTH (ft.)	CHROMIUM		
					EP TOX	TCLP	TOTAL
09-11-90	S-CT-36	CONFIRMATION/FOR BD-1	4	26	4.0	3.12	38
09-11-90	S-CT-37	CONFIRMATION/FOR BD-1	4	26	4.1	2.46	34
09-15-90	S-CT-39	CONFIRMATION/FOR BD-6	4	25	3.76	3.73	10
09-15-90	S-CT-40	CONFIRMATION/FOR BD-6	4	26	1.91	1.42	25
09-19-90	S-CT-41	CONFIRMATION/ABOVE BD-5	4	35	4.21	2.50	--
09-19-90	S-CT-42	CONFIRMATION/ABOVE BD-5	4	35	3.58	2.15	--
10-04-90	S-CT-45	CONFIRMATION/FOR BD-5	4	42	0.14	<0.05	<5
10-04-90	S-CT-46	CONFIRMATION/FOR BD-5	4	42	0.32	<0.05	<5

1 - STEP 1 EXCAVATION
2 - STEP 2 EXCAVATION
3 - STEP 3 EXCAVATION
4 - STEP 4 EXCAVATION

TABLE 2

SOIL STOCKPILE CHEMICAL ANALYSES

DATE SAMPLED	SAMPLE I.D.	TYPE/DEFINITION	STEP LOCATION	BELOW GROUND LEVEL DEPTH (ft.)	CHROMIUM EP TOX	CHROMIUM TCLP	CHROMIUM TOTAL
03-13-90	S-CT-17	STOCKPILE	2	NA	<0.5	--	844
03-23-90	S-CT-31	STOCKPILE/B-SAMPLES	2	NA	2.29	--	78.0
03-26-90	S-CT-32	STOCKPILE/C-SAMPLES	2	NA	1.44	--	51.5
03-13-90	S-CT-18	STOCKPILE	3	NA	<1.0	--	61
03-13-90	S-CT-19	STOCKPILE	3	NA	<1.0	--	19
03-13-90	S-CT-30	STOCKPILE	3	NA	<1.0	--	33
09-11-90	S-CT-35	STOCKPILE/FOR BORING CUTTINGS	4	NA	<0.1	0.25	--
09-12-90	S-CT-38	STOCKPILE/FOR BD-1 & BD-6	4	NA	1.87	1.68	--
09-19-90	S-CT-43	STOCKPILE/ABOVE BD-5	4	NA	1.58	0.09	--
10-04-90	S-CT-44	STOCKPILE/FOR BD-5	4	NA	0.32	0.16	--

1 - STEP 1 EXCAVATION
2 - STEP 2 EXCAVATION
3 - STEP 3 EXCAVATION
4 - STEP 4 EXCAVATION

TABLE 3

SOIL BORING CHEMICAL ANALYSES

DATE SAMPLED	SAMPLE I.D.	SAMPLE INTERVAL (along borehole) ft.	SAMPLE DEPTH ft.	CHROMIUM EP TOX mg/L	CHROMIUM TCLP mg/L	CHROMIUM TOTAL mg/kg
03-27-90	BD-1	0-5	0-3.5	0.28	--	15.4
03-27-90	BD-1	7-12	5-8.5	0.17	--	9.1
03-27-90	BD-1	17-22	12-15.6	2.75	--	33.2
03-27-90	BD-1	22-27	15.6-19.1	2.04	--	23.9
03-27-90	BD-1	27-32	19.1-22.6	6.60	--	76.8
03-27-90	BD-1	32-37	19.1-26.2	0.082	--	25.53
03-27-90	BD-1	37-40	26.2-28.3	2.1	--	26.17
03-27-90	BD-2	0-5	0-3.5	0.22	--	10.32
03-28-90	BD-2	7-12	5-8.5	0.18	--	7.36
03-28-90	BD-2	17-22	12-15.6	0.23	--	16.91
03-28-90	BD-2	27-30	19.1-21.2	0.16	--	26.76
03-28-90	BD-3	5-10	3.5-7.1	0.31	--	11.96
03-28-90	BD-3	15-20	10.6-14.1	0.20	--	5.46
03-28-90	BD-3	25-30	17.7-21.2	0.21	--	<5.0
03-28-90	BD-3	35-40	24.8-28.3	0.124	--	5.55
03-29-90	BD-4	6-9	4.2-6.4	1.25	--	7.92
03-29-90	BD-4	14-18	9.9-12.7	0.32	--	6.29
03-29-90	BD-4	23-28	16.3-19.8	0.19	--	<5
03-29-90	BD-4	33-38	23.3-26.9	1.43	--	17.29
06-29-90	BD-5	14-19	12.7-17.2	0.74	--	<10.00
06-29-90	BD-5	24-29	21.8-26.3	2.06	--	13.99
06-29-90	BD-5	29-34	26.3-30.8	3.44	--	37.76
06-26-90	BD-5	39-44	35.4-39.9	6.48	--	59.36
06-26-90	BD-6	5-10	4.1-8.2	0.56	--	11.40
06-26-90	BD-6	15-20	12.3-16.4	1.04	--	10.19
06-26-90	BD-6	20-25	16.4-20.5	0.96	--	10.83
06-26-90	BD-6	25-30	20.5-24.6	4.02	--	21.91
06-26-90	BD-6	30-35	24.6-28.7	2.86	--	26.65
06-27-90	BD-6	40-45	32.8-36.9	0.99	--	<10.00
06-27-90	BD-6	50-55	41-45	0.36	--	<10.00
06-27-90	BD-7	20-25	18.1-22.7	1.23	--	<5.00
06-27-90	BD-7	25-30	22.7-27.2	1.47	--	34.3
06-27-90	BD-7	30-35	27.2-31.7	0.69	--	6.88
06-27-90	BD-7	40-45	36.2-40.8	4.09	--	34.6

TABLE 3

SOIL BORING CHEMICAL ANALYSES

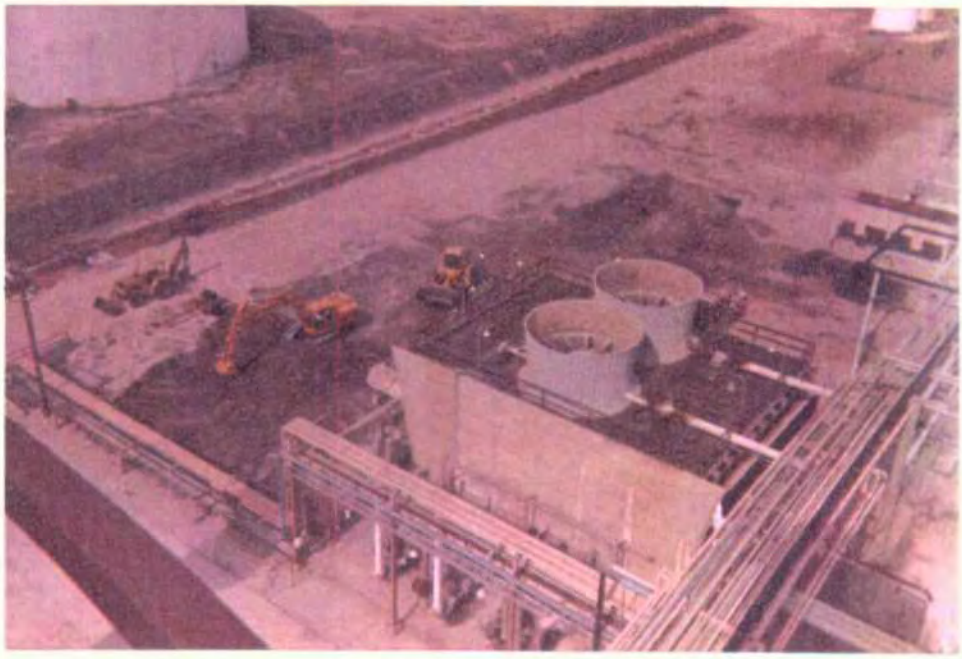
DATE SAMPLED	SAMPLE I.D.	SAMPLE INTERVAL (along borehole) ft.	SAMPLE DEPTH ft.	CHROMIUM		
				EP TOX mg/L	TCLP mg/L	TOTAL mg/kg
06-27-90	BD-8	0-5	0-4.8	0.76	--	26.5
06-27-90	BD-8	5-10	4.8-9.7	<0.30	--	10.66
06-28-90	BD-8	15-20	14.5-19.3	0.60	--	<5.00
06-28-90	BD-8	20-25	19.3-24.2	0.64	--	<5.00
06-28-90	BD-8	25-30	24.2-29	1.14	--	15.8
06-28-90	BD-8	35-40	33.8-38.6	1.66	--	11.2
06-28-90	BD-8	45-50	43.5-48.3	<0.30	--	<5.0

APPENDIX A

APPENDIX A
PHOTOGRAPHS



1.
STEP 1, EXCAVATION OF STAINED SOILS ALONG NORTH WALL.



2.
STEP 2, EXCAVATION, VIEW NORTH.



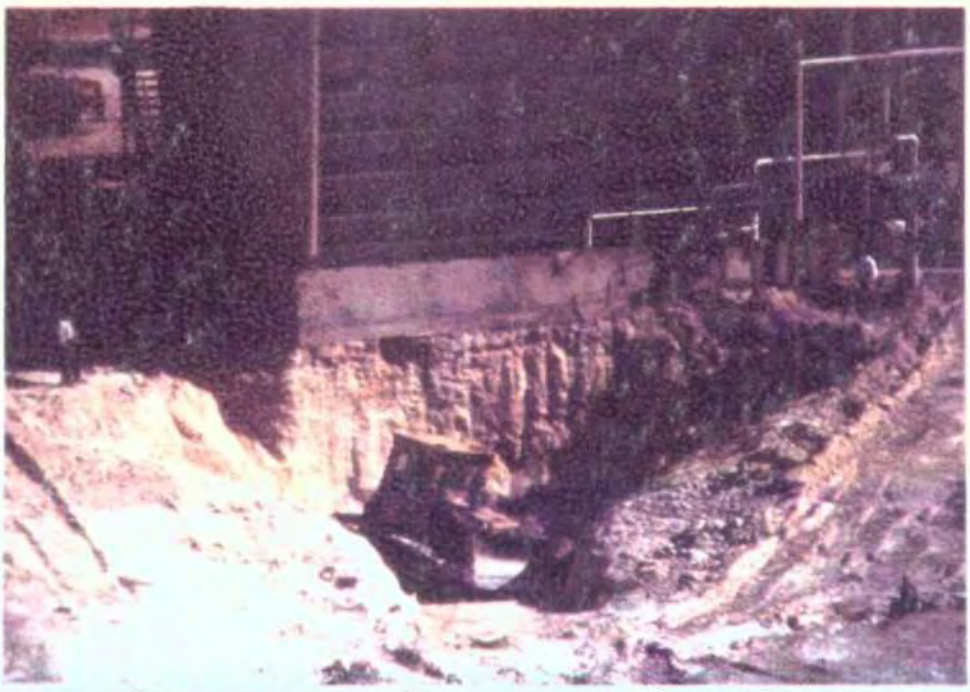
3.
STEP 3, DEEP EXCAVATION, STOCKPILED SOILS, VIEW SOUTH.



4.
ANGLE BORING BD-1.



5.
STEPS 1, 2 & 3 COMPLETED,
STOCKPILED BACKFILL
MATERIAL, VIEW SOUTH.



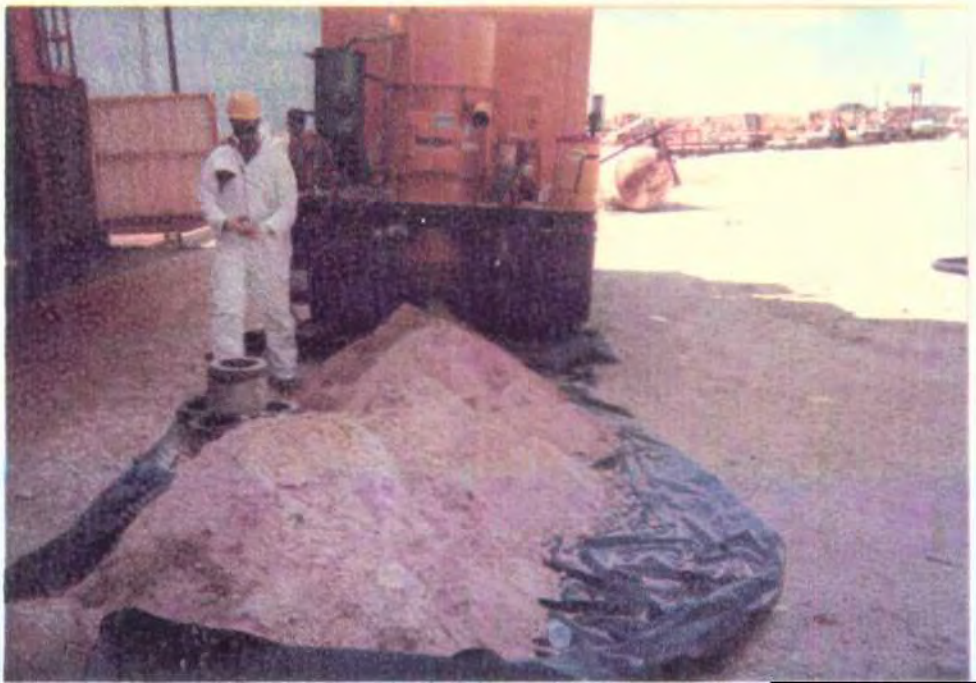
6.
SLOPE CUTS BEFORE SHORING
EXCAVATION, VIEW SOUTH.



7.
STEP 4, VACUUM EXTRACTION OF SOILS, VIEW SOUTH.



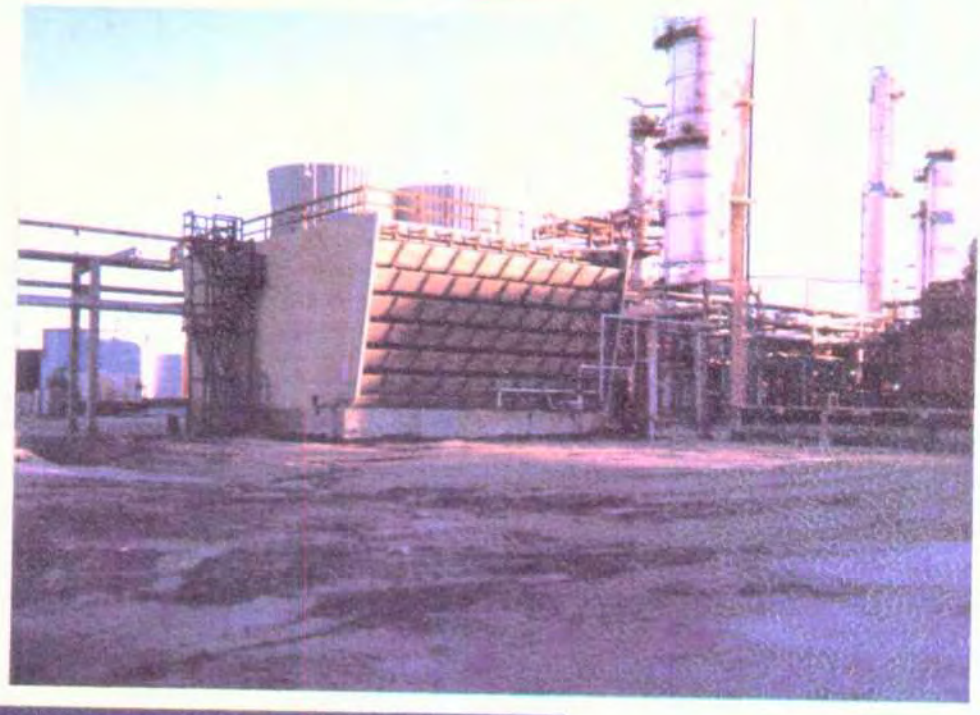
8.
STEP 4, EXCAVATION ALONG BOREHOLES.



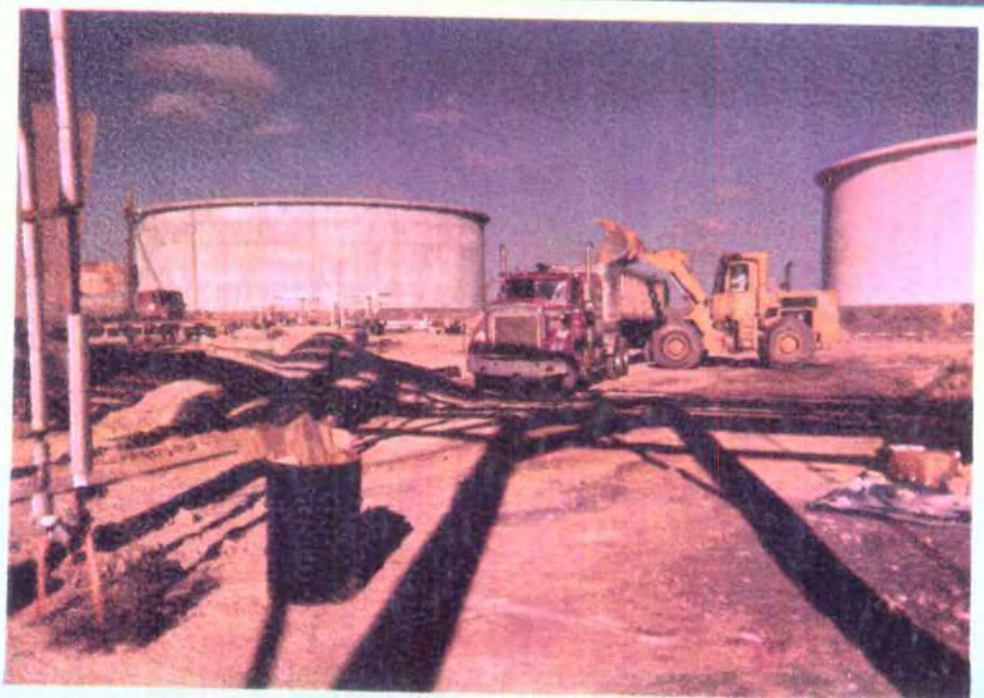
9.
STEP 4, SOIL STOCKPILE.



10.
INSTALLATION OF PVC AND CLAY CAP, VIEW SOUTH.



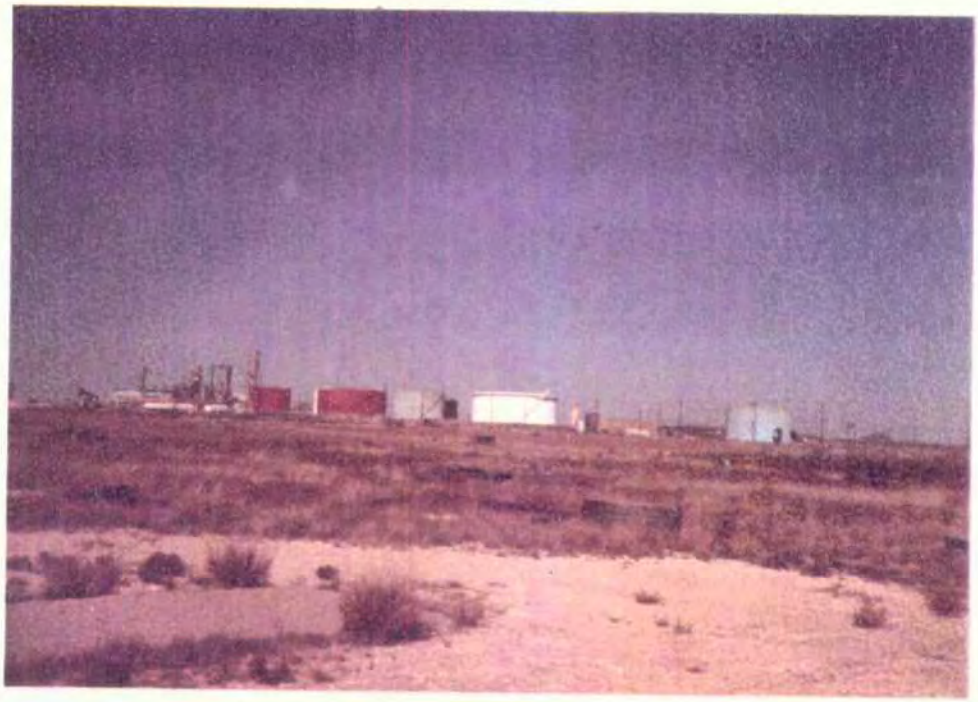
11.
VIEW SOUTH, COMPLETED CAP ALONG EAST AND NORTH SIDES.



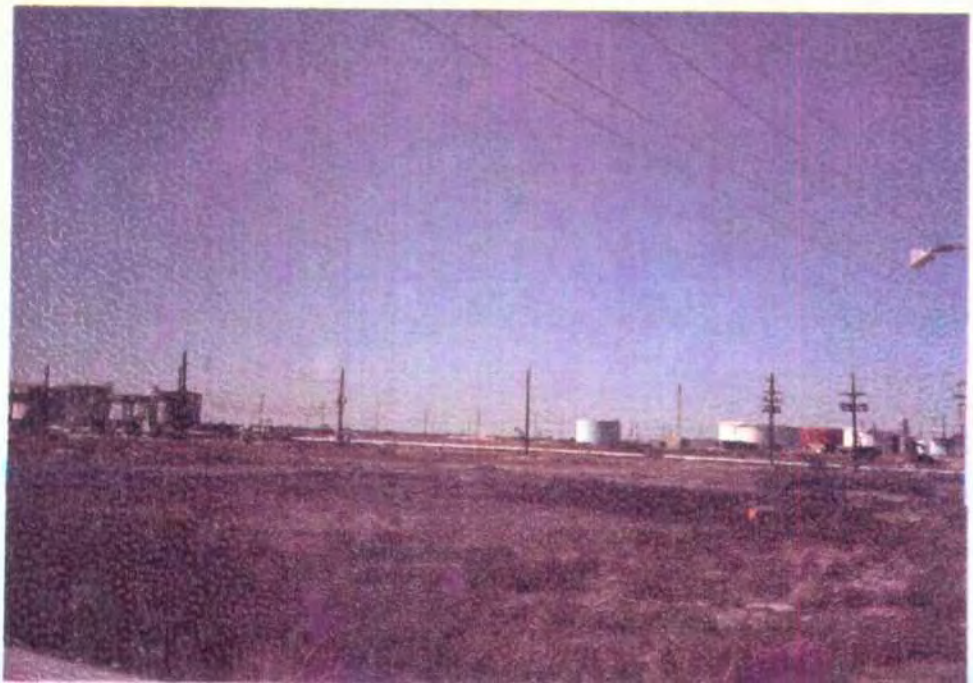
12.
LOADING OF SOIL FOR TRANSPORT TO DISPOSAL FACILITY.



13.
VIEW EAST FROM SOUTH
ENTRANCE TO LEA REFINERY.



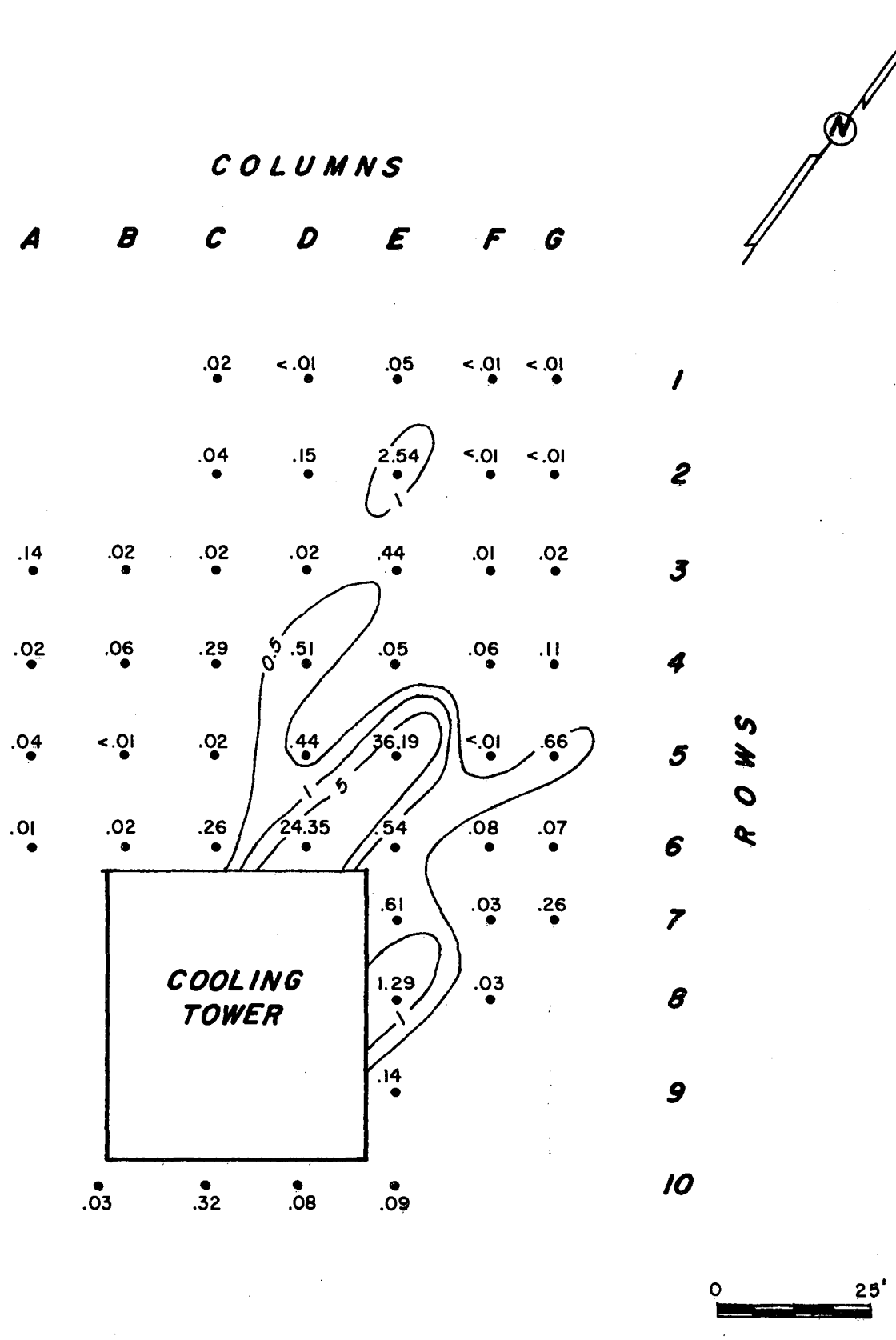
14.
VIEW NORTHEAST OF
REFINERY FROM WESTERN
BOUNDARY OF THE PROPERTY.



15.
VIEW NORTHWEST OF REFINERY
FROM THE SOUTHEAST CORNER
OF THE PROPERTY.

APPENDIX B

APPENDIX B
REMEDIAL PLAN FIGURES

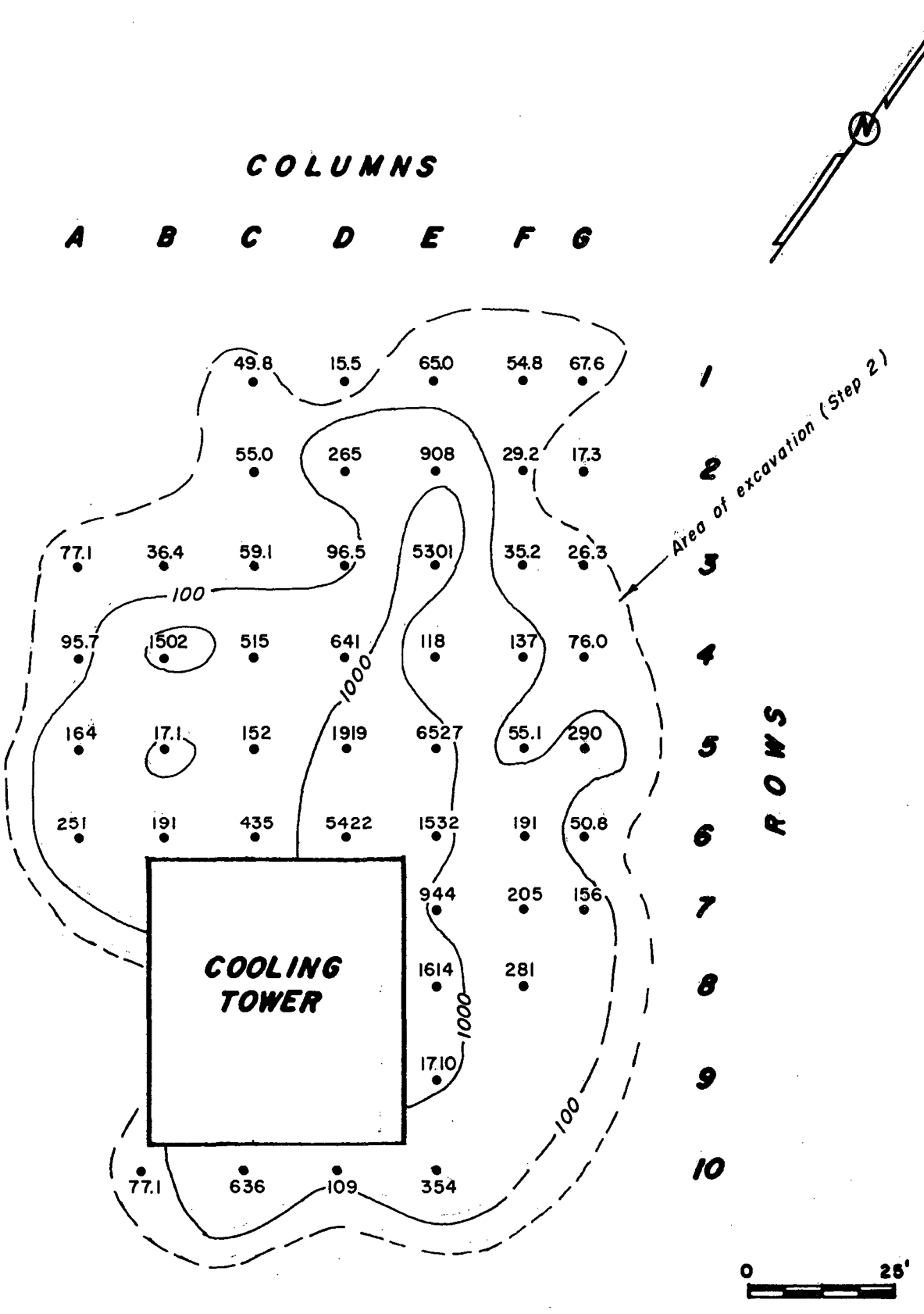


2.54 Value in mg/l.

LEA COUNTY, NEW MEXICO
SOUTHERN UNION COMPANY–LEA REFINERY
EP TOXICITY CHROMIUM CONCENTRATION
SURFACE SAMPLING

REED & ASSOCIATES, INC.
A Geraghty & Miller Company
HYDROLOGISTS & ENVIRONMENTAL CONSULTANTS

Date: 7-24-89 Figure: 3

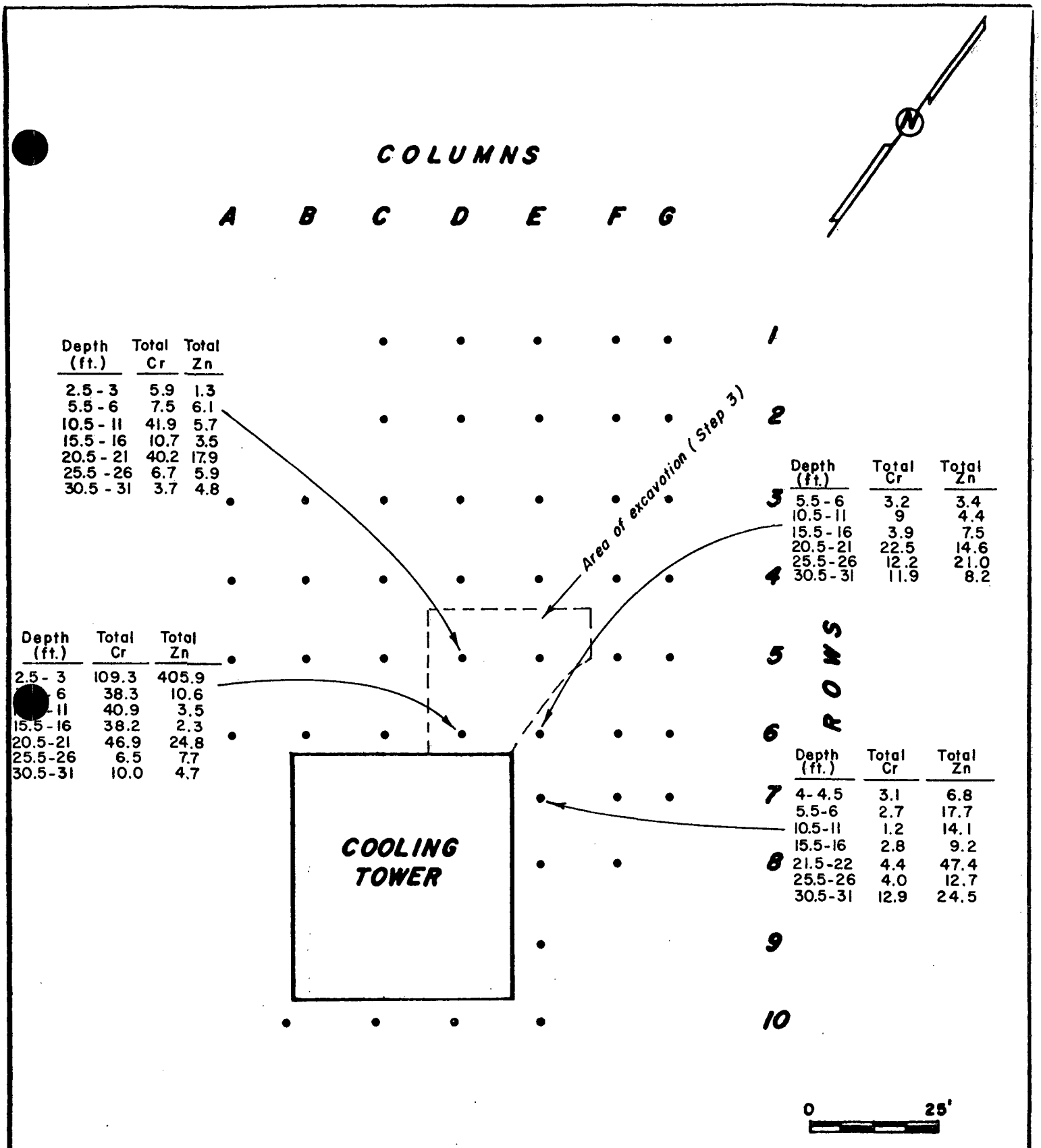


1919 Value in ug/g

LEA COUNTY, NEW MEXICO
SOUTHERN UNION COMPANY - LEA REFINERY
TOTAL CHROMIUM CONCENTRATION MAP,
SURFACE SAMPLING

REED & ASSOCIATES, INC.
A Geraghty & Miller Company
HYDROLOGISTS & ENVIRONMENTAL CONSULTANTS

Date: 7-25-89 Figure: 4



Depth (ft.)	Total Cr	Total Zn
2.5 - 3	5.9	1.3
5.5 - 6	7.5	6.1
10.5 - 11	41.9	5.7
15.5 - 16	10.7	3.5
20.5 - 21	40.2	17.9
25.5 - 26	6.7	5.9
30.5 - 31	3.7	4.8

Depth (ft.)	Total Cr	Total Zn
5.5 - 6	3.2	3.4
10.5 - 11	9	4.4
15.5 - 16	3.9	7.5
20.5 - 21	22.5	14.6
25.5 - 26	12.2	21.0
30.5 - 31	11.9	8.2

Depth (ft.)	Total Cr	Total Zn
2.5 - 3	109.3	405.9
[illegible] 6	38.3	10.6
[illegible] 11	40.9	3.5
15.5 - 16	38.2	2.3
20.5 - 21	46.9	24.8
25.5 - 26	6.5	7.7
30.5 - 31	10.0	4.7

Depth (ft.)	Total Cr	Total Zn
4 - 4.5	3.1	6.8
5.5 - 6	2.7	17.7
10.5 - 11	1.2	14.1
15.5 - 16	2.8	9.2
21.5 - 22	4.4	47.4
25.5 - 26	4.0	12.7
30.5 - 31	12.9	24.5

LEA COUNTY, NEW MEXICO
SOUTHERN UNION COMPANY - LEA REFINERY
TOTAL CHROMIUM and ZINC
CONCENTRATION MAP, SUBSURFACE SAMPLING

REED & ASSOCIATES, INC.
A Geraghty & Miller Company
HYDROLOGISTS & ENVIRONMENTAL CONSULTANTS

Date: 7-25-89 Figure: 6

APPENDIX C

APPENDIX C
PERSONNEL HEALTH AND SAFETY DOCUMENTS

CHEMICAL WASTE MANAGEMENT INC.

ENVIRONMENTAL MANAGEMENT DEPARTMENT

APPROVAL PACKAGE

DIVISION NAME ENRAC-Denvor

PACKAGE PREPARER NAME AND TITLE Larry Youngless/ Project Manager

CUSTOMER NAME Southern Union Gas Company

CUSTOMER ADDRESS Lovington,Texas , Highway 18

CUSTOMER CONTACT Russell Buss PHONE 409-962-8888

START DATE OF PROJECT _____ DURATION OF PROJECT _____

NAME AND TITLE OF PROJECT MANAGER ~~Larry Youngless~~ Bob Hulet Project Manager

COMMENTS _____

APPROVED BY (PRINT NAME AND TITLE) Cheryl A. Grede Env. H+S Mgr.

APPROVAL SIGNATURE Cheryl A. Grede

OTHER APPROVALS REQUIRED

PRINT NAME AND TITLE	SIGNATURE AND DATE

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PURPOSE

THIS DOCUMENT DEFINES THE HEALTH, SAFETY AND ENVIRONMENTAL CONSIDERATIONS FOR THE OFFSITE MANAGEMENT OF HAZARDOUS WASTES BY CHEMICAL WASTE MANAGEMENT PERSONNEL AND CONTRACTORS. THIS DOCUMENT IS REQUIRED BY CWM POLICIES AND PROCEDURES AND OSHA 29 CFR 1910.120. THE BASIC REQUIREMENTS FOR THE HEALTH AND SAFETY OF THE PROJECT WORKERS ARE DELINEATED IN THE CWM AND DIVISION HEALTH AND SAFETY PROCEDURES. ALL PERSONNEL ON SITE WILL BE INFORMED ABOUT THE PERTINENT SECTIONS OF THE EMD APPROVAL.

PROJECT STAFFING

TITLE	
PROJECT MANAGER	NAME ~~Larry Youngless~~ Bob Hulet
OPERATIONS MANAGER	NAME Don Shosky
SITE SAFETY OFFICER(S)	NAME Larry Youngless
	NAME
Operator	NAME ~~Carson Miricle~~ John Meier
Technician	NAME Shawn Nay
	NAME
	NAME
	NAME
	NAME
	NAME
	NAME

Oxidation Pond, Mud Pit Area, and Tank Bottoms Sludge piles. Level A @ DR Monitor with HNU. Upgrade if necessary to Level C.

I. SCOPE OF WORK

CHECK OFF APPROPRIATE CATEGORIES (MORE THAN ONE MAY APPLY)

O	TANK EXCAVATION	O	ONSITE TREATMENT
●	SOIL EXCAVATION	O	CONFINED SPACE
O	POND CLEANUP	O	ASBESTOS
O	BUILDING DECONTAMINATION	●	ONSITE STORAGE
O	EQUIPMENT DECONTAMINATION	O	CONSTRUCTION
O	DRUM SAMPLING AND MANAGEMENT	O	DEMOLITION
O	LAB PACK	O	OTHER _____
O	EMERGENCY RESPONSE		_____

(BRIEF DESCRIPTION OF PROJECT INCLUDING TYPES OF MAJOR EQUIPMENT TO BE USED, QUANTITIES OF MATERIAL TO BE MANAGED, CONTAMINANTS, NUMBER OF SPECIFIC JOB LOCATIONS (IE. NUMBER OF TANKS, SUMPS, ETC.). DESCRIBE SPECIFIC WORK TASKS.

CWM - ENRAC will excavate and stockpile soils until samples are analyzed. The soils are currently profiled (#WMA02758) for disposal at Waste Management's East Oak Landfill in ~~Oklahoma City, OK~~ Rio Rancho, NM. Levels confirmed in profile samples will require modified level D P.P.E. for "non-contact" operations such as back hoe operations and truck drivers. Air will be monitored with HNU to determine if upgrading to level-C P.P.E. is necessary. Upon confirmation of stockpiled soil analysis, soils will be loaded onto end dumps and/or roll off containers for transportation to ~~East Oak Landfill~~ Rio Rancho Landfill. All equipment will be deconed before leaving site.

The areas excavated will be backfilled to grade.

Rio Rancho Landfill

Level C for all operations associated with EP Pox Chrome excavation

4 Haz Chrom drums. to Lake Charles Facility

Level B all areas. Monitor for upgrade to

SITE LAYOUT (INCLUDE COPY OF SITE MAP INCLUDING OPERATING AREAS)

Printed on recycled paper

II. HAZARD EVALUATION overflow Pond, Caliche Pit, Truck Rack

A. PHYSICAL HAZARDS (TRENCHES, UTILITIES, TERRAIN, ETC.)

Heavy Equip
~~Pipe rack near cooling H^2O~~
~~Excavations~~ open excavations
Slip, trip, fall
OPEN HOLES

** B. CHEMICAL CONTAMINANTS AND CONCENTRATIONS (ATTACH A LIST TO PACKAGE IF NECESSARY)

NAME	CONC	TLV/PEL	ACTION LEVEL	MSDS AVAIL	HAZARDS
Benzene	1.2	10	,5ppm		
Tolvene	8.0	200ppm	200ppm		
Total Xylenes	43.0	100ppm	50ppm		
Nitrobenzene	1.6	1ppm	.5ppm		
Napthalene	3.3	10ppm	5ppm		
Ethylbenzene	21.0	100ppm	50ppm		
Chromium	33.7	1mg/m^3	.5ppm		
Cadmium	3.83	.2mg/m^3	any detection		
Nickel	7.48	1mg/m^3	.5ppm		

CARCINOGENS? @ YES O NO
IF YES, LIST Benzene, Cadmium, Nickel, Chromium

REGULATED MATERIALS? O YES O NO
IF YES, LIST _____

WASTE PROFILE INCLUDED? O YES O NO
IF NO, WHY? _____

** Contaminants identified at back filled separator pond (overflow pond)

II. HAZARD EVALUATION Cooling Tower Wastes

A. PHYSICAL HAZARDS (TRENCHES, UTILITIES, TERRAIN, ETC.)

open trenches
heavy equipment

** B. CHEMICAL CONTAMINANTS AND CONCENTRATIONS (ATTACH A LIST TO PACKAGE IF NECESSARY)

NAME	CONC	TLV/PEL	ACTION LEVEL	MSDS AVAIL	HAZARDS
Antimony	2.33	.5mg/m^3	any Detection		
Arsenic	19.60	10mg/m^3	.5ug/m^3		
Cadmium	4.83	1mg/m^3	.5ppm		
Chromium	5440.0	1mg/m^3	.5mg/m^3		
Copper	26.80	1mg/m^3	.5mg/m^3		
Lead	8.20	.05mg/m^3	any detection		
Nickel	5.40	1mg/m^3	.5mg/m^3		
Thallium	1.45	.1mg/m^3	.5mg/m^3		

CARCINOGENS? ● YES ○ NO
IF YES, LIST Arsenic, Cadmium, Chromium

REGULATED MATERIALS? ○ YES ○ NO
IF YES, LIST

WASTE PROFILE INCLUDED? ○ YES ○ NO
IF NO, WHY?

**Contaminants identified in cooling tower excavation site

TASK SPECIFIC HAZARDS

TASK Heavy Equip ~~Back Hoe~~ Operation

1. Be aware of workers in area
2. Check before backing
3. be aware of overhead hazards
4.
5.
6.

TASK Laborer

1. Stay clear of heavy equipment traffic
2. stay clear of excavations
3. slip, trip, fall
4.
5.
6.

TASK _____

1.
2.
3.
4.
5.
6.

TASK _____

1.
2.
3.
4.
5.
6.

TASK _____

1.
2.
3.
4.
5.
6.

III. PROJECT ORGANIZATION

CREW SIZE	NUMBER
PROJECT MANAGER	1
CHEMIST	
TECHNICIAN	2
SITE SAFETY OFFICER	1
OTHER operator	1
~~technicians~~	~~2~~

SUBCONTRACTORS (including environmental consultants)

West Hazmat, Inc (if necessary), PREQUALIFIED ● YES ○ NO

SCOPE OF WORK Provide heavy equipment operator to excavate soils and stockpile soils and load soils on to trucks

TRAINING REQUIRED 40 hour training

CONTRACT

Tad Trucking, PREQUALIFIED ● YES ○ NO

SCOPE OF WORK Provide transportation of soils to Lake Charles and East Oak Landfills.

TRAINING REQUIRED N/A

CONTRACT

_____, PREQUALIFIED ○ YES ○ NO

SCOPE OF WORK

TRAINING REQUIRED

CONTRACT

IV MATERIAL HANDLING EQUIPMENT (PROVIDE DETAILS)

_____	O	DRUM DOLLY	_____
_____	O	PUMPS	_____
_____	O	FORK TRUCK	_____
_____	O	MAN LIFT	_____
_____	●	HEAVY EQUIP	backhoe,trakhoe,frontend loaders
_____	O	CRANE	_____
_____	O	OTHER	_____
_____	●		shovel
_____	O		_____

V REPORTING AND RECORDKEEPING

PERMITS/APPROVALS (USE N/A IF NOT APPLICABLE)

● DISPOSAL SITE APPROVAL APPROVAL DATE _____
NAME OF APPROVER _____

O	STATE	TYPE _____
O	LOCAL	TYPE _____
O	FEDERAL	TYPE _____
O	OTHER	TYPE _____
O	OTHER	TYPE _____

(CERTAIN STATES REQUIRE REPORTING DURING WORK WITH SPECIFIED HAZARDOUS MATERIALS (EG. ASBESTOS) AND/OR OPERATIONS (EG. EXCAVATIONS)

PROCEDURES

O COPY OF STANDARD OPERATING PROCEDURES INCLUDED (ENCLOSURE 2)
O HAZARD COMMUNICATION PROGRAM DEVELOPED
O MSDS AVAILABLE

VI DISPOSAL AND TRANSPORTATION

ULTIMATE FACILITY Lake Charles for hazardous, ~~East Oak~~ Rio Rancho for Non-Haz

INTERMEDIATE FACILITIES _____

TRANSPORTATION COMPANY Tad Trucking

TYPES AND NUMBERS OF VEHICLES USED To Be Determined
Minimum 10 end dumper per day during Transport

VII ENVIRONMENTAL SAMPLING

SAMPLING REQUIRED ● YES ○ NO

AIR MONITORING

EQUIPMENT USED HNU Photo-ionization detector

METHODOLOGY Initial background survey upon comencement of excavation, periodically during excavation (@ overflow pond, Celicte pit, Truck rack)

CALIBRATION Daily before use

SOIL MONITORING

EQUIPMENT USED

METHODOLOGY

CALIBRATION

OTHER Dreager Kit

EQUIPMENT USED

METHODOLOGY If HNU picks up action level readings, dreager will be used for identification of contaminant

CALIBRATION ~~Daily~~

OTHER

EQUIPMENT USED

METHODOLOGY

CALIBRATION

VIII TRAINING

CWM CREW RECEIVED INITIAL 40 HOUR TRAINING ● YES ○ NO
IF NO, WHY? _____

COPY OF CERTIFICATE ON FILE ● YES ○ NO

ADDITIONAL TRAINING REQUIRED Trenching & Excavation and Benzene standard

CREW RECEIVED SPECIAL TRAINING ● YES ○ NO
IF NO, WHY? _____

LOCATION OF TRAINING FILES OSCO/Denver Fremont Enviro

SUBCONTRACTOR RECEIVED REQUIRED TRAINING ● YES ○ NO
IF NO, WHY? _____

ADDITIONAL INFORMATION _____

SAFETY BRIEFINGS ARE HELD EACH SHIFT
WHO CONDUCTS MEETINGS? Site Safety Officer / Project Manager
WHERE ARE RECORDS STORED? On site/Project Manager

IX MEDICAL REQUIREMENTS

ENTIRE CREW RECEIVED BASELINE PHYSICAL EXAMINATIONS
● YES ○ NO

IF NO, WHY? _____

SPECIAL TESTS REQUIRED N/A

COMPLETE? ○ YES ○ NO

IF NO, WHY? _____

LOCATION OF MEDICAL FILES _____

CONTAMINATION CONTROL

- THE JOB SITE IS PARTITIONED INTO 3 DISTINCT WORK ZONES: CLEAN ZONE, CONTAMINATION REDUCTION ZONE AND THE EXCLUSION ZONE.
- WORKERS MAY ONLY ENTER AND EXIT FROM THE EXCLUSION ZONE VIA THE CONTAMINATION REDUCTION ZONE.
- ONLY AUTHORIZED PERSONNEL ARE ALLOWED TO ENTER THE EXCLUSION ZONE OR THE CONTAMINATION REDUCTION ZONE.
- ENCLOSURE 3 INCLUDES A SITE MAP DEFINING THE ZONES

DESCRIBE PERSONNEL DECONTAMINATION PROCEDURES (STEPOFF DIAGRAMS IN ENCLOSURE 4)

Determined by level of contamination. Site safety officer will decide how extensive and what procedures are necessary. See attachment

DESCRIBE EQUIPMENT DECONTAMINATION PROCEDURES

Wipe/brush off over containment area. wash off with H^2O/soap solution on pressure sprayer

HOW IS CONTAMINATED EQUIPMENT DISPOSED

In waste stream profiled for disposal

DESCRIBE STORAGE OF REUSABLE PROTECTIVE GEAR

Storage after decon and air drying in plastic bags

DESCRIBE LAUNDERING PROCEDURE FOR UNIFORMS

Uniforms will be bagged in plastic then returned to OSCO facility for normal laundering procedures

LAUNDRY INFORMED? ☒ **YES** ○ **NO**

LOCKER ROOM FACILITY PROVIDED ☒ YES O NO

IF NO, HOW WILL CREW CHANGE CLOTHING _____

RESPIRATOR CLEANING AND INSPECTING PROCEDURES ARE LISTED IN ENCLOSURE 5

XI CONTINGENCY PLAN

CONTINGENCY PLAN INCLUDED ◉ YES ○ NO

IF NO, WHY? _____

_____

_____

(MAY STATE THAT CONTINGENCY PLAN WILL BE WRITTEN PRIOR TO ONSITE OPERATIONS)

INTERNAL EMERGENCY PHONE LIST IS INCLUDED IN ENCLOSURE 7.

XII WORKER PROTECTION
(A SEPARATE DESCRIPTION OF PERSONAL PROTECTIVE EQUIPMENT MUST BE INCLUDED FOR EACH WORK TASK)

1) WORK TASK DESCRIPTION Backhoe, Trackhoe, Frontend loader- below action levels

2) LEVEL O A O B O C ◉ D

3) RESPIRATORY PROTECTION
- O AIR PURIFYING
- O HALF MASK
- O FULL MASK
- O OTHER _____

CARTRIDGE TYPE _____

- O SUPPLIED AIR
- O SCBA
- O AIRLINE
- O ESCAPE BOTTLE
- O OTHER _____

4) PROTECTIVE CLOTHING
- ◉ HARD HAT

EYE PROTECTION
- ◉ SAFETY GLASSES
- O CHEMICAL RESISTANT GOGGLE
- O FACE SHIELD
- O OTHER _____

BODY PROTECTION

O TYVEK	O	HOODED
O POLYTYVEK	O	HOODED
O SARANEX	O	HOODED
O SIGEL		
O PVC		
O NEOPRENE		
O RAINGEAR (PVC)		
O BUTYL		
◉ OTHER coveralls		

BOOTS
- ◉ LEATHER- STEEL TOED
- O PVC-STEEL TOED
- O NEOPRENE-STEEL TOED
- O PVC BOOTIES
- O TYVEK BOOTIES
- O OTHER _____

GLOVES

O LATEX	◉	LEATHER
O SURGICAL RUBBER	◉	COTTON
O VITON	O	OTHER
O PVC		_____
O NEOPRENE		
O NEOPRENE (MILLED)		
O SILVERSHIELD		

OTHER _____
_____
_____

HEARING PROTECTION
- O EAR MUFFS
- ◉ EAR PLUGS
- O OTHER if noise levels are above 85 Db

Printed on recycled paper

1) WORK TASK DESCRIPTION backhoe, trackhoe, frontend loader ~~above action levels~~ @ overflow pad, trench rack, caliche pit

2) LEVEL ○ A ○ B ● C ○ D

3) RESPIRATORY PROTECTION

○ AIR PURIFYING
- ◐ HALF MASK
- ○ FULL MASK
- ○ OTHER _____

CARTRIDGE TYPE _____

○ SUPPLIED AIR
- ○ SCBA
- ○ AIRLINE
- ○ ESCAPE BOTTLE
- ○ OTHER _____

4) PROTECTIVE CLOTHING

○ HARD HAT

EYE PROTECTION
- ◐ SAFETY GLASSES
- ○ CHEMICAL RESISTANT GOGGLE
- ○ FACE SHIELD
- ○ OTHER _____

BODY PROTECTION

●	TYVEK	○	HOODED
◐	POLYTYVEK	○	HOODED
○	SARANEX	○	HOODED
○	SIGEL		
○	PVC		
○	NEOPRENE		
○	RAINGEAR (PVC)		
○	BUTYL		
○	OTHER _____		

BOOTS
- ○ LEATHER- STEEL TOED
- ◔ PVC-STEEL TOED
- ◒ NEOPRENE-STEEL TOED
- ○ PVC BOOTIES
- ○ TYVEK BOOTIES
- ◍ OTHER Nuke boots

GLOVES

○	LATEX	◐	LEATHER
◐	SURGICAL RUBBER	○	COTTON
○	VITON	○	OTHER
○	PVC	_____	
○	NEOPRENE		
○	NEOPRENE (MILLED)		
○	SILVERSHIELD		

OTHER _____
_____
_____

HEARING PROTECTION
- ○ EAR MUFFS
- ◍ EAR PLUGS
- ○ OTHER if decible level>85

1) WORK TASK DESCRIPTION Laborer/technician deconing tools/equipment

2) LEVEL ○ A ○ B ● C ○ D

3) RESPIRATORY PROTECTION

- ○ AIR PURIFYING
  - ○ HALF MASK
  - ● FULL MASK
  - ○ OTHER _____

  CARTRIDGE TYPE OV/AG and dust filter
- ○ SUPPLIED AIR
  - ○ SCBA
  - ○ AIRLINE
  - ○ ESCAPE BOTTLE
  - ○ OTHER _____

4) PROTECTIVE CLOTHING

- ○ HARD HAT

EYE PROTECTION

- ○ SAFETY GLASSES
- ○ CHEMICAL RESISTANT GOGGLE
- ○ FACE SHIELD
- ○ OTHER _____

BODY PROTECTION

○ TYVEK	○ HOODED	
● POLYTYVEK	○ HOODED	
○ SARANEX	○ HOODED	
○ SIGEL		
○ PVC		
○ NEOPRENE		
○ RAINGEAR (PVC)		
○ BUTYL		
○ OTHER _____		

BOOTS

- ○ LEATHER- STEEL TOED
- ● PVC-STEEL TOED
- ● NEOPRENE-STEEL TOED
- ○ PVC BOOTIES
- ○ TYVEK BOOTIES
- ● OTHER Nuke boots

GLOVES

○ LATEX	○ LEATHER	
● SURGICAL RUBBER	○ COTTON	
○ VITON	○ OTHER	
○ PVC	_____	
● NEOPRENE		
○ NEOPRENE (MILLED)		
○ SILVERSHIELD		

OTHER _____

_____

_____

HEARING PROTECTION

- ○ EAR MUFFS
- ● EAR PLUGS
- ○ OTHER if working in areas with decible levels > 85Db

cooling tower. EP TOX Chrom

1) WORK TASK DESCRIPTION _____

_____

2) LEVEL O A O B O C O D

3) RESPIRATORY PROTECTION

O AIR PURIFYING
- Ø HALF MASK
- O FULL MASK
- O OTHER _____

CARTRIDGE TYPE O/A combo w/ dust strikes

O SUPPLIED AIR
- O SCBA
- O AIRLINE
- O ESCAPE BOTTLE
- O OTHER _____

4) PROTECTIVE CLOTHING
- Ø HARD HAT

EYE PROTECTION
- Ø SAFETY GLASSES
- O CHEMICAL RESISTANT GOGGLE
- O FACE SHIELD
- O OTHER _____

BODY PROTECTION

Ø TYVEK	O	HOODED
Ø POLYTYVEK	O	HOODED
O SARANEX	O	HOODED
O SIGEL		
O PVC		
O NEOPRENE		
O RAINGEAR (PVC)		
O BUTYL		
O OTHER _____		

BOOTS
- Ø LEATHER- STEEL TOED
- O PVC-STEEL TOED
- O NEOPRENE-STEEL TOED
- O PVC BOOTIES
- O TYVEK BOOTIES
- O OTHER _____

GLOVES

O LATEX	Ø LEATHER
Ø SURGICAL RUBBER as undergloves	Ø COTTON
O VITON	O OTHER
O PVC	_____
O NEOPRENE	
O NEOPRENE (MILLED)	
O SILVERSHIELD	

OTHER _____
_____
_____

HEARING PROTECTION
- O EAR MUFFS
- O EAR PLUGS
- O OTHER _____

SAFETY EQUIPMENT

◉	SAFETY SHOWERS	○	FUME HOOD
◉	EYEWASH	○	GROUNDING RODS
◉	BARRIERS	○	LIFELINE/HARNESS
○	WARNING SIGNS	○	EXTRACTION DEVICE
◉	BARRIER TAPE	◉	AIR HORNS
◉	WATER/GATORADE	○	TARPING RACK
◉	DECON BARRELS		
○	LIGHTING		
◉	FIRE EXTINGUISHERS		
○	OTHER		

COMMUNICATION SYSTEMS
DESCRIBE verbal/visual/air horns

SANITARY FACILITIES
◉ SOURCE OF POTABLE WATER
DESCRIBE ~~On site~~ well water & Drinking water

◉ TOILETS
DESCRIBE ~~On site~~ Port-o-let

◉ LIGHTING
DESCRIBE Daylight

XIII PERSONNEL MONITORING PLAN

INITIAL AIR MONITORING REQUIRED ⊘ **YES** O **NO**
IF YES, EXPLAIN STRATEGY to determine background levels to compare against levels while excavating and loading (Not Necessary during cooling tower excav.)
IF NO, EXPLAIN STRATEGY _____

DIRECT READING INSTRUMENTATION
O **COMBUSTIBLE GAS/OXYGEN METER**
⊘ **DRAEGER TUBES** benzene 0.5/a, Toluene 5/a, O-Xylene 10/a
⊘ **PHOTOIONIZATION DETECTOR**
O **FLAME IONIZATION DETECTOR**
O **INFRARED DETECTOR**
O **AEROSOL MONITOR**
O **OTHER** _____

DESCRIBE STRATEGY (FREQUENCY,LOCATIONS,ETC)
HNU to determine airborn contaminants above background levels during excavation. Draeger- to identify suspected contaminants and levels if identified by HNU to determine if action levels are present
DESCRIBE CALIBRATION PROCEDURES See Attached

SAMPLE COLLECTION INSTRUMENTATION
⊘ **SAMPLING PUMPS AND MEDIA**
DESCRIBE SAMPLING METHODS (INCLUDE MEDIA TYPE, ANALYTES, NIOSH METHOD NUMBER IF APPLICABLE)
NIOSH #1500 for Benzene, Toluene, and Xylene using 3M passive organic vapor badges

DESCRIBE SAMPLING STRATEGY
Full shift samples for CWM employees working in excavation area

ADDITIONAL MONITORING

NOISE MONITORING ○ YES ● NO

DESCRIBE MONITORING STRATEGY _____

HEAT STRESS MONITORING ● YES ○ NO

DESCRIBE MONITORING STRATEGY verbal, visual, wibget heat stress monitor, Gatorade provided

OTHER ○ YES ○ NO

DESCRIBE _____

OTHER ○ YES ○ NO

DESCRIBE _____

NAMES OF MONITORING TECHNICIAN Larry Youngless

LOCATION OF MONITORING RECORDS Henderson, CO

XIV. ENCLOSURES

ENCLOSURE 1 SITE SAFETY OFFICER RESPONSIBILITIES

THE SITE SAFETY OFFICER OR DESIGNEE WILL ENTER BEFORE ANY WORK BEGINS AND WILL VERIFY THAT THE ESTABLISHED ZONES ARE IDENTIFIED AND ESCAPE ROUTES ARE CLEAR.

THE DAILY SITE ENTRY PROCEDURE WILL INCLUDE THE FOLLOWING:

- DETERMINE THE WIND DIRECTION AND STAY APPRAISED OF IT THROUGHOUT THE DAY. IDENTIFY THE DIRECTION DURING THE TAILGATE SAFETY MEETING OR INFORMALLY WITH EACH AFFECTED EMPLOYEE.
- CONFIRM THE PROPER PLACEMENT OF EMERGENCY INFORMATION AND OPERATIONAL STATUS OF EQUIPMENT AND THE DECONTAMINATION FACILITY.
- MONITOR THE AIR AS NECESSARY FOR CONDITIONS THAT MAY CAUSE INJURY OR EXPOSURE AND RECORD ALL DATA.
- VISUALLY OBSERVE FOR SIGNS OF ACTUAL OR POTENTIAL LIFE OR HEALTH THREATENING HAZARDS.
- NOTE PHYSICAL CONDITIONS OF THE SITE. DETERMINE POTENTIAL EXPOSURE PATHWAYS.
- USE SURVEY TAPE OR MARKERS TO IDENTIFY NEW BOUNDARIES OF THE ZONES.
- DOCUMENT SITE ACTIVITIES IN A DAILY LOG. RECORD OBSERVATIONS RELATED TO FIELD CONDITIONS AND THE SITE.
-
-
-

ENCLOSURE 2 GENERAL SAFE WORK PRACTICES

- ALL ACCIDENTS AND INCIDENTS MUST BE REPORTED TO YOUR SUPERVISOR IMMEDIATELY.

- ALL DEFECTS/MALFUNCTIONS WHICH APPEAR DURING THE CURSE OF THE WORK SHIFT MUST BE REPORTED TO THE SUPERVISOR.

- NO EATING, DRINKING, SMOKING, CHEWING TOBACCO OR GUM, OR APPLYING COSMETICS IS ALLOWED IN THE EXCLUSION OR CONTAMINATION REDUCTION ZONES.

- EMPLOYEES SHALL INFORM THEIR SUPERVISOR OF ANY PRESCRIPTION MEDICATIONS OR MEDICATIONS AFFECTING THEIR ABILITIES THEY ARE USING WHILE AT WORK.

- EMPLOYEES SHALL NOT SHOW UP FOR WORK UNDER THE INFLUENCE OR IN POSSESSION OF ALCOHOL OR ILLICIT DRUGS.

- ONLY CWM APPROVED PROTECTIVE EQUIPMENT SHALL BE USED BY CWM EMPLOYEES.

- EMPLOYEES SHALL NOT REMOVE OR DISTURB ANY COVERING, GUARDS, OR SAFETY DEVICES PLACED ON VEHICLES, GEARS OR OTHER MOVING EQUIPMENT OR MACHINERY EXCEPT TO PERFORM MAINTENANCE OR REPAIRS. WORK ON THE EQUIPMENT SHALL NOT COMMENCE UNTIL THE EQUIPMENT HAS BEEN DEACTIVATED, SOURCES OF ENERGY REMOVED, AND THE CONTROLS ARE LOCKED AND TAGGED OUT.

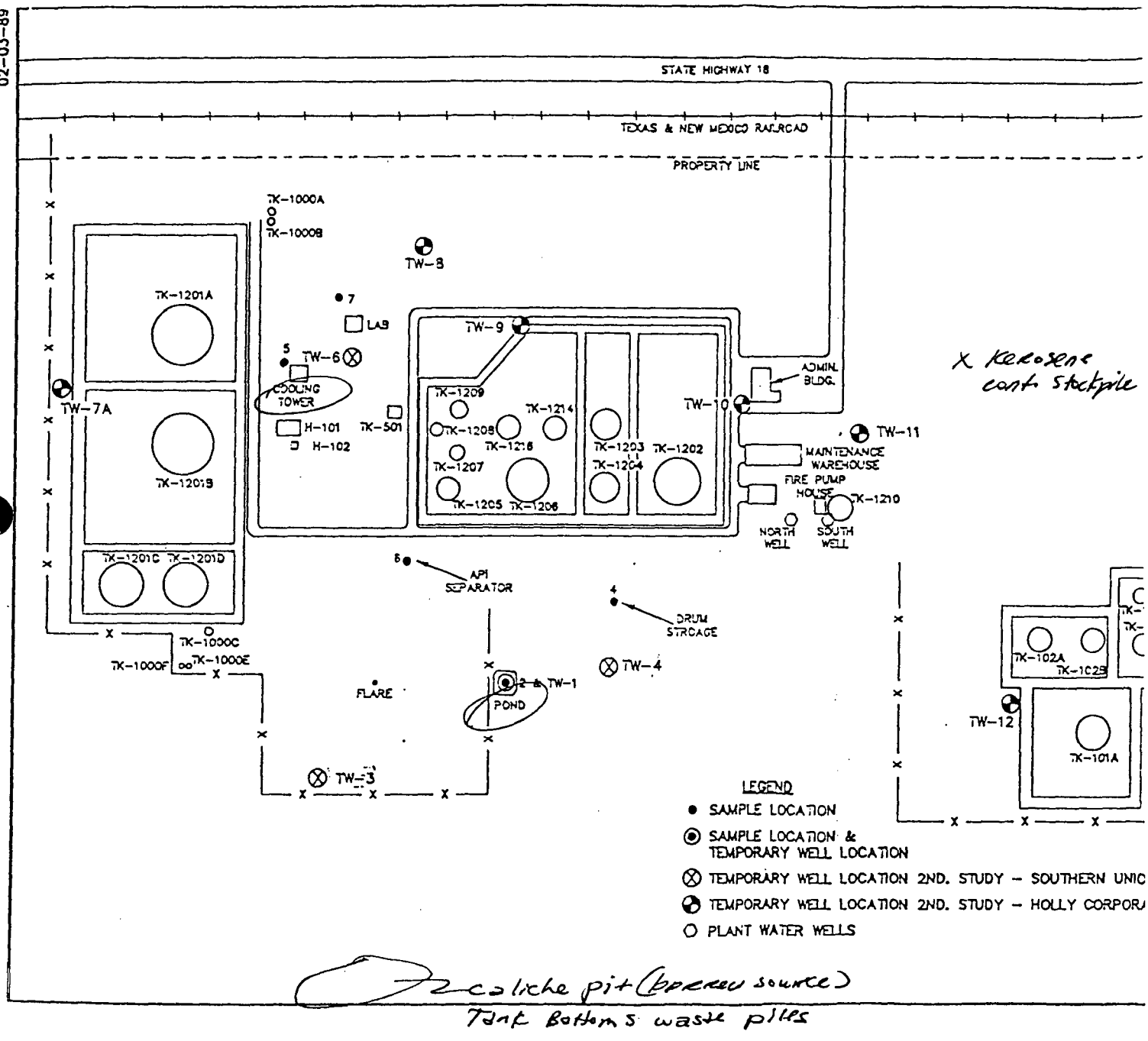
- BEFORE STARTING ANY VEHICLE OR MACHINERY, OR TURNING ON ELECTRICITY, GAS, STEAM, OR AIR, EMPLOYEES WILL CHECK THE ENTIRE AREA TO INSURE IT IS SAFE TO PROCEED WITH THE WORK. OUT OF SERVICE OR LOCKED OUT EQUIPMENT IS NOT TO BE STARTED BY ANYONE, UNLESS AUTHORIZED BY SUPERVISION.

- EMPLOYEES SHALL MAINTAIN GOOD HOUSEKEEPING OF THE FACILITIES AND REMOVE OR DISPOSE OF ALL UNNECESSARY MATERIAL.

- SPECIAL OPERATIONS INCLUDING CONFINED SPACE ENTRY, HOT WORK, DECOMMISSIONING OF EQUIPMENT FOR REPAIRS REQUIRE PERMITS TO BE SIGNED BY AUTHORIZED PERSONNEL. A DESCRIPTION OF THE PROCEDURES WILL BE INCLUDED IN THE ENCLOSURE SECTION.

-TRENCHING OR EXCAVATIONS MUST BE SHORED OR SLOPED OR APPROPRIATELY PREPARED AS REQUIRED BY OSHA STANDARDS. A DESCRIPTION OF THE TECHNIQUES TO BE USED IS INCLUDED IN THE ENCLOSURE SECTION IF APPROPRIATE.

ENCLOSURE 3 WORK ZONE MAP



X kerosene cont. stockpile

caliche pit (borrow source)

Tank Bottoms waste piles

ENCLOSURE 4 DECONTAMINATION PROCEDURES

See attached procedures

ENCLOSURE 5 RESPIRATORY EQUIPMENT CLEANING, MAINTENANCE AND STORAGE PROCEDURES

Wash with soap and water. Water rinse and air dry.
Store in vinyl carrying bags when not in use

CHEMICAL WASTE MANAGEMENT, INC.
ENRAC - WESTERN REGION
Incident Reporting/Emergency Call List

In the event of an injury, accident, fire, spill, release or other non-routine occurence, you must immediately call one of the following people. Start at the top of the list and keep calling until you, personally, talk to one of these people.

1. Joe Zorn - ENRAC General Manager
   (415) 770-0575 - Business Telephone
   (415) 538-4628 - Home Telephone

2. August Ochabauer - Operations Manager
   (415) 770-0575 - Business Telephone
   (415) 651-4073 - Home Telephone

3. Derik Gulsvig - Health & Safety Manager
   (415) 770-0575 - Business Telephone
   (415) 790-3488 - Home Telephone

4. Cheryl Grede - Environmental Health & Safety Manager
   (415) 770-0575 - Business Telephone
   (415) 551-8755 - Home Telephone

5. Paul Borenstein - Western Region Health & Safety Manager
   (415) 651-2964 - Business Telephone
   (415) 228-3759 - Home Telephone

6. Shari Samuels - Western Region Safety Engineer
   (415) 651-2964 - Business Telephone
   (415) 355-7699 - Home Telephone

ENCLOSURE 7 HAZARDOUS WASTE OPERATIONS CONTINGENCY PLAN

GENERATORS NAME: Southern Union Gas Co.

LOCATION: Highway 18, 5 miles SW of Lovington, NM

CONTACT: Russell Buss **PHONE #** 409-962-8888

PROJECT MANAGER: _____

EMERGENCY PHONE NUMBERS:

POLICE 911 **INTERPLANT** _____

FIRE 911 **HOSPITAL** 392-6581

POISON CONTROL _____

NATIONAL SPILL RESPONSE CENTER _____

FEDERAL/LOCAL AGENCIES _____

HOSPITAL INFORMATION:

NAME: Regional Hospital

ADDRESS: _____

ROUTE TO: _____

CONTACT: Emergency Room Doctor

ALTERNATE CONTACT: _____

EVACUATION ALARM DESCRIPTION: Verbal or Air horn

LOCATION OF ALARM BOXES: _____

EVACUATION ROUTE DESCRIPTION: Exit work area east of parking lot

ASSEMBLY AREA DESCRIPTION: Parking lot

EVACUATION ROUTE/ EMERGENCY EQUIPMENT STATION MAP :

MEDICAL PROVIDER ROUTE MAP:

EMERGENCY EQUIPMENT:

- ● FIRST AID STATION
- ● FIRE EXTINGUISHERS
- ● EMERGENCY EYEWASH/SHOWER
- ○ LIFELINE/HARNESS
- ● SCBAS
- ● AIR MONITORING EQUIPMENT

  SPECIFY Dräger, HNU

- ● GLOVES

  SPECIFY Neoprene

- ● BODY SUIT

  SPECIFY Poly tyvek
  tyvek

- ● BOOTS

  SPECIFY Chemical resistant

- ○ OTHER PROTECTIVE EQUIPMENT

  SPECIFY

- ○ ABSORBENT
- ● SHOVELS
- ○ SQUEEGEES
- ○ OVERPACKS
- ○ NEUTRALIZING MAT'L
- ○ WALKY TALKIES
- ○ OTHER SUPPORT EQPT

  SPECIFY

LOCATION OF EMERGENCY EQUIPMENT

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See 32A

LIST OF CONTAMINANTS PRESENT AND SYMPTOMS OF EXPOSURE AND POSSIBLE AND POSSIBLE MEDCAIL EVALUATION/TREATMENT:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
____

HAS COPY OF CONTINGENCY PLAN BEEN RECEIVED BY HOSPITAL LISTED?
OYES ●NO
IS IT DOCUMENTED?
OYES ONO

OTHER AGENCIES THAT HAVE RECEIVED THE CONTINGENCY PLAN:

_____ DOCUMENTED: _____
_____ DOCUMENTED: _____
_____ DOCUMENTED: _____
_____ DOCUMENTED: _____

32A

B. CHEMICAL CONTAMINANTS AND CONCENTRATIONS (ATTACH A LIST

Chemical Name, Formula, CAS, RTECS, and DOT UN or NA and Guide Numbers	Synonyms	Exposure Limits	IDLH Level	Physical Description	Chemical and Physical Properties		Incompatibilities	Measurement Method (See Tables 1a and 1b)
Benzene C_6H_6 71-43-2 CY1400000 1114 27	Benzol, Cyclohexatriene, Coal tar naphtha, Phenyl hydride	10 ppm 50 ppm ceil (10 min) (NIOSH) 1 ppm 60-min ceil See Appendix A (ACGIH) 10 ppm, A2	2000 ppm Ca	Colorless liquid with an aromatic odor	MW: 78 BP: 176°F Sol: 0.18% FI.P: 12°F IP: 9.25 eV	VP: 75 mm MP: 42°F UEL: 7.1% LEL: 1.3%	Strong oxidizers; chlorine, bromine with iron	Char; CS_2; GC; III

Personal Protection and Sanitation (See Table 2)	Respirator Selection Upper Limit Devices Recommended (See Table 3)	Health Hazards: Route	Symptoms (See Table 4)	First Aid (See Table 5)	Target Organs
Clothing: Repeat prolong Goggles: Reason prob Wash: Soap wash promptly Change: N.A. Remove: Any wet immed (flamm)	NIOSH Ξ: SCBAF:PD,PP/SAF:PD,PP:ASCBA Escape: GMFOV/SCBAE	Inh Abs Ing Con	Irrit eyes, nose, resp sys; giddy; head; nau; staggered gait; ftg, anor, lass; derm; bone marrow depres; abdom pain; [carc]	Eye: Irr immed Skin: Soap wash promptly Breath: Art resp Swallow: Medical attention immed	Blood, CNS, skin, bone marrow, eyes, resp sys

Chemical Name, Formula, CAS, RTECS, and DOT UN or NA and Guide Numbers	Synonyms	Exposure Limits	IDLH Level	Physical Description	Chemical and Physical Properties		Incompatibilities	Measurement Method (See Tables 1a and 1b)
Toluene $C_6H_5CH_3$ 108-88-3 XS5250000 1294 27	Toluol, Phenyl methane, Methyl benzene	200 ppm 300 ppm ceil 500 ppm 10-min peak (NIOSH) 100 ppm 10-hr TWA 200 ppm 10-min ceil (ACGIH) 100 ppm	2000 ppm	Colorless liquid with an aromatic odor like benzene	MW: 92 BP: 231°F Sol: 0.05% FI.P: 40°F IP: 8.82 eV	VP: 22 mm MP: -139°F UEL: 7.1% LEL: 1.3%	Strong oxidizers	Char; CS_2; GC; V

Personal Protection and Sanitation (See Table 2)	Respirator Selection Upper Limit Devices Recommended (See Table 3)	Health Hazards: Route	Symptoms (See Table 4)	First Aid (See Table 5)	Target Organs
1. Clothing: Repeat prolong Goggles: Reason prob Wash: Promptly upon wet Change: N.A. Remove: Any wet immed (flamm)	NIOSH 1000 ppm: CCROV*/SA* PAPROV*/SCBA* 2000 ppm: SA:CF*SCBAF/SAF/GMFOV Ø: SCBAF:PD,PP/SAF:PD,PP:ASCBA Escape: GMFOV/SCBAE	Inh Abs Ing Con	Ftg, weak; conf, euph, dizz; head; dil pup, lac; ner; musc ftg; insom; pares; derm; photo	Eye: Irr immed Skin: Soap wash promptly Breath: Art resp Swallow: Medical attention immed	CNS, liver, kidneys, skin

Chemical Name, Formula, CAS, RTECS, and DOT UN or NA and Guide Numbers	Synonyms	Exposure Limits	IDLH Level	Physical Description	Chemical and Physical Properties		Incompatibilities	Measurement Method (See Tables 1a and 1b)
Ethyl benzene $C_6H_5C_2H_5$ 100-41-4 DA0700000 1175 26	Phenylethane, Ethylbenzol	100 ppm (435 mg/m³)	2000 ppm	Colorless liquid with an aromatic odor	MW: 106 BP: 211°F Sol: 0.015% FI.P: 59°F IP: 8.76 eV	VP: 7.1 mm MP: -139°F UEL: 6.7% LEL: 1.0%	Strong oxidizers	Char; CS_2; GC; III

Personal Protection and Sanitation (See Table 2)	Respirator Selection Upper Limit Devices Recommended (See Table 3)	Health Hazards: Route	Symptoms (See Table 4)	First Aid (See Table 5)	Target Organs
Clothing: Repeat prolong Goggles: Reas prob Wash: Promptly upon contam Change: N.A. Remove: Any wet immed (flamm)	NIOSH 1000 ppm: CCROV*/PAPROV*/SA*/SCBA* 2500 ppm: SA:CF* 5000 ppm: GMFOV/SCBAF/SAF 10,000 ppm: SAF:PD,PP Ø: SCBAF:PD,PP/SAF:PD,PP:ASCBA Escape: GMFOV/SCBAE	Inh Abs Ing Con	Dizz, excitement, drow, inco, staggering gait; irrit eyes, nose, throat; corneal vacuolization; anor, nau, vomit, abdom pain; derm	Eye: Irr immed Skin: Soap wash promptly Breath: Art resp Swallow: Medical attention immed	CNS, eyes, GI tract, blood, liver, kidneys, skin

Chemical Name, Formula, CAS, RTECS, and DOT UN or NA and Guide Numbers	Synonyms	Exposure Limits	IDLH Level	Physical Description	Chemical and Physical Properties		Incompatibilities	Measurement Method (See Tables 1a and 1b)
Xylene (o-, m-, and p-isomers) $C_6H_4(CH_3)_2$ 1330-20-7 ZE2100000 1307 27	p-ortho-Xylene, 1,2-Dimethyl-benzene; meta-Xylene, 1,3-Dimethyl-benzene; para-Xylene, 1,4-Dimethyl-benzene	100 ppm (435 mg/m³) (NIOSH) 100 ppm 10-hr TWA 200 ppm 10-min ceil	10,000 ppm	Colorless liquid with aromatic odors (pure p-xylene is a solid at < 55°F)	MW: 106 BP: 292/282/281°F Sol: 0.00003% FI.P: 90/84/81°F IP: 8.56/8.56/8.44 eV	VP: 7/9/9 MP: -12/-54/55°F UEL: 6/7/7% LEL: 1/1.1/1.1%	Strong oxidizers	Char; CS_2; GC; III

Personal Protection and Sanitation (See Table 2)	Respirator Selection Upper Limit Devices Recommended (See Table 3)	Health Hazards: Route	Symptoms (See Table 4)	First Aid (See Table 5)	Target Organs
Clothing: Repeat prolong Goggles: Reason prob Wash: Promptly upon contam Change: N.A. Remove: Any wet immed (flamm)	OSHA 1000 ppm: PAPROV*/SA*/SCBA*/CCROV* 2000 ppm: GMFOV/SAF/SCBAF Ø: SCBAF:PD,PP/SAF:PD,PP:ASCBA	Inh Ing Con	Irrit eyes, muc memb; head; derm; narco, coma	Eye: Irr immed Skin: Water flush promptly Breath: Art resp Swallow: Medical attention immed	Eyes, upper resp sys, skin, CNS

EMPLOYEES RECEIVED CONTINGENCY PLAN BRIEFING:

PRINT	SIGNATURE
~~Larry Youngblood~~	
Bob Hulet	Bob Hulet
John Meier	John Meier

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ENRAC - Western Region
Excavation and Trenching Procedure

1. All trenches and excavations deeper than 4 feet m be tested for oxygen deficiency and hazardous atmospheres b e workers are allowed to enter them.

2. If ventilation controls are used to reduc hazardous concentrations in the excavation, then periodi sting is required to ensure safe levels.

3. If hazardous atmospheres are present in the avation, emergency equipment (SCBAs, safety harness, li ne or a basket stretcher) must be readily available for and must be attended by a rescue person.

4. Sloping or shoring is mandatory for all exca ons and trenches 5 feet deep or more.

5. All supplies and material removed from the excava must be kept at least 2 feet away from the edge of the h

6. If the excavation is in solid rock, no additional ping or shoring is required.

7. If the excavat is in solid rock, it must b ped or a support syst designed and installed.

8. All soil classi must be made by a stered professional engine

9. If no soil classification is made, the excavati ist be sloped to an angle of 34 degrees from the horizon 1:5 ratio

10. If a soil classification is made (per Appendix A c 29 CFR 1926 Subpart P), then one of three optic ay be chosen.

a. Follow slope configurations in Appendix B of 2 1926 Subpart P. (Note that these tables h depth constraints to them.)
b. Use other tabulated data which has been appr by a registered professional engineer.
c. Use a specific written design by a tered professional engineer.

11. If a support, shield or shoring system is chosen, then soil classification is required and one of four options may be chosen.

    a. Follow the provisions in Appendix C of 29 CFR 1926 Subpart P. (i.e., timber shoring tables)
    b. Use manufacturers data to provide protection. (i.e., hydraulic shoring, trench shields, etc.)
    c. Use tabulated data which has been approved by a registered professional engineer.
    d. Use a specific written design by a registered professional engineer.

12. Ladders must be provided every 25 feet in the excavation, so that employees can climb out of the trench or excavation. These ladders must extend at least 3 feet above the top of the hole in order to provide a safe exit.

13. At least one standby observer must be present whenever a worker enters an excavation or trench.

14. All employees must be trained in the requirements of 29 CFR 1926 Subpart P and excavation and trenching procedures before working on this type of project. Employees will receive initial training as part of their new employee 40 hour training in hazardous waste operations. Refresher training must be completed at least annually. Documentation of training will be kept in the employee's training file at the ENRAC office from which the employee is dispatched.

* Note: No employee will be entering the excavation pit.!

2/20/90

CHEMICAL WASTE MANAGEMENT INC.

ENVIRONMENTAL MANAGEMENT DEPARTMENT

APPROVAL PACKAGE

DIVISION NAME Enrac - Denver

PACKAGE PREPARER NAME AND TITLE Bob Hulet / Project Manager

CUSTOMER NAME Southern Union Gas Company

CUSTOMER ADDRESS 5 miles South of Lovington on Hwy 18

CUSTOMER CONTACT Russel Buss PHONE (505) 962-8888

START DATE OF PROJECT 6/25/90 DURATION OF PROJECT 6 weeks

NAME AND TITLE OF PROJECT MANAGER Bob Hulet / Project Manager

COMMENTS An EMD package is cuesently in place for this project. This package addess tasks to occur in conjuction with soil removal below a cooling tower.

APPROVED BY (PRINT NAME AND TITLE) Cheryl A Grade
Env. & H&S Mgr.

APPROVAL SIGNATURE Cheryl A Grade

OTHER APPROVALS REQUIRED

PRINT NAME AND TITLE	SIGNATURE AND DATE

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PURPOSE

THIS DOCUMENT DEFINES THE HEALTH, SAFETY AND ENVIRONMENTAL CONSIDERATIONS FOR THE OFFSITE MANAGEMENT OF HAZARDOUS WASTES BY CHEMICAL WASTE MANAGEMENT PERSONNEL AND CONTRACTORS. THIS DOCUMENT IS REQUIRED BY CWM POLICIES AND PROCEDURES AND OSHA 29 CFR 1910.120. THE BASIC REQUIREMENTS FOR THE HEALTH AND SAFETY OF THE PROJECT WORKERS ARE DELINEATED IN THE CWM AND DIVISION HEALTH AND SAFETY PROCEDURES. ALL PERSONNEL ON SITE WILL BE INFORMED ABOUT THE PERTINENT SECTIONS OF THE EMD APPROVAL.

PROJECT STAFFING

TITLE	
PROJECT MANAGER	NAME Bob Hulet
OPERATIONS MANAGER	NAME Don Shosky
SITE SAFETY OFFICER(S)	NAME Bob Hulet
	NAME
Operator	NAME John Meier
Technician	NAME Martin Fierro
Technician	NAME Manuel Hoyos
SSO	NAME Darrel Hellman
	NAME
	NAME
	NAME
	NAME

I. SCOPE OF WORK

CHECK OFF APPROPRIATE CATEGORIES (MORE THAN ONE MAY APPLY)

O	TANK EXCAVATION	O	ONSITE TREATMENT
●	SOIL EXCAVATION	O	CONFINED SPACE
O	POND CLEANUP	O	ASBESTOS
O	BUILDING DECONTAMINATION	O	ONSITE STORAGE
●	EQUIPMENT DECONTAMINATION	●	CONSTRUCTION
O	DRUM SAMPLING AND MANAGEMENT	●	DEMOLITION
O	LAB PACK	O	OTHER _____
O	EMERGENCY RESPONSE		

(BRIEF DESCRIPTION OF PROJECT INCLUDING TYPES OF MAJOR EQUIPMENT TO BE USED, QUANTITIES OF MATERIAL TO BE MANAGED, CONTAMINANTS, NUMBER OF SPECIFIC JOB LOCATIONS (IE. NUMBER OF TANKS, SUMPS, ETC.). DESCRIBE SPECIFIC WORK TASKS.

(1) Remove above ground horizontal tank with a cherry picker. Remove portable building and concrete slab.

(2) Backfill open hole to begin trenching operation below cooling tower basin.

(3) As trenching goes down to a total depth of 25 ft below cooling tower, ramp down and slope back sidewalls to meet OSHA requirements for trenching and excavations.

(4) Backfill trenching with concrete to form shoring walls. (Trenching and backfill will be performed in clean material.) Install shoring

(5) Excavate non-hazardous chrome contaminated soil between shoring walls.

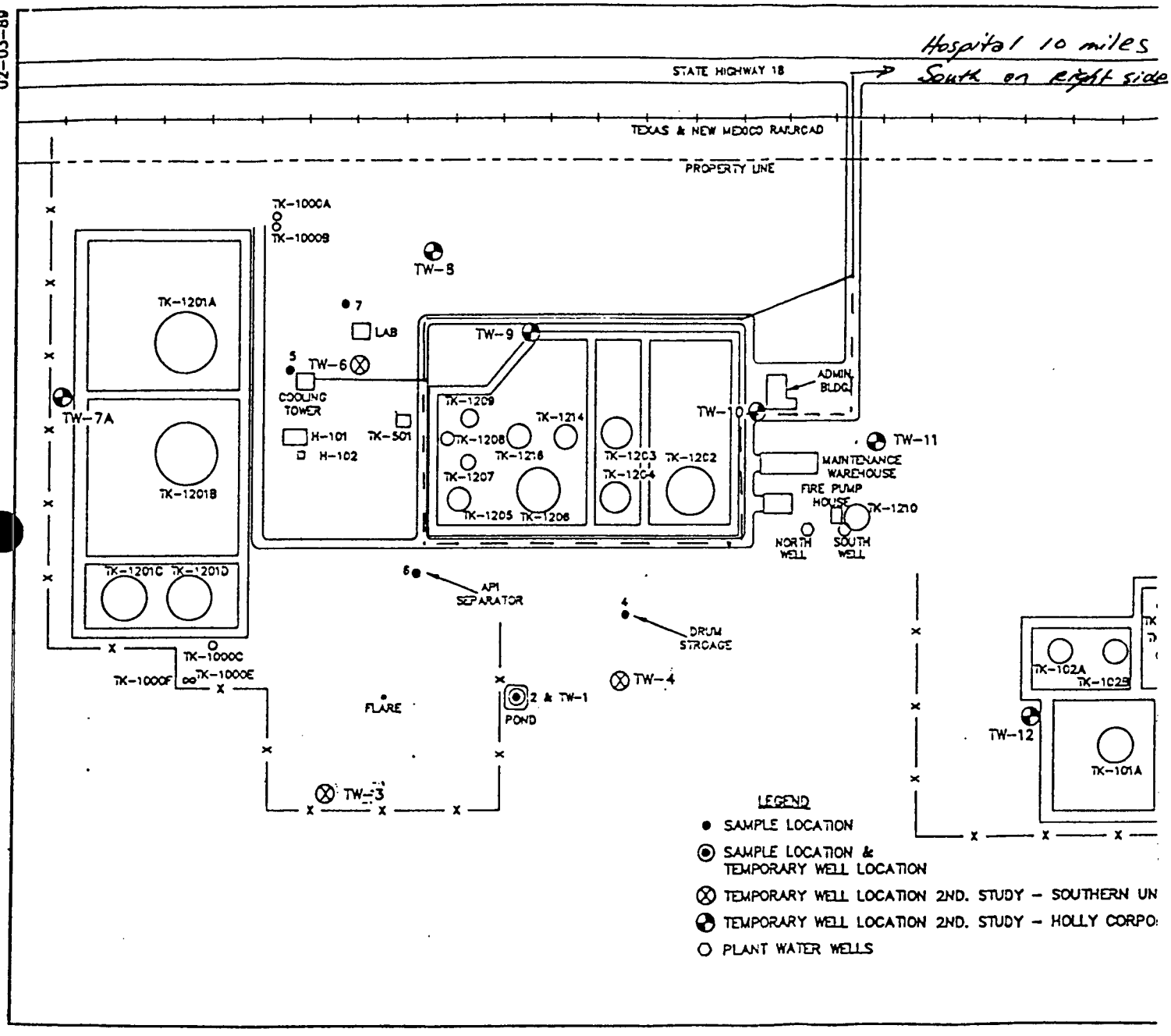
(6) Transport and dispose contaminated soil at Rio Rancho landfill in Albuquerque N.M. or Lake Charles Facility in Louisiana.

(7) Backfill below cooling tower with concrete

(8) Backfill open excavation with local clean fill

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SITE LAYOUT (INCLUDE COPY OF SITE MAP INCLUDING OPERATING AREAS)



Evacuation Route ——•——

Alternate Route — — —

II. HAZARD EVALUATION

A. PHYSICAL HAZARDS (TRENCHES, UTILITIES, TERRAIN, ETC.)

Heavy Equipment
Open Excavation

B. CHEMICAL CONTAMINANTS AND CONCENTRATIONS (ATTACH A LIST TO PACKAGE IF NECESSARY)

NAME	CONC	TLV/PEL	ACTION LEVEL	MSDS AVAIL	HAZARDS

CARCINOGENS? O YES O NO
IF YES, LIST _____

REGULATED MATERIALS? O YES O NO
IF YES, LIST _____

WASTE PROFILE INCLUDED? O YES O NO
IF NO, WHY? _____

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TASK SPECIFIC HAZARDS

TASK Remove tank & building
1. Watch for heavy equipment
2. Open excavation nearby
3. Use proper lifting
4. Watch for trip hazards
5.
6.

TASK Excavation & trenching (clean soil)
1. Watch for Heavy equipment
2. Be Aware of open excavation
3. Suppress dust
4.
5.
6.

TASK Excavation & trenching (contaminated soil)
1. Watch for Heavy equipment
2. Be aware of open excavation
3. Suppress dust
4.
5.
6.

TASK Backfill
1. Watch for Heavy equipment
2. Be Aware of open excavation
3. Suppress dust
4.
5.
6.

TASK
1.
2.
3.
4.
5.
6.

III. PROJECT ORGANIZATION

CREW SIZE	NUMBER
PROJECT MANAGER	1
CHEMIST	
TECHNICIAN	1
SITE SAFETY OFFICER	
OTHER operator	

SUBCONTRACTORS (including environmental consultants)

TAO Trucking, PREQUALIFIED ● YES ○ NO

SCOPE OF WORK Transport contaminated soil to Rio Rancho Landfill in Albuquerque NM. or Lake Charles Facility in Louisiana.

TRAINING REQUIRED N/A

CONTRACT

_____, PREQUALIFIED ○ YES ○ NO

SCOPE OF WORK

TRAINING REQUIRED

CONTRACT

_____, PREQUALIFIED ○ YES ○ NO

SCOPE OF WORK

TRAINING REQUIRED

CONTRACT

IV MATERIAL HANDLING EQUIPMENT (PROVIDE DETAILS)

_____	O	DRUM DOLLY	_____
_____	O	PUMPS	_____
_____	O	FORK TRUCK	_____
_____	●	MAN LIFT	small cherry picker
_____	●	HEAVY EQUIP	backhoe, wheel loader, dozer
_____	O	CRANE	_____
_____	O	OTHER	_____
_____	O		_____
_____	O		_____

V REPORTING AND RECORDKEEPING

PERMITS/APPROVALS (USE N/A IF NOT APPLICABLE)

● DISPOSAL SITE APPROVAL APPROVAL DATE _____
NAME OF APPROVER WMNA - Lance Robinson

O	STATE	TYPE _____
O	LOCAL	TYPE _____
O	FEDERAL	TYPE _____
O	OTHER	TYPE _____
O	OTHER	TYPE _____

(CERTAIN STATES REQUIRE REPORTING DURING WORK WITH SPECIFIED HAZARDOUS MATERIALS (EG. ASBESTOS) AND/OR OPERATIONS (EG. EXCAVATIONS)

PROCEDURES

O COPY OF STANDARD OPERATING PROCEDURES INCLUDED (ENCLOSURE 2)
O HAZARD COMMUNICATION PROGRAM DEVELOPED
O MSDS AVAILABLE

VI DISPOSAL AND TRANSPORTATION

ULTIMATE FACILITY ① Lake Charles Facility (Haz.) ② Rio Rancho Landfill (Non-haz) Less than 5 ppm TCLP

INTERMEDIATE FACILITIES _____

TRANSPORTATION COMPANY TAD Trucking

TYPES AND NUMBERS OF VEHICLES USED Approx. 10 end dumps total

* A TCLP Test for Chrome will be performed at a frequency of 20 cy. Treatment Standard for ~~Cadmium~~ Chrome is 5 ppm. Greater than 5 ppm will be transported

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VII ENVIRONMENTAL SAMPLING

SAMPLING REQUIRED ○ YES ● NO

AIR MONITORING
EQUIPMENT USED_____
METHODOLOGY_____
_____
_____
_____
CALIBRATION _____
_____

SOIL MONITORING
EQUIPMENT USED_____
METHODOLOGY_____
_____
_____
_____
CALIBRATION _____
_____

OTHER_____
EQUIPMENT USED_____
METHODOLOGY_____
_____
_____
_____
CALIBRATION _____
_____

OTHER _____
EQUIPMENT USED_____
METHODOLOGY_____
_____
_____
_____
CALIBRATION _____
_____

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VIII TRAINING

CWM CREW RECEIVED INITIAL 40 HOUR TRAINING ● YES O NO
IF NO, WHY? _____

COPY OF CERTIFICATE ON FILE ● YES O NO

ADDITIONAL TRAINING REQUIRED Trenching and Excavation

CREW RECEIVED SPECIAL TRAINING ● YES O NO
IF NO, WHY? _____

LOCATION OF TRAINING FILES Enrac - Fremont & Denver

SUBCONTRACTOR RECEIVED REQUIRED TRAINING ● YES O NO
IF NO, WHY? _____

ADDITIONAL INFORMATION _____

SAFETY BRIEFINGS ARE HELD EACH SHIFT
WHO CONDUCTS MEETINGS? Bob Hulet
WHERE ARE RECORDS STORED? on site

IX MEDICAL REQUIREMENTS

ENTIRE CREW RECEIVED BASELINE PHYSICAL EXAMINATIONS
● YES O NO

IF NO, WHY? _____

SPECIAL TESTS REQUIRED _____

COMPLETE? O YES O NO

IF NO, WHY? _____

LOCATION OF MEDICAL FILES Fremont and Denver

CONTAMINATION CONTROL

- THE JOB SITE IS PARTITIONED INTO 3 DISTINCT WORK ZONES: CLEAN ZONE, CONTAMINATION REDUCTION ZONE AND THE EXCLUSION ZONE.
- WORKERS MAY ONLY ENTER AND EXIT FROM THE EXCLUSION ZONE VIA THE CONTAMINATION REDUCTION ZONE.
- ONLY AUTHORIZED PERSONNEL ARE ALLOWED TO ENTER THE EXCLUSION ZONE OR THE CONTAMINATION REDUCTION ZONE.
- ENCLOSURE 3 INCLUDES A SITE MAP DEFINING THE ZONES

DESCRIBE PERSONNEL DECONTAMINATION PROCEDURES (STEPOFF DIAGRAMS IN ENCLOSURE 4)

DESCRIBE EQUIPMENT DECONTAMINATION PROCEDURES

Dry Decon with shovels and brushes

HOW IS CONTAMINATED EQUIPMENT DISPOSED

In waste stream profiled for disposal

DESCRIBE STORAGE OF REUSABLE PROTECTIVE GEAR

Decon, Air dry, then store in plastic bags.

DESCRIBE LAUNDERING PROCEDURE FOR UNIFORMS

Uniforms will be bagged, then returned to asco facility for normal laundering

LAUNDRY INFORMED? ● YES ○ NO

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LOCKER ROOM FACILITY PROVIDED O YES ● NO

IF NO, HOW WILL CREW CHANGE CLOTHING At Hotel room.

RESPIRATOR CLEANING AND INSPECTING PROCEDURES ARE LISTED IN ENCLOSURE 5

XI CONTINGENCY PLAN

CONTINGENCY PLAN INCLUDED ● YES O NO

IF NO, WHY? _____

_____

_____

(MAY STATE THAT CONTINGENCY PLAN WILL BE WRITTEN PRIOR TO ONSITE OPERATIONS)

INTERNAL EMERGENCY PHONE LIST IS INCLUDED IN ENCLOSURE 7.

XII WORKER PROTECTION
(A SEPARATE DESCRIPTION OF PERSONAL PROTECTIVE EQUIPMENT MUST BE INCLUDED FOR EACH WORK TASK)

1) WORK TASK DESCRIPTION Remove empty tank and building

2) LEVEL ○ A ○ B ○ C ● D

3) RESPIRATORY PROTECTION

- ○ AIR PURIFYING
  - ○ HALF MASK
  - ○ FULL MASK
  - ○ OTHER _____
  - CARTRIDGE TYPE _____
- ○ SUPPLIED AIR
  - ○ SCBA
  - ○ AIRLINE
  - ○ ESCAPE BOTTLE
  - ○ OTHER _____

4) PROTECTIVE CLOTHING

- ● HARD HAT

EYE PROTECTION

- ● SAFETY GLASSES
- ○ CHEMICAL RESISTANT GOGGLE
- ○ FACE SHIELD
- ○ OTHER _____

BODY PROTECTION

- ● TYVEK ○ HOODED
- ○ POLYTYVEK ○ HOODED
- ○ SARANEX ○ HOODED
- ○ SIGEL
- ○ PVC
- ○ NEOPRENE
- ○ RAINGEAR (PVC)
- ○ BUTYL
- ○ OTHER _____

BOOTS

- ● LEATHER- STEEL TOED
- ○ PVC-STEEL TOED
- ○ NEOPRENE-STEEL TOED
- ○ PVC BOOTIES
- ○ TYVEK BOOTIES
- ○ OTHER _____

GLOVES

- ○ LATEX ○ LEATHER
- ○ SURGICAL RUBBER ● COTTON
- ○ VITON ○ OTHER _____
- ○ PVC
- ○ NEOPRENE
- ○ NEOPRENE (MILLED)
- ○ SILVERSHIELD

OTHER _____
_____
_____

HEARING PROTECTION

- ○ EAR MUFFS
- ○ EAR PLUGS
- ○ OTHER _____

1) WORK TASK DESCRIPTION Excavation and trenching in clean soil

2) LEVEL ○ A ○ B ○ C ● D

3) RESPIRATORY PROTECTION

- ○ AIR PURIFYING
  - ○ HALF MASK
  - ○ FULL MASK
  - ○ OTHER _____
  - CARTRIDGE TYPE _____
- ○ SUPPLIED AIR
  - ○ SCBA
  - ○ AIRLINE
  - ○ ESCAPE BOTTLE
  - ○ OTHER _____

4) PROTECTIVE CLOTHING

- ● HARD HAT

EYE PROTECTION

- ● SAFETY GLASSES
- ○ CHEMICAL RESISTANT GOGGLE
- ○ FACE SHIELD
- ○ OTHER_____

BODY PROTECTION

- ● TYVEK ○ HOODED
- ○ POLYTYVEK ○ HOODED
- ○ SARANEX ○ HOODED
- ○ SIGEL
- ○ PVC
- ○ NEOPRENE
- ○ RAINGEAR (PVC)
- ○ BUTYL
- ○ OTHER _____

BOOTS

- ● LEATHER- STEEL TOED
- ○ PVC-STEEL TOED
- ○ NEOPRENE-STEEL TOED
- ○ PVC BOOTIES
- ○ TYVEK BOOTIES
- ○ OTHER _____

GLOVES

- ○ LATEX ○ LEATHER
- ○ SURGICAL RUBBER ● COTTON
- ○ VITON ○ OTHER _____
- ○ PVC
- ○ NEOPRENE
- ○ NEOPRENE (MILLED)
- ○ SILVERSHIELD

OTHER _____

_____

_____

HEARING PROTECTION

- ○ EAR MUFFS
- ● EAR PLUGS
- ○ OTHER _____

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1) WORK TASK DESCRIPTION Excavation and trenching in contaminated soil

2) LEVEL ○ A ○ B ● C ○ D

3) RESPIRATORY PROTECTION

○ AIR PURIFYING
- ● HALF MASK
- ○ FULL MASK
- ○ OTHER _____

CARTRIDGE TYPE Combination

○ SUPPLIED AIR
- ○ SCBA
- ○ AIRLINE
- ○ ESCAPE BOTTLE
- ○ OTHER _____

4) PROTECTIVE CLOTHING
- ● HARD HAT

EYE PROTECTION
- ● SAFETY GLASSES
- ○ CHEMICAL RESISTANT GOGGLE
- ○ FACE SHIELD
- ○ OTHER _____

BODY PROTECTION

● TYVEK	○	HOODED
○ POLYTYVEK	○	HOODED
○ SARANEX	○	HOODED
○ SIGEL		
○ PVC		
○ NEOPRENE		
○ RAINGEAR (PVC)		
○ BUTYL		
○ OTHER _____		

BOOTS
- ● LEATHER- STEEL TOED
- ○ PVC-STEEL TOED
- ○ NEOPRENE-STEEL TOED
- ○ PVC BOOTIES
- ○ TYVEK BOOTIES
- ○ OTHER _____

GLOVES

○ LATEX	○	LEATHER
○ SURGICAL RUBBER	●	COTTON
○ VITON	○	OTHER
○ PVC		_____
○ NEOPRENE		
○ NEOPRENE (MILLED)		
○ SILVERSHIELD		

OTHER _____
_____
_____

HEARING PROTECTION
- ○ EAR MUFFS
- ● EAR PLUGS
- ○ OTHER _____

1) WORK TASK DESCRIPTION Backfill

2) LEVEL ○ A ○ B ○ C ● D

3) RESPIRATORY PROTECTION

- ○ AIR PURIFYING
  - ○ HALF MASK
  - ○ FULL MASK
  - ○ OTHER _____
  - CARTRIDGE TYPE _____
- ○ SUPPLIED AIR
  - ○ SCBA
  - ○ AIRLINE
  - ○ ESCAPE BOTTLE
  - ○ OTHER _____

4) PROTECTIVE CLOTHING

- ● HARD HAT

EYE PROTECTION

- ● SAFETY GLASSES
- ○ CHEMICAL RESISTANT GOGGLE
- ○ FACE SHIELD
- ○ OTHER _____

BODY PROTECTION

- ● TYVEK ○ HOODED
- ○ POLYTYVEK ○ HOODED
- ○ SARANEX ○ HOODED
- ○ SIGEL
- ○ PVC
- ○ NEOPRENE
- ○ RAINGEAR (PVC)
- ○ BUTYL
- ○ OTHER _____

BOOTS

- ● LEATHER- STEEL TOED
- ○ PVC-STEEL TOED
- ○ NEOPRENE-STEEL TOED
- ○ PVC BOOTIES
- ○ TYVEK BOOTIES
- ○ OTHER _____

GLOVES

- ○ LATEX ○ LEATHER
- ○ SURGICAL RUBBER ● COTTON
- ○ VITON ○ OTHER _____
- ○ PVC
- ○ NEOPRENE
- ○ NEOPRENE (MILLED)
- ○ SILVERSHIELD

OTHER _____
_____
_____

HEARING PROTECTION

- ○ EAR MUFFS
- ● EAR PLUGS
- ○ OTHER _____

SAFETY EQUIPMENT

O	SAFETY SHOWERS	O	FUME HOOD
●	EYEWASH	O	GROUNDING RODS
●	BARRIERS	O	LIFELINE/HARNESS
O	WARNING SIGNS	O	EXTRACTION DEVICE
●	BARRIER TAPE	●	AIR HORNS
●	WATER/GATORADE	O	TARPING RACK
O	DECON BARRELS		
O	LIGHTING		
●	FIRE EXTINGUISHERS		
O	OTHER		

COMMUNICATION SYSTEMS

DESCRIBE verbal
visual
air horns

SANITARY FACILITIES

● SOURCE OF POTABLE WATER

DESCRIBE on-site well water and drinking water.

● TOILETS

DESCRIBE on-site facilities

● LIGHTING

DESCRIBE work during daylight hours

XIII PERSONNEL MONITORING PLAN

INITIAL AIR MONITORING REQUIRED O YES ● NO
IF YES, EXPLAIN STRATEGY _____

IF NO, EXPLAIN STRATEGY _____
N/A

DIRECT READING INSTRUMENTATION
O COMBUSTIBLE GAS/OXYGEN METER
O DRAEGER TUBES _____
O PHOTOIONIZATION DETECTOR
O FLAME IONIZATION DETECTOR
O INFRARED DETECTOR
O AEROSOL MONITOR
O OTHER N/A

DESCRIBE STRATEGY (FREQUENCY,LOCATIONS,ETC)

DESCRIBE CALIBRATION PROCEDURES _____

SAMPLE COLLECTION INSTRUMENTATION
O SAMPLING PUMPS AND MEDIA
DESCRIBE SAMPLING METHODS (INCLUDE MEDIA TYPE, ANALYTES, NIOSH METHOD NUMBER IF APPLICABLE)

N/A

DESCRIBE SAMPLING STRATEGY _____

N/A

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ADDITIONAL MONITORING

NOISE MONITORING O YES ..● NO

DESCRIBE MONITORING STRATEGY _____

HEAT STRESS MONITORING O YES O NO

DESCRIBE MONITORING STRATEGY visual and verbal. Gatorade provided. Numerous breaks.

OTHER O YES O NO

DESCRIBE _____

OTHER O YES O NO

DESCRIBE _____

NAMES OF MONITORING TECHNICIAN Bob Hulet

LOCATION OF MONITORING RECORDS _____

XIV. ENCLOSURES

ENCLOSURE 1 SITE SAFETY OFFICER RESPONSIBILITIES

THE SITE SAFETY OFFICER OR DESIGNEE WILL ENTER BEFORE ANY WORK BEGINS AND WILL VERIFY THAT THE ESTABLISHED ZONES ARE IDENTIFIED AND ESCAPE ROUTES ARE CLEAR.

THE DAILY SITE ENTRY PROCEDURE WILL INCLUDE THE FOLLOWING:

- DETERMINE THE WIND DIRECTION AND STAY APPRAISED OF IT THROUGHOUT THE SAY. IDENTIFY THE DIRECTION DURING THE TAILGATE SAFETY MEETING OR INFORMALLY WITH EACH AFFECTED EMPLOYEE.
- CONFIRM THE PROPER PLACEMENT OF EMERGENCY INFORMATION AND OPERATIONAL STATUS OF EQUIPMENT AND THE DECONTAMINATION FACILITY.
- MONITOR THE AIR AS NECESSARY FOR CONDITIONS THAT MAY CAUSE INJURY OR EXPOSURE AND RECORD ALL DATA.
- VISUALLY OBSERVE FOR SIGNS OF ACTUAL OR POTENTIAL LIFE OR HEALTH THREATENING HAZARDS.
- NOTE PHYSICAL CONDITIONS OF THE SITE. DETERMINE POTENTIAL EXPOSURE PATHWAYS.
- USE SURVEY TAPE OR MARKERS TO IDENTIFY NEW BOUNDARIES OF THE ZONES.
- DOCUMENT SITE ACTIVITIES IN A DAILY LOG. RECORD OBSERVATIONS RELATED TO FIELD CONDITIONS AND THE SITE.

ENCLOSURE 2 GENERAL SAFE WORK PRACTICES

- ALL ACCIDENTS AND INCIDENTS MUST BE REPORTED TO YOUR SUPERVISOR IMMEDIATELY.

- ALL DEFECTS/MALFUNCTIONS WHICH APPEAR DURING THE CURSE OF THE WORK SHIFT MUST BE REPORTED TO THE SUPERVISOR.

- NO EATING, DRINKING, SMOKING, CHEWING TOBACCO OR GUM, OR APPLYING COSMETICS IS ALLOWED IN THE EXCLUSION OR CONTAMINATION REDUCTION ZONES.

- EMPLOYEES SHALL INFORM THEIR SUPERVISOR OF ANY PRESCRIPTION MEDICATIONS OR MEDICATIONS AFFECTING THEIR ABILITIES THEY ARE USING WHILE AT WORK.

- EMPLOYEES SHALL NOT SHOW UP FOR WORK UNDER THE INFLUENCE OR IN POSSESSION OF ALCOHOL OR ILLICIT DRUGS.

- ONLY CWM APPROVED PROTECTIVE EQUIPMENT SHALL BE USED BY CWM EMPLOYEES.

- EMPLOYEES SHALL NOT REMOVE OR DISTURB ANY COVERING, GUARDS, OR SAFETY DEVICES PLACED ON VEHICLES, GEARS OR OTHER MOVING EQUIPMENT OR MACHINERY EXCEPT TO PERFORM MAINTENANCE OR REPAIRS. WORK ON THE EQUIPMENT SHALL NOT COMMENCE UNTIL THE EQUIPMENT HAS BEEN DEACTIVATED, SOURCES OF ENERGY REMOVED, AND THE CONTROLS ARE LOCKED AND TAGGED OUT.

- BEFORE STARTING ANY VEHICLE OR MACHINERY, OR TURNING ON ELECTRICITY, GAS, STEAM, OR AIR, EMPLOYEES WILL CHECK THE ENTIRE AREA TO INSURE IT IS SAFE TO PROCEED WITH THE WORK. OUT OF SERVICE OR LOCKED OUT EQUIPMENT IS NOT TO BE STARTED BY ANYONE, UNLESS AUTHORIZED BY SUPERVISION.

- EMPLOYEES SHALL MAINTAIN GOOD HOUSEKEEPING OF THE FACILITIES AND REMOVE OR DISPOSE OF ALL UNNECESSARY MATERIAL.

- SPECIAL OPERATIONS INCLUDING CONFINED SPACE ENTRY, HOT WORK, DECOMMISSIONING OF EQUIPMENT FOR REPAIRS REQUIRE PERMITS TO BE SIGNED BY AUTHORIZED PERSONNEL. A DESCRIPTION OF THE PROCEDURES WILL BE INCLUDED IN THE ENCLOSURE SECTION.

-TRENCHING OR EXCAVATIONS MUST BE SHORED OR SLOPED OR APPROPRIATELY PREPARED AS REQUIRED BY OSSA STANDARDS. A DESCRIPTION OF THE TECHNIQUES TO BE USED IS INCLUDED IN THE ENCLOSURE SECTION IF APPROPRIATE.

ENCLOSURE 3 WORK ZONE MAP See (Page 5)

ENCLOSURE 4 DECONTAMINATION PROCEDURES

① Remove tyvek and gloves before leaving work area. Place in plastic bags.

② Dry decon with brushes and/or shovels.

ENCLOSURE 5 RESPIRATORY EQUIPMENT CLEANING, MAINTENANCE AND STORAGE PROCEDURES

(1) Wash with soap and water.
(2) Water rinse and air dry.
(3) Store in plastic bags.

ENCLOSURE 6 CWM INTERNAL CALL LIST

IN THE EVENT OF INJURY, FIRE, EXPLOSION, SPILL, RELEASE, OR OTHER NON-ROUTINE EVENT, IMMEDIATELY CONTACT ONE OF THE FOLLOWING PEOPLE, STARTING WITH

	NAME	BUSINESS NO.	HOME NO.
1.	Joe Zorn	(415) 770-0575	(415) 538-4628
	Don Shosky	(303) 289-4827	(303) 329-0906
2.	~~August Ochsbauer~~	~~(415) 770-0575~~	~~(415) 651-4073~~
3.	Cheryl Greede	(415) 770-0575	(415) 551-8755
4.	Shari Samuels	(415) 651-2964	(415) 355-7699

SkyPager 1-800-sky-page

Bob Hulet 20447

Don Shosky 20457

ENCLOSURE 7 HAZARDOUS WASTE OPERATIONS CONTINGENCY PLAN

GENERATORS NAME: Southern Union Gas Co.

LOCATION: 5 miles South of Lovington NM on Hwy 18

CONTACT: Russel Buss PHONE # 409-962-8888

PROJECT MANAGER: Bob Hulet

EMERGENCY PHONE NUMBERS:

POLICE 911 INTERPLANT _____

FIRE 911 HOSPITAL 505-392-6581

POISON CONTROL 911

NATIONAL SPILL RESPONSE CENTER _____

FEDERAL/LOCAL AGENCIES OCD 505-827-5812

HOSPITAL INFORMATION:

NAME: Lea County Regional

ADDRESS: _____

ROUTE TO: From Lea Refining Co, South of Hwy 18 10 miles. Regional Hospital is on the right.

CONTACT: _____

ALTERNATE CONTACT: _____

EVACUATION ALARM DESCRIPTION: Verbal or Air Horn

LOCATION OF ALARM BOXES: _____

EVACUATION ROUTE DESCRIPTION: See page 5 (Site Layout)

ASSEMBLY AREA DESCRIPTION: Parking lot.

EVACUATION ROUTE/ EMERGENCY EQUIPMENT STATION MAP : See (page 51).

MEDICAL PROVIDER ROUTE MAP: See Page 5)

EMERGENCY EQUIPMENT:

- ● FIRST AID STATION
- ● FIRE EXTINGUISHERS
- ● EMERGENCY EYEWASH/SHOWER
- O LIFELINE/HARNESS
- O SCBAS
- O AIR MONITORING EQUIPMENT

  SPECIFY _____
  _____
- O GLOVES

  SPECIFY cotton
  _____
- O BODY SUIT

  SPECIFY_____
  _____
- O BOOTS

  SPECIFY_____
  _____
- O OTHER PROTECTIVE EQUIPMENT

  SPECIFY_____
  _____
  _____
  _____
  _____
- O ABSORBENT
- ● SHOVELS
- O SQUEEGEES
- O OVERPACKS
- O NEUTRALIZING MAT'L
- O WALKY TALKIES
- O OTHER SUPPORT EQPT

  SPECIFY_____
  _____
  _____
  _____
  _____

LOCATION OF EMERGENCY EQUIPMENT _____

LIST OF CONTAMINANTS PRESENT AND SYMPTOMS OF EXPOSURE AND POSSIBLE AND POSSIBLE MEDCAIL EVALUATION/TREATMENT:

Chromium dust in soil.

(1) Eyes — irrigate immediately
(2) Skin — flush with water
(3) Swallow — Medical attention immediately

Target organ = skin.

HAS COPY OF CONTINGENCY PLAN BEEN RECEIVED BY HOSPITAL LISTED?
OYES ONO
IS IT DOCUMENTED?
OYES ONO

OTHER AGENCIES THAT HAVE RECEIVED THE CONTINGENCY PLAN:

_____ DOCUMENTED: _____
_____ DOCUMENTED: _____
_____ DOCUMENTED: _____
_____ DOCUMENTED: _____

SPILL/ RELEASE PROCEDURES

In case of spill contain.

EMPLOYEES RECEIVED CONTINGENCY PLAN BRIEFING:

PRINT	SIGNATURE
Bob Hulet	Bob Hulet
John Meier	John Meier
Darrel Hellman	Darrel Hellman

CHEMICAL WASTE MANAGEMENT, INC.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date Mar. 3 1990 Time 7:00 (AM) PM

Project Number 89-04-1598 Project Location Lovington NM

Client Southern Union Gas Client Address 5 mile S. of Lovington on Hwy

Project Activity (Specify): Mobilization, Begin excavation of Chrome cont. waste around cooling tower.

— SAFETY TOPICS —

Chemical Hazards Chrome dust

Physical Hazards Stay clear of heavy equipment; stay clear of excavations; Watch for slip, trip, fall; use proper lifting techniques

Respiratory Protective Equipment Half face w/ OA cartridge and dust filter while handling EP tox. chrome soil

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Level C while handling EP tox - otherwise modified level D.

Specific Instructions Utilize fire hoses to suppress dust

Hospital / Clinic Hobbs Health Care Center Phone (505) 392-6845

Hospital Address 5715 Lovington Hwy Hobbs NM.

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (505) 397-2431

Emergency Procedures Coast Guard for Toxic Spills 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shaun Noy	Shaun Noy

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor Bob Hulet

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date Mar. 8, 1990 Time 7:00 AM/PM

Project Number 89-04-1598 Project Location Lovington NM

Client Southern Union Gas Client Address 5 miles S. of Lovington on Hwy 18

Project Activity (Specify): Continue excavation of chrome cont. waste around cooling tower.

— SAFETY TOPICS —

Chemical Hazards Chrome dust

Physical Hazards Stay clear of heavy equipment; stay clear of excavations; watch for slip, trip, fall; use proper lifting techniques.

Respiratory Protective Equipment Half face w/ OV cartridge and dust filter while handling EP tox chrome soil

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Level C while handling EP tox. otherwise modified Level D

Specific Instructions Utilize fire hoses to suppress dust

Hospital / Clinic Hobbs Health Care Center Phone (505) 392-6695

Hospital Address 5715 Lovington Hwy Hobbs NM

Paramedic (__ __) 911 Fire Dept. (__ __) 911 Police Dept (505) 397-2431

Emergency Procedures Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor Bob Hulet

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date Mar. 9, 1990 Time 6:30 AM/PM

Project Number 89-04-1598 Project Location Lovington NM

Client Southern Union Gas Client Address 5 miles S. of Lovington on Hwy

Project Activity (Specify): Continue excavation of chrome cont. waste around cooling tower; cover waste piles.

— SAFETY TOPICS —

Chemical Hazards Chrome dust

Physical Hazards Stay clear of heavy equipment; stay clear of excavations; watch for slip, trip, fall; use proper lifting techniques.

Respiratory Protective Equipment Half face w/ org cartridge and dust filter while handling EP tox. chrome soil

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Level C while handling EP tox. otherwise modified Level D

Specific Instructions Utilize fire hoses to suppress dust

Hospital / Clinic Lea Regional Hobbs Health Care Center Phone (505) 392-6845

Hospital Address 5715 Lovington Hwy Hobbs NM

Paramedic (__ __) 911 Fire Dept. (__ __) 911 Police Dept (505) 397-2431

Emergency Procedures Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Ray	Shawn Ray

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor Bob Hulet

TAILGATE SAFETY MEETING

Division/Subsidiary ENRAC / CONOCO

Date: 3/12/90 Time: 0800 Project: 90-01-1598

Customer LEA Refinery Address: Lovington, New Mexico, Highway 18

Customer Contact: Russell Buss Phone # 409-962-8888

Specific Job Location: Cooling Tower

Type of Work: Soil Excavation & Sheetpile

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment: Level D Modified - chem resist boots, Tyvek if in soil contact.

Chemicals Used: Chromium, Zinc

Chemical Hazards: Avoid skin contact, dust inhalation if dusty, water area and where dust respiration is necessary

Physical Hazards: Slip, trip & fall, heavy equipment operation. No underground utilities - everything locked out and blocked.

Emergency Procedures: Evacuate to front parking lot. Notify Kathy at front desk. Fire or Ambulance - 911

Special Equipment:

Hosp/Clinic: Lea County Hospital Phone: 392-6581 392-2511 Paramedic Phone:

Hospital Address Highway 18 - South

ATTENDEES

NAME PRINTED	SIGNATURE
Shawn May	Shawn May
John Meier	John Meier

Meeting Conducted By: Larry Youngless
Name Printed Signature

SUPERVISOR: Bob Hunt MANAGER:

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: 90-04-1598 Date 3/13/90 Time 0807 AM/PM

Project Number: SOUTHERN UNION GAS Project Location LOVINGTON HWY.

Client RUSSEL BUSS Client Address SAME

Project Activity (Specify): EXCAVATE UNDER COOLING TOWER CONTAINMENT WALL, BACK 2'.

— SAFETY TOPICS —

Chemical Hazards Chromium

Physical Hazards SLIP, TRIP, FALL, HEAVY EQUIPMENT OPERATION, CAVE OFF, CAVE IN.

Respiratory Protective Equipment LEVEL D MODIFIED. - IF NO DUST, HAVE MASK (Respirators IF DUST AND AIRBORNE PARTICULATES).

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) HEAVY EQUIPMENT OPERATORS - LEVEL D.

Specific Instructions DO NOT STAND OR WORK NEAR EDGE OF DEEP EXCAVATION.

Hospital / Clinic LEA REGIONAL HOSPITAL Phone (505)

Hospital Address LOVINGTON HWY, 9 MILES SOUTH OF SITE

Paramedic (911) _____ Fire Dept. (911) _____ Police Dept (911) _____

Emergency Procedures EVACUATE TO ASSEMBLY AREA, NOTIFY SAFETY IN OFFICE, CALL 911 FOR FIRE OR AMBULANCE.

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	Johnny Meier
Shawn Nay	
Steve Tischer	Steven P. Tischer

Meeting Conducted By LARRY YOUNGBLEIS

Supervisor BOB HAGER

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date Mar. 15, 1990 Time 7:00 AM/PM

Project Number: 89-07-1598 Project Location Lovington NM

Client Russell Buss Client Address 5 miles S of Lovington NM

Project Activity (Specify: Continue Excavation of overflow pond. Segregate into 200 c.y. stockpiles

— SAFETY TOPICS —

Chemical Hazards Skin Contact and Inhalation of ~~VOA~~ VOA's Benzene, Xylene, Napthalene, Nitrobenzene, Toluene.

Physical Hazards Heavy Equipment Operation; open trenches; slip, trip, & fall; Improper lifting techniques.

Respiratory Protective Equipment Half face w/ OA combination and dust filter (Modified Level C)

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Steel Toe Rubber boots, hard hat, safety glasses; hyvet

Specific Instructions Clean before leaving overflow pond

Hospital / Clinic Lea Regional Phone (505) 1-392-6581

Hospital Address 5 miles north of Hobbs ~~on~~ on Hwy 18

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (_ _) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Shawn May	Shawn May
John Meier	John Meier

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor Bob Hulet

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: Southern Union 625 Date Mar. 16, 1990 Time 7:00 AM/PM

Project Number: 89-89-1598 Project Location Lovington NM

Client Russell Buss Client Address 5 miles S of Lovington NM

Project Activity (Specify): Continue Excavation of overflow Pond. Segregate into 200 cy Stockpiles

— SAFETY TOPICS —

Chemical Hazards Skin contact and Inhalation of VOA's Benzene, Xylene, Napthalene, Nitrobenzene, Toluene

Physical Hazards Heavy Equipment operation; open trenches; slip, trip, & fall; Improper lifting techniques.

Respiratory Protective Equipment Half face w/ OV combination and dust filter (Modified Level C)

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Steel Toe Rubber boots, hard hat, safety glasses, tyvek

Specific Instructions Decon before leaving overflow pond

Hospital / Clinic Lea Regional Phone (505) 392-6581 (Long Distance)

Hospital Address 9 miles South of site on Hwy 18

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (_ _) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn May	Shawn May

Meeting Conducted By Bob Hulett Bob Hulett

Supervisor Bob Hulett

DAILY SAFETY BRIEFING REPORT

Projec: So. Union Gas Date 3-19-90 Time 0630 AM/PM

Project Numbe: 89-04-1598 Project Location Lovington NM

Client Russell Buss Client Address 5 Miles So. of Lovington NM

Project Activity (Specify: Continue excavation of overflow pond; segregate into 200 cu/yd stockpiles;

— SAFETY TOPICS —

Chemical Hazards Skin contact and inhalation of VOA's, Benzene, xylene, napthalene, nitrobenzene, toluene

Physical Hazards Heavy equipment operation, open trenches, slip, trip, fall, lifting, uneven ground

Respiratory Protective Equipment 1/2 mask w/OA combination and dust filter (modified level-C)

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Steel toed rubber boots, hard hat, safety glass, tyvek

Specific Instructions Decon before leaving overflow pond

Hospital / Clinic Lea Regional Phone (505) 392-6581 (Long distance)

Hospital Address 9 miles south of site on Hwy 18

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (_ _) 911

Emergency Procedures Evac to office building

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Shawn Nagy	Shawn Nagy
John Meier	John Meier

Meeting Conducted By Bob Huler Bob Huler

Supervisor Bob Huler

DAILY SAFETY BRIEFING REPORT

Project: So. Union Gas Date 3-20-90 Time 0630 AM/PM

Project Number: 89-04-1598 Project Location Lovington NM

Client Russell Buss Client Address 5 Miles So. of Lovington NM

Project Activity (Specify): Continue excavation of overflow pond; segregate into 200 cu/yd stockpiles, load out cooling tower

— SAFETY TOPICS —

Chemical Hazards Skin contact and inhalation of VOA's, Benzene, Xylene, Naphthalene, Nitrobenzene, Toluene

Physical Hazards Heavy equipment operation, open trenches, slip, trip, fall, lifting, uneven ground

Respiratory Protective Equipment 1/2 mask w/OA combination and dust filter (Modified Level-C)

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Steel toed rubber boots, hard hat, safety glass, Tyvek

Specific Instructions Decon before leaving overflow pond

Hospital / Clinic Lea Regional Phone (505) 392-6581 (Long Distance)

Hospital Address 9 miles South of site on Hwy 18

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (_ _) 911

Emergency Procedures Evac. to office building

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Shawn May	Shawn May
John Meier	John Meier

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor Bob Hulet

DAILY SAFETY BRIEFING REPORT

Project: SO. UNION GAS Date 3-21-90 Time 0630 AM/PM

Project Number: 89-04-1598 Project Location LOVINGTON NM

Client RUSSELL BUSS Client Address 5 MILES SO. OF LOVINGTON NM

Project Activity (Specify: CONTINUE EXCAVATION OF OVERFLOW POND; SEGREGATE INTO 200 CU/YD STOCKPILES; LOAD OUT COOLING TOWER

— SAFETY TOPICS —

Chemical Hazards SKIN CONTACT AND INHALATION OF VOA's, BENZENE, XYLENE, NAPTHALENE, NITROBENZENE, TOLUENE

Physical Hazards HEAVY EQUIPMENT OPERATION; OPEN TRENCHES, SLIP, TRIP, FALL, LIFTING, UNEVEN GROUND

Respiratory Protective Equipment 1/2 MASK W/OA COMBINATION AND DUST FILTER (MODIFIED LEVEL-C)

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) STEEL TOED RUBBER BOOTS, HARD HAT, SAFETY GLASS, TYVEK

Specific Instructions DECON BEFORE LEAVING OVERFLOW POND

Hospital / Clinic LEA REGIONAL Phone (505) 392-6581 (LONG DISTANCE)

Hospital Address 9 MILES SOUTH OF SITE ON HWY 18

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (_ _) 911

Emergency Procedures EVAC. TO OFFICE BUILDING

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay
DAVE OSKARSON	David Oskarson

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor Bob Hulet

DAILY SAFETY BRIEFING REPORT

Project: SO. UNION GAS Date 3-22-90 Time 06:30 AM/PM

Project Number: 89-04-1598 Project Location LOVINGTON NM

Client RUSSELL BUSS Client Address 5 MILES SO. OF LOVINGTON NM

Project Activity (Specify): CONTINUE EXCAVATION OF OVERFLOW POND; SEGREGATE INTO 200 CU/YD STOCK PILES; LOAD OUT COOLING TOWER

— SAFETY TOPICS —

Chemical Hazards SKIN CONTACT AND INHALATION OF VOA's, BENZENE, XYLENE, NAPTHALENE, NITROBENZENE, TOLUENE

Physical Hazards HEAVY EQUIPMENT OPERATION, OPEN TRENCHES, SLIP, TRIP, FALL, LIFTING, UNEVEN GROUND

Respiratory Protective Equipment 1/2 MASK W/OA COMBINATION AND DUST FILTER (MODIFIED LEVEL-C)

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) STEEL TOED RUBBER BOOTS, HARD HAT, SAFETY GLASS, TYVEK

Specific Instructions DECON BEFORE LEAVING OVERFLOW POND

Hospital / Clinic LEA REGIONAL Phone (505) 392-6581 (LONG DISTANCE)

Hospital Address 9 MILES SOUTH OF SITE ON HWY 18

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (_ _) 911

Emergency Procedures EVAC TO OFFICE BUILDING

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
DAN OSKARSON	Daniel Oskarson
John Meier	John Meier
Shawn May	Shawn May

Meeting Conducted By _____

Supervisor Bob Hulet

DAILY SAFETY BRIEFING REPORT

Project: SOUTHERN UNION GAS Date 3-23-90 Time 0630 AM/PM

Project Number: 89-04-1599 Project Location 5 MI. West of Lovington

Client RUSSELL BUSS Client Address P.O. BOX 2000, BRADES TX

Project Activity (Specify): LOAD OUT TRUCKS, EXCAVATE SOIL AND STOCK PILE, EQUIPMENT MAINTAINENCE

— SAFETY TOPICS —

Chemical Hazards INHALATION & SKIN CONTACT OF BENZENE, TOLUENE, NAPTHALENE, NITROBENZENE, CHROMIUM

Physical Hazards SLIP TRIP FALL, HEAVY EQUIPMENT OPERATIONS, OPEN PITS, UNEVEN GROUND, LIFTING, SHARP EDGES

Respiratory Protective Equipment 1/2 MASK OV/AG CARTRIDGES W/DUST PREFILTERS (DOWN GRADE IN SPECIFIED AREAS)

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) POLY TYVEK RUBBER STEEL TOED BOOTS, GLOVES (DOWN GRADE IN AREAS)

Specific Instructions BE CAREFUL

Hospital / Clinic LEA COUNTY Phone (__ _) 911

Hospital Address 8MI WEST ON HWY 18

Paramedic (__ _) 911 Fire Dept. (__ _) 911 Police Dept (__ _) 911

Emergency Procedures EVAC. TO OFFICE BUILDING

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shane Nail	Shane Nail

Meeting Conducted By DAN OSKARSON Daniel Oskarson

Supervisor Bob Hulet

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date _____ Time _____ AM/PM

Project Number: 89-04-1598 Project Location Lovington N.M

Client Southern Union Gas Client Address 5 miles S. of Lovington-Hwy 18.

Project Activity (Specify) _____

— SAFETY TOPICS —

Chemical Hazards Zinc chromate dust; H2S @ overflow pond

Physical Hazards Stay clear of heavy Equipment; stay clear of excavations; watch for slip, trip, fall; use proper lifting techniques.

Respiratory Protective Equipment None

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Safety glasses, steel toed safety boots

Specific Instructions utilize fire hose for dust control periodically @ cooling tower

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6845

Hospital Address 5715 Lovington Hwy Hobbs N.M.

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (505) 397-2431

Emergency Procedures Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor Bob Hulet

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date _____ Time _____ AM/PM

Project Number: 89-04-1598 Project Location Lovington NM

Client Southern Union Gas Client Address 5 miles So. of Lovington Hwy 18

Project Activity (Specify): _____

— SAFETY TOPICS —

Chemical Hazards Skin contact, inhalation due to contam. soil

Physical Hazards Stay clear of heavy equipment, stay clear of excavations watch for slip, trip, fall use proper lifting technigues

Respiratory Protective Equipment none

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hats Safety Glasses, steel toed boots

Specific Instructions utilize fire Hoses for dust control

Hospital / Clinic Lea Regional Phone (505) 392-6845

Hospital Address 5715 Lovington Hwy. Hobbs N.M.

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (505) 397-2431

Emergency Procedures Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Way	Shawn Way
Larry Youngless	

Meeting Conducted By _____

Supervisor Bob Hall

ENRAC

DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date: March 27 Time: 6.30 AM/PM

Project Number: 89-04-1598 Project Location: Lovington N.M

Client: Southern Union Gas Client Address: 5 miles S. of Lovington-Hwy 18.

Project Activity (Specify): _____

— SAFETY TOPICS —

Chemical Hazards: inhalation & skin contact of, zinc chromate dust, + VOA's at overflow pond

Physical Hazards: Stay clear of heavy Equipment; stay clear of excavations; watch for slip, trip, fall; use proper lifting techniques.

Respiratory Protective Equipment: none

Safety / Personal Protective Equipment / Clothing (List specifically for each activity): Hard Hat, Safety glasses, steel toed safety boots

Specific Instructions: utilize fire hose for dust control, particularly at cooling tower

Hospital / Clinic: Lea Regional Hospital Phone: (505) 392-6845

Hospital Address: 5715 Lovington Hwy Hobbs N.M.

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept: (505) 397-2431

Emergency Procedures: Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay

Meeting Conducted By: Bob Hulet

Supervisor: Bob Hulet

ENRAC

DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date: March 28, 1994 Time: 630 (AM) PM

Project Number: 89-04-1598 Project Location: Lovington N.M.

Client: Southern Union Gas Client Address: 5 miles S. of Lovington-Hwy 18.

Project Activity (Specify): _____

— SAFETY TOPICS —

Chemical Hazards: Skin and inhalation contact with contam. soil

Physical Hazards: Stay clear of heavy Equipment; stay clear of excavations; watch for slip, trip, fall; use proper lifting techniques

Respiratory Protective Equipment: none

Safety / Personal Protective Equipment / Clothing (List specifically for each activity): Hard Hat, Safety glasses, steel toed safety boots

Specific Instructions: utilize fire hose for dust control

Hospital / Clinic: Lea Regional Hospital Phone: (505) 392-6845

Hospital Address: 5715 Lovington Hwy Hobbs N.M.

Paramedic (__) 911 Fire Dept. (__) 911 Police Dept: (505) 397-2431

Emergency Procedures: Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay

Meeting Conducted By: Bob Hulet

Supervisor: Bob Hulet

ENRAC

DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date: March 29, 1990 Time: 6:30 (AM/PM)

Project Number: 89-04-1598 Project Location: Lovington N.M.

Client: Southern Union Gas Client Address: 5 miles S. of Lovington - Hwy 18.

Project Activity (Specify): _____

— SAFETY TOPICS —

Chemical Hazards: inhalation and skin contact due to contam. soil

Physical Hazards: Stay clear of heavy Equipment; stay clear of excavations; watch for slip, trip, fall; use proper lifting techniques.

Respiratory Protective Equipment: None

Safety / Personal Protective Equipment / Clothing (List specifically for each activity): Hard Hat, Safety glasses, steel toed safety boots

Specific Instructions: utilize fire hose for dust control

Hospital / Clinic: Lea Regional Hospital Phone: (505) 392-6845

Hospital Address: 5715 Lovington Hwy Hobbs N.M.

Paramedic (__ __): 911 Fire Dept. (__ __): 911 Police Dept: (505) 397-9431

Emergency Procedures: Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay

Meeting Conducted By: Bob Hulet

Supervisor: Bob Hulet

ENRAC

DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date Mar. 30, 1994 Time 6.30 AM/PM

Project Number: 89-04-1598 Project Location Lovington N.M

Client Southern Union Gas Client Address 5 miles S. of Lovington-Hwy 18.

Project Activity (Specify) _____

— SAFETY TOPICS —

Chemical Hazards inhalation and skin contact with contam. soil

Physical Hazards Stay clear of heavy Equipment; stay clear of excavations; watch for slip, trip, fall; use proper lifting techniques.

Respiratory Protective Equipment _____

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Safety glasses, steel toed safety boots

Specific Instructions utilize fire hose for dust control

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6845

Hospital Address 5715 Lovington Hwy Hobbs N.M.

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (505) 397-2431

Emergency Procedures Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay

Meeting Conducted By Bob Hulet

Supervisor Bob Hulet

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date _____ Time _____ AM/PM

Project Number: 89-04-1598 Project Location Lovington N.M

Client Southern Union Gas Client Address 5 miles S. of Lovington-Hwy 18.

Project Activity (Specify) _____

— SAFETY TOPICS —

Chemical Hazards Skin contact + inhalation due to contam soil

Physical Hazards Stay clear of heavy Equipment; stay clear of excavations; watch for slip, trip, fall; use proper lifting techniques.

Respiratory Protective Equipment none

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Safety glasses, steel toed safety boots

Specific Instructions utilize fire hose for dust control

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6845

Hospital Address 5715 Lovington Hwy Hobbs N.M.

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (505) 397-2431

Emergency Procedures Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay

Meeting Conducted By Bob Hulet

Supervisor Bob Hulet

DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date _____ Time _____ AM/PM

Project Number: 89-04-1598 Project Location Lovington N.M

Client Southern Union Gas Client Address 5 miles S. of Lovington - Hwy 18.

Project Activity (Specify) _____

— SAFETY TOPICS —

Chemical Hazards Skin contact and inhalation possibilities due to contam. soil

Physical Hazards Stay clear of heavy Equipment; stay clear of excavations; watch for slip, trip, fall; use proper lifting techniques

Respiratory Protective Equipment none

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Safety glasses, steel toed safety boots

Specific Instructions utilize fire hose for dust control

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6845

Hospital Address 5715 Lovington Hwy Hobbs N.M.

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (505) 397-2431

Emergency Procedures Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay

Meeting Conducted By Bob Hulet

Supervisor Bob Hulet

ENRAC

DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date _____ Time _____ AM/PM

Project Number: 89-04-1598 Project Location Lovington N.M

Client Southern Union Gas Client Address 5 miles S. of Lovington-Hwy 18.

Project Activity (Specify) _____

— SAFETY TOPICS —

Chemical Hazards inhalation & skin contact due to contam soil

Physical Hazards Stay clear of heavy Equipment; stay clear of excavations; watch for slip, trip, fall; use proper lifting techniques

Respiratory Protective Equipment None

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Safety glasses, steel toed safety boots

Specific Instructions utilize fire hose for dust control

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6845

Hospital Address 5715 Lovington Hwy Hobbs N.M.

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (505) 397-2431

Emergency Procedures Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay

Meeting Conducted By Bob Hulet

Supervisor Bob Hulet

ENRAC

DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date _____ Time _____ AM/PM

Project Number: 89-04-1598 Project Location Lovington N.M

Client Southern Union Gas Client Address 5 miles S. of Lovington-Hwy 18.

Project Activity (Specify) _____

— SAFETY TOPICS —

Chemical Hazards Skin contact + inhalation due to contam. soil

Physical Hazards Stay clear of heavy Equipment; stay clear of excavations; watch for slip, trip, fall; use proper lifting techniques

Respiratory Protective Equipment _____

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Safety glasses, steel toed safety boots

Specific Instructions utilize fire hose for dust control

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6845

Hospital Address 5715 Lovington Hwy Hobbs N.M.

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (505) 397-2431

Emergency Procedures Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay

Meeting Conducted By Bob Hulet _____

Supervisor Bob Hulet

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date 4/18/90 Time 0615 (AM)/PM

Project Number: 89-04E-1598 Project Location 5 mi south west of Lovington

Client Russel Buss Client Address PO Box 2000

Project Activity (Specify): LOAD TRUCKS WITH STOCKPILED SOILS FROM OVERFLOW POND EXCAVATION

— SAFETY TOPICS —

Chemical Hazards

Physical Hazards stay clear of heavy equipment, stay clear of excavations, watch for slip trip fall. Use proper lifting

Respiratory Protective Equipment Half face w/ OA cartridge and dust filter while handling EP tox. Chrome soil

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Level C while handling EP tox otherwise modified level D

Specific Instructions Utilize fire hoses to suppress dust

Hospital / Clinic Hobbs Helth Care Phone (505-392-6845

Hospital Address 5715 Lovington Hwy

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (505) 397-2431

Emergency Procedures Cost Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Shawn May	Shawn May
John Meier	John Meier

Meeting Conducted By LARRY YOUNGBLOOD

Supervisor Bob Hulen

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date 4/19/90 Time 0615 (AM) PM

Project Number: 89-04-1598 Project Location Lovington NM.

Client Southern Union Gas Client Address 5 miles so. of Lovington Hwy 18

Project Activity (Specify: LOAD END DUMPS WITH SPECIFIED SOILS FROM OVERFLOW POND EXCAVATIONS

— SAFETY TOPICS —

Chemical Hazards

Physical Hazards Stay clear of heavy equipment, stay clear of excavations, watch for slip, trip, fall, use proper lifting techniques

Respiratory Protective Equipment

Safety / Personal Protective Equipment / Clothing (List specifically for each activity)

Specific Instructions utilize fire Hoses to suppress dust

Hospital / Clinic Lea regional Phone (505) 392 6845

Hospital Address 5715 Lovington Hwy Hobbs NM

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (505) 397-2431

Emergency Procedures Coast Guard 800-424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	Johnny Meier
Shawn May	Shawn May

Meeting Conducted By Larry Youngess

Supervisor Bob Fuller

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date 4/20/90 Time 0615 (AM)/PM

Project Number: 89-04-1598 Project Location Lovington, NM.

Client Southern Union Gas Client Address 5 miles S. of Lovington

Project Activity (Specify: Load 4 trucks with EP tox contaminated soil to transport to Lake Charles, Load 7 trucks with

— SAFETY TOPICS —

Chemical Hazards Zinc Chromate - Carcinogen - Avoid skin contact, inhalation & ingestion, Level-C PPE.

Physical Hazards Stay clear of equipment stay clear of excavation watch for slip, trip, fall use proper lifting

Respiratory Protective Equipment Half face w/OA cartridge and dust filters while handling EP tox Chrome soil

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Level-C PPE for EP tox load out, Level D for overflow pond

Specific Instructions Line trucks with plastic.

Hospital / Clinic Hobbs Health Care Center Phone (505 392-6845

Hospital Address 5715 Lovington Hwy Hobbs NM

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept (505) 397-2431

Emergency Procedures Coast Guard 800 424-8802

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay

Meeting Conducted By Carey Youngless

Supervisor Bob Hulet

TAILGATE SAFETY MEETING

Division/Subsidiary ENRAC / DONLAR

Date: 4/21/90 Time: 0715 Project: 89-04-1598

Customer SOUTHERN UNION GAS Address: 5 MILES SOUTH OF LOVINGTON

Customer Contact: RUSSELL BUSS Phone # (505) 396-5821

Specific Job Location: OVERFLOW POND EXCAVATION.

Type of Work: BACKFILL OVERFLOW AND EXCAVATION

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment: LEVEL D - MODIFIED - HARD HATS SAFETY GLASSES.

Chemicals Used: N/A

Chemical Hazards: N/A

Physical Hazards: SLIP, TRIP, FALL, HEAVY EQUIPMENT OPERATION, LIFTING, DRAGGING FIRE HOSE.

Emergency Procedures: CALL 911 FOR FIRE, AMBULANCE

Special Equipment: N/A

Hosp/Clinic: Hobbs Memorial Center Phone: 392-6845 Paramedic Phone: 911

Hospital Address 5715 LOVINGTON HWY.

ATTENDEES

NAME PRINTED	SIGNATURE
John Meier	John Meier
Shawn May	Shawn May

Meeting Conducted By: CARRY YARBROUGH (Name Printed) (Signature)

SUPERVISOR: Bob Hulett MANAGER:

ENRAC
DAILY SAFETY BRIEFING REPORT

Project: Southern Union Gas Date: 4/23/90 Time: 0630 (AM) PM

Project Number: 89-05-1598 Project Location: Lovington, N.M.

Client: Southern Union Gas Client Address: 5 miles E. of Lovington Hwy 18

Project Activity (Specify): LOAD 11 END DUMPS WITH CONTAMINATED SOILS (WM# 02758) FROM OVERFLOW POND. BACKFILL OVERFLOW EXCAVATION. LOAD END DUMPS WITH BACKFILL MATERIAL FROM CAICHE PIT.

— SAFETY TOPICS —

Chemical Hazards: Petroleum hydrocarbons - Avoid skin contact

Physical Hazards: stay clear of equipment Stay clear of excavation, watch for slip trip fall Use proper lifting

Respiratory Protective Equipment: Half face w/OA cartridge and dust filters while handling EP tox chromic soil

Safety / Personal Protective Equipment / Clothing (List specifically for each activity): Level C while handling Ep tox. Otherwise modified level D

Specific Instructions: Utilize fire hoses to suppress dust

Hospital / Clinic: Hobbs Healthcare Phone: (505) 392-6845

Hospital Address: 5715 Lovington Hwy Hobbs NM

Paramedic (_ _) 911 Fire Dept. (_ _) 911 Police Dept 505 397 2431

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Shawn Nay	Shawn Nay

Meeting Conducted By: Larry Yarbrough

Supervisor: Bob Hulett

TAILGATE SAFETY MEETING

Division/Subsidiary ENRAC/DENVER

Date: 4/24/90 Time: 0630 Project: 89-04-1598

Customer SOUTHERN UNION GAS Address: 5 MILES SOUTH OF LOVINGTON

Customer Contact: RUSSEL BUSS Phone # (505) 396-5821

Specific Job Location: ARROW POND & CALICHE PIT.

Type of Work: LOAD END DUMPS WITH NON-REGULATED CONTAM. SOIL.

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment: LEVEL-D MODIFIED, HARD HAT & SAFETY GLASSES.

Chemicals Used: LOW LEVEL HYDROCARBONS/PETROLEUM

Chemical Hazards: SKIN CONTACT + INHALATION.

Physical Hazards: SLIP, TRIP, FALL, HEAVY EQUIPMENT OPERATION, HEAVY TRUCK TRAFFIC.

Emergency Procedures: CALL 911 FOR FIRE/AMBULANCE.

Special Equipment:

Hosp/Clinic: LOVINGS HEALTH CARE Phone: 392-3845 Paramedic Phone: 911

Hospital Address 5715 LOVINGTON HWY.

ATTENDEES

NAME PRINTED	SIGNATURE
John Meier	John Meier
Shawn May	

Meeting Conducted By: LARRY YOUNGBLESS
Name Printed Signature

SUPERVISOR: Bob Hulick MANAGER:

TAILGATE SAFETY MEETING

Division/Subsidiary ENRAC / DENVER

Date: 4/24/90 Time: 0630 Project: 89-04-1598

Customer SOUTHERN UNION GAS Address: FIVE MILES SOUTH OF LOVINGTON

Customer Contact: RUSSELL KUSS Phone # (505) 396-5821

Specific Job Location: OVERFLOW AND EXCAVATION SITE & CUTTINGS PIT

Type of Work: LOAD END DUMPS WITH CONTAMINATED SOILS.

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment: LEVEL-D MODIFIED - HARD HATS, SAFETY GLASSES, STEEL TOE BOOTS

Chemicals Used: PETROLEUM HYDROCARBONS.

Chemical Hazards: SKIN CONTACT, INHALATION

Physical Hazards: SLIP, TRIP, FALL, HEAVY EQUIP. OPERATION,

Emergency Procedures: CALL 911 FOR AMBULANCE / FIRE NOTIFY SITE SAFETY OFFICER -

Special Equipment: DOZER, LOADER

Hosp/Clinic: HOBBS EMERGENCY Phone: 392-3845 Paramedic Phone: 911

Hospital Address 5715 LOVINGTON HWY.

ATTENDEES

NAME PRINTED	SIGNATURE
John Meier	John Meier

Meeting Conducted By: LARRY YOUNGBLOOD
Name Printed / Signature

SUPERVISOR: Bob Hulett MANAGER:

ENRAC
DAILY SAFETY BRIEFING REPORT

Project Southern Union Gas Date Mon 6-25-90 Time 8:45 (AM)/PM

Project Number 89-04-1598 Project Location Lovington NM

Client Russel Buss Client Address 5 miles S. of Lovington on Hwy 18

Project Activity (Specify) Mobilization. Remove concrete and tank.

— SAFETY TOPICS —

Chemical Hazards Dust contaminated with non-hazardous chrome.

Physical Hazards Heavy equipment, open excavation, trip hazards, extreme heat

Respiratory Protective Equipment Half mask respirator with combination cartridges during excavation of contaminated soil

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard hat, safety glasses, steel toe boots, & tyvek coveralls.

Specific Instructions Suppress dust, take frequent breaks, drink plenty of liquids

Hospital / Clinic Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles south of the site on Hwy 18.

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures After verbal or visual — move to briefing area in main parking lot

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Manuel Hoyos	

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor _____

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project Southern Union G&S Date Tue. 6-26-90 Time 8:00 AM/PM

Project Number 89-09-1598 Project Location Lovington NM

Client Russel Buss Client Address 5 miles S of Lovington on Hwy 18

Project Activity (Specify) Excavation. Remove concrete and tank.

— SAFETY TOPICS —

Chemical Hazards Dust contaminated with non-haz. chrome

Physical Hazards Heavy equipment, open excavation, trip hazards, heat exhaustion.

Respiratory Protective Equipment Half mask with combination cartridge during excavation of contaminated soil.

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard hat, safety glasses, steel toe boots, & tyvek coveralls.

Specific Instructions Suppress dust, take frequent breaks, drink plenty of liquids.

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles south of site on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
MANUEL HOYOS	

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project Southern Union Gas Date 6-27-90 Time 7:30 (AM)/PM

Project Number 89-04-1598 Project Location Lovington NM

Client Russel Buss Client Address 5 mi S. of Lovington on Hwy 18

Project Activity (Specify) Excavation. Remove tank with cherry picker.

— SAFETY TOPICS —

Chemical Hazards Dust contaminated with chrome.

Physical Hazards Heavy equipment, open excavation, trip hazards, heat exhaustion

Respiratory Protective Equipment Half mask with combination during excavation of EP Tox soil.

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard hat, Safety glasses, steel toe boots, & tyvek coveralls.

Specific Instructions Suppress dust, take frequent breaks, drink plenty of liquids.

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles S of site on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Manuel Hoyos	

Meeting Conducted By

Supervisor

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ENRAC
DAILY SAFETY BRIEFING REPORT

Project Southern Union Gas Date 6-28-90 Time 7:30 (AM)/PM

Project Number 90-09-1598 Project Location Lovington NM

Client Russel Russel Client Address

Project Activity (Specify) Excavation, Haul caliche fill from pit to stockpile adjacent to cooling tower

— SAFETY TOPICS —

Chemical Hazards None

Physical Hazards Heavy equipment, open excavation, heat exhaustion

Respiratory Protective Equipment None

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard hat, safety glasses, steel toe boots, & tyvek coveralls.

Specific Instructions Suppress dust, take frequent breaks, drink plenty of liquids.

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles S. of site on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
MANUEL Hoyos	

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project Southern Union Gas Date 8-28-90 Time 12:30 AM (PM)

Project Number 90-09-1598 Project Location Lovington NM

Client Russel Buss Client Address 15 miles N. of Hobbs on Hwy 18

Project Activity (Specify) Mobilize personnel & equipment to site.
Begin to slope back open excavation to OSHA standards

— SAFETY TOPICS —

Chemical Hazards None.

Physical Hazards Heavy Equipment, open excavation, heat stress.

Respiratory Protective Equipment None

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, safety glasses, steel toe boots, cotton gloves.

Specific Instructions Suppress dust, take frequent breaks, drink plenty of liquids. Review OSHA Trenching and Shoring requir

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles south of site on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
MANUEL Hoyos	

Meeting Conducted By Bob Huler Bob Huler

Supervisor

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project Southern Union Gas Date 8-29-90 Time 0900 (AM) PM

Project Number 90-04-1598 Project Location Lovington NM

Client Russel Buss Client Address 15 miles N. of Hobbs of Hwy 18

Project Activity (Specify) Continue excavation at open excavation/Cooling Tower. (Slope back OSHA Standards.

— SAFETY TOPICS —

Chemical Hazards None

Physical Hazards Heavy equipment, open excavation, heat stress.

Respiratory Protective Equipment None

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Safety glasses, steel toe boots, cotton gloves.

Specific Instructions Suppress dust, take frequent breaks, drink plenty of liquids.

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles south of site on Hwy 18.

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
Manuel Hoyos	

Meeting Conducted By John Meier John Meier

Supervisor Bob Hulet

DO NOT LEAVE ANY BLANK SPACES, PUT N/A IF NOT APPLICABLE

ENRAC
DAILY SAFETY BRIEFING REPORT

Project Southern Union Gas Date 8-30-90 Time 7:50 (AM)/PM

Project Number 90-04-1598 Project Location Lovington N.M.

Client Russel Buss Client Address 15 miles N. of Hobbs of Hwy 18

Project Activity (Specify) Continue excavation at cooling tower to put excavation in compliance with OSHA standards

— SAFETY TOPICS —

Chemical Hazards None

Physical Hazards ~~None~~ Heavy Equipment operations, open excavation, slip, trip, fall, Heat stress

Respiratory Protective Equipment None

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Safety glasses, steel toe Boots, cotton glovrs

Specific Instructions suppress dust, take frequent breaks, drink plenty of liquids.

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles south of site on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
MANUEL Hoyos	

Meeting Conducted By John Meier John Meier

Supervisor Bob Hulet

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project Southern Union Gas Date Aug. 31, 1990 Time 8:30 (AM)/PM

Project Number 90-09-1598 Project Location Lovington NM

Client Russel Buss Client Address 5 miles S. of Lovington on Hwy 18

Project Activity (Specify) Continue Excavation @ Cooling Tower To OSHA Standards

— SAFETY TOPICS —

Chemical Hazards None

Physical Hazards open Excavation, Heavy equipment operation

Respiratory Protective Equipment None

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Level D. Hard Hats, Safety Glasses, Steel toe boots, cotton gloves.

Specific Instructions Suppress dust, take frequent breaks, drink plenty of liquids.

Hospital / Clinic Lea Regional Hospital Phone (____) 392-6581

Hospital Address 10 miles S of sit on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier
MANUEL Hoyos	

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor Bob Hulet

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project Southeen Union Gas Date Sept. 4, 1990 Time 8:30 (AM)/PM

Project Number 90-04-1598 Project Location Lovington NM

Client Russel Buss Client Address 5 miles south of Lovington on Hwy 18.

Project Activity (Specify) Assemble shoring designed by Mike Cartwright.

— SAFETY TOPICS —

Chemical Hazards None

Physical Hazards Open Excavation, Heavy Equipment Operation. Review OSHA Standards for Trenching and Excavation (29CFR 1926.651 & 652.)

Respiratory Protective Equipment None

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Level D. Hard Hat, Safety glasses, steel toe boots, cotton gloves.

Specific Instructions Suppress dust, take frequent breaks, drink plenty of liquids.

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles south of the site on Hwy 18.

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)	
John Meier	John Meier	Ferguson Construction
1. Ruben Montoya	Ruben Montoya	
2. Chavarria Rascon	Jose	
3. Joe Acosta JR.	Joe A. Acosta Jr.	
4. Moving Crews	Moving Crews	
5. Joe C Acosta SR.		

Ferguson

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor Bob Hulet

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project Southern Union Gas Date Sept. 5, 1990 Time 7:30 (AM)/PM

Project Number 90-09-1598 Project Location Lovington NM

Client Russel Buss Client Address 5 miles S of Lovington on Hwy 18.

Project Activity (Specify) Subgrade prep. and shoring construction @ Cooling Tower

— SAFETY TOPICS —

Chemical Hazards None

Physical Hazards Heavy Equipment Operation, Open Excavation, Slip, Trip, Fall Hazards, heat stress.

Respiratory Protective Equipment None required.

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Safety glasses, steel toe boots, cotton gloves.

Specific Instructions observe OSHA Trenching Standards, take frequent breaks, drink plenty of liquids

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles S. of the site on Hwy 18.

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier

Meeting Conducted By Bob Hulet Bob Hulet

Supervisor Bob Hulet

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date Sept 5, 1990 Time 7 30 (AM) PM

Project Number 90-04-1598 Project Location 5 miles so. of Lovington

Client Russell Buss Client Address 5 miles so. of Lovington on Hiway 18

Project Activity (Specify) Subgrade prep. and shoring construction at Cooling Tower

— SAFETY TOPICS —

Chemical Hazards NONE

Physical Hazards Heavy Equipment Operation, Open excavation Slip, Trip, Fall, Heat Stress

Respiratory Protective Equipment NONE Required

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, steel toed Boots, safety glasses, cotton Gloves

Specific Instructions Observe OSHA Regulations, take frequent breaks, drink plenty of Liquids

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles so. of the site on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier

Meeting Conducted By John Meier John Meier

Supervisor Bob Huler

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date Sept. 7, 1990 Time 7 30 AM PM

Project Number 90-04-1598 Project Location Lovington N.M.

Client Russel Buss Client Address 5 mile so. of Lovington N.M. on Hwy 18

Project Activity (Specify) Install shoring, subgrade prep, excavate the trench to OSHA Standards

— SAFETY TOPICS —

Chemical Hazards NONE

Physical Hazards Slip, trip, fall, Heavy equipment operations open excavation, Heat stress

Respiratory Protective Equipment NONE

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat Safety glasses, steel toed Boots, cotton Gloves

Specific Instructions take frequent Breaks, drink plenty of liquids observe OSHA Regs.

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles so. of site on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	John Meier

Meeting Conducted By John Meier John Meier

Supervisor Bob Hulet

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date Sept 8, 1990 Time 9.30 (AM)/PM

Project Number 90-04-1598 Project Location Lovington N.M

Client Russel Buss Client Address 5 miles so of Lovington, Hwy 18

Project Activity (Specify) Subgrade prep excavate the trench to OSHA Standards

— SAFETY TOPICS —

Chemical Hazards NONE

Physical Hazards Slip, trip, Fall, Heavy Equipment operations open excavation, Heat stress

Respiratory Protective Equipment NONE

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat safety glasses, steel toed Boots, cotton gloves

Specific Instructions take frequent Breaks, drink plenty of liquidss observe OSHA Regulations

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles so. of site on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
John Meier	Johnny Meier
Bob Hulet	Bob Hulet

Meeting Conducted By Johnny Meier Johnny Meier

Supervisor

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date Sept 10, 1990 Time 8 00 (AM) PM

Project Number 90-04-1598 Project Location Lovington N.M.

Client Russel Buss Client Address 5 mile so. of Lovington on Hwy 18

Project Activity (Specify) excavate contaminated soil with vac Hoe.

— SAFETY TOPICS —

Chemical Hazards Chrome Dust

Physical Hazards slip, trip, fall, Heavy equipment operations, open trench, skin absorbtion, Inhalation, Heat Stress

Respiratory Protective Equipment Half mask, Combo cartridge

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Level C with Half mask Respirator when excavating, or Handling contaminated soil, Hard Hat, Safety Glasses, steel toed Boots, cotton gloves, white tyvek.

Specific Instructions Level C when excavating and Handling contaminated soil, take Frequent Breaks, drink plenty of liquids, observe OSHA standards.

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles so. of

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Johnny Meier	Johnny Meier
MIKE CARTWRIGHT	Mike Cartwright
Steven P. Tischer	Steven P. Tischer
Darrin J. Unger	Darrin J. Unger
TIMOTHY S REILY	Timothy S Reily
BEN DISHER	Ben Disher

Meeting Conducted By Johnny Meier Johnny Meier

Supervisor Bob Baker

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date Sept 11, 1990 Time 745 (AM)/PM

Project Number 90-04-1598 Project Location Lovington N.M.

Client Russel Buss Client Address 5 miles so. of Lovington on Hwy 18

Project Activity (Specify) excavate contaminated soil under the cooling tower with Vac-Hoe and stockpile in 20 yd. piles

— SAFETY TOPICS —

Chemical Hazards Chrome Dust

Physical Hazards Slip, trip, fall, Heavy equipment operations, open trench, Skin absorbition Inhalation, possible cave ins

Respiratory Protective Equipment Half mask with combination cartridge

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Respirator, Hard Hat Safety glasses, steel toed Boots, white tyvek, cotton gloves

Specific Instructions Level C when excavating or around the truck. Observe OSHA Standards. Keep an eye on the shoring for possible shifting

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles so of Lovington on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Johnny Meier	Johnny Meier
Steven P. Tischer	Steven P Tischer
Darrin J. Ilnger	Darrin J Ilnger miller pipeline
Tim Reily	

Meeting Conducted By Johnny Meier Johnny Meier

Supervisor Bob Hulett

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date Sept 12, 1990 Time 7 30 (AM/PM)

Project Number 90-04-1598 Project Location Lovington N.M.

Client Russel Buss Client Address 5 miles so. of Lovington Hwy 18

Project Activity (Specify) excavate contaminated soil with Vac-Hoe from under the cooling tower and pile in 20 yd. piles

— SAFETY TOPICS —

Chemical Hazards Chrome Dust

Physical Hazards slip, trip, fall. Equipment operations, open trench, skin absorbtion, Inhalation, Possible cave ins, Heat stress

Respiratory Protective Equipment Half mask with combo. cartridge

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, steel toed boots, safety glasses, white tyvek, cotton gloves

Specific Instructions Keep close observation on storing, comply with OSHA standards, Level C Protection when excavating. Take frequent breaks Drink plenty of liquids

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles so. of site on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)	
Tim Reed	Tim Reed	Miller Pipeline
Darrin J. Unger	Darrin J. Unger	
Steven P. Tischer	Steven P. Tischer	

Meeting Conducted By Johnny Meier Johnny Meier

Supervisor Bob Hulet

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date Sept 13 Time 730 (AM)/PM

Project Number 90-04-1598 Project Location ~~Se~~ Lovington N.M

Client Russel Buss Client Address 5miles so. of lovington on Hwy 18

Project Activity (Specify) excavate contaminated soil from cooling Tower

— SAFETY TOPICS —

Chemical Hazards Chrome Dust

Physical Hazards Slip, Trip, Fall, open trench, Skin absorbotion, Inhalation

Respiratory Protective Equipment Half mask with combo. cartridge

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Safety glasses, steel Toed Boots, cotton gloves, white Tyvek

Specific Instructions Level C while excavating, observe OSHA Standards. Keep eye on Shoring, take frequent breaks, drink plenty of liquids

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles so. of site on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Timothy S Reilly	Timothy S Reilly
Darrin J. Unger	Darrin J. Unger
Steven P. Tischer	Steven P. Tischer

Meeting Conducted By Johnny Meier Johnny Meier

Supervisor Johnny Meier

PPE BUT MAY BE NOT APPLICABLE

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date Sept 14, 1990 Time 7:40 (AM)/PM

Project Number 90-04-1598 Project Location 5miles of Lovington Hwy 18

Client Russel Buss Client Address 5miles so. of Lovington Hwy 18

Project Activity (Specify) excavate contaminated soil from under cooling tower

— SAFETY TOPICS —

Chemical Hazards Chrome Dust

Physical Hazards slip, trip, fall, open trench, Heavy machinery operations

Skin absorbtion, Inhalation, Heat stress, Injection

Respiratory Protective Equipment Half mask combo. cartridge

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, safety glasses, steel Toed Boots, cotton Gloves, white Tyvek

Specific Instructions Level C while excavating, observe OSHA standards, (Keep eye on) shoring, take frequent breaks, drink plenty of liquids /Respir. Bags

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles so. of site on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Johnny Meier	Johnny Meier
Darrel Hellman	Darrel Hellman
TIMOTHY S BOLT	Timothy S Bolt
Darrin J. Unger	Darrin J. Unger
Steven P. Tischer	Steven P. Tischer

Meeting Conducted By Darrel Hellman S.S.O.

Supervisor Johnny Meier

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date Sept. 15- 1990 Time _____ AM/PM

Project Number 90-04- 1598 Project Location 5 miles So. of Lovington NM on Hwy 18

Client Russel Byss Client Address Same

Project Activity (Specify) Excavate contaminated soils from Under the Cooling tower

— SAFETY TOPICS —

Chemical Hazards Chrome Dust

Physical Hazards Slip, trip, Fall, open trench Heavy equipment operations, Down grades, uneven surfaces, inhalation, Heat stress, Insection absoibsion

Respiratory Protective Equipment Half Face Resp. comb cart.

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Safety glasses, Steel toe Boots, gloves, Tyvek, Safety Lines Belts Harnesse.

Specific Instructions Level C while excavating, always observe OSHA Standards and Regulation - Keep an eye on the Shoring [Brok

Hospital / Clinic Lea Hospital Phone (505) 392 6581

Hospital Address 10miles So. of So. Union gas Jobsite on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures _____

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
TIM REECE	Tim Reece
Daniel Hellman	Daniel Hellman
John Meier	John Meier
Darrin J. Hager	Darrin J. Hager
Steven P. Tischer	Steven P. Tischer

Meeting Conducted By Daniel Hellman

Supervisor John Meier

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date Sept. 19-90 Time 730 (AM)/PM

Project Number 90-04-1598 Project Location So. Union

Client Russel Buss Client Address Same

Project Activity (Specify) Excavate contaminated soils From under the Cooling tower, place contaminated soil on visqueen

— SAFETY TOPICS —

Chemical Hazards Chrome Dust

Physical Hazards Slip, Trip, Fall open Trench Heavy Equip - Down grade, uneven surfaces, mud, inhalation, injection, absorbsion

Respiratory Protective Equipment Half Face with Comb. Cart.

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Steel toe Boots gloves, Tyvek, safety lines, Belts Harnesses

Specific Instructions Level C while excavating observe OSHA standards and Regs. Keep close watch on shoring

Hospital / Clinic Lea Hospital Phone (505) 392-6581

Hospital Address 10 miles So. of So. Union Gas on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures evacuate out of Hole (By tower) to clean zone By car and water station

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Darrel Hellman	Darrel Hellman
Timothy S Reed	Timothy S Reed
Darrin J Unger	Darrin J. Unger
John Meier	John Meier
Steven P. Tischer	Steven P. Tischer

Meeting Conducted By Darrel Hellman

Supervisor John Meier

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date 9-18-90 Time 7:30 (AM)/PM

Project Number 90-04-1598 Project Location 5 miles So. of Lovington NM

Client S Ruste Buss Client Address Same

Project Activity (Specify) Excavate contaminated soils from under the cooling tower place contaminated soil on visqueen

— SAFETY TOPICS —

Chemical Hazards Chrome Dust

Physical Hazards Slip, Trip, Fall open Trench, Heavy Equip. Operations Uneven Surfaces inhalation, ingestion absorbsion

Respiratory Protective Equipment Half Face Resp. with Comb. cart.

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Steel toe Boots, gloves tyvek, SAFety Lines, Safety Belts, Harnesses

Specific Instructions Level C while excavating, observe OSHa Standards and Regs. Keep close watchon the Shoring.

Hospital / Clinic Lea Hospital Phone (505) 392-6581

Hospital Address 10miles So. of S. Union Gas on Hwy 18

Paramedic (___) 911 Fire Dept. (___) 911 Police Dept (___) 911

Emergency Procedures

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
TIMOTHY S REILI	Timothy S Reili
Darrel Hellman	Darrel Hellman
Darrin J Unger	Darrin J Unger
John Meier	John Meier
Steven P. Tischer	Steven P. Tischer

Meeting Conducted By Darrel Hellman

Supervisor John Meier

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date 9-14-90 Time 7:30 (AM)/PM

Project Number 90-04-1598 Project Location 5 miles So. of Lovington NM on Hwy 18

Client Russel Buss Client Address Same

Project Activity (Specify) Excavate contaminated soil from under cooling tower place contaminated soil on visqueen

— SAFETY TOPICS —

Chemical Hazards Chrome Dust

Physical Hazards Slip, Trip, Fall, open trench, Heavy Equip. operations uneven surfaces, inhalation, injection, absobsion

Respiratory Protective Equipment Half Face Resip. with comb. Cart.

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hats, Safety glasses steeltoe Boots, gloves, tyvek Safety Belts, Safety Lines

Specific Instructions Level C while excavating observe OSHA Standards and Regs. "Keep close watch on the shoring"

Hospital / Clinic Lea Hospital Phone (505) 392-6581

Hospital Address 10 miles So. of So. Union Gas on Hwy 18

Paramedic (___) 911 Fire Dept. (___) 911 Police Dept (___) 911

Emergency Procedures Evacuate to Support Zone

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Darrel Hellman	Darrel Hellman
Vincent J Rees	
Steven P. Tischer	Steven P. Tischer
John Meier	John Meier
Darrin T. Unger	Darrin T. Unger

Meeting Conducted By Darrel Hellman

Supervisor John Meier

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date 10-3-90 Time 2:25 AM/PM

Project Number 90-04-1598 Project Location 5 miles So. of Lovington NM on Hwy 18

Client Russel Buss Client Address Same

Project Activity (Specify) Excavate contaminated soil from under cooling tower place contaminated soil on visqueen

— SAFETY TOPICS —

Chemical Hazards Chrome Dust

Physical Hazards Slip, Trip, Fall open trench Heavy Equip. operations uneven surfaces, inhalation, injection absobsion

Respiratory Protective Equipment Half Face Resip. with comb. Cart.

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hats, Safety glasses Steeltoe Boots, gloves, tyvek Safety Belts, Safety Lines

Specific Instructions Level C while excavating observe OSHA Standards and Regs. "Keep Close watch on the Shoring"

Hospital / Clinic Lea Hospital Phone (505) 392-6581

Hospital Address 10 miles So. of So. Union Gas on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures Evacuate to Support Zone

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Darrel Hellman	Darrel Hellman
Johnny Meier	Johnny Meier

Meeting Conducted By Darrel Hellman

Supervisor Darrel Hellman

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So Union Gas Date 10-4-90 Time 7:30 AM/PM

Project Number 90-04-90 Project Location 5miles So. of Lovington on Hwy 18

Client Russel Buss Client Address Same

Project Activity (Specify) Excavate Contaminated Soil from under cooling tower

— SAFETY TOPICS —

Chemical Hazards Chrome Dust

Physical Hazards Slip, Trip, Fall. Open Trench. Heavy Equip operations Uneven Surfaces. inhalation, injection, absorbsion, noise

Respiratory Protective Equipment Half Face Resip. with Comb Cart.

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat + Safety glasses steeltoe Boots gloves Tyvek Ear plugs

Specific Instructions Level C while excavating observe OSHA Standards and Regs Keep close watch on the Shoring

Hospital / Clinic Lea Hospital Phone (505) 392-6581

Hospital Address 10miles So. of So. Union Gas on Hwy 18

Paramedic (___) 911 Fire Dept. (___) 911 Police Dept (___) 911

Emergency Procedures Evacuate to Support Zone

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Darrel Hellman	Darrel Hellman
Steven P. Tischer	Steven P. Tischer
John Meier	John Meier

Meeting Conducted By Darrel Hellman

Supervisor Darrel Hellman

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date Oct 5 Time 7 30 (AM)/PM

Project Number 90-04-1598 Project Location Lea Refinery

Client Russel Buss Client Address 5miles so of Lovington Hwy 18

Project Activity (Specify) fill in Hole under tower with Concrete

— SAFETY TOPICS —

Chemical Hazards NONE - ?

Physical Hazards slip, trip, Fall, open excavation, trucks & Heavy equipment operations (Heat stress)

Respiratory Protective Equipment NONE

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat safety glasses, steel toed Boots, leather gloves

Specific Instructions take frequent breaks, drink plenty of liquids

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 16 miles so. of site on Hwy 18

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures evacuate to support zone

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Johnny Meier	Johnny Meier
Darrel Hellman	Darrel Hellman
Joe Acosta JR.	Joe Acosta Jr.
NARSISO CABELLO	Narciso Cabello
JOE ACOSTA SR	Joe C Acosta

Meeting Conducted By Darrel Hellman

Supervisor Darrel Hellman

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date 10-8-90 Time 7:30 AM/PM

Project Number 90-04-1598 Project Location 5 miles S. of Lovington NM

Client Russel Buss Client Address ↗

Project Activity (Specify) Remove shoring on cooling tower + start to backfill trench

— SAFETY TOPICS —

Chemical Hazards none

Physical Hazards Slip, Trip, Fall Removing shoring

Respiratory Protective Equipment none

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat Safety glasses Steel toe Boots Leather gloves

Specific Instructions Be Careful in Trench as shoring is Removed

Hospital / Clinic Les Hospital Phone (505) 392-6581

Hospital Address 10 miles so of So. Union Gas site

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures evacuate to support zone

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Darrel Hellman	Darrel Hellman
Joe Acosta JR.	Joe Acosta Jr.
Joe Acosta SR	Joe C Acosta
NARCISO CABELLO	Narciso Cabello
Guadalupe C. Garcia	Guadalupe C. Garcia
Jerry Knipp	Jerry Knipp

Meeting Conducted By Darrel Hellman

Supervisor Darrel Hellman

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date 10-8-90 Time 3:00 AM/PM

Project Number 90-04-1598 Project Location

Client Russel Bass Client Address

Project Activity (Specify) Back fill Trench

— SAFETY TOPICS —

Chemical Hazards None

Physical Hazards Slip Trip Fall Heavy Equip. operations

Respiratory Protective Equipment None

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat Safety glasses Steel toe Boots

Specific Instructions Safety required in Trench

Hospital / Clinic Lea. Reg. Hospital Phone (505) 392-6581

Hospital Address 10 miles S. of So. Union Gas

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures Evacuate to Support

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
David Hellman	David Hellman
DAVID RYLE	D. Ryle
Steve Dickinson	Steve Dickinson

Meeting Conducted By David Hellman

Supervisor David Hellman

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

So. Union Gas

Project 90-04-1598 Date 10-9-90 Time 7:25 (AM)/PM

Project Number 90-04-1598 Project Location 5 miles So. Lovington NM

Client Russel Buss Client Address ↗

Project Activity (Specify) Backfill shoring Trench / Load Hazardous waste

---

— SAFETY TOPICS —

Chemical Hazards ~~None~~ Chrome Dust when loading Trucks

Physical Hazards Slip, Trip, Fall Heavy Equip. Operations

Respiratory Protective Equipment Half Face when Loading Truck - OVA can't

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard Hat, Safety glass steel toe shoe Tyvek paper leather gloves when needed

Specific Instructions Because of loud Equip. Ear plugs in use. Safety needed when Running Equip.

Hospital / Clinic Lea Regional Hospital Phone (505) 392-6581

Hospital Address 10 miles So. of work site

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures Evacuate to support Zone

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
DAVID PYLE	D. Pyle
Steve Dickinson	

Meeting Conducted By Darrel Hellman

Supervisor Darrel Hellman

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

ENRAC
DAILY SAFETY BRIEFING REPORT

Project So. Union Gas Date 10-10-90 Time 7:30 (AM)/PM

Project Number 90-04-1598 Project Location 5 miles S. of Lovington N.M.

Client Russel Buss Client Address

Project Activity (Specify) Backfill trench

— SAFETY TOPICS —

Chemical Hazards none

Physical Hazards slip, trip, fall

Respiratory Protective Equipment none

Safety / Personal Protective Equipment / Clothing (List specifically for each activity) Hard hat, Safety glasses, Steel toe boots, leather gloves

Specific Instructions Watch out for equipment & bystanders

Hospital / Clinic Lea Hospital Phone (505) 392-6581

Hospital Address 10 miles So. of So. Union Gas site

Paramedic (____) 911 Fire Dept. (____) 911 Police Dept (____) 911

Emergency Procedures evacuate to support zone

— ATTENDEES —

NAME (Please Print)	NAME (Signature)
Steve Dickinson	Steve Dickinson
DAVE PYLE	D. Pyle

Meeting Conducted By David Heller

Supervisor David Heller

*DO NOT LEAVE ANY BLANK SPACES. PUT N/A IF NOT APPLICABLE.

Certificate of Completion

this is to certify that

Donald Shosky

has successfully completed
training for Hazardous Waste Operations in compliance
with the requirements outlined in 29 CFR 1910.120 training

while an employee of
Chemical Waste Management, Inc.

on this 26th day of August - 1989

[signature] Health & Safety Manager

I acknowledge having received _____
Training while an employee of Chemical Waste Management, Inc.,
_____.

_____
Employee Signature

Employer's Copy

Certificate of Completion

DON SHOSKY

has successfully completed the

8 HOUR SUPERVISOR TRAINING PER 29 CFR 1910.120

and in recognition thereof is hereby awarded this certificate on this 8 day of SEPTEMBER 1989.

Chemical Waste Management Inc.

Karan North

Karan North - Health and Safety Manager

Certificate of Completion

This is to certify that

Bob Hulet

has successfully completed the

Chemical Waste Management, Inc.

Course in

Health + Safety at Hazardous Waste Sites - 40 hrs. *

on this 3rd day of March, 1989

H/S MGR
Trainer/Title

Cheryl A. Steele
Executive/Title
Reg. Env. Health + Safety Mgr.

* per 29 CFR 1910.20



Certificate of Completion

this is to certify that

BOB HULET

has successfully completed

40 hour Site Safety Officer training

while an employee of

Chemical Waste Management, Inc.

on this 28th day of April - 1990

Robert E. Mauk Health & Safety Mgr.

Certificate of Completion

this is to certify that

BOB HULET

has successfully completed

EIGHT HOURS SUPERVISOR'S SAFETY training

while an employee of

Chemical Waste Management, Inc.

on this 27th day of FEBRUARY - 1990

Robert C Mook Health & Safety Mgr

I acknowledge having received _____
Training while an employee of Chemical Waste Management, Inc.,

_____

_____
Employee Signature

Certificate of Completion

this is to certify that

Larry Youngless

has successfully completed

training for Hazardous Waste Operations in compliance with the requirements outlined in 29 CFR 1910.120 training

while an employee of

Chemical Waste Management, Inc.

on this 27th day of January - 1989

Health & Safety Manager

I acknowledge having received _____
Training while an employee of Chemical Waste Management, Inc.,
_____.

_____
Employee Signature

Employer's Copy

Geo-Graphics, Inc. # 5529

Certificate of Completion

this is to certify that

JOHN MEIER

has successfully completed
training for Hazardous Waste Operations in compliance
with the requirements outlined in 29 CFR 1910.120 training

while an employee of
Chemical Waste Management, Inc.

on this 2nd day of March - 1990

Charles Meier

Health & Safety Manager

Certificate of Completion

this is to certify that

John Meier

has successfully completed

8 Hr. Hazardous Waste Supervisor training

while an employee of

Chemical Waste Management, Inc.

on this 23rd day of August, 1990

Environ. Health + Safety Mgr. Cheryl A. Fuchs

Certificate of Completion

this is to certify that

Darrell Hellman

has successfully completed

40 Hours of Hazardous Waste Operations training

while an employee of

Chemical Waste Management, Inc.

on this 19th day of March, 1990

Mark W. Smith Environmental Health & Safety Mgr.

I acknowledge having received _____
Training while an employee of Chemical Waste Management, Inc.,
_____.

_____
Employee Signature

Graphics Job # 5539

Employer's Copy

Certificate of Completion

This is to certify that

DARRELL HELLMAN

502-88-2961

has successfully completed the

Chemical Hazwaste Awareness Training, Inc.

Hazardous Waste Operations

Site Safety Officer Training

40 Hours

on this 27-31 day of AUGUST 1990

Dennis E. Kennedy
ENRAC Industrial Hygiene Specialist

Rebecca A. Ehlert
ENRAC Health and Safety Manager

Certificate of Completion

this is to certify that

Darrell Hellman

has successfully completed

8 Hr. Hazardous Waste Supervisor training

while an employee of

Chemical Waste Management, Inc.

on this 23rd day of August, 1990

Environ. Health + Safety Mgr. Cheryl A. Greede

Certificate of Completion

this is to certify that

SHAWN NAY

has successfully completed
training for Hazardous Waste Operations in compliance
with the requirements outlined in 29 CFR 1910.120 training

while an employee of

Chemical Waste Management, Inc.

on this second day of February, 1990

Health & Safety Mgr.

I acknowledge having received _____
Training while an employee of Chemical Waste Management, Inc.,
_____.

_____
Employee Signature

Geo-Graphics Job # 5539

Employer's Copy

GERAGHTY & MILLER, INC.

National Spill Control School

This Certifies That

STEVE TISCHER

Has Completed a Field Course in Health and Safety
meeting the requirements of
29 CFR 1910.120
OSHA/RCRA Off-Site Safety Training
40 Hour Course

April 28, 1989

A Program of
Corpus Christi State University

George R. Oberholtzer
Director

MILLER PIPELINE, INC.

Safety International Training Center
Midland, Texas

Certificate of Completion

This Is To Certify That

Darrin J. Unger

Has Satisfactorily Completed The Course For Hazardous Waste Workers (40 Hours)

In Witness Whereof This Certificate Is Awarded on This 31st *Day of* Ausgust *A.D.*

Jesse Barrett

Director of Training

A SAFETY INTERNATIONAL COMPANY

Instructor

Safety International Training Center
Midland, Texas

Certificate of Completion

This Is To Certify That

Timothy S. Reily

Has Satisfactorily Completed The Course For Hazardous Waste Workers (40 Hours)

In Witness Whereof This Certificate Is Awarded on This 31st *Day of* August *A. D.*

Jesse Barrett

Director of Training

A SAFETY INTERNATIONAL COMPANY

Instructor

APPENDIX D

APPENDIX D
SCHEDULE OF WORK

SCHEDULE OF WORK

Date	Description
02-12-90	Initial Geraghty & Miller soil sample (S-CT1) two feet below ground level and one foot beneath cooling tower (Step 1).
03-05-90	Began excavation of EP Toxicity chromium impacted soil delineated in the remedial plan dated 08-01-89 (Step 1).
03-08-90	Collected soil confirmation samples S-CT2 through S-CT10 from within the EP Toxicity excavated area (Step 1) (see Figure 3). Started excavating around cooling tower to remove total chromium impacted soil above 25 parts per million as delineated in the report dated 08-01-90 (Step 2).
03-09-90	Collected soil confirmation samples S-CT11 through S-CT16 from within the total chromium "scraped" area (Step 2) (see Figure 3).
03-12-90	Began deep excavation to remove total chromium impacted soils delineated in the report dated 08-01-90 (Step 3) to an anticipated depth of about 20 feet.
03-13-90	Collected composite sample S-CT17 from the total chromium impacted soil stockpile (Step 2). Collected composite sample S-CT18 and S-CT19 from the deep excavation stockpile (Step 3). Collected confirmation samples S-CT20 through S-CT29 from the bottom and walls of the deep excavation (Step 3) (see Figure 4). Collected composite stockpile sample S-CT30 for the soil excavated from the trackhoe ramp (Step 3).
03-19-90	Collected confirmation samples S-CT11B through S-CT16B six inches to one foot deeper in the "scraped" area from the original S-CT11 through S-CT16

sample sites (Step 2) (see Figure 4). The initial confirmation samples contained levels of total chromium higher than background.

03-20-90 Loaded plastic-lined, 30-cubic-yard end-dump trucks with approximately 20 cubic yards per truck to meet weight requirements. Trucks were loaded with stockpiled soil from Steps 2 and 3 which consisted of soils with chromium EP Toxicity laboratory analyses below 5 milligams per liter (mg/L). These soils were transported to the Rio Rancho Sanitary Landfill, near Albuquerque, New Mexico.

03-23-90 Collected composite stockpile sample S-CT31 from the additional soil removed from the "scraped" area. This removed soil coincided with the confirmation samples collected on 03-19-90 (Step 2).

03-26-90 Collected confirmation samples S-CT12C and S-CT13C one-and-one-half feet and two feet below ground level, respectively. These two samples coincided with the original S-CT12 and S-CT13 confirmation samples, but were deeper (Step 2). Collected composite stockpile sample S-CT32 that represents the "scraped" area that corresponds to S-CT12C and S-CT13C.

03-27-90 Drilled directional soil boring BD-1 (Step 4). BD-1 was located on the east side of the cooling tower and drilled at a 45-degree angle from the horizontal to a point under the structure at a total depth of 40 feet. The location for this boring may be seen on Figure 5. Hollow stem core sample composites were collected from surface to total depth. Selected samples were chosen for laboratory analyses.

03-28-90 Drilled directional soil borings BD-2 and BD-3. Both soil borings were drilled at a 45-degree angle from horizontal beneath the cooling tower. BD-2 was located on the east side and BD-3 on the west side of the cooling tower. BD-

2 and BD-3 were drilled to a total depth of 30 feet and 40 feet, respectively. Hollow stem core sample composites were collected from surface to total depth. Selected samples were chosen for laboratory analyses. Locations for these soil borings may be found on Figure 5.

03-29-90 Drilled directional soil boring BD-4. This soil boring was located on the south side of the cooling tower and drilled at a 45-degree angle from horizontal beneath the structure. BD-4 was drilled to a total depth of 38 feet. Hollow stem core sample composites were collected from surface to total depth. Selected samples were chosen for laboratory analyses. The location of this soil boring may be found on Figure 5.

04-20-90 Loaded trucks with E P Toxicity chromium soils from the Step 1 excavation to be transported to the Chemical Waste Management, Inc. hazardous landfill at Carlyss, Louisiana.

06-26-90 Drilled directional soil boring BD-5. BD-5 was located on the east side of the cooling tower and drilled at a 65-degree angle from horizontal under the structure to a total depth of 44 feet. Location for this boring may be seen on Figure 5. Hollow stem core sample composites were collected from surface to total depth. Selected samples were chosen for laboratory analyses.

06-27-90 Drilled directional soil borings BD-6 and BD-7. BD-6 was drilled on the east side of the cooling tower at a 55-degree angle from horizontal beneath the structure to a total depth of 55 feet. BD-7 was located on the east side of the cooling tower at a 65-degree angle measured from the east wall. The boring was drilled at a 65-degree angle from horizontal beneath the structure to a total depth of 45 feet. Hollow stem core sample composites were collected from surface to total depth on both these wells. Selected samples were

chosen for laboratory analyses. The location of this boring may be seen on Figure 5.

06-28-90 Drilled directional soil boring BD-8. BD-8 was located on the north side of the cooling tower at a 55-degree angle measured from the north wall. The boring was drilled at a 75-degree angle from horizontal beneath the structure. The total depth of BD-8 was 50 feet. Hollow stem core sample composites were collected from surface to total depth on both these wells. Selected samples were chosen for laboratory analyses. Location for this boring may be seen on Figure 5.

08-29-90 Began sloping the Step 3 excavation walls to meet the U. S. Occupational Safety & Health Administration (OSHA) requirements.

09-07-90 Cooling tower shoring was constructed and put in place to meet OSHA requirements. Parkhill, Smith and Cooper engineer inspected shoring.

09-10-90 Began excavating soil beneath the cooling tower with a vacuum truck (Vac-Hoe). Vacuumed soil was stockpiled on plastic and covered. Soil boring BD-1 was located with the Vac-Hoe. The grout and the soil within a two-foot radius was removed along the length of the soil boring. Using a model constructed with the impacted soil borings presented, excavation of the soils was directed by G&M personnel to remove the identified impacted soil boring intervals. Figure 5 presents the final excavation configuration.

09-11-90 Collected composite stockpile sample S-CT35 from the angle borehole cuttings and additional soil from the slope shaping. Excavation along soil boring BD-1 was completed and soil confirmation samples S-CT36 and S-CT37 were collected from within the resultant tunnel with an extendable hand

auger. Located soil boring BD-6 with the Vac-Hoe and removed soil along the length of it that was in proximity to boring BD-1.

09-12-90 Collected composite stockpile sample S-CT38 which represented soil removed from the BD-1 and BD-6 excavation process.

09-15-90 Collected soil confirmation samples S-CT39 and S-CT40 with the extendable hand auger to represent boring BD-6 excavated area.

09-16-90 Began excavating toward soil boring BD-5. Determined that the Vac-Hoe could not remove the remaining impacted soils. Well cemented sediments were encountered.

09-19-90 Collected soil confirmation samples S-CT41 and S-CT42 in the sidewalls of the excavation from a depth of 35 feet below ground level. Collected composite stockpile sample S-CT43 to represent soil removed in excavating toward boring BD-5. Demobilized to assess options in excavating towards boring BD-5.

10-04-90 Excavated with a trackhoe to 42 feet below ground level. Visually located and identified the grout from soil boring BD-5. Collected composite stockpile sample S-CT43 to represent soil removed on this date. Collected confirmation samples S-CT44 and S-CT45 with an extendable hand auger from the bottom of the excavation.

10-05-90 Built forms and completely backfilled excavation beneath the cooling tower with concrete.

10-08-90 Removed the shoring beneath the cooling tower and began backfilling the Step 3 excavation with clean soil.

10-09-90 Loaded trucks with stockpiled soil from the Step 4 excavation. Soil was transported to the Rio Rancho Sanitary Landfill near Albuquerque, New Mexico.

10-10-90 Placed one foot of clay over the backfilled area. Installed a 25 foot by 25 foot 30 millimeter (mm) plastic liner on the east side of the cooling tower. Placed a 60 foot by 80 foot, liner on the north side of the cooling tower. Brought the surface to grade with one foot of clay. Spread caliche pavement over the clay.

APPENDIX E

APPENDIX E
BORING LOGS

BORING LOG

ELEVATION

Ground Level Not Available

Water Level Dry

TIME

Start 0900

Finish 1130

DEPTH-FT.	SAMPLED	ANALYZE	TYPE/NO.	LITHOLOGY	DESCRIPTION	REMARKS EP TOX Cr mg/L	REMARKS (Total Cr) mg/kg
			Auger Cut		0 - 5' Caliche; white, buff, firm, dry	0.28	(15.40)
			5		5 - 7' Caliche; white, buff, moderately firm, some powdery, dry		
			7		7 - 12' Clay; white, buff, trace gray color, powdery	0.17	(9.10)
10			Core				
			12		12 - 17' Clay; white, buff, tan powdery, dry		
			17		17 - 20' Clay; white, buff, trace tan, powdery, dry	2.75	(33.20)
20					20 - 22' Silt; tan, soft, moist, slightly mottled		
			22		22 - 27' Silt; tan to light brown, very fine-grained, moist.	2.04	(23.90)
			27		27 - 29' Silt; tan, very fine-grained, loose, moist		
					29 - 32' Silt; buff, cream, very fine-grained, consolidated, moist, some yellow staining	6.60, 8.90	(76.80)
30			32		32 - 27' Sand; brown to reddish-brown, very fine-grained, well-sorted, loose, slightly damp	0.08	(25.53)
			37		37 - 39' Sand; brown to orange-brown, loose, moist		
40			40		39 - 40' Sand; tan, very fine-grained, some consolidated, moist	2.10	(26.17)
50							

Explanation: BD-1, Angle Boring, 45 degree depression angle

Total Depth (along 45 degree axis): 40'
Total Depth (along vertical axis): 28.3'
Boring Location: See Boring Location Map

DATE: 3-27-90

GERAGHTY & MILLER, INC.
Environmental Services

CLIENT Southern Union Gas Company

PROJECT Lea Refinery, Cooling Tower

LOCATION Lovington, New Mexico

BORING NO. BD-1

BORING LOG

ELEVATION

Ground Level Not Available

Water Level Dry

TIME

Start 0915

Finish 1120

DEPTH-FT.	SAMPLED / ANALYZE	TYPE/NO.	LITHOLOGY	DESCRIPTION	REMARKS: EP TOX Cr mg/L	REMARKS: (Total Cr) mg/kg
		Auger Cut		0 - 5' Caliche; white, buff, very hard, dry, no staining	0.22	(10.32)
		5		5 - 7' Caliche; white, buff, soft, dry		
		7		7 - 12' Caliche; tan, buff, firm, slightly damp, mottled, sandy in parts	0.18	(7.36)
10		Core				
		12		12 - 17' Silt; tan, buff, firm, slightly damp, some mottling		
		17		17 - 22' Silt; tan, buff, white, damp, some calcareous inclusions	0.23	(16.91)
20						
		22		22 - 27' Silt; tan, light brown, damp, some calcareous inclusions		
		27		27 - 30' Silt; tan, light brown, damp, trace calcareous inclusions	0.16	(26.76)
30		30				
40						
50						

Explanation: BD-2, Angle boring, 45 degree depression angle

Total Depth (along 45 degree axis): 30'
Total Depth (vertical axis): 21.2'
Boring Location: See Boring Location Map

DATE: 3-28-90

GERAGHTY & MILLER, INC.
Environmental Services

CLIENT Southern Union Gas Company

PROJECT Lea Refinery, Cooling Tower

LOCATION Lovington, New Mexico

BORING NO. BD-2

BORING LOG

ELEVATION

Ground Level Not Available

Water Level Dry

TIME

Start 1430

Finish 1700

DEPTH-FT.	SAMPLED	ANALYZE	TYPE/NO.	LITHOLOGY	DESCRIPTION	REMARKS EP TOX Cr mg/L	REMARKS (Total Cr) mg/kg
			3		0 - 3' Caliche; white, buff, powdery, dry		
			5		3 - 5' Same as above		
			Core		5 - 10' Caliche; white powdery, dry to moist	0.31	(11.96)
10			10		10 - 15' Caliche and silt; white to buff, moist		
			15		15 - 20' Same as above	0.20	(5.46)
20			20		20 - 25' Silt; sandy, white to pink, moist		
			25		25 - 30' Sand; pink-brown, fine'grained, loose, moist	0.21	(*5.00)
30			30		30 - 35' Same as above		
			35		35 - 40' Same as above	0.12	(5.55)
40			40				
50							

Explanation: BD-3, Angle Boring, 45 degree depression angle

Total Depth (along 45 degree axis): 40'
Total Depth (vertical axis): 28.3'
Boring Location: See Boring Location Map

*Less Than

DATE: 3-28-90

GERAGHTY & MILLER, INC.
Environmental Services

CLIENT Southern Union Gas Company

PROJECT Lea Refinery, Cooling Tower

LOCATION Lovington, New Mexico

BORING NO. BD-3

BORING LOG

ELEVATION

Ground Level Not Available

Water Level Dry

TIME

Start 0845

Finish 1215

DEPTH-FT.	SAMPLED	ANALYZE	TYPE/NO.	LITHOLOGY	DESCRIPTION		REMARKS EP TOX Cr mg/L	REMARKS (Total Cr) mg/kg
					0 - 5'	Caliche; buff, very hard		
			5		5 - 8'	Caliche; silty, buff-white		
			6					
			Core		8 - 9'	Caliche; purple-white, very hard	1.25	(7.92)
10			9		9 - 13'	Caliche; silty, tan-pink		
			14		13 - 18'	Same as above		
			18		18 - 23'	Caliche; silty, tan-pink with brown sand	0.32	(6.29)
20								
			23		23 - 28'	Clay; silty, white and tan with pink-brown silty sand	0.19	(*5.00)
			28		28 - 33'	Sand; silty, pink-brown, loose		
30								
			33		33 - 38'	Same as above	1.43	(17.29)
			38					
40								
50								

Explanation: BD-4, Angle Boring, 45 degree depression angle

Total Depth (along 45 degree axis): 38'
Total Depth (along vertical axis): 26.9'
Boring Location: See Boring Location Map

*Less Than

DATE: 3-29-90

GERAGHTY & MILLER, INC.
Environmental Services

CLIENT Southern Union Gas Company

PROJECT Lea Refinery, Cooling Tower

LOCATION Lovington, New Mexico

BORING NO. BD-4

BORING LOG

ELEVATION

Ground Level Not Available

Water Level Dry

TIME

Start 1005

Finish 1530

DEPTH-FT.	SAMPLED	ANALYZE	TYPE/NO.	LITHOLOGY	DESCRIPTION	REMARKS EP TOX Cr mg/L	REMARKS (Total Cr) mg/kg
					0 - 4' Caliche; white, buff, very fine crystalline, powdery, dense, hard		
			4		4 - 9' Caliche; white, buff, trace of tan, very fine crystalline, powdery		
10					9 - 10' Same as above 10 - 14' Silt, tan, buff, very fine-grained, powdery		
			14		14 - 15' Caliche; white, buff, very fine crystalline 15 - 19' Silt; tan, buff, very fine-grained		
			Core			0.74	(*10.00)
			19		19 - 20' Caliche; white gray, very fine crystalline, very hard		
20					20 - 24' Silt; tan, light brown, very fine-grained, slightly moist		
			24		24 - 26' Caliche; white, light gray, buff, very fine crystalline, crumbly, moist, bright yellow when dry		
					26 - 29' Sand; brown, very fine-grained, well-sorted, friable, moist, dull yellow tint when dry	2.06	(13.99)
			29		29 - 34' Sand; brown, tan, very fine-grained, well-sorted, friable, moist, dull yellow tint when dry	3.44	(37.76)
30							
			34				
			39		39 - 45' Same as above		
40						6.48	(59.36)
			44				
50							

Explanation: BD-5, Angle Boring, 65 degree depression angle

Total Depth (along 65 degree axis): 45'
Total Depth (along vertical axis): 40.8'
Boring Location: See Boring Location Map

*Less Than

DATE: 6-26-90

GERAGHTY & MILLER, INC.
Environmental Services

CLIENT Southern Union Gas Company

PROJECT Lea Refinery, Cooling Tower

LOCATION Lovington, New Mexico

BORING NO. BD-5

BORING LOG

ELEVATION

Ground Level Not Available

Water Level Dry

TIME

Start 1630

Finish 0945

DEPTH-FT.	SAMPLED	ANALYZE	TYPE/NO.	LITHOLOGY	DESCRIPTION	REMARKS EP TOX Cr mg/L	REMARKS (Total Cr) mg/kg
					0 - 5' Caliche; white, tan, massive, very hard		
			5 Auger Cut		5 - 7' Same as above		
					7 - 10' Caliche; white, buff, very fine crystalline, soft, powdery, dry	0.56	(11.40)
10			10		10 - 15' Caliche; white, buff, very fine crystalline, soft, dry		
			15		15 - 19' Silt; tan, buff, very fine-grained, slightly moist		
			Core			1.04	(10.19)
20			20		19 - 20' Sand; brown, tan, very fine-grained, silty, well-sorted, slightly moist		
					20 - 25' Same as above	0.96	(10.83)
			25		25 - 27' Same as above	4.02	(21.91)
					27 - 29.5' Caliche; white, buff, tan crumbly, damp, yellow-staining		
30			30		29.5 - 30' Sand; brown, very fine-grained, well-sorted, friable, moist	2.86	(26.65)
					30 - 35' Same as above		
			35		35 - 40' Sand; brown, tan, very fine-grained, well-sorted, friable, moist		
40			40		40 - 44' Sand; tan, very fine-grained, well-sorted, friable, moist		
						0.99	(*10.00)
			45		44 - 45' Sand; tan, very fine-grained, well-sorted, friable, moist		
					45 - 50' Sand; tan, very fine grained, well-sorted, friable, trace cemented, moist		
50			50		50 - 55' Sand; tan, very fine-grained, well-sorted, friable, 20% cemented, mostly dry	0.36	(*10.00)
			55		Explanation: BD-6, Directional Boring, 55 degree depression angle		

Total Depth (along 55 degree axis): 55'
Total Depth (vertical axis): 45.1'
Boring Location: See Boring Location Map

*Less Than

DATE: 6-26-90 to 6-27-90

GERAGHTY & MILLER, INC.
Environmental Services

CLIENT Southern Union Gas Company

PROJECT Lea Refinery, Cooling Tower

LOCATION Lovington, New Mexico

BORING NO. BD-6

BORING LOG

ELEVATION

Ground Level Not Available

Water Level Dry

TIME

Start 1135

Finish 1620

DEPTH-FT.	SAMPLED	ANALYZE	TYPE/NO.	LITHOLOGY	DESCRIPTION	REMARKS EP TOX Cr mg/L	REMARKS (Total Cr) mg/kg
					0 - 10' Caliche; white, buff, very fine crystalline, powdery, trace hard, dry		
10			10		10 - 15' Caliche; white, buff, very fine crystalline, crumbly, some hard, dry		
					15 - 16' Caliche; white, buff, very fine crystalline, crumbly, slightly moist		
					16 - 20' Sand; tan, brown, very fine-grained, friable, moist		
20			20		20 - 22' Sand; tan, very fine-grained, well-sorted, friable, moist		
			Core		22 - 23' Caliche; sandy, white, tan, buff, crumbly, moist		
					23 - 25' Caliche; white, buff, very fine crystalline, dense hard, some crumbly	1.23	(*5.00)
			25		25 - 27' Same as above, yellow-staining, brighter when dry		
					27 - 30' Sand; tan, brown, very fine-grained, well-sorted, friable, moist	1.47	(34.3)
30			30		30 - 34' Sand; tan, light brown, very fine-grained, well-sorted, friable, moist		
					34 - 35' Same as above except dry	0.69	(6.88)
			35		35 - 40' Same as above except moist, yellow when dry		
40			40		40 - 45' Same as above		
			45			4.09	(34.6)
50							

Explanation: BD-7, Angle Boring, 65 degree depression angle

Total Depth (along 65 degree axis): 45'
Total Depth (along vertical axis): 40.8'
Boring Location: See Boring Location Map

*Less Than

DATE: 6-27-90

GERAGHTY & MILLER, INC.
Environmental Services

CLIENT Southern Union Gas Company

PROJECT Lea Refinery, Cooling Tower

LOCATION Lovington, New Mexico

BORING NO. BD-7

BORING LOG

ELEVATION

Ground Level Not Available

Water Level Not Applicable

TIME

Start 1930

Finish 1040

DEPTH-FT.	SAMPLED	ANALYZE	TYPE/NO.	LITHOLOGY	DESCRIPTION	REMARKS EP TOX Cr mg/L	REMARKS (Total Cr) mg/kg
			Auger Cut		0 - 5' Caliche; white, very fine crystalline, dense very hard, dry	0.76	(26.5)
			5		5 - 10' Caliche; white, buff, very fine crystalline, dense, hard, dry	*0.30	(10.66)
10			10		10 - 15' Silt; white, buff, very fine-grained, powdery, soft, dry		
			15		15 - 16' Same as above 16 - 20' Sand; tan, brown, very fine-grained, well-sorted, friable, slightly moist.		
			Core			0.60	(*5.00)
20			20		20 - 25' Sand; tan, brown, very fine-grained, well-sorted, friable, moist, silty to clayey in the bottom foot	0.64	(*5.00)
			25		25 - 30' Sand; tan, light brown, very fine-grained, well-sorted, friable, moist, 6" of grout in core	1.14	(15.8)
30			30		30 - 35' Sand; tan, very fine-grained, well-sorted, consolidated, firm	1.66	(11.2)
			35		35 - 40' Sand; tan, very fine-grained, well-sorted, friable, dry yellow-staining		
40			40		40 - 45' Sand; tan, very fine-grained, well-sorted, friable to consolidated, dry, no yellow tint		
			45		45 - 50' Sand; tan, very fine-grained, well-sorted, friable, dry, no yellow tint	*0.30	(*5.00)
50			50				

Explanation: BD-8, Angle Boring, 75 degree depression angle

Total Depth (along 75 degree axis): 50'
Total Depth (vertical axis): 48.3'
Boring Location: See Boring Location Map

*Less Than

DATE: 6-27-90 to 6-28-90

GERAGHTY & MILLER, INC.
Environmental Services

CLIENT Southern Union Gas Company

PROJECT Lea Refinery, Cooling Tower

LOCATION Lovington, New Mexico

BORING NO. BD-8

APPENDIX F

APPENDIX F
LABORATORY ANALYSES

119904

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Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue [915-683-3348] • P.O. Box 2150 • Midland, Texas 79702

Report of tests on:	Soil	**File No.**	6736900
Client:	Southern Union	**Report No.**	64999
Delivered by:	A. Schmidt	**Report Date**	2-19-90
Identification:	Soil Sample No. SCT-1, Sampled 2-12-90 @ 1:10 pm by Allan Schmidt	**Date Received**	2-12-90

Total Chromium	*20 mg/kg
EP Toxicity Chromium	* 1 mg/L

*Denotes "less than"

Method: SW846

Reviewed by: LLC

Technician: LLC, ABJ

Copies: Reed & Associates

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Report of tests on: Soil

Client: Geraghty & Miller

Delivered by: Steve Tischer

Identification: Southern Union Refinery, S-CT1, Sampled 3-7-90 by Steve Tischer

File No. 6736900

Report No. 65417

Report Date 3-14-90

Date Received 3-08-90

Parameter	Results	Date of Analysis	Analyst	Method
EP Toxicity Chromium, mg/L	15	3-11-90	A. Johnston	SW846,3010/7190
Total Chromium mg/kg	381	3-14-90	A. Johnston	SW846,3050/7190

Reviewed by: _____

Technician: ABJ

Copies: Geraghty & Miller

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Report of tests on: Soil

Client: Geraghty & Miller

Delivered by: Steve Tischer

Identification: Southern Union Refinery, S-CT2, Sampled 3-7-90 by Steve Tischer

File No. 6736900

Report No. 65418

Report Date 3-14-90

Date Received 3-08-90

Parameter	Results	Date of Analysis	Analyst	Method
EP Toxicity Chromium, mg/L	*1	3-11-90	A. Johnston	SW846,3010/7190
Total Chromium mg/kg	37	3-14-90	A. Johnston	SW846,3050/7190

*Denotes "less than"

Reviewed by:

Technician: ABJ

Copies: Geraghty & Miller

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Report of tests on: Soil

Client: Geraghty & Miller

Delivered by: Steve Tischer

Identification: Southern Union Refinery, S-CT3, Sampled 3-8-90 by Steve Tischer

File No. 6736900

Report No. 65419

Report Date 3-14-90

Date Received 3-08-90

Parameter	Results	Date of Analysis	Analyst	Method
EP Toxicity Chromium, mg/L	1.3	3-11-90	A. Johnston	SW846,3010/7190

Reviewed by: _____

Technician: ABJ

Copies: Geraghty & Miller

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Report of tests on: Soil
Client: Geraghty & Miller
Delivered by: Steve Tischer
Identification: Southern Union Refinery, S-CT4, Sampled 3-8-90 by Steve Tischer

File No. 6736900
Report No. 65420
Report Date 3-14-90
Date Received 3-08-90

Parameter	Results	Date of Analysis	Analyst	Method
EP Toxicity Chromium, mg/L	*1	3-11-90	A. Johnston	SW846,3010/7190

*Denotes "less than"

Reviewed by:

Technician: ABJ

Copies: Geraghty & Miller

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Report of tests on: Soil

Client: Geraghty & Miller

Delivered by: Steve Tischer

Identification: Southern Union Refinery, S-CT5, Sampled 3-8-90 by Steve Tischer

File No. 6736900

Report No. 65421

Report Date 3-14-90

Date Received 3-08-90

Parameter	Results	Date of Analysis	Analyst	Method
EP Toxicity Chromium, mg/L	*1	3-11-90	A. Johnston	SW846,3010/7190

*Denotes "less than"

Reviewed by:

Technician: ABJ

Copies: Geraghty & Miller

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Report of tests on: Soil
Client: Geraghty & Miller
Delivered by: Steve Tischer
Identification: Southern Union Refinery, S-CT6, Sampled 3-8-90 by Steve Tischer

File No. 6736900
Report No. 65422
Report Date 3-14-90
Date Received 3-08-90

Parameter	Results	Date of Analysis	Analyst	Method
EP Toxicity Chromium, mg/L	*1	3-11-90	A. Johnston	SW846,3010/7190

*Denotes "less than"

Reviewed by:

Technician: ABJ

Copies: Geraghty & Miller

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Report of tests on: Soil
Client: Geraghty & Miller
Delivered by: Steve Tischer
Identification: Southern Union Refinery, S-CT7, Sampled 3-8-90 by Steve Tischer

File No. 6736900
Report No. 65423
Report Date 3-14-90
Date Received 3-08-90

Parameter	Results	Date of Analysis	Analyst	Method
EP Toxicity Chromium, mg/L	*1	3-11-90	A. Johnston	SW846,3010/7190

*Denotes "less than"

Reviewed by: _____

Technician: ABJ

Copies: Geraghty & Miller

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Report of tests on: Soil

Client: Geraghty & Miller

Delivered by: Steve Tischer

Identification: Southern Union Refinery, S-CT8, Sampled 3-8-90 by Steve Tischer

File No. 6736900

Report No. 65424

Report Date 3-14-90

Date Received 3-08-90

Parameter	Results	Date of Analysis	Analyst	Method
EP Toxicity Chromium, mg/L	*1	3-11-90	A. Johnston	SW846,3010/7190

*Denotes "less than"

Reviewed by: _____

Technician: ABJ

Copies: Geraghty & Miller

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Report of tests on: Soil

Client: Geraghty & Miller

Delivered by: Steve Tischer

Identification: Southern Union Refinery, S-CT9, Sampled 3-8-90 by Steve Tischer

File No. 6736900

Report No. 65425

Report Date 3-14-90

Date Received 3-08-90

Parameter	Results	Date of Analysis	Analyst	Method
EP Toxicity Chromium, mg/L	1.5	3-11-90	A. Johnston	SW846,3010/7190

*Denotes "less than"

Reviewed by: _____

Technician: ABJ

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Report of tests on: Soil
Client: Geraghty & Miller
Delivered by: Steve Tischer
Identification: Southern Union Refinery, S-CT10, Sampled 3-8-90 by Steve Tischer

File No. 6736900
Report No. 65426
Report Date 3-14-90
Date Received 3-08-90

Parameter	Results	Date of Analysis	Analyst	Method
EP Toxicity Chromium, mg/L	*1	3-11-90	A. Johnston	SW846,3010/7190

*Denotes "less than"

Reviewed by:

Technician: ABJ

Copies: Geraghty & Miller

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Report of tests on: Soil
Client: Geraghty & Miller
Delivered by: Steve Tischer
Identification: Southern Union Refinery, S-CT11, Sampled 3-9-90 by Steve Tischer

File No. 6736900
Report No. 65451
Report Date 3-14-90
Date Received 3-10-90

Parameter	Results	Date of Analysis	Analyst	Method
Total Chromium mg/kg	57	3-14-90	A. Johnston	SW846,3050/7190

Reviewed by:

Technician: ABJ

Copies: Geraghty & Miller

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Report of tests on: Soil

Client: Geraghty & Miller

Delivered by: Steve Tischer

Identification: Southern Union Refinery, S-CT12, Sampled 3-9-90 by Steve Tischer

File No. 6736900

Report No. 65452

Report Date 3-14-90

Date Received 3-10-90

Parameter	Results	Date of Analysis	Analyst	Method
Total Chromium mg/kg	122	3-14-90	A. Johnston	SW846,3050/7190

Reviewed by:

Technician: ABJ

Copies: Geraghty & Miller

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Report of tests on: Soil

Client: Geraghty & Miller

Delivered by: Steve Tischer

Identification: Southern Union Refinery, S-CT13, Sampled 3-9-90 by Steve Tischer

File No. 6736900

Report No. 65453

Report Date 3-14-90

Date Received 3-10-90

Parameter	Results	Date of Analysis	Analyst	Method
Total Chromium mg/kg	261	3-14-90	A. Johnston	SW846,3050/7190

Reviewed by:

Technician: ABJ

Copies: Geraghty & Miller

SOUTHWESTERN LABORATORIES

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119904

SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 W. Industrial Avenue [915-683-3348] • P.O. Box 2150 • Midland, Texas 79702

Report of tests on: Soil
Client: Geraghty & Miller
Delivered by: Steve Tischer
Identification: Southern Union Refinery, S-CT14, Sampled 3-9-90 by Steve Tischer

File No. 6736900
Report No. 65454
Report Date 3-14-90
Date Received 3-10-90

Parameter	Results	Date of Analysis	Analyst	Method
Total Chromium mg/kg	404	3-14-90	A. Johnston	SW846,3050/7190

Reviewed by: _____

Technician: ABJ

Copies: Geraghty & Miller

SOUTHWESTERN LABORATORIES
_____

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119904

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Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue [915-683-3348] • P.O. Box 2150 • Midland, Texas 79702

Report of tests on: Soil

Client: Geraghty & Miller

Delivered by: Steve Tischer

Identification: Southern Union Refinery, S-CT15, Sampled 3-9-90 by Steve Tischer

File No. 6736900

Report No. 65455

Report Date 3-14-90

Date Received 3-10-90

Parameter	Results	Date of Analysis	Analyst	Method
Total Chromium mg/kg	102	3-14-90	A. Johnston	SW846,3050/7190

Reviewed by: _____

Technician: ABJ

Copies: Geraghty & Miller

SOUTHWESTERN LABORATORIES

_____

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119904

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Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 W. Industrial Avenue [915-683-3348] • P.O. Box 2150 • Midland, Texas 79702

Report of tests on: Soil
Client: Geraghty & Miller
Delivered by: Steve Tischer
Identification: Southern Union Refinery, S-CT16, Sampled 3-9-90 by Steve Tischer

File No. 6736900
Report No. 65456
Report Date 3-14-90
Date Received 3-10-90

Parameter	Results	Date of Analysis	Analyst	Method
Total Chromium mg/kg	58	3-14-90	A. Johnston	SW846,3050/7190

Reviewed by: _____

Technician: ABJ

Copies: Geraghty & Miller

SOUTHWESTERN LABORATORIES
Allen R. Johnston

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SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on	Soil	**File No.**	6736900
Client	Geraghty & Miller	**Report No.**	Below
Delivered by	Steve Tischer	**Report Date**	3-20-90
		Date Received	3-14-90

Identification Southern Union Refinery, sampled 3-13-90 by Steve Tischer

REPORT OF CHEMICAL ANALYSIS

Report Number	Sample Number	EP Toxicity Chromium, mg/L	Total Chromium, mg/kg	Analyst	Date of Analysis	Method
65500	S-CT17		844	A. Johnston	3-18-90	SW846
65501	S-CT18	* 1.0	61	A. Johnston	3-18-90	SW846
65502	S-CT19	* 1.0	19	A. Johnston	3-18-90	SW846
65503	S-CT20	* 1.0	8.2	A. Johnston	3-18-90	SW846
65504	S-CT21	* 1.0	9.6	A. Johnston	3-18-90	SW846
65505	S-CT22	* 1.0	15	A. Johnston	3-18-90	SW846
65506	S-CT23	* 1.0	61	A. Johnston	3-18-90	SW846
65507	S-CT24	1.6	52	A. Johnston	3-18-90	SW846
65508	S-CT25	* 1.0	16	A. Johnston	3-18-90	SW846
65509	S-CT26	* 1.0	3.2	A. Johnston	3-18-90	SW846
65510	S-CT27	* 1.0	5.7	A. Johnston	3-18-90	SW846
65511	S-CT28	* 1.0	23	A. Johnston	3-18-90	SW846
65512	S-CT29	* 1.0	25	A. Johnston	3-18-90	SW846
65513	S-CT30	* 1.0	33	A. Johnston	3-18-90	SW846

* Denotes "less than"

Copies: Geraghty & Miller, Inc.

SOUTHWESTERN LABORATORIES

Allen D. Johnston

KLC

Reviewed by

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Report of tests on	Soil	**File No.**	6936900
Client	Geraghty & Miller	**Report No.**	65500
Delivered by	Steve Tischer	**Report Date**	4-3-90
		Date Received	3-14-90

Identification Southern Union Refinery, S-CT 17, Sampled 3-13-90 by Steve Tischer

REPORT OF CHEMICAL ANALYSIS

Parameter	Results	Date of Analysis	Analyst	Method
EP Toxicity Chromium, mg/L	*0.5	3-21-90	A. Johnston	SW846, 3010/7190

*Denotes "less than"

Copies: Geraghty & Miller

M.W.B.
Reviewed by

SOUTHWESTERN LABORATORIES
Allen Johnston

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Construction materials testing, analytical chemistry and geotechnical engineering
P.O. Box 224227 • 2575 Lone Star Drive • Dallas, Texas 75222 • 214/631-2700

March 23, 1990 File No. _____

Report of: Analysis of Soils

Reported to: Geraghty & Miller Company
Attention: Steve Tisher
1030 Andrews Highway, Suite 120
Midland, TX 79701

MAR 28 RECD

Date received: 2/15/90

Identification: Project #0258-02

Sample ID	EPTOX CHROMIUM, mg/l	TOTAL CHROMIUM, mg/l
S-CT11B	<0.1	18
S-CT12B	<0.1	26
S-CT13B	<0.1	36
S-CT14B	<0.1	19
S-CT15B	<0.1	18
S-CT16B	<0.1	25

Method: EPA SW846

Analyst: JG

Distribution of report:

1C: Geraghty & Miller

Respectfully submitted,

SOUTHWESTERN LABORATORIES, INC.

Per: Bob Garrett
Bob Garrett, Manager
Environmental and Analytical Services

Lab. No. D-9003149

Samples are discarded 30 days after reports are mailed unless prior arrangements are made in writing. A storage fee will apply on samples held over 30 days. Our letters and reports are for the exclusive use of the client to whom they are addressed. The use of our name must receive our prior written approval. Our letters and reports apply to the sample tested and/or inspected, and are not necessarily indicative of the qualities of apparently identical or similar products.

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P.O. Box 224227 • 2575 Lone Star Drive • Dallas, Texas 75222 • 214/631-2700

April 03, 1990 File No. 2217500

Report of: Analysis of Soils

Reported to: Geraghty & Miller Company
Attention: Steve Tisher
1030 Andrews Highway, Suite 120
Midland, TX 79701

Date received: 3/28/90

Identification: Project #0258-02, Lea Refinery

Sample ID	EPTOX CHROMIUM, mg/l	TOTAL CHROMIUM, mg/kg
S-CT31	2.29	78.0
S-CT32	1.44	51.5
S-CT12C	----	17.7
S-CT13C	----	22.0
BD-1 0'-5'	0.28	15.4
BD-1 7'-12'	0.17	9.1
BD-1 17'-22'	2.75	33.2
BD-1 27'-32'	6.60	76.8

Method: SW846

Analyst: JG, WK

Distribution of report:

1C: Geraghty & Miller

Respectfully submitted,

SOUTHWESTERN LABORATORIES, INC.

Per: Bob Garrett, Manager
Environmental and Analytical Services

Lab. No. D-9003229

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Construction materials testing, analytical chemistry and geotechnical engineering
P.O. Box 224227 • 2575 Lone Star Drive • Dallas, Texas 75222 • 214/631-2700

April 9, 1990 File No. _____ APR 16 RECD

Report of: Analysis of Soils

Reported to: Geraghty & Miller Company
Attention: Steve Tisher
1030 Andrews Highway, Suite 120
Midland, TX 79701

Date received: 3/29/90

Identification: Project 025802 #CC052.01, Lea Refinery

SAMPLE ID	EPTOX Chomium, mg/l	Total Chromium, mg/kg
BD-1 22'-27'	2.04	23.9
BD-1 32'-37'	0.082	25.53
BD-1 27'-32' (rerun)	8.90	

Method: SW846

Analyst: WK

Distribution of report:
1C: Geraghty & Miller

Respectfully submitted,

SOUTHWESTERN LABORATORIES, INC.

Per: Bob Garrett
Bob Garrett, Manager
Environmental and Analytical Services

Lab. No. D-9004024 :gc

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Construction materials testing, analytical chemistry and geotechnical engineering
P.O. Box 224227 • 2575 Lone Star Drive • Dallas, Texas 75222 • 214/631-2700

April 2, 1990 File No. _____

Report of: Analysis of Soils

APR 9 RECD

Reported to: Geraghty & Miller Company
Attention: Steve Tisher
1030 Andrews Highway, Suite 120
Midland, TX 79701

Date received: 3/30/90

Identification: Project #0258-02, Southern Union Refinery

Sample ID	EPTOX CHROMIUM, mg/l	TOTAL CHROMIUM, mg/kg
BD-1 37'-40'	2.1	26.17
BD-2 0-5'	0.22	10.32
BD-2 7-12'	0.18	7.36
BD-2 17-22'	0.23	16.91
BD-2 27-30'	0.16	26.76
BD-3 5-10'	0.31	11.96
BD-3 15-20'	0.20	5.46
BD-3 25-30'	0.21	<5.0
BD-3 35-40'	0.124	5.55
BD-4 6-9'	1.25	7.92
BD-4 14-18'	0.32	6.29
BD-4 23-28'	0.19	<5
BD-4 33-38'	1.43	17.29

Method: SW846 Analyst: JG, WK

Distribution of report:

1C: Geraghty & Miller

Respectfully submitted,

SOUTHWESTERN LABORATORIES, INC.

Bob Garrett

Per: Bob Garrett, Manager
Environmental and Analytical Services

Lab. No. D-9003249

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Construction materials testing, analytical chemistry and geotechnical engineering
P.O. Box 224227 • 2575 Lone Star Drive • Dallas, Texas 75222 • 214/631-2700

July 5, 1990 File No. 2217500

Report of: Analysis of Soil

PRELIMINARY

Reported to: Geraghty & Miller Co.
Attention: Steve Tischer
1030 Andrews Hwy. Suite 120
Midland, TX 79701

Date received: 6/28/90

Identification: Project Number CC052.01

SAMPLE	EPTOX CHROMIUM, MG/L	TOTAL CHROMIUM, MG/KG
BD-5 14'-19'	0.74	<10.00
BD-5 24'-29'	2.06	13.99
BD-5 29'-34'	3.44	37.76
BD-5 39'-44'	6.48	59.36
BD-6 5'-10'	0.56	11.40
BD-6 15'-20'	1.04	10.19
BD-6 20'-25'	0.96	10.83
BD-6 25'-30'	4.02	21.91
BD-6 30'-35'	2.86	26.65
BD-6 40'-45'	0.99	<10.00
BD-6 50'-55'	0.36	<10.00

Method: SW 846 Analyst: WK, JG

Distribution of report: Geraghty & Miller

Respectfully submitted,

SOUTHWESTERN LABORATORIES, INC.

Per: Bob Garrett, Manager
Environmental and Analytical Services

Lab. No. D-9006219 :gc

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SwL **SOUTHWESTERN LABORATORIES, INC.**

Construction materials testing, analytical chemistry and geotechnical engineering
P.O. Box 224227 • 2575 Lone Star Drive • Dallas, Texas 75222 • 214/631-2700

July 10, 1990 File No. 2217500

Report of: Analysis of Soil

Reported to: Geraghty & Miller Co.
Attention: Steve Tischer
1030 Andrews Hwy. Suite 120
Midland, TX 79701

Date received: 6/29/90

Identification: Project Number CC052.01

SAMPLE	EPTOX CHROMIUM, MG/L	TOTAL CHROMIUM, MG/KG
BD-7 20'-25'	1.23	< 5.00
BD-7 25'-30'	1.47	34.3
BD-7 30'-35'	0.69	6.88
BD-7 40'-45'	4.09	34.6
BD-8 0'-5'	0.76	26.5
BD-8 5'-10'	<0.30	10.66
BD-8 15'-20'	0.60	<5.00
BD-8 20'-25'	0.64	<5.00
BD-8 25'-30'	1.14	15.8
BD-8 35'-40'	1.66	11.2
BD-8 45'-50'	<0.30	<5.0

Method: SW 846 Analyst: WK, JG

Distribution of report:

1C: Geraghty & Miller

Respectfully submitted,

SOUTHWESTERN LABORATORIES, INC.

Per: Bob Garrett

Bob Garrett, Manager
Environmental and Analytical Services

Lab. No. D-9006235 KC :gc

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2575 LONE STAR DRIVE * P.O. BOX 224227, DALLAS,TEXAS 75222 * 214/631-2700

Client GERAGHTY & MILLER CO
1030 ANDREWS HIGHWAY,SUITE120
MIDLAND, TX 79701

Attn: STEVE TISCHER

Client No. 2217500
Report No. DO-09-087
Report Date 09/20/90 09:53

Project #CC052.01/LEA REFINERY

Date Sampled 09/11/90

Sampled By STEVE TISCHER

Sample Type SOIL

Transported by FEDERAL EXPRESS

P.O. # N/A

Date Received 09/13/90

Lab No.	Sample Identification
DO-09-087-01	S-CT35
DO-09-087-02	S-CT36
DO-09-087-03	S-CT37

SOUTHWESTERN LABORATORIES

Reviewed By

Bob Garrett, Manager

TEST RESULTS BY SAMPLE

Sample: 01A S-CT35 Collected: 09/11/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
EP TOX EXTRACTION	SW_846_1310	09/14/90	DATE COM		09/14/90	KC
EP TOXICITY CHROMIUM	SW_846_7190	<0.1	MG/L		09/18/90	MB
TCLP CHROMIUM	SW_846_7190	0.25	MG/L		09/18/90	MB
TCLP PREP.		09/14/90	DATE COM		09/14/90	KC

Sample: 02A S-CT36 Collected: 09/11/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
EP TOX EXTRACTION	SW_846_1310	09/14/90	DATE COM		09/14/90	KC
EP TOXICITY CHROMIUM	SW_846_7190	4.0	MG/L		09/18/90	MB
TCLP CHROMIUM	SW_846_7190	3.12	MG/L		09/18/90	MB
TCLP PREP.		09/14/90	DATE COM		09/14/90	KC

Sample: 03A S-CT37 Collected: 09/11/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
EP TOX EXTRACTION	SW_846_1310	09/14/90	DATE COM		09/14/90	KC
EP TOXICITY CHROMIUM	SW_846_7190	4.1	MG/L		09/18/90	MB
TCLP CHROMIUM	SW_846_7190	2.46	MG/L		09/18/90	MB
TCLP PREP.		09/14/90	DATE COM		09/14/90	KC

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Client GERAGHTY & MILLER CO
1030 ANDREWS HIGHWAY,SUITE120
MIDLAND, TX 79701

Attn: STEVE TISCHER

Client No. 2217500
Report No. DO-09-107
Report Date 09/21/90 09:31

Project # CC052.01/LEA REFINERY

Date Sampled 09/12/90

Sampled By STEVE TISCHER/BOB HULET

Sample Type SOIL

Transported by FEDERAL EXPRESS

P.O. # N/A

Date Received 09/14/90

Lab No.	Sample Identification
DO-09-107-01	S-CT38

SOUTHWESTERN LABORATORIES

Reviewed By

Linda Webb Gray for
Bob Garrett, Mgr., EAS

TEST RESULTS BY SAMPLE

Sample: 01A S-CT38 Collected: 09/12/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
EP TOX EXTRACTION	SW_846_1310	09/17/90	DATE COM			KC
EP TOXICITY CHROMIUM	SW_846_7190	1.87	MG/L		09/19/90	MB
TCLP CHROMIUM	SW_846_7190	1.68	MG/L		09/19/90	MB
TCLP PREP.		09/17/90	DATE COM			KC

SwL

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Client GERAGHTY & MILLER CO
1030 ANDREWS HIGHWAY,SUITE120
MIDLAND, TX 79701

Attn: STEVE TISCHER

Client No. 2217500
Report No. DO-09-112
Report Date 09/21/90 09:33

Project #CC052.01/LEA REFINERY

Date Sampled 09/15/90

Sampled By STEVE TISCHER

Sample Type SOIL

Transported by FEDERAL EXPRESS

P.O. # N/A

Date Received 09/17/90

Lab No.	Sample Identification
DO-09-112-01	S-CT39
DO-09-112-02	S-CT40

SOUTHWESTERN LABORATORIES

Reviewed By

Bob Garrett, Mgr., EAS

TEST RESULTS BY SAMPLE

Sample: 01A S-CT39 Collected: 09/15/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
EP TOX EXTRACTION	SW_846_1310	09/17/90	DATE COM			KC
EP TOXICITY CHROMIUM	SW_846_7190	3.76	MG/L		09/19/90	MB
TCLP CHROMIUM	SW_846_7190	3.73	MG/L		09/19/90	MB
TCLP PREP.		09/17/90	DATE COM			KC

Sample: 02A S-CT40 Collected: 09/15/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
EP TOX EXTRACTION	SW_846_1310	09/17/90	DATE COM			KC
EP TOXICITY CHROMIUM	SW_846_7190	1.41	MG/L		09/19/90	MB
TCLP CHROMIUM	SW_846_7190	1.42	MG/L		09/19/90	MB
TCLP PREP.		09/17/90	DATE COM			KC

SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
2575 LONE STAR DRIVE * P.O. BOX 224227, DALLAS,TEXAS 75222 * 214/631-2700

Client GERAGHTY & MILLER CO
1030 ANDREWS HIGHWAY,SUITE120
MIDLAND, TX 79701

Attn: STEVE TISCHER

Client No. 2217500
Report No. DO-09-155
Report Date 09/25/90 15:38

Project #CC052.01/LEA REFINERY

Date Sampled 09/11/90 09/15/90

Sampled By STEVE TISCHER

Sample Type SOIL

Transported by FEDERAL EXPRESS

P.O. # N/A

Date Received 09/19/90

Lab No.	Sample Identification
DO-09-155-01	S-CT36
DO-09-155-02	S-CT37
DO-09-155-03	S-CT39
DO-09-155-04	S-CT40

SOUTHWESTERN LABORATORIES

KC

Reviewed By

Bob Garrett

Bob Garrett, Manager

TEST RESULTS BY SAMPLE

Sample: 01A S-CT36 Collected: 09/11/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
CHROMIUM-FLAME AA	EPA_218_1	38	MG/KG		09/24/90	JG

Sample: 02A S-CT37 Collected: 09/11/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
CHROMIUM-FLAME AA	EPA_218_1	34	MG/KG		09/24/90	JG

Sample: 03A S-CT39 Collected: 09/15/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
CHROMIUM-FLAME AA	EPA_218_1	10	MG/KG		09/24/90	JG

Sample: 04A S-CT40 Collected: 09/15/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
CHROMIUM-FLAME AA	EPA_218_1	25	MG/KG		09/24/90	JG

SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

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Client GERAGHTY & MILLER CO
1030 ANDREWS HIGHWAY,SUITE120
MIDLAND, TX 79701

Attn: STEVE TISCHER

Client No. 2217500
Report No. DO-09-166
Report Date 09/27/90 16:45

Project CC052.01/LEA REFINERY

THE TOTAL CHROME WILL FOLLOW WEDNESDAY.

Date Sampled 09/19/90

Sampled By STEVE TISCHER/JOHN MEIER

Sample Type SOIL

Transported by FEDERAL EXPRESS

P.O. # N/A

Date Received 09/20/90

Lab No.	Sample Identification
DO-09-166-01	S-CT41
DO-09-166-02	S-CT42
DO-09-166-03	S-CT43

SOUTHWESTERN LABORATORIES

KL
Reviewed By

Bob Garrett
Bob Garrett, Manager

TEST RESULTS BY SAMPLE

Sample: 01A S-CT41 **Collected: 09/19/90**

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
CHROMIUM-FLAME AA	EPA_218_1	44	MG/KG		09/26/90	WK
EP TOX EXTRACTION	SW_846_1310	09/24/90	DATE COM		09/24/90	KC
EP TOXICITY CHROMIUM	SW_846_7190	4.21	MG/L		09/25/90	WK
TCLP CHROMIUM	SW_846_7190	2.50	MG/L		09/25/90	WK
TCLP PREP.		09/24/90	DATE COM		09/24/90	KC

Sample: 02A S-CT42 **Collected: 09/19/90**

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
CHROMIUM-FLAME AA	EPA_218_1	41	MG/KG		09/26/90	WK
EP TOX EXTRACTION	SW_846_1310	09/24/90	DATE COM		09/24/90	KC
EP TOXICITY CHROMIUM	SW_846_7190	3.58	MG/L		09/25/90	MB
TCLP CHROMIUM	SW_846_7190	2.15	MG/L		09/25/90	WK
TCLP PREP.		09/24/90	DATE COM		09/24/90	KC

Sample: 03A S-CT43 **Collected: 09/19/90**

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
EP TOX EXTRACTION	SW_846_1310	09/24/90	DATE COM		09/24/90	KC
EP TOXICITY CHROMIUM	SW_846_7190	1.58	MG/L		09/25/90	MB
TCLP CHROMIUM	SW_846_7190	0.89	MG/L		09/25/90	WK
TCLP PREP.		09/24/90	DATE COM		09/24/90	KC

SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

2575 LONE STAR DRIVE * P.O. BOX 224227, DALLAS,TEXAS 75222 * 214/631-2700

Client GERAGHTY & MILLER CO
1030 ANDREWS HIGHWAY,SUITE120
MIDLAND, TX 79701

Attn: STEVE TISCHER

Client No. 2217500
Report No. DO-10-080
Report Date 10/10/90 16:39

Project #CC052.01/LEA REFINERY

Date Sampled 10/04/90

Sampled By STEVE TISCHER

Sample Type SOIL

Transported by FEDERAL EXPRESS

P.O. # N/A

Date Received 10/08/90

Lab No.	Sample Identification
DO-10-080-01	S-CT 44
DO-10-080-02	S-CT 45
DO-10-080-03	S-CT 46

SOUTHWESTERN LABORATORIES

Reviewed By

Bob Garrett, Mgr., EAS

TEST RESULTS BY SAMPLE

Sample: 01A S-CT 44 Collected: 10/04/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
EP TOX EXTRACTION	SW_846_1310	10/10/90	DATE COM		10/10/90	KC
EP TOXICITY CHROMIUM	SW_846_7190	0.32	MG/L		10/10/90	LWG
TCLP CHROMIUM	SW_846_7190	0.16	MG/L		10/10/90	LWG
TCLP PREP.		10/10/90	DATE COM		10/10/90	KC

Sample: 02A S-CT 45 Collected: 10/04/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
CHROMIUM-FLAME AA	EPA_218_1	<5	MG/KG		10/10/90	MB
EP TOX EXTRACTION	SW_846_1310	10/10/90	DATE COM		10/10/90	KC
EP TOXICITY CHROMIUM	SW_846_7190	0.14	MG/L		10/10/90	LWG
TCLP CHROMIUM	SW_846_7190	<0.05	MG/L		10/10/90	LWG
TCLP PREP.		10/10/90	DATE COM		10/10/90	KC

Sample: 03A S-CT 46 Collected: 10/04/90

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
CHROMIUM-FLAME AA	EPA_218_1	<5	MG/KG		10/10/90	MB
EP TOX EXTRACTION	SW_846_1310	10/10/90	DATE COM		10/10/90	KC
EP TOXICITY CHROMIUM	SW_846_7190	0.32	MG/L		10/10/90	LWG
TCLP CHROMIUM	SW_846_7190	<0.05	MG/L		10/10/90	LWG
TCLP PREP.		10/10/90	DATE COM		10/10/90	KC

APPENDIX G

APPENDIX G
SOIL DISPOSAL DOCUMENTS

New Mexico Health and Environment Department

GARREY CARRUTHERS
Governor

DENNIS BOYD
Secretary

MICHAEL J. BURKHART
Deputy Secretary

RICHARD MITZELFELT
Director

March 2, 1990

Ms. Thresea Salamome
Geraghty & Miller, Inc
111 Congress Avenue, Suite 830
Austin, Texas 78701

Dear Ms. Salamome:

This is to confirm our conversations and correspondence regarding the removal and disposal of contaminated soils from Southern Union Refinery south of Lovington, New Mexico. Conversations indicated that the landfill of preference was Waste Management of New Mexico at Rio Rancho.

The submitted test results were discussed with Boyd Hamilton of the Hazardous Waste Bureau for determination of classification. It was concluded that the soils from around the cooling tower and from Areas 1 and 2 can be disposed of at the above mentioned landfill with the following provisions.

1. Soils from the cooling tower area have continous testing during removal to assure that the chrome levels stay below the 5 milligrams per liter.

2. The Special Waste Bureau is notified prior to removal of soils from any of the three areas.

3. Notification of when the soils are to be disposed of at the landfill. The soils must be manifested according to Section 405 of the New Mexico Solid Waste Management Regulations (SWMR-2).

Please note that approval from the Special Waste Bureau for disposal at the Rio Rancho landfill does not guarantee that the landfill will accept the soils. If you have any questions please contact me at (505) 827-278.

Sincerely yours,

Phillip L. Westen
Environmental Scientist

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

March 6, 1990

CERTIFIED MAIL NO. P 612 458 034
RETURN RECEIPT REQUESTED

Mr. Russel A. Buss
Project Manager
Southern Union Gas
P.O. Box 2000
Graves, TX 77619-2000

RE: Closure Plan for Southern Union Refinery, Lovington, Contaminated Soil Removal

Dear Mr. Buss:

The Oil Conservation Division has received a copy of the March 2, 1990 letter from Mr. Phillip Westen of the Environmental Improvement Division Special Waste Bureau to Ms. Theresa Salamone of Geraghty and Miller, Austin, approving disposal of non-hazardous contaminated soils at an EID regulated landfill at Rio Rancho. Based on that approval, OCD has no objections to the disposal location agreed to by New Mexico EID and Southern Union Refinery. We do, however, request that copies of the transfer manifests and results of any soil testing be provided to this office.

If you have any questions, please contact me at (505) 827-5812.

Sincerely,

David G. Boyer
Hydrogeologist/Environmental Bureau Chief

DGB/ag

cc: Jerry Sexton - Oil Conservation Division Hobbs
Phillip L. Westen - EID Special Waste Bureau - Santa Fe
Boyd Hamilton - Hazardous Waste Bureau, Santa Fe
William Terry - EID Waste Management of NM, Rio Rancho

UNIFORM HAZARDOUS WASTE MANIFESTS

Chemical Waste Management, Inc.

ENRAC Division
4227 Technology Drive
Fremont, California 94538-6337
415/770-0575

June 21, 1990

Mr. Steve Tischler
Geraghty & Miller, Inc.
1030 Andrews Highway
Suite 120
Midland, Texas 79701

Dear Mr. Tischler:

Enclosed, you will find one (1) copy of each manifest for off site movements of contaminated soil from the Lea Refining site. These include:

1) LA 1186926 - 29
2) TR 1 - 14
3) CP 1 - 14
4) OP 1 - 234
5) CT 1 - 64

I am currently holding all originals, including weight tickets, and will distribute to Russel Buss at the close of the project. Feel free to contact me at 415/770-0575 if you need additional assistance.

Sincerely,

Chemical Waste Management, Inc.
ENRAC Division

Bob Hulet

Bob Hulet
Project Manager

BH:dmh

Enclosure

enrac\sounion.gas\1598\tischler.ltr

Printed on recycled paper

Chemical Waste Management, Inc.

Route 2 Box 1955
Sulphur, Louisiana 70663
318/583-2169

LEA REFINING CO.

MAY 03 1990

April 27, 1990

Southern Union Refining Company
P O Box 980
Hobbs, NM 88240

RE: RETURN OF MANIFEST COPIES TO GENERATOR

To Whom It May Concern:

Attached are all of the remaining copies of the following manifests which are being returned to you as required by LAC33:V.913.C.

DATE REC'D	MANIFEST NO.	DATE REC'D	MANIFEST NO.	DATE REC'D	MANIFEST NO.
04/21/90	1186928	04/21/90	1186927	04/21/90	1186929
04/21/90	1186926				

If you should have any questions concerning the return of these manifest copies, please contact the Chemical Waste Management, Inc. Document Control Department at 318-583-2169.

Sincerely,

Pamala Riggs

Pamala Riggs
Document Control Supervisor

cc: Document Control File #612.01.07

Printed on recycled paper

STATE OF LOUISIANA
DEPARTMENT OF ENVIRONMENTAL QUALITY
HAZARDOUS WASTE DIVISION
P.O. BOX 44307
BATON ROUGE, LOUISIANA 70804

4118.

132027

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. WMT 3 6 0 0 1 1 0 3 6 7 1 0 0 0 0 3 — Manifest Document No.

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Southern Union Refining Co
P.O. Box 980
Hobbs NM 88240

A. State Manifest Document Number: LA 1186926

B. State Generator's ID:

4. Generator's Phone (409) 962-8888 or 505-396-5821

5. Transporter 1 Company Name: TAD Trucking

6. US EPA ID Number: NMD 1 1 7 5 5 5 1 6 2 1

C. State Transporter's ID:

D. Transporter's Phone: 505-393-1010

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address
CHEMICAL WASTE MGT., INC.
RT 2, JOHN BRANNON RD.
CARLYSS, LA 70633

10. US EPA ID Number: LAD 0 0 7 7 7 7 2 0 1

G. State Facility's ID:

H. Facility's Phone: (318) 583-2169

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLID, N.O.S., ORM E, NA9189 (D007) EPA(Toxic for chromes) acpt PP 11/24/90	001	DT	01092	Y	D007
b.					
c.					

J. Additional Descriptions for Materials Listed Above
A) HOU W12143

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
If spilled contain material
contact Russel Buss @ 409-962-8888
acpt PP 11/24/90

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimize the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
Russel A. Buss	Russel A. Buss	10	12	90

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Gus Garcia	Gus Garcia	10	12	90

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
P. Hestridge	P. Hestridge	10	17	90

EPA Form 8700-22 k(Rev. 9/88) Previous edition is obsolete.
TSD FACILITY MAIL TO GENERATOR

DEQ FORM HW-3 (R 9/88)

STATE OF LOUISIANA
DEPARTMENT OF ENVIRONMENTAL QUALITY
HAZARDOUS WASTE DIVISION
P.O. BOX 44307
BATON ROUGE, LOUISIANA 70804

A 13203

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NMT 1 3 6 0 0 1 0 3 6 7 1 — Manifest Document No. 0 0 0 7

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Southern Union Refining Co
P.O. Box 980 NM 88240
Hobbs,

A. State Manifest Document Number LA 1186927

B. State Generator's ID

4. Generator's Phone (409) 962-8888 or 505-396-5821

5. Transporter 1 Company Name: TAD Trucking — 6. US EPA ID Number: N M D 1 2 5 5 7 1 6 2 1 1

C. State Transporter's ID

D. Transporter's Phone 505-393-1010

7. Transporter 2 Company Name — 8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
CHEMICAL WASTE MGT., INC.
RT. 2 BOX CANNON RD.
CARLYSS, LA 70663

10. US EPA ID Number: L A D 0 0 0 7 7 7 2 0 1

G. State Facility's ID

H. Facility's Phone (318) 583-2169

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14 Unit Wt/Vol	I Waste No.
a. RQ, HAZARDOUS WASTE SOLID, N.O.S., ORM-E, NA9189 (D007) CAPACITOR DUST	0 0 1 1	D T	0 0 0 1 6	Y	(D007)
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
A) HOU W12143

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
WEAR TYVEK SUIT, HALF MASK RESPIRATOR WITH HEPA CARTRIDGE.

Russel Buss 409-962-788

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimize the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month Day Year
Russel A. Buss	Russel A. Buss	0 3 2 1 9 0

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Harry Johnston	Harry Johnston	0 4 2 0 9 0

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name	Signature	Month Day Year
P. Prestridge	P. Prestridge	0 4 2 0 9 0

EPA Form 8700-22 k(Rev. 9/88) Previous edition is obsolete.
TSD FACILITY MAIL TO GENERATOR

DEQ FORM HW-3 (R 9/88)

STATE OF LOUISIANA
DEPARTMENT OF ENVIRONMENTAL QUALITY
HAZARDOUS WASTE DIVISION
P.O. BOX 44307
BATON ROUGE, LOUISIANA 70804

13202-I

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NMT360011036 — Manifest Document No. 17002 — 2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Southern Union Refining Co
P.O. Box 980
Hobbs NM 88240
4. Generator's Phone (409) 962-8888 or 505-396-5821

A. State Manifest Document Number: LA 1186928
B. State Generator's ID:

5. Transporter 1 Company Name: TAD Trucking — 6. US EPA ID Number: NMD175545716211
C. State Transporter's ID:
D. Transporter's Phone: 505-393-1010

7. Transporter 2 Company Name — 8. US EPA ID Number
E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address
CHEMICAL WASTE MGT., INC.
RT. 2, JOHN BRANNON RD.
CARLYSS, LA 70663
10. US EPA ID Number: LAPPPD777220
G. State Facility's ID:
H. Facility's Phone: (318) 583-2169

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14 Unit Wt/Vol	I Waste No.
a. RQ, HAZARDOUS WASTE SOLID, N.O.S., ORME, (D007) NA9189 EPA (Toxic for Chrom)	001	DT	01001211	Y	PB 4-21-90 D007
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
A) ~~HOU12143~~
HOUW12143

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
LINE TRUCK BEDS WITH PLASTIC AND COVER WITH TARPS.

Russel Buss 409-962-8888 copy PB HOU10 4/21

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimize the present and future threat to human health and the environment. OR, If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
Russel A. Buss	Russel A. Buss	10	21	90

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Fred Syfrett	Fred Syfrett	10	21	90

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

STATE OF LOUISIANA
DEPARTMENT OF ENVIRONMENTAL QUALITY
HAZARDOUS WASTE DIVISION
P.O. BOX 44307
BATON ROUGE, LOUISIANA 70804

MB. 132079

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NMT136100110367 — Manifest Document No. 00011

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Southern Union Refining Co
P.O. Box 980
Hobbs NM 88240

A. State Manifest Document Number: LA 1186929

B. State Generator's ID:

4. Generator's Phone (409) 962-8888 or 505-396-5821

5. Transporter 1 Company Name: TAD Trucking

6. US EPA ID Number: WMD117555116

C. State Transporter's ID:

D. Transporter's Phone: 505-393-1010

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address
CHEMICAL WASTE MGT., INC.
RT. 2, JOHN BRANNON RD.
CARLYSS, LA 70633

10. US EPA ID Number: LAD000777201

G. State Facility's ID:

H. Facility's Phone: (318)583-2169

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE SOLID, N.O.S., ORME, (D007) NA9189 EPA Toxic for chrome	0011	DT	00019	Y	D007
b.					
c.					

J. Additional Descriptions for Materials Listed Above
A) ~~W12143~~, HOU W12143
~~HOU12143~~

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
A) If spilled contain material
Contact Russell Buss @ 409-962-888
appr RB 4/24/90 BS

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labled and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month Day Year
Russel A Buss	Russel A. Buss	10 31 21 1 90

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
David Meyers	David Meyers	10 31 20 1 90

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name	Signature	Month Day Year
P Prestridge	P Prestridge	11 1 90

EPA Form 8700-22 k(Rev. 9/88) Previous edition is obsolete.
TSD FACILITY MAIL TO GENERATOR

DEQ FORM HW-3 (R 9/88)

SPECIAL WASTE MANIFESTS

NO: CT-1

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves TX 77619
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 960 Hobbs NM 88240
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: cont. soil Quantity: 210 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 020757

Rep. Sample = S-CT19

Container(s): end dump No: 1 Type T

Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-20-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: ~~GLOVER INC~~ TAB TRUCKing

Address: ~~ALBUQUERQUE~~ Hobbs NM Phone: 877-6911

Driver: Wayne Ritter Truck No.: 21-NAD Tag No./State: CA 86645

I hereby certify that the above named material was picked up at the generator site listed below.

Wayne Ritter — 3/20/90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Wayne Ritter — 3/20/90
Driver Signature — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: [signature] Print: Roy

Date: 3-20-90

EAST grid between 375.800 and 375.900 with grid between 1557.25 and 1557.100

NO: CT-2

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves TX 77619
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM 88240
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: cont. soil Quantity: 20 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # NMA 02757

Rep. Sample = S-CT 19

Container(s): end dump No: 1 Type T

Special Handling Instructions: Contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Bliss — Generator Authorized Agent
Russel Bliss — Signature
3-20-90 — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010

Driver: Bill Brown Truck No.: 24-81AD Tag No./State: BP60542 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

William Brown 3/20/90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

William Brown 3/21/90
Driver Signature — Shipment Date

Received at:

I hereby certify that the above name material has been accepted and to the best of my knowledge the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3-21-90

EAST Grid BETWEEN 375.800 And 375-900 ELEV. 559.13
NORTH Grid BETWEEN 1557.25 And 1557.100

NO: CT-3

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: PO Box 2000 Eunice TX 77619
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: PO Box 980 Hobbs NM 88240
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Cont. Soil Quantity: 20 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02757

Rep. Sample = S-CT19

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-20-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010

Driver: Richard Rowley Truck No.: 26-85AD Tag No./State: AD86649CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Richard Rowley — 3-20-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Harry Archuleta — 3-21-90
Driver Signature — Shipment Date

Received at: Kit Ranch Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct

Signed: Jen Heek Print: Jen Heek

Date: 3-21-90

EAST GRID BETWEEN 375.800 And 375.900 Elev 5591.13
NORTH GRID BETWEEN 1557.25 And 1557.100

NO: CT-4

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves TX 77619
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM 88240
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: cotton. soil Quantity: 210 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02757

Rep. Sample = S-CT19

Container(s): Trailer No: 1 Type end dump

Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-20-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD TRUCKing

Address: 506 N Shipp Hobbs, N.M. Phone: 505-393-1010

Driver: John V. Peralta SR. Truck No.: 204 Tag No./State: PR 19266 N.M

I hereby certify that the above named material was picked up at the generator site listed below.

John V. Peralta S. — 3-20-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

John V. Peralta S. — 3-20-90
Driver Signature — Shipment Date

Received at: Rio Rancho Sanitary

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: [signature] Print: Roy Ewing

Date: 3-20

Cut East Grid Between 375,800 And 375,900 North grid Between 1557,25 And 1557,100.

NO: CT-5

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Eunice TX 77619
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM 88240
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: contam. soil Quantity: 21⁸ Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02757
Rep. Sample = S-CT19

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-20-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAS TRUCKing

Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010

Driver: Virgil Stephens Truck No.: 203-7980 Tag No./State: AR19267 N.M.

I hereby certify that the above named material was picked up at the generator site listed below.

Virgil W. Stephens — 3/20/90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Virgil W. Stephens — 3/20/90
Driver Signature — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Roy Ewing Print: Roy Ewing

Date: 3-20-90

EAST grid Between 375,800 And 375,900
North grid Between 1557,25 And 1557,100

NO: CT-6

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Eunice NM 88231
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: PO Box 980 Hobbs NM 88240
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: cont. soil Quantity: 210 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # EUNA 02757
Rep Sample = S-CT19

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: Contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-20-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAO TRUCKing

Address: 506 N. Shipp Hobbs, N.M. Phone: 505 393 1010

Driver: Robert MACIAS Truck No.: 44-86AO Tag No./State: BP40858

I hereby certify that the above named material was picked up at the generator site listed below.

Driver Signature — 3-20-90 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 3-20-90 Shipment Date

Received at: Rio Ranch Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: [signature] Print: Roy Lang

Date: 03/20/90

EAST grid between 375,800 and 375,900 north

NO: CT-7

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Brazos TX 77619
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM 88240
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: cont. soil Quantity: 19 Units: CY

DOT Hazard Class: none

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02257
Rep. Sample = S-CT19

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-20-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD TRUCKing

Address: 506 N. Shipp Phone: 505-393-1010

Driver: Gus Garcia Truck No.: 19-80AD Tag No./State: AP86643 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Gus Garcia — 3/20/90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Gus Garcia — 3/20/90
Driver Signature — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Roy Lowery Print: Roy Lowery

Date: 3-20-90

EAST grid between 375,800 and 375,900 North grid between 1557,25 and 1557,100 E/W 5591

NO: CT-8

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graham TX 76450
Phone: (940) 549-2000

Job Name: Southern Union Gas
Address: P.O. Box 960 Hobbs NM 88240
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: None Quantity: 18 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 027757

Rep. Sample = S-CT 19

Container(s): end dump No: 1 Type Truck

Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-20-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD TRUCKing

Address: 506 N Shipp Hobbs, N.M. Phone: 505-393-1016

Driver: Harry Johnston Truck No.: 43-77M Tag No./State: BP 40857 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Harry Johnston — 3-20-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Fred Sykes — 3-21-90
Driver Signature — Shipment Date

Received at:

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3-21-90

EAST Grid BETWEEN 375.800 AND 375.900 E&N 559.13
NORTH Grid BETWEEN 1557.25 AND 1557.100

2528

NO: CT-9

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves TX 77619
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM 88240
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: ~~Haz~~ Contam. Soil Quantity: 210 Units: CY

DOT Hazard Class: N/A

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02757

S-CT19=Rep. Sample.

Container(s): Trailer No: 1 Type End Dump

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Kissel Buss — Generator Authorized Agent
Russel Buss — Signature
3-20-90 — Shipment Date

Transporter: JAD TRUCKing

Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1016

Driver: Scott Woznick Truck No.: 25-84AD Tag No./State: AP 86648

I hereby certify that the above named material was picked up at the generator site listed below.

Scott Woznick — Driver Signature
3/20/90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Scott Woznick — Driver Signature
3/20/90 — Shipment Date

Received at:

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: [signature]
Print: Roy Ewing
Date: 3-20-90

EAST grid Extension 375,600 and 375,900 North grid Extension 1557.25 and 1557.100

2739

NO: CT-10

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: PO Box 2000 Graves, TX 77619
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM 88240
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: None Quantity: 210 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02757
Rep. Sample = 5-CT19

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-20-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD Trucking

Address: 506 N. Shipp Hobbs, N.M. Phone: 505 393 1016

Driver: Leland Allen Truck No.: 27-87AS Tag No./State: AP 86650 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Driver Signature — 3-20-90 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 3-20-90 Shipment Date

Received at: Rio Ranch Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Roy Ewing Print: Roy Ewing

Date: 3-20-90

EAST grid Bottom 375,800 And 375,900
North grid Bottom 1551.25 And 1557.100 Elev 5591.13

NO: CT-11

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves, TX 77619
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM 88240
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: ~~Dirt~~ Cont Soil Quantity: 19 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile# WMA 02757

Rep. Sample = S-CT19

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3-20-90 — Shipment Date

Transporter: TAD TRUCKing

Address: 506 N. Shipp Phone: 505-393-1010

Driver: Dick Dean Truck No.: 28-73AD Tag No./State: BP85316

I hereby certify that the above named material was picked up at the generator site listed below.

Dick Dean — Driver Signature
3/20/90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Dick Dean — Driver Signature
3/21/90 — Shipment Date

Received at: R.O Rancho Sanitary Land Fill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3-21-90

EAST GRID BETWEEN 375,800 and 375,900
NORTH GRID BETWEEN 1557.25 and 1557,100

Elev. 5591.13

NO: CT-12

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
A.O. Box 2000
Address: Graves, TX 77619
Phone: (409) 962-8888

Job Name: Southern Union Gas
P.O. Box 980
Address: Hobbs NM 88240
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: contam. soil Quantity: 18 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02257
Rep. Sample = S-CT18

Container(s): trailer No: 1 Type enddump

Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3-20-90 — Shipment Date

Transporter: TAD Trucking

Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010

Driver: Dennis Raines Truck No.: 35-8240 Tag No./State: AP86654 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Dennis Raines — Driver Signature
3-20-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Dennis Raines — Driver Signature
3.21.90 — Shipment Date

Received at: Roosevelt Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3-21-90

EAST GRID BETWEEN 375.800 AND 375.900 ELEV. 559.13
NORTH GRID BETWEEN 1557.25 AND 1557.100

2240

NO: CT-B

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Eunice NM
Phone: (505) 394-2511

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: contam. soil Quantity: 21 Units: CY

DOT Hazard Class: none

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02757
Rep Sample = S-CT 18

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-21-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010

Driver: LELAND ALLEN Truck No.: 27-87AD Tag No./State: AP 86650CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Driver Signature — 3-21-90 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 3-21-90 Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3-21-90

EAST 6214 BETWEEN 375,800 AND 375,960 EW
NORTH 6214 BETWEEN 1557.25 AND 1557.100 5591.13

NO: CT-14

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas Co. Job Name: Southern Union Gas
Address: P. Box 2000 Graves TX Address: P.O. Box 930 Hobbs NM
Phone: (409) 962-8888 Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 20 Units: CY
DOT Hazard Class: None
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: Profile # WMA 02757
Rep. Sample = S-CT 18
Container(s): Trailer No: 1 Type end dump
Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3/21/90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAB TRUCKING
Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010
Driver: Robert MACIAS Truck No.: 44-86AC Tag No./State: BP 40858 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Rob — 3-21-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Rob — 3-21-90
Driver Signature — Shipment Date

Received at: R.I.O. RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: KEN HEECK Print: KEN HEECK
Date: 3-21-90

EAST GRID BETWEEN 375.800 AND 375.900
NORTH GRID BETWEEN 155725 AND 155,100 ELEV. 5591.3

2330

NO: CT-15

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Co. Job Name: Southern Union Gas
Address: P.O. Box 2000 Graves TX Address: P.O. Box 980 Hobbs NM
Phone: (409) 962-8888 Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam Soil Quantity: ~~15~~ 20 Units: CY
DOT Hazard Class: None
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: PROFILE # WMA 02757
Rep Sample = S-CT 15
Container(s): Trailer No: 1 Type End dump
Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3/21/90 — Shipment Date

Transporter: JAD TRUCKing
Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010
Driver: Scott Woznick Truck No.: 25-84AD Tag No./State: AP 86648 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Scott Woznick — Driver Signature
3/21/90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Scott Woznick — Driver Signature
3/21/90 — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck
Date: 3-21-90

EAST GRID BETWEEN 375.800 AND 375.900 CEV. 5591.3
NORTH GRID BETWEEN 1557.25 AND 1557.100

NO: CT-16

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Eunice TX
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam Soil Quantity: 20 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02757

Rep. Sample = S-CT 18

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-21-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAG TRUCKING

Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1016

Driver: John Penick Truck No.: 204-1204 Tag No./State: AR1926 N.M.

I hereby certify that the above named material was picked up at the generator site listed below.

John V. Penick — 3-21-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

John V. Penick — 3-21-90
Driver Signature — Shipment Date

Received at: RIO RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Jon Heck Print: JON HECK

Date: 3-21-90

EAST GRID BETWEEN 375,800 AND 375,900 EAST 559,113
NORTH GRID BETWEEN 155725 AND 155,100

NO: CT-17

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. box 2000 Eunice TX
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: PO Box 980 Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 20 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WNA 02757
Rep Sample = S-CT 18

Container(s): Trailer No: 1 Type end dump

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3-21-90 — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. Shipp Hobbs N.M. 88240 Phone: 505-393-1010

Driver: Gus Garcia Truck No.: 19-80AD Tag No./State: AP 86643 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Gus Garcia — Driver Signature
3/21/90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Gus Garcia — Driver Signature
3/21/90 — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3-21-90

EAST GRID BETWEEN 375,800 AND 375,900 ELEV. 5591.13
NORTH GRID BETWEEN 1557.25 AND 1557.100

NO: CT-18

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas Co P.O. Box 2000 Graves TX
Phone: (409) 962-8888

Job Name: Southern Union Gas P.O. Box 980 Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 20 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # NMA 02757
Rep. Sample = S-CT 18

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-21-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010

Driver: Virgil Stephens Truck No.: 263-79AD Tag No./State: PR 19267 N.M.

I hereby certify that the above named material was picked up at the generator site listed below.

Virgil W. Stephens 3/21/90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Virgil W. Stephens 3/21/90
Driver Signature — Shipment Date

Received at: Rio Rancho San Tany Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3-21-90

EAST GRID BETWEEN 375.800 And 375.900
NORTH GRID BETWEEN 1557.25 And 1557.100
ELEV. 5591.13

NO: CT-19

NONHAZARDOUS
SPECIAL WASTE MANIFEST

=131

Generator: Southern Union Gas
Address: P.O. box 2000 Eunice TX
Phone: (409) 962-8848

Job Name: Southern Union Gas
Address: P.O Box 980 Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 20 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WNA 02757
Rep. Sample = 5-CT 18

Container(s): Trailer No: 1 Type End dump

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3-21-90 — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010

Driver: WAYNE Ritter Truck No.: 21-74AD Tag No./State: AP 86645 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Wayne Ritter 3/21/90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Wayne Ritter 3/21/90
Driver Signature — Shipment Date

Received at: RIO RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: DEN Heck Print: DEN Heck

Date: 3-21-90

EAST GRID BETWEEN 375,850 AND 375,900
NORTH GRID BETWEEN 1557.25 AND 1557.100

EKV 5591.13

NO: CT-20

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Eunice TX
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 21 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02757
Rep. Sample = S-CT 18

Container(s): trailer No: 1 Type enddump

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3-21-90 — Shipment Date

Transporter: JAD TRUCKing
Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010
Driver: John Penick Truck No.: 204-1204 Tag No./State: AR 1926 N.M.

I hereby certify that the above named material was picked up at the generator site listed below.

Driver Signature — 3-22-90 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 3-22-90 Shipment Date

Received at: Rio Rancho San Tany Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck
Date: 3/22/90

EAST GRID BETWEEN 375.800 AND 375.900 ELEV 591.13
NORTH GRID BETWEEN 1551.25 AND 1552.100

NO: CT-21

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas Job Name: Southern Union Gas
Address: P.O. Box 2000 Graves TX Address: P.O. Box 980 Hobbs NM
Phone: (409) 962-9888 Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 21 Units: CY
DOT Hazard Class: None
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: Profile # NMA 02757
Rep. Sample = S-CT 18
Container(s): Trailer No: 1 Type end dump
Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-22-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD TRUCKing
Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010
Driver: Robert Macias Truck No.: 44-86AD Tag No./State: BP40858CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Driver Signature — 3-22-90 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 3-22-90 Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck
Date: 3/22/90

EAST GRID BETWEEN 375.800 AND 375.900 E EW. 5591.B
NORTH GRID BETWEEN 1557.25 AND 1557.100

NO: CT-22

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas P.O. Box 2000
Address: Graines TX
Phone: (409) 962-8888

Job Name: Southern Union Gas Po. Box 980
Address: Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 210 Units: CY

DOT Hazard Class: none

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # NMA 02757
Rep Sample = S-CT 18

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3-22-90 — Shipment Date

Transporter: TAD TRUCKing

Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010

Driver: Dennis Raines Truck No.: 35-80AD Tag No./State: AP86654 CA

I hereby certify that the above named material was picked up at the generator site listed below.

Dennis Raines — Driver Signature
3-22-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Dennis Raines — Driver Signature
3-22-90 — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3-22-90

EAST GRID BETWEEN 375.800 AND 375.900
NORTH GRID BETWEEN 1557.25 AND 1557.100

EIEN 5591-13

NO: CT-23

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves TX
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O Box 980 Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam Soil Quantity: 21 Units: CY
DOT Hazard Class: None
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: Profile # wnA 02757
Rep Sample = S=CT 18
Container(s): trailer No: 1 Type end dump
Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-22-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAA Trucking
Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010
Driver: Virgil Stephens Truck No.: 203-79AA Tag No./State: PR 1926.7 N.M.

I hereby certify that the above named material was picked up at the generator site listed below.

Virgil W. Stephens — 3-22-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Virgil W. Stephens — 3-22-90
Driver Signature — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck
Date: 3/22/90

East Cmd Between 375,800 and 375,400 EEN5591.13
North Cmd Between 155125 and 155210

2741

NO: CT-24

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Eunice TX
Phone: (409)962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam Soil Quantity: 21 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02757
Rep. Sample = 5-CT 15

Container(s): Trailer No: 1 Type end dump

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-22-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: JAM TRUCKING

Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010

Driver: Leland Allen Truck No.: 27-8740 Tag No./State: AP86650 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

3-22-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

3-22-90
Driver Signature — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3/22/90

EAST GRID BETWEEN 375,800 AND 375,900 ERN 5541.13
NORTH GRID BETWEEN 1557.25 AND 1557.100

NO: CT 25

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas Job Name: Southern Union Gas

Address: P.O. Box 2000 Eunice TX Address: P.O. Box 980 Hobbs NM

Phone: (409) 962-8888 Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam Soil Quantity: 21 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # USA 02757

Rep. Sample = S-CT18

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3-22-90 — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010

Driver: Scott Woznick Truck No.: 25-84AA Tag No./State: AP 86648 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Scott Woznick — Driver Signature
3/22/90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Scott Woznick — Driver Signature
3/22/90 — Shipment Date

Received at: Rio Rancho Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3/22/90

EAST GRID BETWEEN 375.800 AND 375.900

NORTH GRID BETWEEN 1557.25 AND 1557.100

E/EW 559.13

NO: CT-26

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Eunice TX
Phone: (409) 962-8888

Job Name: Southern Union H2S
Address: P.O. Box 990 Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: ~~50~~ 21 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Proj. # WMA 02757

Rep Sample = STCT 1B

Container(s): Trailer No: 1 Type end dump

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3-22-90 — Shipment Date

Transporter: TAD TRUCKing
Address: 506 N. Shipp Phone: 505-393-1016
Driver: Fred Syfrett Truck No.: 43-TAD Tag No./State: BP 40857 CA

I hereby certify that the above named material was picked up at the generator site listed below.

Fred Syfrett 3-22-90
Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Fred Syfrett 3-22-90
Driver Signature Shipment Date

Received at: Rio Ranch Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge the above is true and correct.

Signed: Ken Hall Print: Ken Hall
Date: 3/22/90

EAST Grid BETWEEN 375.800 AND 375.900
NORTH Grid BETWEEN 1557.25 AND 557.100 ELEV 591.13

NO: CT 27

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves TX
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 21 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02757
Rep. Sample = S-CT 17

Container(s): Trailer No: 1 Type end dump

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3-22-90 — Shipment Date

Transporter: TAD TRUCKing
Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010
Driver: Harry Johnston Truck No.: 26-85AD Tag No./State: AD86649 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Harry Johnston — Driver Signature
3-22-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Harry Johnston — Driver Signature
3-22-90 — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck
Date: 3/22/90

EAST GRID BETWEEN 375.800 AND 375.900
NORTH GRID BETWEEN 1557.25 AND 1557.100 ELEV. 5591.3

NO: CT-28

NONHAZARDOUS
SPECIAL WASTE MANIFEST 2132

Generator: Southern Union Gas Co. Job Name: Southern Union Gas Co.
Address: P.O. Box 2000 Grayburg TX Address: P.O. Box 980 Hobbs NM
Phone: (409) 962-8888 Phone: (505) 396-5521

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 21 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: PRAC. I.D. # 02757

Rep. Sample = S-CT-17

Container(s): Trailer No: 1 Type end dump

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Bliss — Generator Authorized Agent
Russel Bliss — Signature
3-22-90 — Shipment Date

Transporter: TAD TRUCKing

Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010

Driver: Wayne Ritter Truck No.: 21-74AD Tag No./State: AP86645CA

I hereby certify that the above named material was picked up at the generator site listed below.

Wayne Ritter — Driver Signature
3/22/90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Wayne Ritter — Driver Signature
3/22/90 — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3/22/90

East Grid Between 375.800 And 375.900 Elev 5591.8
North Grid Between 1557.28 And 1557.100

NO: CT 29

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Eunice TX
Phone: (409) 962-8588

Job Name: Southern Union Gas
Address: P.O Box 980 Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam Soil Quantity: 21 Units: CY
DOT Hazard Class: None
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: Profile # 02757 WMA
Rep. Sample = S-CT 6/7
Container(s): Trailer No: 1 Type end dump
Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-22-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAS TRUCKING
Address: 506 N. Shipp Hobbs N.M Phone: 505-393-1010
Driver: Bill Brown Truck No.: 28-73AD Tag No./State: BP 85316 CA

I hereby certify that the above named material was picked up at the generator site listed below.

William P Brown — 3-22-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Dale Clem — 3-22-90
Driver Signature — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck
Date: 3/22/90

EAST GRID BETWEEN 375,800 AND 375,900 ELEV. 5591.13
NORTH GRID BETWEEN 155725 AND 155700

NO: CT 30

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O box 2000 Eunice TX
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs N.M.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 21 Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: PROFile # NMA 02757
Rep. Sample = S-CT17

Container(s): Trailer No: 1 Type end dump

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-22-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD TRUCKing

Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010

Driver: Sam Kiser Truck No.: 24-81AD Tag No./State: BP 60542

I hereby certify that the above named material was picked up at the generator site listed below.

Sam Kiser — 3/22/90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

William R Brown — 3-22-90
Driver Signature — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3-22-90

EAST Grid BETWEEN 375.800 AND 375.900
NORTH Grid BETWEEN 1557.25 AND 1557.100 ELEV. 5591.13

NO: CT 31

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Eunice TX
Phone: (409) 962-8898

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs NM
Phone: (505) 396-5421

QUANTITY AND DESCRIPTION 16 CY

Proper Shipping Name: Contam. Soil Quantity: ~~27~~ Units: CY

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA 02257

Rep Sample = S-CT #17

Container(s): Trailer No: 1 Type end dump

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3-22-90 — Shipment Date

Transporter: TAD TRUCKing
Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010
Driver: Gus Garcia Truck No.: 19-80AD Tag No./State: AP 86643 CA

I hereby certify that the above named material was picked up at the generator site listed below.

Gus Garcia — Driver Signature
3/22/90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Gus Garcia — Driver Signature
3/22/90 — Shipment Date

Received at: Rio Rancho ~~Landfill~~ Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: KEN HECK
Date: 3/22/90

EAST GRID BETWEEN 375,800 AND 375,900 ELEV 5591.13
NORTH GRID BETWEEN 1557.25 AND 1557.100

NO: CT-32

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. BOX 2004 GRAHAM, TX
Phone: (409) 962-8888

Job Name: SOUTHERN UNION GAS
Address: PO. BOX 190 HOBBS, NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 21 Units: C Y

DOT Hazard Class: NONE

Identification Number: NONE

Reportable Quantity: NONE

Additional Description: PROFILE # WMA 02757
REP. SAMPLE = S-CT19

Container(s): TRAILER No: 1 Type END DUMP

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-23-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: JAD TRUCKING

Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010

Driver: John Penick Truck No.: 204-1204 Tag No./State: PR 19266 N.M

I hereby certify that the above named material was picked up at the generator site listed below.

John V. Penick — 3-23-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

John V. Penick — 3-23-90
Driver Signature — Shipment Date

Received at: BFI RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: [redacted] Ken Heck

Date: 3-23-90

EAST GRID BETWEEN 375.800 AND 375.600
NORTH GRID BETWEEN 1557.25 AND 1557.100 ELEV. 5591.13

NO: CT-33

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O BOX 2000 GRAVES, TX.
Phone: (409) 962-8888

Job Name: SOUTHERN UNION GAS
Address: P.O. BOX 980 HOBBS, N.M.
Phone: (505) ~~397~~ 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 21 Units: CY

DOT Hazard Class: NONE

Identification Number: NONE

Reportable Quantity: NONE

Additional Description: PROFILE # WMA 02757

~~RCRA~~ REP. SAMPLE # S-CT-19

Container(s): TRAILER No: 1 Type END DUMP

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-23-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. SHIPP Hobbs N.M. Phone: 505-393-1010

Driver: Virgil Stephens Truck No.: 203-79AD Tag No./State: PR 19267

I hereby certify that the above named material was picked up at the generator site listed below.

Virgil Stephens — 3-23-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Virgil Stephens — 3-23-90
Driver Signature — Shipment Date

Received at: RIO RANCHO ~~LANDFILL~~ SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: [illegible] Print: [illegible]

Date: 3-23-90

EAST GRID BETWEEN 375.800 AND 375.900
NORTH GRID BETWEEN 1557.25 AND 1557.100 EL EV 5591.13

NO: CT-34

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
P.O BOX 2000
Address: GRAVES, TX
Phone: (409) 962-6888

Job Name: SOUTHERN UNION GAS
P.O. BOX 980
Address: HOBBS, NM.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 21 Units: CY

DOT Hazard Class: NONE

Identification Number: NONE

Reportable Quantity: NONE

Additional Description: PROFILE # NMA 02757
REP SAMPLE = SCT-HT 30

Container(s): TRAILER No: 1 Type END DUMP

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-23-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: JAD TRUCKING

Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1046

Driver: Robert MACIAS Truck No.: 44-86AD Tag No./State: BD 4085BCA

I hereby certify that the above named material was picked up at the generator site listed below.

Driver Signature — 3-23-90 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 3-23-90 Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: [signature] Print: [signature]

Date: 3-23-90

EAST CUT BETWEEN 375.800 AND 377.900
NORTH CUT BETWEEN 1557.25 AND 1557.100 ELEV. 5596.13

NO: CT-35

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. BOX 2000 GRAVES, TX
Phone: (409) 962-9888

Job Name: SOUTHERN UNION GAS
Address: POBOX 980 HOBBS, NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 21 Units: CY

DOT Hazard Class: NONE

Identification Number: NONE

Reportable Quantity: NONE

Additional Description: PROFILE # WMA 02257
REP. SAMPLE = SCT-1930

Container(s): TRAILER No: 1 Type END DUMP

Special Handling Instructions: CONTAINS 21 ppm CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-23-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N Shipp Hobbs N.M Phone: 505-393-1040

Driver: Scott Woznick Truck No.: 25-84AD Tag No./State: AA 86648 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Scott Woznick — 3-23-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Scott Woznick — 3/23/90
Driver Signature — Shipment Date

Received at: RIO RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: KEN HECK

Date: 3-23-90

EASTBOUND BETWEEN 375.80 AND 375.90 EEN 559/13

NO: CT-36

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. BOX 2000 GRAVES, TX
Phone: (409) 962-8888

Job Name: SOUTHERN UNION GAS
Address: P.O. BOX 980 HOBBS, N.M.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 21 Units: CY

DOT Hazard Class: NONE

Identification Number: NONE

Reportable Quantity: NONE

Additional Description: PROFILE # WMA ~~0755~~ NM 02757

REP. SAMPLE = S-CT-#30

Container(s): TRAILER No: 1 Type END DUMP

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3-23-90 — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010

Driver: Dennis Raines Truck No.: 35-82AD Tag No./State: AD 86654 CA

I hereby certify that the above named material was picked up at the generator site listed below.

Dennis Raines — Driver Signature
3-23-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Dennis Raines — Driver Signature
3-23-90 — Shipment Date

Received at: RIO RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heek Print: Ken Heek

Date: 3-23-90

EAST GRID BETWEEN 375.800 AND 375.900 ELEV. 5591.13
NORTH GRID BETWEEN 1557.25 AND 1557.100

NO: CT-37

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. BOX 2000 GRAVES, TX.
Phone: (409) 962-8888

Job Name: SOUTHERN UNION GAS
Address: P.O. BOX 990 HOBBS, NM.
Phone: (505)

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 21 Units: CY

DOT Hazard Class: NONE

Identification Number: NONE

Reportable Quantity: NONE

Additional Description: PROFILE # UNNA 02757

REP. SAMPLE = S-CT-@ 30

Container(s): TRAILER No: 1 Type END DUMP

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-23-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010

Driver: HARRY JOHNSTON Truck No.: 26-85AD Tag No./State: AP 86649 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Harry Johnston — 3-23-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Harry Johnston — 3-23-90
Driver Signature — Shipment Date

Received at: RIO RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: KEN HECK Print: KEN HECK

Date: 3-23-90

EAST GRID BETWEEN 375,800 AND 375,900 EIEN, 5591.13
NORTH GRID BETWEEN 1557.25 AND 1557.100

NO: CT-38

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves TX
Phone: (409) 962-5555

Job Name: Southern Union Gas
Address: Po. Box 980 Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 21 Units: CY

DOT Hazard Class: None

Identification Number: ~~NA~~ NONE

Reportable Quantity: ~~NA~~ NONE

Additional Description: PRGI. # WMA 02757

Rep. Sample = SET @ 30

Container(s): Trailer No: 1 Type end dump

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

RUSSEL BUSS — Generator Authorized Agent
Russel Buss — Signature
3-23-90 — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-4010

Driver: WAYNE RITTER Truck No.: 21-74AD Tag No./State: AP 8664SCA.

I hereby certify that the above named material was picked up at the generator site listed below.

Wayne Ritter — Driver Signature
3-23-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Wayne Ritter — Driver Signature
3/23/90 — Shipment Date

Received at: RIO RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: KEN HECK

Date: 3-23-90

EAST Grid BETWEEN 375.800 And 375.900
NORTH Grid BETWEEN 1557.25 And 1557.100

ELEV. 5591.13

NO: CT-39

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas Job Name: Southern Union Gas
Address: P.O. Box 2000 Graves TX Address: P.O Box 980 Hobbs NM
Phone: (409) 962-5858 Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 21 Units: CY

DOT Hazard Class: None

Identification Number: N/A None

Reportable Quantity: N/A None

Additional Description: Profile # 02757
Rep Sample = S-CT-30

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: CONTAINS Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Russel Buss — 3-23-90
Generator Authorized Agent — Signature — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010

Driver: Gus Garcia Truck No.: 17-80AD Tag No./State: AP 86643 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Gus Garcia — 3-23-90
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Gus Garcia — 3/23/90
Driver Signature — Shipment Date

Received at: R.D. Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Hoek Print: Ken Hoek

Date: 3-23-90

East Grid Between 375,800 And 375,900
North Grid Between 1557.25 And 1557.100

Elev. 5591.13

NO: CT-40

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas P.O. Box 2000
Address: Eunice TX
Phone: (409) 962-8888

Job Name: Southern Union Gas P.O. Box 980
Address: Hobbs NM
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contam. Soil Quantity: 21 Units: CY

DOT Hazard Class: None

Identification Number: N/A NONE

Reportable Quantity: N/A NONE

Additional Description: PROFile # 02757
Rep. Sample = S-CT-4930

Container(s): trailer No: 1 Type end dump

Special Handling Instructions: CONTAINS Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
3-23-90 — Shipment Date

Transporter: JAM TRUCKing
Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010
Driver: Sam Kiser Truck No.: 24-81 AM Tag No./State: BP 60542 CA.

I hereby certify that the above named material was picked up at the generator site listed below.

Sam Kiser — Driver Signature
3-23-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Sam Kiser — Driver Signature
3/23/90 — Shipment Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 3-23-90

EAST Grid Between 375.800 and 375.900 EW 559.13
NORTH Grid Between 557.25 and 557.100

NO: CT-41

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves, Tx
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980, Hobbs N.M.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contaminated Soil Quantity: _____ Units: Cy.
DOT Hazard Class: None
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: Profile # WM# 02757
Rep Sample: S-CT 31
Container(s): Trailer No.: _____ Type: End Dump,
Special Handling Instructions: contain zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
4-13-90 — Shipment Date

Transporter: TAB Trucking
Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010
Driver: John Penick Truck No.: 204-1204 Tag No./State: PR1926 N.M.

I hereby certify that the above named material was picked up at the generator site listed above.

John Penick — Driver Signature
4-13-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

John Penick — Driver Signature
4-13-90 — Delivery Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck
Date: 4-13-90

ELEV 5519.13

EAST CELL BETWEEN 375.570/375.650

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

WATER CELL BETWEEN 1554.25/1554.10

NO: CT-42

NONHAZARDOUS SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS Job Name: SOUTHERN UNION GAS

Address: P.O. Box 2000 GRAVES, TX. Address: P.O. Box 980 HOBBS, NM.

Phone: (409) 962-8888 Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 21 Units: CY.

DOT Hazard Class: NONE

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: PROFILE #: WMA 02757

REP SAMPLE: S-CT 31

Container(s): TRAILER No.: 1 Type: END DUMP

Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

RUSSEL BUSS — Generator Authorized Agent

Russel Buss — Signature

4-13-90 — Shipment Date

Transporter: JAM TRUCKING

Address: 506 N. SHIPP HOBBS N.M. Phone: 505-393-1010

Driver: GUS GARCIA Truck No.: 19-80AD Tag No./State: AP 86643 CA.

I hereby certify that the above named material was picked up at the generator site listed above.

GUS GARCIA — Driver Signature

4-13-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

GUS GARCIA — Driver Signature

4/13/90 — Delivery Date

Received at: LEA LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: KEN HECK Print: KEN HECK

Date: 4-13-90 ELEV. 5579.13

EAST 6TH ST BETWEEN 375-650/375-800

SMITH 6TH ST BETWEEN 1551-25/1551-100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT-43

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS Job Name: SOUTHERN UNION GAS

Address: P.O. Box 2000 Graves TX. Address: P.O. Box 980, Hobbs N.M.

Phone: (409) 962-8888 Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 22 Units: CY

DOT Hazard Class: NONE

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: PROJECT WMA 02757

REP SAMPLE : S-CT 31

Container(s): TRAILER No.: 1 Type: END DUMP

Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss Russel Buss 4-13-90

Generator Authorized Agent Signature Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010

Driver: Fred Syfrett Truck No.: 43-77AD Tag No./State: BP 40857 CA.

I hereby certify that the above named material was picked up at the generator site listed above.

Fred Syfrett 4-13-90

Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Fred Syfrett 4-13-90

Driver Signature Delivery Date

Received at: RBI Ranch Landfill (SANITARY LANDFILL)

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 4-13-90 EMN 5519.13

EAST GRID BETWEEN 375.500 X 375.650

NORTH GRID BETWEEN 1551.25 / 1551.100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT-44

NONHAZARDOUS SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. Box 2000 Graves, TX
Phone: (409) 962-8888

Job Name: SOUTHERN UNION GAS
Address: P.O. Box 980, Hobbs N.M.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 22 Units: CY
DOT Hazard Class: NONE
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: PROFILE # WMA 02757
REP. SAMPLE: S-CT 31
Container(s): TRAILER No.: 1 Type: END DUMP
Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
4-13-90 — Shipment Date

Transporter: TAD TRUCKING
Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010
Driver: VIRGIL STEPHENS Truck No.: 203-TAD Tag No./State: PR19267 N.M.

I hereby certify that the above named material was picked up at the generator site listed above.

Virgil Stephens — Driver Signature
4-13-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Virgil Stephens — Driver Signature
4-13-90 — Delivery Date

Received at: RD KAN Co. SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: KEN HECK
Print: KEN HECK
Date: 4-13-90
ELEV. 5519.13

EAST END BETWEEN 375-500/375-650

NO: CT-45

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas Job Name: Southern Union Gas

Address: P.O. Box 2000 Graves, TX Address: P.O. Box 980 Hobbs, N.M.

Phone: (409) 962-8888 Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contaminated Soil Quantity: 22 Units: cy

DOT Hazard Class: NONE

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WNA 02757

Rep Sample: S-CT 31

Container(s): Trailer No.: 1 Type: End Dump.

Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss Russel Buss 4-13-90

Generator Authorized Agent Signature Shipment Date

Transporter: TAB TRUCKing

Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010

Driver: Foy Smith Truck No.: 202-1202 Tag No./State: PR19268 N.M.

I hereby certify that the above named material was picked up at the generator site listed above.

Foy Smith 4-13-90

Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Foy Smith 4-13-90

Driver Signature Delivery Date

Received at: R.I.O. Ranch Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heath Print: Ken Heath

Date: 4-13-90

East Grid between 375.500 / 375.650

North Grid between 1557.25 / 1557.100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT-46

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. Box 2000, Eunice, Tx.
Phone: (409) 762-8888

Job Name: SOUTHERN UNION GAS
Address: P.O. Box 980 Hobbs, N.M.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 22 Units: CY
DOT Hazard Class: NONE
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: PROFILE # WMA 02757
REP SAMPLE: S-CT 31
Container(s): TRAILER No.: 1 Type: END DUMP
Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
4-13-90 — Shipment Date

Transporter: TAB TRUCKING
Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010
Driver: Jody Mitchell Truck No.: 21-74AB Tag No./State: AP86654CA.

I hereby certify that the above named material was picked up at the generator site listed above.

Jody Mitchell — Driver Signature
4-13-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Jody Mitchell — Driver Signature
4-13-90 — Delivery Date

Received at: R.I.O. RIO RANCHO SANITARY LANDFILL

I hereby certify that the above named material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: KEN HECK
Date: 4-13-90 EPA ID 537 013

EAST CELL BETWEEN 375.580 / 375.650
NORTH CELL BETWEEN 1551.25 / 1551.100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

TRIP4250

NO: CT-47

NONHAZARDOUS SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves Tx.
Phone: (409) 962-5888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs, N.M.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contaminated Soil Quantity: 22 Units: CY
DOT Hazard Class: None
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: Profile # WMA 02797
Rep Sample = S-CT 31
Container(s): Trailer No.: 1 Type: End Dump
Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
4-13-90 — Shipment Date

Transporter: TAD Trucking
Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010
Driver: David Meyers Truck No.: 42-78AD Tag No./State: RP40856 CA.

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature
4-13-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature
4/13/90 — Delivery Date

Received at: R.I.O. Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck
Date: 4-13-90 EID 55019.B

East Enid between 37+500 / 37+650
North Side

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT-48

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves, Tx.
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 780, Hobbs N.M.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contaminated Soil Quantity: 21 Units: CY
DOT Hazard Class: None
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: Profile # WMA 02757
Rep Sample = S-CT 31
Container(s): Trailer No.: 1 Type: End Dump
Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
4-13-90 — Shipment Date

Transporter: TAD Trucking
Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010
Driver: Joe DoLAN Truck No.: 24-81AD Tag No./State: BP46858CA.

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — 4-13-90 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — Delivery Date

Received at: RD Ranch No 50 Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck
Date: 4-13-90

East Corner between 375,500/3E-650 1m
Elev 55 ft. 13

NO: CT-49
TP# 2546

NONHAZARDOUS SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS Job Name: SOUTHERN UNION GAS
Address: P.O. Box 2000 GRAVES, NM Address: P.O.BOX 980 HOBBS, TX.
Phone: (409) 962-8888 Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 20 Units: CY
DOT Hazard Class: NONE
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: PROFILE # WNA 02757
REF. SAMPLE = SCT 31
Container(s): TRAILER No.: 1 Type: END DUMP
Special Handling Instructions: contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

RUSSEL BUSS — Generator Authorized Agent
Russel Buss — Signature
4-13-90 — Shipment Date

Transporter: TAB TRUCKING
Address: 506 N. SHIPP Hobbs N.M. Phone: 505-393-1010
Driver: Scott Woznick Truck No.: 25-84AA Tag No./State: AP86648 CA

I hereby certify that the above named material was picked up at the generator site listed above.

Scott Woznick — Driver Signature
4-13-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Scott Woznick — Driver Signature
4/13/90 — Delivery Date

Received at: BFI RAMCO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: KEN HECK
Date: 4-13-90 ENV. 5579.13

EAST ENT. BETWEEN 325.500 / 325.650
NORTH GATE BETWEEN 1551.250 / 1551.100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - OWNER

NO: CT-50

NONHAZARDOUS SPECIAL WASTE MANIFEST

Generator: Southern Union Gas Job Name: Southern Union Gas

Address: P.O. Box 2000, Graves, Tx Address: P.O. Box 980 Hobbs, N.M.

Phone: (409) 962-8888 Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contaminated Soil Quantity: 20 Units: Cy.

DOT Hazard Class: None

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: Profile # WMA02757

Rep Sample: S-CT31

Container(s): Trailer 1 No.: 1 Type: End Dump.

Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss Russel Buse 4-13-90

Generator Authorized Agent Signature Shipment Date

Transporter: TAD Trucking

Address: 506 N. Shipp Hobbs N M Phone: 505-393-1010

Driver: Bill Brown Truck No.: 28-73AA Tag No./State: BP 85316 CA

I hereby certify that the above named material was picked up at the generator site listed above.

William Brown 4-13-90

Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

William Brown 4-13-90

Driver Signature Delivery Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 4-13-90 Elev 5515 M.B.-

EASTING BETWEEN 375,500/375,650

NORTHING BETWEEN 1550,350/1550,100

NO: CT-51

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000, Graves, Tx.
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980, Hobbs, NM.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contaminated Soil Quantity: 20 Units: Cy.
DOT Hazard Class: None
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: Profile # WMA 02757
Rep Sample: S-CT31
Container(s): Trailer 1 No.: 1 Type: End Dump
Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
4-13-90 — Shipment Date

Transporter: TAD Trucking
Address: 506 N. Shipp Hobbs, N.M. Phone: 505-393-1010
Driver: Dennis Raines Truck No.: 35-82AD Tag No./State: AP86654 CA.

I hereby certify that the above named material was picked up at the generator site listed above.

Dennis Raines — Driver Signature
4-13-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Dennis Raines — Driver Signature
4-13-90 — Delivery Date

Received at: Rio Rancho ~~Landfill~~ Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck
Date: 4-13-90

East End Between 375.650 & 375.650
North End Between 1551.25 & 1551.100

EW 5579.13

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT-52

NONHAZARDOUS SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves, Tex.
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs N.M.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contaminated Soil Quantity: 20 Units: Cy.
DOT Hazard Class: None
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: Profile # ~~S-CT31~~ WMA02757
Rep Sample: ~~WMA 02757~~ S-CT31
Container(s): Tracer 1 No.: 1 Type: End Dump
Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
4-13-90 — Shipment Date

Transporter: TAB Trucking
Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010
Driver: Harry Johnston Truck No.: 26-85AB Tag No./State: AP86649 CA

I hereby certify that the above named material was picked up at the generator site listed above.

Harry Johnston — Driver Signature
4-13-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Harry Johnston — Driver Signature
4-13-90 — Delivery Date

Received at: R.D. Ranch Solid Waste Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck
Print: Ken Heck
Date: 4-13-90
EKV 5579.13

EAST end DD between 325.500 / 325.650
NORTH end DD between 557.250 / 557.100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT-53

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS Job Name: SOUTHERN UNION GAS

Address: P.O. BOX 2000 GRAVES, TX. Address: P.O. BOX 980 HOBBS N.M.

Phone: (409) 962-8888 Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: ~~CONTAMINATED~~ CONTAMINATE SOIL Quantity: 20 Units: CY

DOT Hazard Class: NONE

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: PROFILE # WMA 02757

REP. SAMPLE: S-CT32

Container(s): TRAILER 1 No.: 1 Type: END DUMP

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

RUSSEL BUSS Russel Buss 4-13-90

Generator Authorized Agent Signature Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. SHIPP HOBBS N.M. Phone: 505-393-4010

Driver: ROBERT SCOTT Truck No.: 44-86AD Tag No./State: BP 40858CA.

I hereby certify that the above named material was picked up at the generator site listed above.

Robert Scott 4-13-90

Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Robert Scott 4-13-90

Driver Signature Delivery Date

Received at: RIO RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: KEN HECK Print: KEN HECK

Date: 4-13-90 ELEV 5579.13

EAST GRID BETWEEN 375-500/375-650

NORTH GRID BETWEEN 1551-25/1551-100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT-54

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. BOX 2000 EUNICE, TX
Phone: (409) 962-8888

Job Name: SOUTHERN UNION GAS
Address: P.O. BOX 980, HOBBS, N.M.
Phone: (505) 396-2821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 20 Units: CY

DOT Hazard Class: NONE

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: PERMIT # WMA 02757

RED SAMPLE : S-CT 32

Container(s): TRAILER 1 No.: 1 Type: END DUMP

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

RUSSEL BUSS — Generator Authorized Agent
Russel Buss — Signature
4-16-90 — Shipment Date

Transporter: TAB TRUCKING

Address: 506 N. SHIPP HOBBS N.M. Phone: 505-393-1010

Driver: JOHN PENICK Truck No.: 204-1204 Tag No./State: PR 19266 N.M.

I hereby certify that the above named material was picked up at the generator site listed above.

John V. Penick — Driver Signature
4-16-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

John V. Penick — Driver Signature
4-16-90 — Delivery Date

Received at: RIO RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: KEN HECK Print: KEN HECK

Date: 4-14-90 ELEV. 5579.13

EAST 6126 BETWEEN 325.570 / 325.650
NORTH 6126 BETWEEN 1557.25 / ~~1557.800~~ 1557.100

NO: CT-55

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000, Graham, Tx.
Phone: (409)-962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980 Hobbs, N.M.
Phone: (505) 396-5826

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contaminated Soil Quantity: 21 Units: Cy.
DOT Hazard Class: None
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: Profile # WMA 02757
Rep Sample: S-CT 32
Container(s): Trailer -1 No.: 1 Type: End Dump
Special Handling Instructions: Contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
4-16-90 — Shipment Date

Transporter: TAD Trucking
Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1016
Driver: Gus Garcia Truck No.: 19-80AD Tag No./State: AP86643 CA

I hereby certify that the above named material was picked up at the generator site listed above.

Gus Garcia — Driver Signature
4-16-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Gus Garcia — Driver Signature
4/16/90 — Delivery Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck
Print: Ken Heck
Date: 4-16-90
EKU: 5579.13

EAST Grid Between 375.500 / 375.650
North Grid Between 1557.25 / 1557.100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT-56

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. BOX 2000, GRAVES, TX.
Phone: (409) 962-3888

Job Name: SOUTHERN UNION GAS
Address: P.O. BOX 980, HOBBS, N.M.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: ~~[illegible]~~ CONTAMINATED SOIL Quantity: 21 Units: CY

DOT Hazard Class: NONE

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: PROFILE # WMA 02757
REP. SAMPLE: S-CT 32

Container(s): TRAILOR 1 No.: 1 Type: END DUMP.

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

RUSSEL BUSS — Generator Authorized Agent
Russel Buss — Signature
4-16-90 — Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. SHIPP HOBBS N.M. Phone:

Driver: FRED SYFRETT Truck No.: 43-77AD Tag No./State: BP40857CA.

I hereby certify that the above named material was picked up at the generator site listed above.

Fred Syfrett — Driver Signature
4-16-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Fred Syfrett — Driver Signature
4-16-90 — Delivery Date

Received at: R.D. RANCHO SAN. ANT. LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: KEN HECK
Print: KEN HECK
Date: 4-16-90
EIEN. 55M. 13

EAST END BETWEEN 375.00/375.650
NORTH END BETWEEN 1557.25/1557.100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT-57

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. BOX 2000 GRAHAM, TX
Phone: (409) 962-8888

Job Name: SOUTHERN UNION GAS
Address: P.O. BOX 980 HOBBS, N.M.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 21 Units: CY
DOT Hazard Class: NONE
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: PROFILE # NMA 02757
REP SAMPLE: S-CT-32
Container(s): TRAILER 1 No.: 1 Type: END DUMP.
Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

RUSSEL BUSS — Generator Authorized Agent
Russel Buss — Signature
4-16-90 — Shipment Date

Transporter: TAD TRUCKING
Address: 506 N. SHIPP HOBBS N.M. Phone: 505-393-1010
Driver: FOY SMITH Truck No.: 202-1202 Tag No./State: PR 19268 N.M.

I hereby certify that the above named material was picked up at the generator site listed above.

Foy Smith — Driver Signature
4-16-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Foy Smith — Driver Signature
4-16-90 — Delivery Date

Received at: R.I.O RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: KEN HECK Print: KEN HECK
Date: 4-16-90 ELEV. 5579.13
EAST, GRID BETWEEN 375.500/375.650

NO: CT58

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS Job Name: SOUTHERN UNION GAS

Address: P.O. BOX 2000 GRAND, TX Address: P.O. BOX 980 HOBBS, N.M.

Phone: (409) 962-8888 Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 20 Units: CY

DOT Hazard Class: NONE

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: PROFILE # WMA 02757

REP SAMPLE: SCT32

Container(s): TRAILER 1 No.: 1 Type: END DUMP

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

RUSSEL BUSS Russel Buss 4-16-90

Generator Authorized Agent Signature Shipment Date

Transporter: TAD TRUCKING

Address: 506 N. SHIPP HOBBS N.M. Phone: 505-393-1010

Driver: VIRGIL STEPHENS Truck No.: 203-79AD Tag No./State: PR19267 N.M

I hereby certify that the above named material was picked up at the generator site listed above.

Virgil Stephens 4-16-90

Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Virgil Stephens 4-16-90

Driver Signature Delivery Date

Received at: R.O. RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: KEN HECK Print: KEN HECK

Date: 4-16-90 EEV-5579.13

EAST CELL BETWEEN 375-500/375-650

NORTH CELL BETWEEN 1557-25/1557.00

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT59

NONHAZARDOUS SPECIAL WASTE MANIFEST

Generator: Southern Union Gas
Address: P.O. Box 2000 Graves, Tx
Phone: (409) 962-8888

Job Name: Southern Union Gas
Address: P.O. Box 980, Hobbs, NM.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contaminated Soil Quantity: 21 Units: CY
DOT Hazard Class: None
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: Profile # WMA 02757
Rep Sample: S-CT 32
Container(s): Trailer 1 No.: 1 Type: End Dump.
Special Handling Instructions: Contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
4-16-90 — Shipment Date

Transporter: TAD Trucking
Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1016
Driver: Allen Hicks Truck No.: 24-81AD Tag No./State: BP46858CA

I hereby certify that the above named material was picked up at the generator site listed above.

Allen Hicks — Driver Signature
4-16-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Allen Hicks — Driver Signature
4-16-90 — Delivery Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck
Print: Ken Heck
Date: 4-16-90
EIEN 557.13

EAST GRID BETWEEN 375.500 / 375.650
NORTH GRID BETWEEN 1557.25 / 1557.100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - DRIVER

NO: CT60

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. BOX 2000 GRAND, TX.
Phone: (409) 962-8888

Job Name: SOUTHERN UNION GAS
Address: P.O. BOX 980, HOBBS TX.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 20 Units: CY

DOT Hazard Class: NONE

Identification Number: N/A

Reportable Quantity: N/A

Additional Description: PROFILE # WMA02757
REP SAMPLE - S-CT32

Container(s): TRAILER No.: 1 Type: END DUMP

Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

RUSSEL BUSS — Generator Authorized Agent
Russel Buss — Signature
4-16-90 — Shipment Date

Transporter: TAG TRUCKING

Address: 506 N. SHIPP HOBBS N.M. Phone: 505-393-1010

Driver: DENNIS RAINES Truck No.: 35-82AD Tag No./State: AP-86654 CA.

I hereby certify that the above named material was picked up at the generator site listed above.

Dennis Raines — Driver Signature
4-16-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Dennis Raines — Driver Signature
4-16-90 — Delivery Date

Received at: R360 RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck
Print: KEN HECK
Date: 4/16/90
EIEV 5579.13

EAST GRID BETWEEN 375.500 / 375650
NORTH GRID BETWEEN 1557.25 / 1557.100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT61
TP#2547

NONHAZARDOUS SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. BOX 2000, GRAVES, TX
Phone: (409) 962-8888

Job Name: SOUTHERN UNION GAS.
Address: P.O. BOX 980, HOBBS, NM.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 20 Units: CY.
DOT Hazard Class: NONE
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: PROFILE # WMA 02757
REP SAMPLE: S-CT32
Container(s): TRAILER - 1 No.: 1 Type: END DUMP
Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

RUSSEL BUSS — Generator Authorized Agent
Russel Buss — Signature
4-16-90 — Shipment Date

Transporter: TAD TRUCKING
Address: 506 N. SHIPP HOBBS N.M. Phone: 505-393-1010
Driver: SCOTT WOZNICK Truck No.: 25-84AD Tag No./State: AP86048 CA.

I hereby certify that the above named material was picked up at the generator site listed above.

Scott Woznick — Driver Signature
4-16-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Scott Woznick — Driver Signature
4/16/90 — Delivery Date

Received at: RIO RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: KEN HECK
Print: KEN HECK
EEN 5579.13
Date: 4-16-90

EAST GRID BETWEEN 375.500 / 375.650
NORTH GRID BETWEEN 1557.25 / 1557.100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT62

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. BOX 2000 GRAVES, TX.
Phone: (409) 962-8888

Job Name: SOUTHERN UNION GAS
Address: P.O. BOX 980, HOBBS, N.M.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 21 Units: CY
DOT Hazard Class: NONE
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: PROFILE # WMA 02757
REP. SAMPLE: S-CT.32
Container(s): TRAILER -1 No.: _____ Type: END DUMP.
Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

RUSSEL BUSS — Generator Authorized Agent
Russel Buss — Signature
4-16-90 — Shipment Date

Transporter: TAD TRUCKING
Address: 506 N. SHIPP HOBBS N.M. Phone: 505-393-1010
Driver: DAVID MEYERS Truck No.: 42-78AD Tag No./State: BP40856 CA.

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — 4-16-90 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 4-16-90 Delivery Date

Received at: R10 RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: _____ Print: KEN HECK
Date: 4-16-90

EAST 6TH BETWEEN 375.500 / 375.650
6TH CT BETWEEN 1557.254 / 1557.100
ELEV. 3579.13

NO: CT63

NONHAZARDOUS SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. Box 2000, GRAVES, TX
Phone: (409) 962-8888

Job Name: SOUTHERN UNION GAS
Address: P.O. BOX 980, HOBBS, NM.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 21 Units: CY
DOT Hazard Class: NONE
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: PROFILE # WMA 02757
REP SAMPLE : S-CT32
Container(s): TRAILER -1 No.: _____ Type: 8 1/ END DUMP
Special Handling Instructions: CONTAINS ZINC ~~CHROMAT~~ CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
4-16-90 — Shipment Date

Transporter: TAO TRUCKING
Address: 506 N. SHIPP HOBBS N.M. Phone: 505-393-1010
Driver: Jody Mitchell Truck No.: 21-74AD Tag No./State: AP8654CA.

I hereby certify that the above named material was picked up at the generator site listed above.

Jody Mitchell — Driver Signature
4-16-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Jody Mitchell — Driver Signature
_____ — Delivery Date

Received at: R.D. KANEMA SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: KEN HECK
Date: 4-16-90 E/E#: 5579.13

EAST 6TH END BETWEEN 35.500 / 35.650
NORTH END BETWEEN 155.25 / 155.100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT64

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: SOUTHERN UNION GAS
Address: P.O. Box 2000, GRAVES, TX.
Phone: (409) 962-8888

Job Name: SOUTHERN UNION GAS
Address: P.O. Box 980 HOBBS, N.M.
Phone: (505) 396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: CONTAMINATED SOIL Quantity: 22 Units: CY
DOT Hazard Class: NONE
Identification Number: N/A
Reportable Quantity: N/A
Additional Description: PROFILE # NMA02757
REP SAMPLE : S-CT32
Container(s): TRAILER -1 No.: 1 Type: END DUMP.
Special Handling Instructions: CONTAINS ZINC CHROMATE

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

RUSSEL BUSS — Generator Authorized Agent
Russel Buss — Signature
4/6-90 — Shipment Date

Transporter: TAD TRUCKING
Address: 506 N. Shipp Hobbs N.M. Phone: 505-393-1010
Driver: Bob Scott Truck No.: 44-86AD Tag No./State: BP-40858CA.

I hereby certify that the above named material was picked up at the generator site listed above.

Robert Scott — Driver Signature
4/6-90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Robert Scott — Driver Signature
9-16-90 — Delivery Date

Received at: RIO RANCHO SANITARY LANDFILL

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: KEN HEEK
Print: KEN HEEK
Date: 9-16-90
EEN 5579.13

EAST GRID BETWEEN 375500 / 375650
NORTH GRID BETWEEN 1557.25 / 1557.100

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT 72

NONHAZARDOUS SPECIAL WASTE MANIFEST

Generator: So. Union Gas — Job Name: Lea Refinery

Address: Port Arthur, Texas 77642 — Address: 5 miles se. of Lovington Hwy 18, N.M.

Phone: 409-962-8888 — Phone: 505-396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: contaminated soil — Quantity: 18 — Units: CY

DOT Hazard Class: NA

Identification Number: NA

Reportable Quantity: NA

Additional Description: contains Zinc Chromate

Container(s): Trailer — No.: 1 — Type: END Dump

Special Handling Instructions: In case of spill contains Zinc Chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent

Russel Buss — Signature

10/9/90 — Shipment Date

Transporter: TAD TRUCKing

Address: 814 W. MARLand Hobbs, N.M — Phone: 505-393-1010

Driver: Dennis Cosby — Truck No.: 34-101A — Tag No./State: 021467 UT

I hereby certify that the above named material was picked up at the generator site listed above.

Dennis Cosby — Driver Signature

10/9/90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Dennis Cosby — Driver Signature

10/9/90 — Delivery Date

Received at: R.O Rancho ~~Landfill~~ E. Hobbs Disp. Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck — Print: Ken Heck

Date: 10-9-90

EAST GRID BETWEEN 375.400/375.450
NORTH GRID BETWEEN 1551.50/1551.1
ELEV. 5559.13

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT-73

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: So. Union Gas Job Name: Lea Refinery

Address: 4173 39th St. Port Arthur TX 77642 Address: 5 miles so of Lovington Hwy 18 Hobbs

Phone: 409-962-8888 Phone: 505-396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contaminated Soil Quantity: 17 Units: YDS

DOT Hazard Class: NONE

Identification Number: NA

Reportable Quantity: NONE

Additional Description: contains Zinc Chromate

Container(s): Trailer No.: 1 Type: END DUMP

Special Handling Instructions: contains Zinc Chromate in case of spill

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent

Russel Buss — Signature

10/9/90 — Shipment Date

Transporter: TAD TRUCKing

Address: 814 W. MARLAND Hobbs N.M. Phone: 505-393-1610

Driver: Tommy Cosby Truck No.: 46-75AD Tag No./State: 013884 UT.

I hereby certify that the above named material was picked up at the generator site listed above.

Tommy Cosby — Driver Signature

10/9/90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Tommy Cosby — Driver Signature

10/10/90 — Delivery Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: KEN HECK

Date: 10-10-90 ELEV. 5559.13

EAST GRID BETWEEN 375.460/375.450 NORTH GRID BETWEEN 1557.50/1557.10

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT-74

NONHAZARDOUS SPECIAL WASTE MANIFEST

Generator: So. Union Gas Job Name: Lea Refinery

Address: 4173 39th St. Port Arthur Tx. 77642 Address: 5 miles So. of Lovington Hwy. 18. Hobbs

Phone: 409-962-8888 Phone: 505-396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contaminated Soil Quantity: 19 Units: Yds.

DOT Hazard Class: none

Identification Number: N/A

Reportable Quantity: none

Additional Description: contains zinc chromate

Container(s): Trailer No.: 1 Type: end dump

Special Handling Instructions: Contains zinc chromate in case of spill

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent | Russel Buss — Signature | 10/9/90 — Shipment Date

Transporter: TAD Trucking

Address: 814 W. Marland Hobbs N.M. Phone: 505-393-1016

Driver: Robert Hawkins Truck No.: 43-83AD Tag No./State: 014814 UT.

I hereby certify that the above named material was picked up at the generator site listed above.

Robert Hawkins — Driver Signature | 10/9/90 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Robert Hawkins — Driver Signature | 10-10-90 — Delivery Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.

Signed: Ken Heck Print: Ken Heck

Date: 10-10-90

East Grid Between 375,400 / 375,450

North Grid Between 1557,50 / 1557,100

Elev. 5559.13

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

NO: CT-75

NONHAZARDOUS
SPECIAL WASTE MANIFEST

Generator: So. Union Gas
Address: Port Arthur, Tx. 77642
Phone: 409-962-8888

Job Name: Lea Refinery
Address: 5 miles so of Lovington Hwy 18 Hobbs
Phone: 505-396-5821

QUANTITY AND DESCRIPTION

Proper Shipping Name: Contaminated Soil Quantity: 08 Units: CY
DOT Hazard Class: NA
Identification Number: NA
Reportable Quantity: NA 12Y 7 Kg
Additional Description: Contains zinc chromate

Container(s): Trailer No.: 1 Type: End dump
Special Handling Instructions: in case of spill contains zinc chromate

I hereby certify that the above named material does not contain free liquid as defined by 40 CRF Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CRF 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Russel Buss — Generator Authorized Agent
Russel Buss — Signature
10/10/90 — Shipment Date

Transporter: TAD Trucking Co.
Address: 814 W. Marland Hobbs NM Phone: 505 393-1010
Driver: Dennis Cosby Truck No.: 34-101A Tag No./State: 021467 UT.

I hereby certify that the above named material was picked up at the generator site listed above.
Driver Signature — 10/10/90 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.
Driver Signature — 10/10/90 Delivery Date

Received at: Rio Rancho Sanitary Landfill

I hereby certify that the above name material has been accepted and to the best of my knowledge, the above is true and correct.
Signed: Ken Heck Print: Ken Heck
Date: 10-10-90

East Grid Between 375.1(00)/375.4
North Grid Between 1557.0/1557.11
Elev. 5559.13

WHITE - GENERATOR CANARY - TRANSPORTER PINK - LANDFILL GOLD - GOVERNMENT

WASTE PROFILES

Waste Management of North America
GENERATOR'S SPECIAL WASTE PROFILE SHEET
TYPE A Waste
PLEASE PRINT IN INK OR TYPE

[ ] WMA 060058
Waste Profile Sheet Code

INSTRUCTIONS FOR COMPLETING THIS FORM ARE ATTACHED

(Shaded Areas For WMNA Use Only)

Renewal Date of Service Agreement: WMNA Sales Rep#:

A. WHERE IS THE WASTE GENERATED?

1. Generator Name: Southern Union Gas Company
2. Facility Address (site of waste generation): P.O. Box 980
3. Generator City, State/Province: Hobbs, New Mexico 4. Zip/Postal Code: 88240
5. Generator USEPA/Federal ID: NMT3600103670003
6. Generator State/Province ID: N/A
7. Technical Contact: Russel A. Buss 8. Phone: (409) 962-8888

B. WHERE ARE WASTE MANAGEMENT, INC. INVOICES SENT?

1. ☐ Generating Facility (A, above), or
2. Company Name: Southern Union Gas Company 3. Phone: (409) 962-8888
4. Address: Post Office Box 2000
5. Generator City, State/Province: Groves, Texas 6. Zip/Postal Code: 77619

C. PHYSICAL CHARACTERISTICS OF WASTE (See Instructions)

1. Name of Waste: Soil contaminated by chromate solution spill
2. Process Generating Waste: Remediation of soil below a cooling tower.
3. Special Handling Instructions: Avoid dust

4. Color	5. Does the waste have a strong incidental odor?	6. Physical State @ 70°F/21°C:	7. Layers	8. Specific Gravity:	9. Free Liquids:
Brown	☒ No ☐ Yes If so, describe:	☒ Solid ☐ Semi-Solid ☐ Liquid ☐ Powder Other:	☐ Multi-layered ☐ Bi-layered ☒ Single Phased	Range 2,200 - 2,600 lb./cu. yd.	☐ Yes ☒ No Volume: %

10. pH: ☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☐ 7 ☒ 7-10 ☐ 10- < 12.5 ☐ ≥ 12.5 ☐ Range ☐ NA

11. Flash Point: ☒ None ☐ <140°F/60°C ☐ 140°-199°F/60°-93°C ☐ ≥ 200°F/93°C ☐ Closed Cup ☐ Open Cup

D. TRANSPORTATION INFORMATION

1. Method of Shipment: ☐ Bulk Liquid ☐ Bulk Sludge ☒ Bulk Solid ☐ Drum/Box ☐ Other
2. Annual Amount/Units: 200 cu. yd. Maximum
3. Supplemental Information: Only nonhazardous soil will be shipped to Waste Mgmt. of North America, Inc Hazardous soils will be sent to Chemical Waste Mgmt., Inc.
4. Is this a DOT hazardous material? ☒ No ☐ Yes (If so, complete 5, 6 &7) 5. Hazard Class/ID #: None
6. Reportable Quantity/ Units (lb/kg): None 7. Shipping Name: None

☒ Check this box if additional information is attached.

Turn Page and Complete Side 2

Waste Management of North America
GENERATOR'S SPECIAL WASTE PROFILE SHEET

PLEASE PRINT IN INK OR TYPE

E. CHEMICAL COMPOSITION

1.

	RANGE MIN.-MAX.	
Soil	99 - 100	%
Metals - see attached analysis	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%

Please note: The chemical composition total in the maximum column must be greater than or equal to 100%. Total: 100 %

2. Does this waste contain any of the following (provide concentration if known):

	NO or	LESS THAN or	ACTUAL
PCB's	☒	☐ <50 ppm	_____ ppm
Cyanides	☒	☐ <50 ppm	_____ ppm
Sulfides	☒	☐ <50ppm	_____ ppm
Phenolics	☒	☐ <50 ppm	_____ ppm

F. METALS

1. Does this waste contain any of the following metals (provide concentration if known):

Arsenic	☒ <5 or _____ ppm	Barium	☒ <100 or _____ ppm	Cadmium	☒ <1 or _____ ppm
Chromium	☒ <5 or _____ ppm	Lead	☒ <5 or _____ ppm	Mercury	☒ <0.2 or _____ ppm
Selenium	☐ <1 or _____ ppm	Silver	☐ <5 or _____ ppm	Copper	☐ _____ ppm
Nickel	☐ _____ ppm	Zinc	☐ _____ ppm		_____ ppm

2. Indicate method used to determine concentration (if provided): ☐ EP TOX ☒ TCLP, or ☐ Total

G. GENERATOR CERTIFICATION

By signing this profile sheet, the generator certifies that unless clearly stated above or in attachments:

1. This waste is not a "Hazardous Waste" as defined by USEPA or Canadian Federal regulation and/or the state/province.
2. This waste does not contain regulated quantities of PCB's (Polychlorinated Biphenyls).
3. This sheet and its attachments contain true and accurate descriptions of the waste material. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.
4. The Contractor's Definition of Special Waste (Form WMNA 0038 AD) has been read, signed and attached.

Russel Buss
5. Signature

Project Manager
6. Title

Russel A. Buss
7. Name (Type or Print)

09-07-90
8. Date

Waste Management of North America
GENERATOR'S SPECIAL WASTE PROFILE SHEET
TYPE A Waste

PLEASE PRINT IN INK OR TYPE

WMA 02757
Waste Profile Sheet Code.

INSTRUCTIONS FOR COMPLETING THIS FORM ARE ATTACHED

Renewal Date of Service

A. WHERE IS THE WASTE GENERATED?

1. Generator Name: Southern Union Company
2. Facility Address (site of waste generation): Lea Refinery 4 miles SE of Lovington, NM
3. Generator City, State/Province: P.O. Box 980, Hobbs, NM
4. Zip/Postal Code: 88241
5. Generator USEPA/Federal ID:
6. Generator State/Province ID:
7. Technical Contact: Russel A. Buss
8. Phone: (409) 962 - 8888

B. WHERE ARE WASTE MANAGEMENT, INC. INVOICES SENT?

1. ☐ Generating Facility (A, above), or
2. Company Name: CWM-ENRAC
3. Phone: (415) 651-2964
4. Address: 4227 Technology Drive
5. Generator City, State/Province: Fremont, CA
6. Zip/Postal Code: 94533

C. PHYSICAL CHARACTERISTICS OF WASTE (See Instructions)

1. Name of Waste: Contaminated Soil
2. Process Generating Waste: Zinc Chromate Spills
3. Special Handling Instructions: none

4. Color	5. Does the waste have a strong incidental odor?	6. Physical State @ 70°F/21°C:	7. Layers	8. Specific Gravity:	9. Free Liquids:
Brown	☒ No ☐ Yes if so, describe:	☒ Solid ☐ Semi-Solid ☐ Liquid ☐ Powder Other:	☐ Multi-layered ☐ Bi-layered ☒ Single Phased	Range N/A	☐ Yes ☒ No Volume: 0 %

10. pH: ☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☒ 7 ☐ 7-10 ☐ 10- < 12.5 ☐ ≥ 12.5 ☐ Range ☐ NA

11. Flash Point: ☒ None ☐ <140°F/60°C ☐ 140°-199°F/60°-83°C ☐ ≥ 200°F/93°C ☐ Closed Cup ☒ Open Cup

D. TRANSPORTATION INFORMATION

1. Method of Shipment: ☐ Bulk Liquid ☐ Bulk Sludge ☒ Bulk Solid ☐ Drum/Box ☐ Other
2. Annual Amount/Units: 1000 yd^3
3. Supplemental Information: Only nonhazardous soil will be shipped to Waste Mgmt, Inc. Hazardous soils will be sent to Chemical Waste Mgmt, Inc.
4. Is this a DOT hazardous material? ☒ No ☐ Yes (If so, complete 5, 6 &7) 5. Hazard Class/ID #: None
6. Reportable Quantity/ Units (lb/kg): None 7. Shipping Name: None

☒ Check this box if additional information is attached.

Turn Page and Complete Side 2

Printed on recycled paper

CONTRACTOR'S DEFINITION OF SPECIAL WASTE

1. "Special Waste" means Type A or Type B Special wastes as defined below.

WMA 02757
WASTE PROFILE CODE

2. "Type A Special Waste" means any waste, from a commercial or industrial activity meeting any of the following descriptions.
   a. A containerized waste (e.g., a drum, portable tank, lugger box, roll-off box, pail, bulk tanker, etc.) listed in b.-g. below.
   b. A waste containing free liquids.
   c. A sludge waste.
   d. A waste from an industrial process.
   e. A waste from a pollution control process.
   f. Residue and debris from the cleanup of a spill of a chemical substance or commercial product or a waste listed in a.-e. or g.
   g. Contaminated residuals, or articles from the cleanup of a facility generating, storing, treating, recycling, or disposing of wastes listed in a.-f.

3. Incidental Amounts of Special Waste
   The Contractor recognizes that many customers will produce some "Type B Special Waste," as defined below. Incidental quantities of "Type B Special Waste," do not require a Generator's Type B Special Waste Profile Sheet (Form WMNA-0089B) to be signed by the customer. However, the customer must identify the type and amount of Type B Special Wastes which will be provided to the Contractor in incidental amounts by completing the box in the lower right corner.

4. "Type B Special Waste" means any waste from a commercial or industrial activity meeting the descriptions which follow:
   a. Friable asbestos waste from building demolition or cleaning; wall board, wall spray coverings, pipe insulation, etc. Nonfriable asbestos is not a special waste unless it has been processed, handled or used in such a way that asbestos fibers may be freely released. Asbestos-bearing industrial process waste is a "Type A Special Waste.
   b. Commercial products or chemicals which are off-specification, outdated, unused or banned. Out-dated or off-specification, uncontaminated food or beverage products in original consumer containers are not included in this category, however, containers which once held commercial products or chemicals are included unless the container is empty. A container is empty when:
      All wastes have been removed that can be removed using the practices commonly employed to remove materials from the type of container, e.g., pouring, pumping or aspirating, and an end has been removed (for containers in excess of 25 gallons), and no more than 1 inch (2.54 centimeters) of residue remains on the bottom of the container or inner liner, or no more than 3% by weight of the total capacity of the container remains in the container (containers $\leq$ 110 gallons), or no more than 0.3% by weight of the total capacity of the container remains in the container (containers > 110 gallons.) Containers which once held ACUTELY HAZARDOUS WASTES must be triple rinsed with an appropriate solvent or cleaned by an equivalent method. Containers which once held substances regulated under the Federal Insecticide, Fungicide, and Rodenticide Act must be empty according to label instructions or triple rinsed.
   c. Untreated bio-medical waste - Any waste capable of inducing infection due to contamination with infectious agents from a bio-medical source including but not limited to a medical practitioner, hospital, medical clinic, nursing home, university medical laboratory, mortuary, taxidermist, veterinarian, veterinary hospital or animal testing laboratory. Sharps from these sources must be rendered harmless or placed in needle puncture proof containers. Residue from incineration of infectious wastes is a "Type A Special Waste."
   d. Treated bio-medical wastes - Any wastes from a bio-medical source including but not limited to a hospital, medical clinic, nursing home, medical practitioner, mortuary, taxidermist, veterinarian hospital, animal testing laboratory, or university medical laboratory which has been autoclaved or otherwise heat treated or sterilized so that it is no longer capable of inducing infection. Any sharps from these sources must be rendered harmless or placed in needle puncture proof containers.
   e. Liquids and sludges from septic tanks, food service grease traps, or washwater and wastewaters from commercial laundries, laundromats and car washes unless these wastes are managed at commercial or public treatment works.
   f. Chemical-containing equipment removed from service. Examples: filters, cathode ray tubes, lab equipment, acetylene tanks, fluorescent light tubes, etc.
   g. Waste produced from the demolition or dismantling of industrial process equipment or facilities contaminated with chemicals from the industrial process Chemicals or wastes removed or drained from such equipment or facility are "Type A Special Wastes."

CUSTOMER ACKNOWLEDGES THAT HE HAS READ THE FOREGOING DEFINITION AND HAS IDENTIFIED THE TYPES AND AMOUNTS OF ANY TYPE B WASTE STREAMS PRODUCED IN INCIDENTAL AMOUNTS.

X Southern Union Company
CUSTOMER

X Russell A. Bess
AUTHORIZED SIGNATURE

X Feb. 5, 1990
DATE

INCIDENTAL WASTE TYPES AND AMOUNTS:

Form WMNA-0038AD (2/89) Waste Management of North America
White - WMNA Division Canary - Customer

Printed on recycled paper

SPECIAL WASTE MANAGEMENT DECISION

02757
Waste Profile Sheet Code

I. Request For Decision: X Initial ___ Renewal

GENERATOR NAME: Southern Union Company ADDRESS: P.O. Box 980

CITY, STATE/PROVINCE: Hobbs, NM

WASTE NAME(S): Zinc Chromate contaminated soil

PROPOSED MANAGEMENT FACILITY: Lea Landfill

PROPOSED INTERMEDIATE TRANSFER FACILITY: None TRANSPORTER: CWM

WMNA REQUESTOR: Lance Robinson SIGNATURE:

II. TECHNICAL MANAGER DECISION: (circle one) APPROVED DISAPPROVED ___ Check if additional information is attached.

If Disapproved, Explain:

If Approved, Complete A, B, C and D Below:

A Management Method(s): See attached special conditions

B Precautions, Conditions, or Limitations on Approval: See attached special conditions

C Decision Expiration Date: 6/1/90

D For Type A Wastes, Laboratory Analysis of a Representative Sample Was: (Check only one)

___ Waived X Supplied By Generator ___ From a WMI-Approved Lab ___ From Both Generator and WMI-Approved Lab

TECH. MGR. SIGNATURE: NAME (Print) Lance Robinson DATE: 3/5/90

III. WMI MANAGEMENT FACILITY GENERAL MANAGER DECISION: (circle one) APPROVED DISAPPROVED

If Approved, State any Additional Precautions, Conditions or Limitations:

GENERAL MGR SIGNATURE: NAME (Print) William Sterry DATE: 3/13/90

IV. WMI INTERMEDIATE TRANSFER FACILITY GENERAL MANAGER DECISION: (circle one) APPROVED DISAPPROVED

If Approved, State any Additional Precautions, Conditions or Limitations:

GENERAL MGR SIGNATURE: NAME (Print) DATE:

Chemical Waste Management, Inc.

GENERATOR'S WASTE MATERIAL PROFILE SHEET

MISCELLANEOUS SPECIAL WASTE

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

RECEIVED 3-16-90

ENRAC W 12143

Waste Profile Sheet Code

CWM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: 057

INSTRUCTIONS FOR COMPLETING THIS FORM ARE ATTACHED.

Return this form to: _____

_____ Zip Code: _____

Per Bob Hulet 3/

A. GENERAL INFORMATION

1. Generator Name: Southern Union Company
2. Generator USEPA ID: NMT360010367
3. Facility Address: Lea Refinery 4 miles SE of Lovington, NM P.O. Box 980 Hobbs, NM
4. Generator State ID: _____
5. Zip Code: 88241
6. Technical Contact: Russel A. Buss / Bob Hulet - CWM- Project Manager
7. Title: Vice President
8. Phone: (409) 962-8888 / 505-396-5831 801-364-6413

B. MAIL CHEMICAL WASTE MANAGEMENT, INC. INVOICES TO

1. ☐ Generating Facility (A, above), or
2. Company Name: CWM-ENRAC
3. Phone: (415) 651 - 2964
4. Address: 4227 Technology Drive Fremont, CA 94538 Project # 90-04-1598
5. Zip Code: _____

C.

1. NAME OF WASTE: Soil contaminated with zinc chromate solution
2. PROCESS GENERATING WASTE: windborne spray of water from cooling tower

D. CLASSIFICATION OF WASTE MATERIAL AND SUPPLEMENTAL INFORMATION (from instructions)

#13

E. TRANSPORTATION INFORMATION

1. Is this a DOT Hazardous Material? ☒ Yes ☐ No
2. Anticipated Annual Volume/Units: 30-40/yd^3 /year
3. Proper Shipping Name: RQ, Hazardous Waste Solid, NOS
4. Hazard Class: ORM-E
5. I.D. #: NA9189
6. Additional Description: (EPA Toxic for chrome)
7. Method of Shipment: ☐ Bulk Liquid ☒ Bulk Solid ☐ Drum (Type/Size): _____ / _____ Other: _____
8. CERCLA Reportable Quantity (RQ): 1
9. RQ Units (lb/kg): pound
10. USEPA Hazardous Waste? ☒ Yes ☐ No
11. USEPA Hazardous Waste Number(s): D007
12. State Hazardous Waste? ☐ Yes ☒ No
13. State Hazardous Waste Number(s): None

F. GENERATOR CERTIFICATION

By signing this profile sheet, the generator certifies that **unless clearly stated above or in attachments:**

1. This waste is not a "Hazardous Waste" as defined by either 40 CFR 261 or the state in which the waste is now located.
2. This waste is not a listed solvent waste as defined by 40 CFR 261.31 (F001, F002, F003, F004, or F005).
3. This waste is not a Dioxin listed waste as defined by 40 CFR 261.31 (e.g., F020, F021, F022, F023, F026, F027, or F028).
4. This waste does not contain greater than 1000 ppm halogenated organic compounds.
5. This waste does not contain regulated quantities of PCB's (Polychlorinated Biphenyls).
6. This sheet and its attachments contain true and accurate descriptions of this waste material. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

Russel A. Buss — 7. Signature

Russel A. Buss — 9. Name (Type or Print)

Project Manager — 8. Title

March 15, 1990 — 10. Date

Form CWM 50-A-2 © 1987 Chemical Waste Management, Inc.

SPECIAL WASTE MANAGEMENT DECISION

LOCATION OF ORIGINAL Lake Charles

Waste Profile Sheet Code: Nou W12143

I. REQUEST FOR DECISION: ☒ INITIAL ☐ RENEWAL

REQUESTOR NAME C. W. Kitto GENERATOR NAME Southern Union Company

WMI COMPANY Chemical Waste Management

LOCATION: Lake Charles Facility WASTE NAME Soil Contaminated W/Chrome

PROPOSED ULTIMATE MANAGEMENT FACILITY: Chemical Waste Management - Lake Charles Facility

PROPOSED INTERMEDIATE TRANSFER FACILITY None

TRANSPORTATION TO BE PROVIDED BY CWM or Outside Contractor

II. TECHNICAL MANAGER AND LABORATORY MANAGER DECISION: ☒ APPROVED ☐ DISAPPROVED

A. IF DISAPPROVED, EXPLAIN

Schedule Code: 1) F11 2) _____ 3) _____

B. IF APPROVED, COMPLETE EACH SECTION BELOW

1. APPROVED MANAGEMENT METHOD(S)

DCS Code 151

[✓] Landfill

[ ] Decant for Fuels/Landfill drum filling or crushing
[ ] Destruction of Cyanide or Sulfide by oxidation then
[ ] Blend with waste water and deep well
[ ] Stabilize and landfill
[ ] Store for Solvent Recovery SRR or OSCO

DOES THE ABOVE PRODUCE A WMI SPECIAL WASTE? ☐ YES ☒ NO (IF YES YOUR APPROVAL SHOULD BE CONDITIONED OBTAINING A WMI SPECIAL WASTE MANAGEMENT DECISION BY A DATE CERTAIN.)

2. PERMIT STATUS WITH RESPECT TO THIS SPECIAL WASTE USING THE APPROVED MANAGEMENT METHOD(S):

Fully Permitted ☒ California List Restriction ☒ Land Ban F-Waste

3. PRECAUTION CONDITIONS OR LIMITATIONS ON APPROVAL

[✓] None [✓] If free liquids Cal(1) will apply
[✓] No Free Liquids [✓] Pail sample from first load to develop recipe

4. SPECIAL EMPIRICAL OBSERVATIONS OR TESTS WHICH MUST BE MADE ON EACH LOAD OF THIS SPECIAL WASTE AT THE TIME DELIVERED TO THE PROPOSED FACILITY IN ADDITION TO APPLICABLE WASTE ANALYSIS PLAN REQUIREMENTS

[✓] Fingerprint [ ] Compatability Check [ ] BTU/Cl
[ ] Solvents Generator Must Acknowledge
[ ] Other _____ Changes to WPS. Sec. D

5. LABORATORY ANALYSIS OF A REPRESENTATIVE SPECIAL WASTE SAMPLE WAS (check only one)
☒ WAIVED ☐ SUPPLIED BY GENERATOR ☐ FROM A WMI LAB ☐ FROM BOTH GENERATOR AND WMI LAB

6. SPECIAL WASTE CHARACTERIZATION, FOR PURPOSES OF COMPANY POLICY (check only one)
☒ REGULATED HAZARDOUS ☐ NON-REGULATED HAZARDOUS ☐ NON-HAZARDOUS

7. PROPER USDOT SHIPPING NAME
☒ PER THE GENERATOR WASTE MATERIAL PROFILE SHEET OR PROPER USDOT SHIPPING NAME _____

HAZARD CLASS _____ USDOT I D NO _____

ADDITIONAL DESCRIPTION _____

8. DECISION EXPIRATION DATE 3/20/92

TECH MGR. SIGNATURE _____ LAB MGR SIGNATURE D. Walther

NAME (Print) T. A. Kurkjy NAME (Print) G. Grout, D. Walther or R. Rutkowski

DATE _____ DATE 3/20/90

III. WMI ULTIMATE MANAGEMENT FACILITY GENERAL MANAGER DECISION: ☒ APPROVED ☐ DISAPPROVED

IF APPROVED, STATE ANY ADDITIONAL PRECAUTIONS, CONDITIONS OR LIMITATIONS

GENERAL MGR SIGNATURE TAKurkjy DATE 3/20/90

NAME (Print) C. W. Kitto or T. A. Kurkjy

IV. WMI INTERMEDIATE TRANSFER FACILITY GENERAL MANAGER DECISION: ☐ APPROVED ☐ DISAPPROVED

IF APPROVED STATE ANY ADDITIONAL PRECAUTIONS CONDITIONS OR LIMITATIONS

GENERAL MGR SIGNATURE _____ DATE N/A 3/22/90

NAME (Print) _____

505 East Huntland Drive
Suite 250
Austin, TX 78752

512.329.6080 PHONE
512.329.8750 FAX

www.TRCsolutions.com

September 13, 2013

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

Re: January 2011 and December 2012 Gas Oil Release Soil Investigations, Navajo Refining Company, Lea Refinery, Lovington, New Mexico, AP-110

Dear Mr. Chavez:

On behalf of Navajo Refining Company (NRC), TRC Environmental Corporation (TRC) is submitting this letter to document the results of the January 2011 and December 2012 gas oil release investigations conducted at the NRC Lea Refinery (refinery) located near Lovington, Lea County, New Mexico. An initial Release Notification and Corrective Action Form C-141 (Form C-141) for the January 2011 gas oil release was submitted to the New Mexico Oil Conservation Division (OCD) on February 14, 2011. An initial Form C-141 for the December 2012 gas oil release was submitted to the OCD on December 27, 2012. The final Form C-141 for the December 2012 release is provided as Attachment A. The final Form C-141 and disposal records for the January 2011 release will be provided under separate cover.

Both the January 2011 and December 2012 gas oil releases occurred at the Holly Energy Partners (HEP) pump station located at the southwest portion of the refinery. The site plan and HEP pump station location are shown on Figure 1 and the approximate areas affected by the January 2011 and December 2012 releases are shown on Figure 2.

The January 2011 gas oil release occurred on January 29, 2011, when a relief valve at the HEP pump station malfunctioned causing a sump to fill with gas oil. A float that was supposed to trigger a high level alarm for the sump also malfunctioned allowing approximately 37 barrels of gas oil and water to overflow from the sump onto the ground surface. All released gas oil and water were contained within the bermed area of the pump station. Approximately 35 barrels of gas oil free liquid and water were recovered with a vacuum truck and added back to process for reuse. The remainder of the solidified gas oil and any affected gravel and surface soils were excavated in January 2013 and stored in a roll-off bin at the refinery. Excavation was not

conducted until January 2013 due to the presence of aboveground piping that precluded excavation equipment access into the affected area. The roll-off bin will be transported to R360 in Hobbs, New Mexico for disposal.

The December 2012 gas oil release occurred on December 27, 2012, when a pump seal failed at the HEP pump station. Fifty to sixty barrels of gas oil were released to the gravel-covered ground surface. All released gas oil was contained within the bermed area of the pump station. A vacuum truck was used immediately following the release to recover free liquid until the gas oil cooled and solidified. The recovered free liquid was added back to process for reuse. The remainder of the solidified gas oil and any affected gravel and surface soil (108 cubic yards) were excavated immediately following the release and placed in roll-off boxes and transported to R360 in Hobbs, New Mexico for disposal.

Disposal records for the December 2012 gas oil release are provided as Attachment B. Disposal records for the January 2011 release will be provided under separate cover. A photographic log of spill response and investigation activities is provided as Attachment C.

SOIL INVESTIGATION ACTIVITIES

Soil investigation activities were conducted by TRC on June 19 and 21, 2013. The objective of the investigation was to determine the vertical extent of potential hydrocarbon impacts associated with the January 2011 and December 2012 gas oil releases. Three soil borings were advanced within the former footprint of the December 2012 gas oil release (BH-1 through BH-3) and one soil boring was advanced with the former footprint of the January 2011 gas oil release (BH-4). The locations of the boring are shown on Figure 2. The soil borings were drilled using air-rotary drilling techniques. Soil samples were continuously collected with a split spoon and described based on lithology, moisture content, and notable presence of potential hydrocarbon impact (i.e. odor and staining). Soil samples were also field screened with a photoionization detector (PID). Soil boring logs are provided as Attachment D.

Two soil samples from each boring were submitted for laboratory analysis. The soil samples submitted for laboratory analysis were collected from the interval with the highest PID readings and an underlying interval (with no suspected hydrocarbon impact) as follows:

- BH-1: Sampled from 6-7 feet bgs and 13-13.5 feet bgs (total boring depth of 13.5 feet bgs).
- BH-2: Sampled from 12-13 feet bgs and 14-14.5 feet bgs (total boring depth of 14.5 feet bgs).
- BH-3: Sampled from 7-8 feet bgs and 14-15 feet bgs (total boring depth of 15 feet bgs).

- BH-4: Sampled from 14-15 feet bgs and 16-16.5 feet bgs (total boring depth of 16.5 feet bgs).

Soil samples were submitted to ALS Environmental in Houston, Texas for laboratory analysis of the following constituents of concern (COCs):

- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by method SW8021B;
- Total petroleum hydrocarbons (TPH) by method SW8015; and
- Chloride by method E300.

INVESTIGATION RESULTS

No hydrocarbon staining was observed in borings BH-1 through BH-4. Minor hydrocarbon odor and PID readings of 0.0 parts per million (ppm) to 0.2 ppm were recorded in borings BH-1, BH-2, and BH-3. In boring BH-4, strong to weak hydrocarbon odors and PID readings of 0.0 ppm to 22.1 ppm were recorded from the ground surface to 14 feet bgs while weak hydrocarbon odors and a PID reading of 101 ppm were recorded from 14 to 15 feet bgs.

Laboratory analytical results from the June 2013 investigation are summarized in Table 1. Laboratory analytical reports are provided as Attachment E.

The June 2013 soil sample analytical results were compared to the OCD Remediation Action Levels (RALs) as determined using the ranking system found in the OCD's *Guidelines for the Remediation of Leaks and Spills* (1993). The gas oil release was assigned a ranking score of "0" based on the following:

- The average depth to groundwater across the refinery is 107.5 feet bgs based on groundwater gauging data collected in August 2013. This is consistent with historical groundwater levels measured at the refinery.
- The release location is located more than 1,000 feet from the nearest water source (e.g., a public water supply well) and more than 200 feet from the nearest private domestic water source (e.g., a private water supply well). Portions of the refinery are located within the wellhead protection areas of City of Lovington public supply wells and water supply wells used on behalf of NRC at the refinery; however, the gas oil release area is not located within a wellhead protection area.
- The release is located more than 1,000 feet from the nearest surface water body.

The OCD RALs for a ranking score of "0" can be found in Table 1. No COCs were detected at concentrations above the OCD RALS in any of the soil samples collected from the four borings in the gas-oil release area, including from boring BH-4.

The June 2013 soil sample analytical results for chloride were compared to the New Mexico Environment Department Soil Screening Levels (SSL) for the chloride leaching to groundwater pathway as there is no established OCD RAL for chloride. The leaching to groundwater pathway SSL was developed in accordance with the NMED's *Risk Assessment Guidance for Site Investigation and Remediation* dated February 2012 and updated June 2012. The SSLs were developed using a dilution attenuation factor (DAF) of 20 based on the following:

- The average depth to groundwater is greater than 100 feet (a DAF of 1 is generally used at sites with shallow groundwater or karst topography).
- The volume of gas oil released (50 to 60 barrels) and the resulting spill area (0.21 acres) were minor (smaller source areas typically result in larger DAFs).
- The absence of elevated chloride concentrations in the samples collected from the gas oil release area borings indicate chloride has been vertically delineated beneath the spill area.

The SSL calculation spreadsheet is provided as Attachment F. Detected chloride concentrations were significantly lower than the calculated SSL for all samples collected from the gas oil release area.

A review of the laboratory quality assurance/quality control (QA/QC) data revealed anomalously high recoveries from matrix spike/matrix spike duplicate (MS/MSD) analyses performed on samples collected from the gas oil release area and analyzed for TPH diesel-range organics (DRO) and TPH oil-range organics (ORO). These high recoveries indicate possible matrix interference and suggest that the detected concentrations of ORO and DRO in the gas oil release samples are biased high.

RECOMMENDATIONS AND CONCLUSIONS

The June 2013 investigation results indicate that NRC's spill response activities following the January 2011 and December 2012 gas oil releases effectively removed the release material and prevented COCs from migrating into surface soils above RALs. NRC respectfully requests a no further action determination regarding the January 2011 and December 2012 gas oil releases at the refinery based on the following:

- Free liquid gas oil was immediately recovered via vacuum truck and placed back into process for reuse. All solidified gas oil and impacted gravel/soil was recovered via excavation and was transported off-site for disposal.
- According to Material Safety Data Sheets (MSDSs), gas oil is a heavy, highly viscous hydrocarbon with negligible solubility in groundwater. Gas oil is stable and non-reactive at ambient temperatures and has a pour-point of 85° Fahrenheit (i.e., the lowest temperature at which it becomes semi-solid and loses it flow characteristics). According

to the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC), the ambient air temperature December 2012 release ranged from 18 to 38° Fahrenheit, which caused the gas oil to rapidly cool and solidify, therefore inhibiting it from migrating readily into subsurface soil. The material safety data sheet for gas oil is included as Attachment G.

- Laboratory analytical results of soil samples collected from four soil borings installed within the release area indicate no COCs are present at concentrations above the OCD RALs for a ranking score of "0".

Excavated gravel and soil associated with the January 2011 release is contained within a roll-off bin and will be transported to R360 in Hobbs, New Mexico for disposal. Disposal records and a final Form C-141 for the January 2011 release will be provided under separate cover.

If you have any further questions, please do not hesitate to contact Robert Combs of NRC at (575) 746-5382, Bryan Gilbert of TRC at (512) 684-3104, or Julie Speer of TRC at (512) 684-3148.

Sincerely,

Bryan Gilbert, P.G.
Project Manager

Sincerely,

Julie Speer, E.I.T.
Associate Project Manager

Attachments: Figure 1 - Refinery Vicinity Map
Figure 2 - Gas Oil Release Boring Location Map

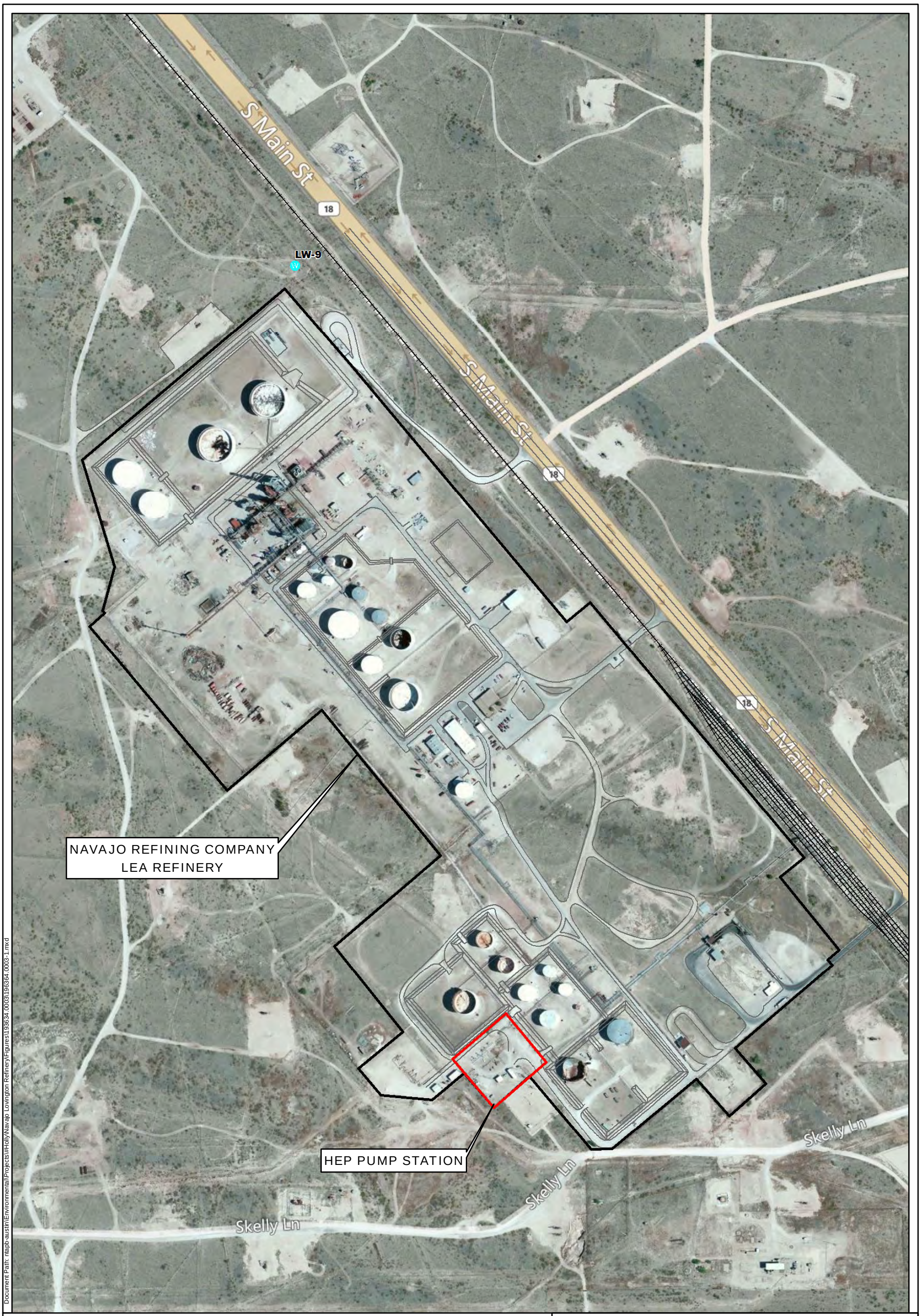
Table 1 - BTEX, TPH, and Chloride Analytical Results in Soil

Attachment A – December 2012 Final Release Notification and Corrective Action Form C-141
Attachment B – December 2012 Release Disposal Records
Attachment C – Photographic log
Attachment D – Soil Boring Logs
Attachment E – ALS Environmental Laboratory Reports
Attachment F – SSL Calculation for Chloride Leaching to Groundwater
Attachment G – Material Safety Data Sheet for Gas Oil

cc: Robert Combs, Navajo Refining Company, Artesia, New Mexico
Michael Holder, Navajo Refining Company, Artesia, New Mexico
Arsin Sahba, TRC, Austin, Texas

TRC

FIGURES



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LEGEND

- RAILROAD
- SITE BOUNDARY
- APPROXIMATE BOUNDARY OF HOLLY ENERGY PARTNERS PUMP STATION
- WATER WELL

1 inch = 400 feet

0 200 400 600 800

FEET

N

Service Layer Credits: Image courtesy of USGS © 2013 Microsoft Corporation ImagePatch.com © 2010 NAVTEQ © AND

REFINERY VICINITY MAP

NAVAJO REFINING COMPANY
LEA REFINERY LOVINGTON, NM

PROJECT NO: 196364.0003	MXD: 196364.5000-1
AUTHOR: DGM	DATE: 9/5/2013

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 1



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LEGEND

- SOIL BORING
- APPROXIMATE BOUNDARY OF HOLLY ENERGY PARTNER'S PUMP STATION

1 inch = 80 feet

0 40 80

FEET

N

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the

GAS OIL RELEASE
SOIL SAMPLE LOCATION MAP

NAVAJO REFINING COMPANY
LEA REFINERY LOVINGTON, NM

PROJECT NO: 196364.0003	MXD: 196364_5000-2
AUTHOR: DGM	DATE: 9/13/2013

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 2

TABLE

TABLE 1. BTEX, TPH, AND CHLORIDE ANALYTICAL RESULTS IN SOIL
JUNE 2013 GAS OIL RELEASE INVESTIGATION
NAVAJO REFINING COMPANY LEA REFINERY - LOVINGTON, NEW MEXICO

Sample Location	Sample Interval (feet bgs)	Benzene (mg/kg)	Ethylbenzene (mg/kg)	Toluene (mg/kg)	Xylenes, Total (mg/kg)	BTEX, Total (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
	OCD RAL	**10**	**- - -**	**- - -**	**- - -**	**50**	**- - -**	**- - -**	**- - -**	**5,000**	**867***
BH-1	6-7	<0.0010	<0.0010	<0.0010	<0.0030	<0.0030	<0.050	2,800	75 J	2875	5.96
BH-1	13-13.5	<0.0010	<0.0010	<0.0010	<0.0030	<0.0030	<0.050	210	8.8 J	219	5.4
BH-2	12-13	<0.0010	<0.0010	<0.0010	<0.0030	<0.0030	<0.050	0.85 J	3.6	4.5	4.83 J
BH-2	14-14.5	<0.0010	<0.0010	<0.0010	<0.0030	<0.0030	<0.050	5.7	5.5	11.20	5.29
BH-3	7-8	<0.0010	<0.0010	<0.0010	<0.0030	<0.0030	<0.050	0.56 J	3.9	4.5	5.17
BH-3	14-15	<0.0010	<0.0010	<0.0010	<0.0030	<0.0030	<0.050	<1.7	3.4	3.40	5.15
BH-4	14-15	0.0014	<0.0010	<0.0010	<0.0030	0.0014	<0.050	<1.7	2.7 J	2.7	7.22
BH-4	16-17	0.002	<0.0010	0.0023	<0.0030	0.0043	0.041 J	190	920	1110	8.15

Note:

RALs were selected based on a site depth to water of 105 feet bgs; no water source within 1,000 feet; and no private water source within 200 feet, and no surface water within 1,000 feet.

*Chloride concentrations were compared to Soil Screening Level (SSL) developed in accordance with the New Mexico Environment Department's (NMED's) *Risk Assessment*

mg/kg - milligrams per kilogram

feet bgs - feet below ground surface

BTEX - Benzene, toluene, ethylbenzene, and xylene

TPH - Total petroleum hydrocarbons

GRO - Gasoline range organics (C6 to C12)

DRO - Diesel Range Organics (>C12 to C21)

ORO - Oil Range Organics (>C21 to C35)

NMOCD - New Mexico Oil Conservation Division

RAL - Remediation Action Level based on a ranking score of "0".

J - Analyte detected below quanititation limit

ATTACHMENT A

December 2012 Final Release Notification and Corrective Action Form C-141

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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

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 Navajo Refining Co. LLC	Contact Robert Combs
Address 7406 South Main St., Lovington, NM	Telephone No. 575-746-5382
Facility Name Lea 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

Latitude 32.87405 **Longitude** -103.30000

NATURE OF RELEASE

Type of Release Gasoil	Volume of Release 50-60 bbl	Volume Recovered 50-60 bbl
Source of Release Pump seal failure	Date and Hour of Occurrence 12/27/2012 prior to 0250	Date and Hour of Discovery 12/27/2012, 0250
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
A Holly Energy Partners (HEP) pipeline ten-inch variable speed pump inner seal failed, releasing gas oil to the ground surface (gravel). An operator discovered the spill, traced it to its source, and notified the pipeline operator, who shut down the pump at approximately 0300 on 12/27/2012.

Describe Area Affected and Cleanup Action Taken.*
The gas oil was retained within the bermed containment at the HEP pipeline pump station. A vacuum truck was used to remove free liquid until the gas oil cooled and solidified. The remainder of the solidified gas oil and affected surface gravel were excavated and transferred to roll-off bins for disposal at R360 in Hobbs, New Mexico. Soil samples were collected for laboratory analysis in June 2013 to delineate the vertical extent of potential impacts. The results indicate that no constituents of concern (COCs) exceed the OCD Remedial Action Levels (RALs) or the New Mexico Environment Department's (NMED's) Soil Screening Levels (SSLs). For further details regarding the June 2013 investigation and results, please refer to the *December 2012 Gas Oil Release Soil Investigation* letter that was submitted to the OCD on September 13, 2013.

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:	OIL CONSERVATION DIVISION	
Printed Name: Robert Combs	Approved by Environmental Specialist:	
Title: Environmental Specialist	Approval Date:	Expiration Date:
E-mail Address: Robert.Combs@hollyfrontier.com	Conditions of Approval:	Attached ☐
Date: Phone: 575-746-5382		

* Attach Additional Sheets If Necessary

ATTACHMENT B

December 2012 Release Disposal Records

NON-HAZARDOUS WASTE MANIFEST

91534

PART I: Generator Navajo Refining - Lea Plant
Address [illegible]
City/State Lovington N.M. 88260

(575) 396-[illegible]
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NA

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	✓	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

Soil and debris containing Casoil - 12 yards

NEP Pipeline Leak.

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

[signature] 10-3-13
Signature of Generator's Authorized Agent — Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name [redacted] S Brothers
Address _____
City/State _____

_____ Telephone No.
_____ Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

[signature] 10-3-13
Signature of Transporter's Agent — Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.** **(575) 393-1079** Telephone No.
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388** **www.crihobbs.com** E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

[signature] 10-3-13
Signature of Facility Agent — Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91532

PART I: Generator Navajo Refining - Lea Plant
Address 1000 W. Main
City/State Lovington, N.M. 88260

(575) 391-8071
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NA

Property Name Lea Unit #2
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil		Other Materials		Pit No.	

DESCRIPTION / NOTES

Soil and debris contaminated with Diesel 12 yards
Hot pipeline leak.

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

1-2-2013
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name S Brothers
Address _____
City/State _____

Telephone No.

1
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

1-2-13
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

1-2-13
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

9351

PART I: Generator Navajo Refining - Lea Plant
Address [illegible]
City/State [illegible]

( ) - Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NA

Property Name [illegible]
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	1	Other Materials		Pit No.	

DESCRIPTION / NOTES

Soil and Rock Contaminated with Crude Oil - 12 yards
40 bbls Pipeline Soil

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

[signature] Signature of Generator's Authorized Agent

1-2-2013 Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name [illegible]
Address _____
City/State _____

Telephone No.

1
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

[signature] Signature of Transporter's Agent

Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.** **(575) 393-1079**
Address **P.O. Box 388** Telephone No.
City/State **Hobbs, N.M. 88241-0388** **www.crihobbs.com**
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

[signature] Signature of Facility Agent

1-2-13 Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

PART I: Generator Navajo Refining - Lovington
Address [illegible]
City/State Lovington N.M. 88260

(575) 396-4611
Telephone No.

ORGINATION OF WASTE:

Operations Center _____

Permit No. NA

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	4	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

Soil and debris contaminated with Gasoline range hydrocarbons from pipeline spill.

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

1-2-2013
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name [illegible] & Brothers
Address _____
City/State _____

Telephone No.

1
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

1-2-2013
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

1/2/13
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

21528

PART I: Generator Nuevo Petroleum Land
Address 708 S. Main
City/State Lovington, N.M. 88260

(575) 396-1681
Telephone No.

ORGINATION OF WASTE:

Operations Center _____

Permit No. NA

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	_____	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

Soil and Debris Contaminated w/gas oil 12 yards
HCL Pipeline Spill

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

12/30/12 11:00 AM
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Dirt Transport & Backhoe Services
Address _____
City/State _____

_____
Telephone No.

1
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

12-30-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

12/30/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91324

PART I: Generator [illegible] Coal Plant
Address [illegible]
City/State [illegible]
( ) [illegible]
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NA

Property Name [illegible]
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

Soil & Debris Contaminated with Gas oil - 12 yards
[illegible]

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

[illegible]
Signature of Generator's Authorized Agent

[illegible]
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name ~~[illegible]~~ S. Brothers
Address _____
City/State _____

_____
Telephone No.

/
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

[illegible]
Signature of Transporter's Agent

[illegible]
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

[illegible]
Signature of Facility Agent

[illegible]
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91329

PART I: Generator Navajo Refining - Leon Plant

Address [illegible]

City/State Lovington NM 88260

(575) 396-4801
Telephone No.

ORGINATION OF WASTE:

Operations Center _____

Permit No. NA

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	✓	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

Soil and Debris Contaminated w/ Gasoil 12 yards

Hot Pipeline Soil

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

[signature]
Signature of Generator's Authorized Agent

12/28/17 1356
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name ~~Flint Transport~~ S. Brothers

Address _____

City/State _____

_____
Telephone No.

1
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

[signature]
Signature of Transporter's Agent

12/28/17
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**

Address **P.O. Box 388**

City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

[signature]
Signature of Facility Agent

12-31-17
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91523

PART I: Generator Navajo Refining - Lea Plant
Address Two Navajo Trail
City/State Loving, New Mexico 88256
(575) 396-4521
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. N.A.

Property Name Loving
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

Soil + Debris Contaminated with Sour Oil - 12yds

Hwy 285 Pipeline Leak

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

12-28-2012
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name [illegible] S. Bullock
Address _____
City/State _____
Telephone No.
1
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

12-28-2012
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

12/28/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91327

PART I: Generator Navajo Refining - Lovington
Address 7766 Main St
City/State Lovington NM 88260

( ) Telephone No.

ORGINATION OF WASTE:

Operations Center _____

Permit No. NA

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	_____	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

Sand and debris contaminated with oil - 12 yards

NOT HAZ, NOT NORM

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name _____
Address _____
City/State _____

Telephone No.

Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

Date and Time Received

TCP - #7520-A

ATTACHMENT C

Photographic Log



Photo 1: Navajo Refining Company (NRC) staff removes liquid gas oil using a vacuum truck from the Holly Energy Partners (HEP) pump station (i.e., release location) on December 27, 2012.



Photo 2: Solidified gas oil on ground surface south of release location (December 27, 2012).



Photo 3: Gas oil retained within diked containment southeast of release (December 27, 2012).



Photo 4: Drilling soil boring BH-4 (June 19, 2013).

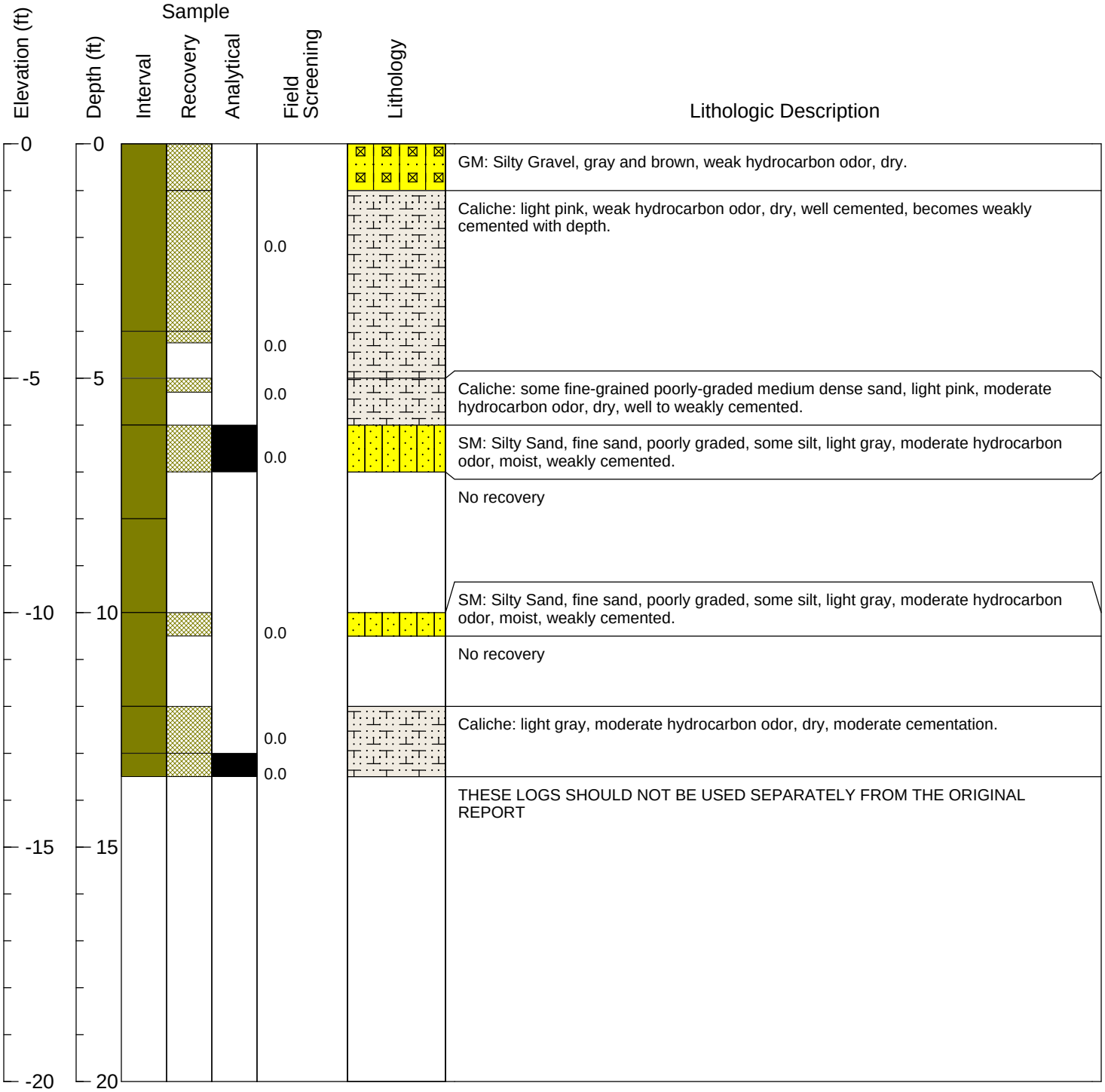
ATTACHMENT D

Soil Boring Logs

BORING LOG

BH-1

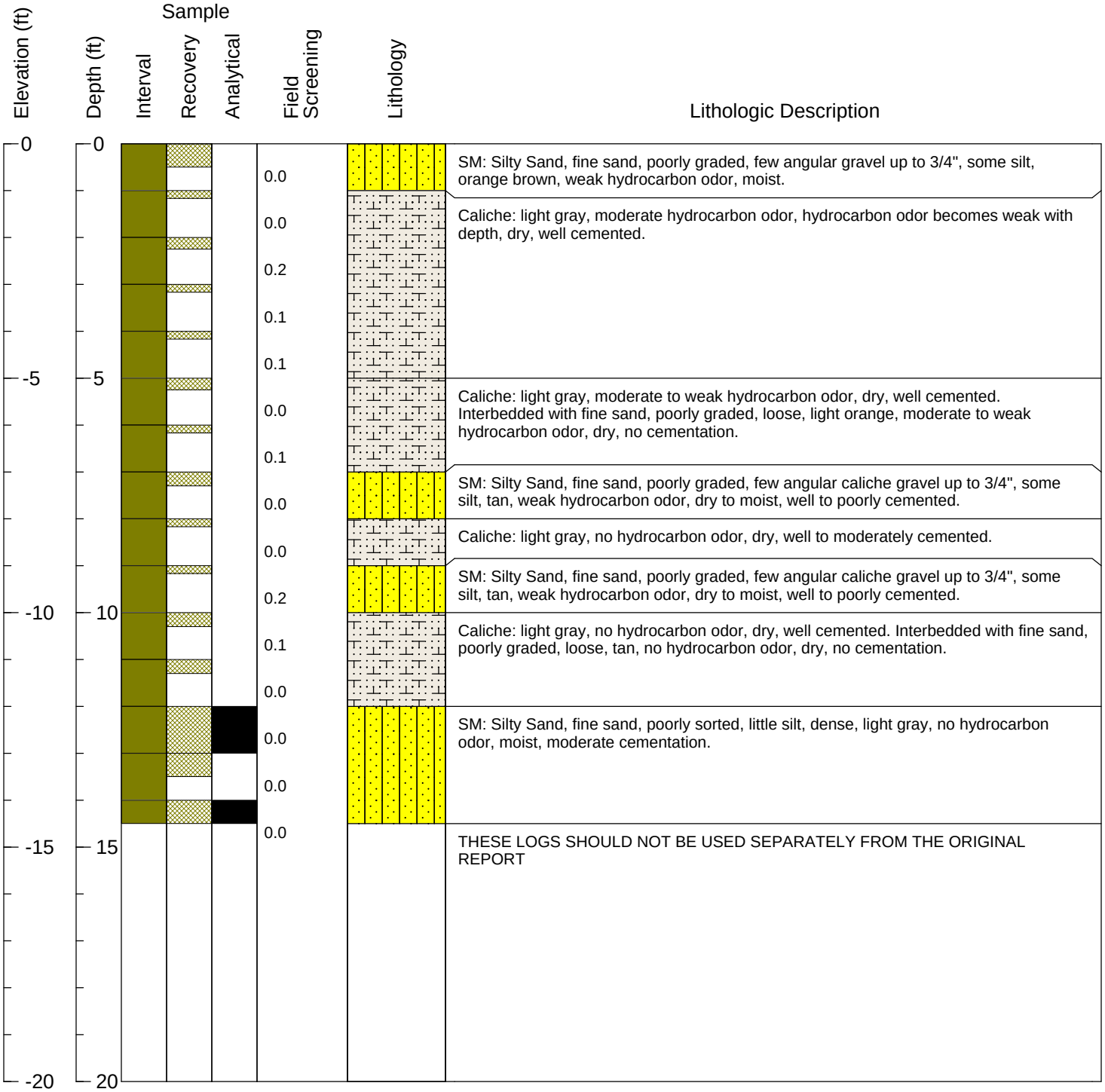
Client: Holly Frontier, Navajo Refining Company	TRC Project #: 196364
Site: Lea Refinery	Start Date: 6/19/2013
Address: 7406 South Main St, Lovington, New Mexico	Finish Date: 6/19/2013
Project: Gas Oil Release Soil Investigation	Permit #: NA
Drilling Company: Talon Drilling — Drilling Crew: Gabe Perez and crew	TRC Site Rep.: Josh Ward
Drilling Method: Air Rotary	TRC Reviewer: Bryan Gilbert
Boring Diameter (in): 6 1/4 — Boring Depth (ft bgs): 13.5	X-Y Coord. Sys.: NA
Sampling Method: 2-foot x 2-inch Split Spoon	X-Coord: NA
Blow Count Method: NA — Grout: Hydrated 3/8-inch Bentonite Chips	Y-Coord: NA
Field Screening Parameter: Volatile Organic Compounds	Elevation Datum: NM
Meter: MiniRAE 2000 PID — Units: ppm	Ground Elevation (ft): NM



BORING LOG

BH-2

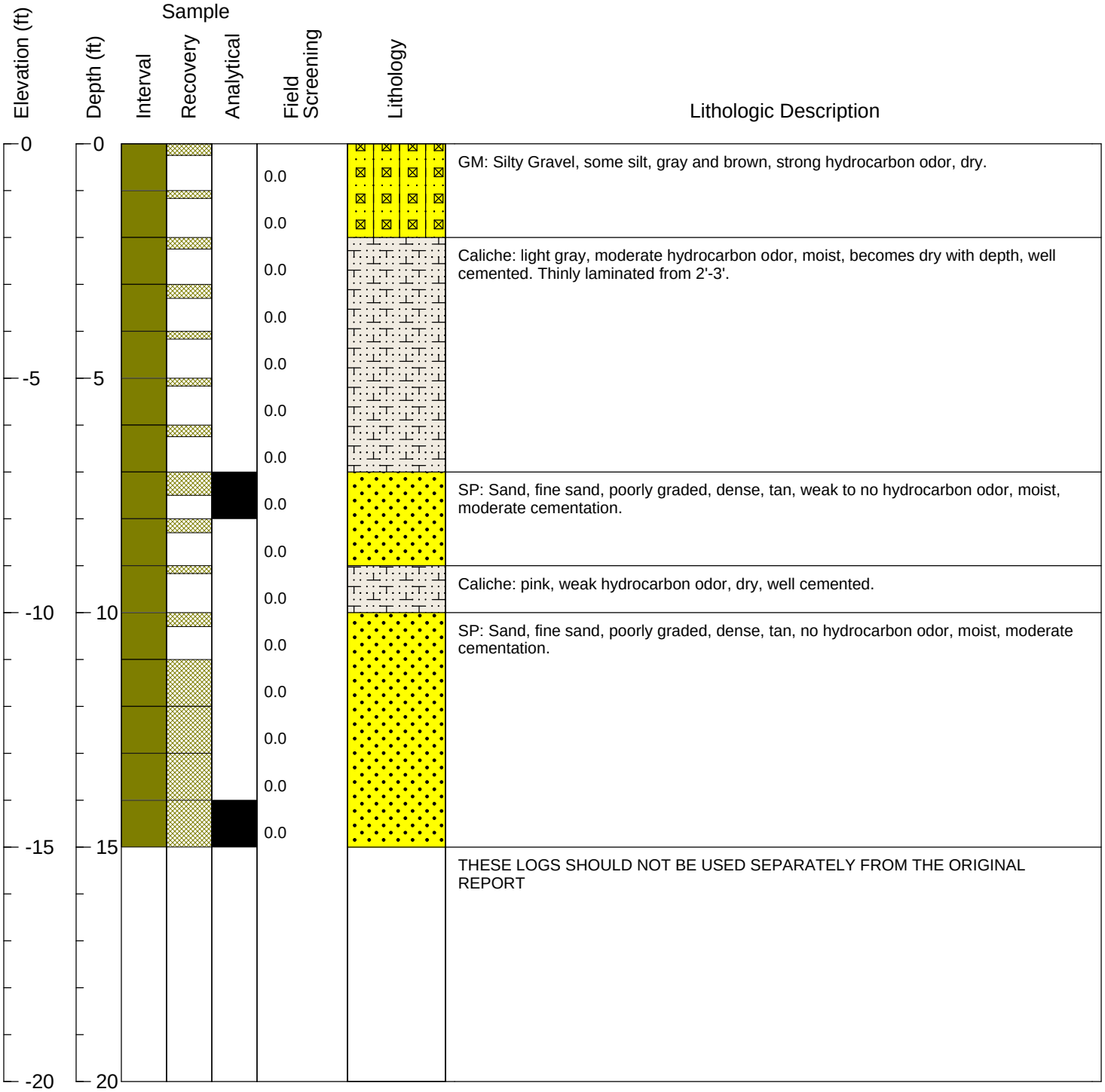
Client: Holly Frontier, Navajo Refining Company	TRC Project #: 196364
Site: Lea Refinery	Start Date: 6/20/2013
Address: 7406 South Main St, Lovington, New Mexico	Finish Date: 6/20/2013
Project: Gas Oil Release Soil Investigation	Permit #: NA
Drilling Company: Talon Drilling — Drilling Crew: Gabe Perez and crew	TRC Site Rep.: Josh Ward
Drilling Method: Air Rotary	TRC Reviewer: Bryan Gilbert
Boring Diameter (in): 6 1/4 — Boring Depth (ft bgs): 14.5	X-Y Coord. Sys.: NA
Sampling Method: 2-foot x 2-inch Split Spoon	X-Coord: NA
Blow Count Method: NA — Grout: Hydrated 3/8-inch Bentonite Chips	Y-Coord: NA
Field Screening Parameter: Volatile Organic Compounds	Elevation Datum: NM
Meter: MiniRAE 2000 PID — Units: ppm	Ground Elevation (ft): NM



BORING LOG

BH-3

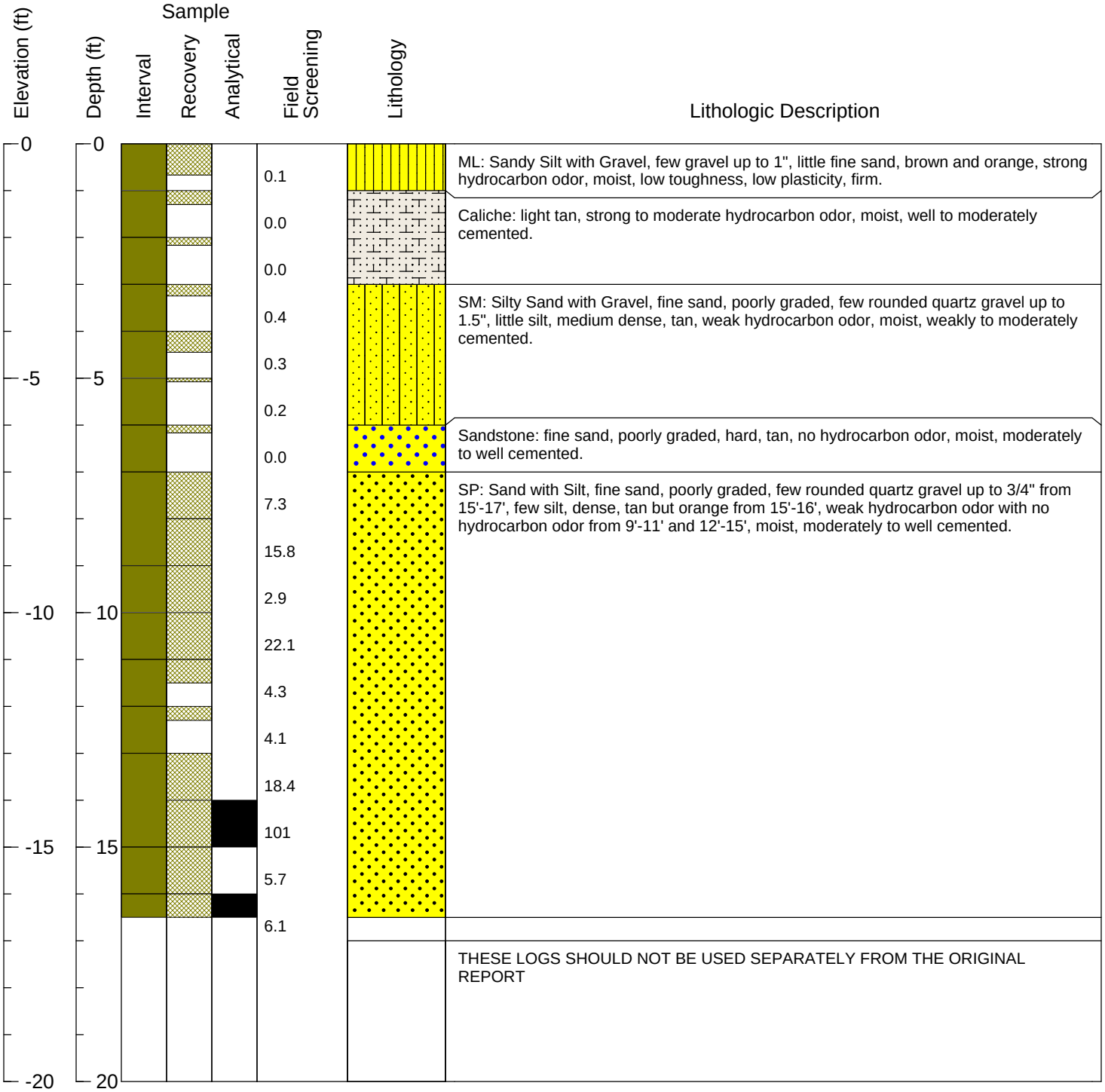
Client: Holly Frontier, Navajo Refining Company	TRC Project #: 196364
Site: Lea Refinery	Start Date: 6/20/2013
Address: 7406 South Main St, Lovington, New Mexico	Finish Date: 6/20/2013
Project: Gas Oil Release Soil Investigation	Permit #: NA
Drilling Company: Talon Drilling — Drilling Crew: Gabe Perez and crew	TRC Site Rep.: Josh Ward
Drilling Method: Air Rotary	TRC Reviewer: Bryan Gilbert
Boring Diameter (in): 6 1/4 — Boring Depth (ft bgs): 15	X-Y Coord. Sys.: NA
Sampling Method: 2-foot x 2-inch Split Spoon	X-Coord: NA
Blow Count Method: NA — Grout: Hydrated 3/8-inch Bentonite Chips	Y-Coord: NA
Field Screening Parameter: Volatile Organic Compounds	Elevation Datum: NM
Meter: MiniRAE 2000 PID — Units: ppm	Ground Elevation (ft): NM



BORING LOG

BH-4

Client: Holly Frontier, Navajo Refining Company	TRC Project #: 196364
Site: Lea Refinery	Start Date: 6/19/2013
Address: 7406 South Main St, Lovington, New Mexico	Finish Date: 6/19/2013
Project: Gas Oil Release Soil Investigation	Permit #: NA
Drilling Company: Talon Drilling — Drilling Crew: Gabe Perez and crew	TRC Site Rep.: Josh Ward
Drilling Method: Air Rotary	TRC Reviewer: Bryan Gilbert
Boring Diameter (in): 6 1/4 — Boring Depth (ft bgs): 17	X-Y Coord. Sys.: NA
Sampling Method: 2-foot x 2-inch Split Spoon	X-Coord: NA
Blow Count Method: NA — Grout: Hydrated 3/8-inch Bentonite Chips	Y-Coord: NA
Field Screening Parameter: Volatile Organic Compounds	Elevation Datum: NM
Meter: MiniRAE 2000 PID — Units: ppm	Ground Elevation (ft): NM



ATTACHMENT E

ALS Environmental Laboratory Reports

09-Jul-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: Gas-Oil Release Investigation Work Order: **1306935**

Dear Robert,

ALS Environmental received 9 samples on 22-Jun-2013 09:45 AM for the analyses presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

The total number of pages in this revised report is 27.

Regards,

Electronically approved by: Sonia West

Sonia West
Project Manager

Certificate No: T104704231-13-12

ALS Environmental

Date: 09-Jul-13

Client: Navajo Refining Company
Project: Gas-Oil Release Investigation
Work Order: **1306935**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1306935-01	BH-1 13-13.5	Soil		6/19/2013 20:30	6/22/2013 09:45	☐
1306935-02	BH-1 6-7	Soil		6/19/2013 21:10	6/22/2013 09:45	☐
1306935-03	BH-3 7-8	Soil		6/19/2013 22:25	6/22/2013 09:45	☐
1306935-04	BH-3 14-15	Soil		6/19/2013 22:30	6/22/2013 09:45	☐
1306935-05	BH-2 12-13	Soil		6/20/2013 10:30	6/22/2013 09:45	☐
1306935-06	BH-2 14-14.5	Soil		6/20/2013 10:40	6/22/2013 09:45	☐
1306935-07	BH-4 14-15	Soil		6/20/2013 13:40	6/22/2013 09:45	☐
1306935-08	BH-4 16-17	Soil		6/20/2013 13:50	6/22/2013 09:45	☐
1306935-09	TB-06-21-13-01	Water		6/19/2013	6/22/2013 09:45	☐

ALS Environmental

Date: 09-Jul-13

Client:	Navajo Refining Company
Project:	Gas-Oil Release Investigation
Work Order:	1306935

Case Narrative

As per your request, this report has been revised to change the project name.

Batch 71054, TPH DRO/ORO - 8015, Sample BH-1 6-7: The surrogate was diluted out in the 100 x dilution.

Batch 71054, TPH DRO/ORO - 8015, Sample BH-4 16-17: The surrogate was diluted out in the 20 x dilution.

Batch 71054, TPH DRO/ORO - 8015, Sample BH-1 13-13.5: The MS/MSD recoveries were outside of the control limits for TPH DRO and TPH ORO due to matrix interference.

Batch R149461, BTEX 8021B, Sample 1306884-01A: MS/MSD are for an unrelated sample.

Batch 71202, Chloride 300.0, Sample BH-4 16-17: MS/MSD recoveriesy were outside of the control limits due to possible matrix interference.

ALS Environmental

Date: *09-Jul-13*

Client:	Navajo Refining Company		
Project:	Gas-Oil Release Investigation	**Work Order:**	1306935
Sample ID:	BH-1 13-13.5	**Lab ID:**	1306935-01
Collection Date:	6/19/2013 08:30 PM	**Matrix:**	SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO - 8015C			**SW8015M**		Prep Date: **6/26/2013**	Analyst: **RPM**
TPH (Diesel Range)	**210**		**8.5**	**mg/Kg**	5	6/27/2013 10:37 AM
TPH (Motor Oil Range)	**8.8**	J	**17**	**mg/Kg**	5	6/27/2013 10:37 AM
Surr: 2-Fluorobiphenyl	*73.6*		*60-135*	*%REC*	5	6/27/2013 10:37 AM
GASOLINE RANGE ORGANICS - SW8015C			**SW8015**			Analyst: **KKP**
Gasoline Range Organics	U		0.050	mg/Kg	1	6/25/2013 03:44 PM
Surr: 4-Bromofluorobenzene	*111*		*70-130*	*%REC*	1	6/25/2013 03:44 PM
BTEX			**SW8021B**			Analyst: **KKP**
Benzene	U		1.0	µg/Kg	1	6/25/2013 01:46 PM
Toluene	U		1.0	µg/Kg	1	6/25/2013 01:46 PM
Ethylbenzene	U		1.0	µg/Kg	1	6/25/2013 01:46 PM
Xylenes, Total	U		3.0	µg/Kg	1	6/25/2013 01:46 PM
Surr: 4-Bromofluorobenzene	*118*		*75-131*	*%REC*	1	6/25/2013 01:46 PM
Surr: Trifluorotoluene	*104*		*73-130*	*%REC*	1	6/25/2013 01:46 PM
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**5.40**		**4.99**	**mg/Kg**	1	7/1/2013 04:14 AM
Surr: Selenate (surr)	*107*		*85-115*	*%REC*	1	7/1/2013 04:14 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client: Navajo Refining Company
Project: Gas-Oil Release Investigation
Work Order: 1306935
Sample ID: BH-1 6-7
Lab ID: 1306935-02
Collection Date: 6/19/2013 09:10 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO - 8015C			**SW8015M**		Prep Date: **6/26/2013**	Analyst: **RPM**
TPH (Diesel Range)	**2,800**		**170**	**mg/Kg**	100	6/27/2013 10:37 AM
TPH (Motor Oil Range)	**75**	J	**340**	**mg/Kg**	100	6/27/2013 10:37 AM
Surr: 2-Fluorobiphenyl	*0*	S	*60-135*	*%REC*	100	6/27/2013 10:37 AM
GASOLINE RANGE ORGANICS - SW8015C			**SW8015**			Analyst: **KKP**
Gasoline Range Organics	U		0.050	mg/Kg	1	6/25/2013 01:52 PM
Surr: 4-Bromofluorobenzene	*129*		*70-130*	*%REC*	1	6/25/2013 01:52 PM
BTEX			**SW8021B**			Analyst: **KKP**
Benzene	U		1.0	µg/Kg	1	6/25/2013 02:07 PM
Toluene	U		1.0	µg/Kg	1	6/25/2013 02:07 PM
Ethylbenzene	U		1.0	µg/Kg	1	6/25/2013 02:07 PM
Xylenes, Total	U		3.0	µg/Kg	1	6/25/2013 02:07 PM
Surr: 4-Bromofluorobenzene	*112*		*75-131*	*%REC*	1	6/25/2013 02:07 PM
Surr: Trifluorotoluene	*102*		*73-130*	*%REC*	1	6/25/2013 02:07 PM
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**5.96**		**4.99**	**mg/Kg**	1	7/1/2013 04:29 AM
Surr: Selenate (surr)	*112*		*85-115*	*%REC*	1	7/1/2013 04:29 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client: Navajo Refining Company
Project: Gas-Oil Release Investigation
Work Order: 1306935
Sample ID: BH-3 7-8
Lab ID: 1306935-03
Collection Date: 6/19/2013 10:25 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO - 8015C			**SW8015M**		Prep Date: **6/26/2013**	Analyst: **RPM**
TPH (Diesel Range)	**0.56**	J	**1.7**	**mg/Kg**	1	6/26/2013 03:24 PM
TPH (Motor Oil Range)	**3.9**		**3.4**	**mg/Kg**	1	6/26/2013 03:24 PM
Surr: 2-Fluorobiphenyl	*66.5*		*60-135*	*%REC*	1	6/26/2013 03:24 PM
GASOLINE RANGE ORGANICS - SW8015C			**SW8015**			Analyst: **KKP**
Gasoline Range Organics	U		0.050	mg/Kg	1	6/25/2013 02:08 PM
Surr: 4-Bromofluorobenzene	*124*		*70-130*	*%REC*	1	6/25/2013 02:08 PM
BTEX			**SW8021B**			Analyst: **KKP**
Benzene	U		1.0	µg/Kg	1	6/25/2013 02:27 PM
Toluene	U		1.0	µg/Kg	1	6/25/2013 02:27 PM
Ethylbenzene	U		1.0	µg/Kg	1	6/25/2013 02:27 PM
Xylenes, Total	U		3.0	µg/Kg	1	6/25/2013 02:27 PM
Surr: 4-Bromofluorobenzene	*119*		*75-131*	*%REC*	1	6/25/2013 02:27 PM
Surr: Trifluorotoluene	*105*		*73-130*	*%REC*	1	6/25/2013 02:27 PM
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**5.17**		**5.00**	**mg/Kg**	1	7/1/2013 04:43 AM
Surr: Selenate (surr)	*114*		*85-115*	*%REC*	1	7/1/2013 04:43 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client:	Navajo Refining Company		
Project:	Gas-Oil Release Investigation	**Work Order:**	1306935
Sample ID:	BH-3 14-15	**Lab ID:**	1306935-04
Collection Date:	6/19/2013 10:30 PM	**Matrix:**	SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO - 8015C			**SW8015M**		Prep Date: **6/26/2013**	Analyst: **RPM**
TPH (Diesel Range)	U		1.7	mg/Kg	1	6/26/2013 03:47 PM
TPH (Motor Oil Range)	**3.4**		**3.4**	**mg/Kg**	1	6/26/2013 03:47 PM
Surr: 2-Fluorobiphenyl	*64.8*		*60-135*	*%REC*	1	6/26/2013 03:47 PM
GASOLINE RANGE ORGANICS - SW8015C			**SW8015**			Analyst: **KKP**
Gasoline Range Organics	U		0.050	mg/Kg	1	6/25/2013 03:12 PM
Surr: 4-Bromofluorobenzene	*111*		*70-130*	*%REC*	1	6/25/2013 03:12 PM
BTEX			**SW8021B**			Analyst: **KKP**
Benzene	U		1.0	µg/Kg	1	6/25/2013 02:47 PM
Toluene	U		1.0	µg/Kg	1	6/25/2013 02:47 PM
Ethylbenzene	U		1.0	µg/Kg	1	6/25/2013 02:47 PM
Xylenes, Total	U		3.0	µg/Kg	1	6/25/2013 02:47 PM
Surr: 4-Bromofluorobenzene	*119*		*75-131*	*%REC*	1	6/25/2013 02:47 PM
Surr: Trifluorotoluene	*107*		*73-130*	*%REC*	1	6/25/2013 02:47 PM
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**5.15**		**5.00**	**mg/Kg**	1	7/1/2013 04:58 AM
Surr: Selenate (surr)	*111*		*85-115*	*%REC*	1	7/1/2013 04:58 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client: Navajo Refining Company
Project: Gas-Oil Release Investigation
Work Order: 1306935
Sample ID: BH-2 12-13
Lab ID: 1306935-05
Collection Date: 6/20/2013 10:30 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO - 8015C			**SW8015M**		Prep Date: **6/26/2013**	Analyst: **RPM**
TPH (Diesel Range)	**0.85**	J	**1.7**	**mg/Kg**	1	6/26/2013 04:11 PM
TPH (Motor Oil Range)	**3.6**		**3.4**	**mg/Kg**	1	6/26/2013 04:11 PM
Surr: 2-Fluorobiphenyl	*75.1*		*60-135*	*%REC*	1	6/26/2013 04:11 PM
GASOLINE RANGE ORGANICS - SW8015C			**SW8015**			Analyst: **KKP**
Gasoline Range Organics	U		0.050	mg/Kg	1	6/25/2013 03:28 PM
Surr: 4-Bromofluorobenzene	*115*		*70-130*	*%REC*	1	6/25/2013 03:28 PM
BTEX			**SW8021B**			Analyst: **KKP**
Benzene	U		1.0	µg/Kg	1	6/25/2013 05:07 PM
Toluene	U		1.0	µg/Kg	1	6/25/2013 05:07 PM
Ethylbenzene	U		1.0	µg/Kg	1	6/25/2013 05:07 PM
Xylenes, Total	U		3.0	µg/Kg	1	6/25/2013 05:07 PM
Surr: 4-Bromofluorobenzene	*118*		*75-131*	*%REC*	1	6/25/2013 05:07 PM
Surr: Trifluorotoluene	*104*		*73-130*	*%REC*	1	6/25/2013 05:07 PM
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**4.83**	J	**5.00**	**mg/Kg**	1	7/1/2013 05:12 AM
Surr: Selenate (surr)	*108*		*85-115*	*%REC*	1	7/1/2013 05:12 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client:	Navajo Refining Company		
Project:	Gas-Oil Release Investigation	**Work Order:**	1306935
Sample ID:	BH-2 14-14.5	**Lab ID:**	1306935-06
Collection Date:	6/20/2013 10:40 AM	**Matrix:**	SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO - 8015C			**SW8015M**		Prep Date: **6/26/2013**	Analyst: **RPM**
TPH (Diesel Range)	**5.7**		**1.7**	**mg/Kg**	1	6/26/2013 04:35 PM
TPH (Motor Oil Range)	**5.5**		**3.4**	**mg/Kg**	1	6/26/2013 04:35 PM
Surr: 2-Fluorobiphenyl	*60.2*		*60-135*	*%REC*	1	6/26/2013 04:35 PM
GASOLINE RANGE ORGANICS - SW8015C			**SW8015**			Analyst: **KKP**
Gasoline Range Organics	U		0.050	mg/Kg	1	6/25/2013 04:32 PM
Surr: 4-Bromofluorobenzene	*112*		*70-130*	*%REC*	1	6/25/2013 04:32 PM
BTEX			**SW8021B**			Analyst: **KKP**
Benzene	U		1.0	µg/Kg	1	6/25/2013 05:28 PM
Toluene	U		1.0	µg/Kg	1	6/25/2013 05:28 PM
Ethylbenzene	U		1.0	µg/Kg	1	6/25/2013 05:28 PM
Xylenes, Total	U		3.0	µg/Kg	1	6/25/2013 05:28 PM
Surr: 4-Bromofluorobenzene	*119*		*75-131*	*%REC*	1	6/25/2013 05:28 PM
Surr: Trifluorotoluene	*104*		*73-130*	*%REC*	1	6/25/2013 05:28 PM
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**5.29**		**5.00**	**mg/Kg**	1	7/1/2013 05:27 AM
Surr: Selenate (surr)	*113*		*85-115*	*%REC*	1	7/1/2013 05:27 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client: Navajo Refining Company
Project: Gas-Oil Release Investigation
Work Order: 1306935
Sample ID: BH-4 14-15
Lab ID: 1306935-07
Collection Date: 6/20/2013 01:40 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO - 8015C			**SW8015M**		Prep Date: **6/26/2013**	Analyst: **RPM**
TPH (Diesel Range)	U		1.7	mg/Kg	1	6/26/2013 04:58 PM
TPH (Motor Oil Range)	**2.7**	J	**3.4**	**mg/Kg**	1	6/26/2013 04:58 PM
Surr: 2-Fluorobiphenyl	*72.3*		*60-135*	*%REC*	1	6/26/2013 04:58 PM
GASOLINE RANGE ORGANICS - SW8015C			**SW8015**			Analyst: **KKP**
Gasoline Range Organics	U		0.050	mg/Kg	1	6/25/2013 04:49 PM
Surr: 4-Bromofluorobenzene	*111*		*70-130*	*%REC*	1	6/25/2013 04:49 PM
BTEX			**SW8021B**			Analyst: **KKP**
Benzene	**1.4**		**1.0**	**µg/Kg**	1	6/25/2013 05:48 PM
Toluene	U		1.0	µg/Kg	1	6/25/2013 05:48 PM
Ethylbenzene	U		1.0	µg/Kg	1	6/25/2013 05:48 PM
Xylenes, Total	U		3.0	µg/Kg	1	6/25/2013 05:48 PM
Surr: 4-Bromofluorobenzene	*122*		*75-131*	*%REC*	1	6/25/2013 05:48 PM
Surr: Trifluorotoluene	*106*		*73-130*	*%REC*	1	6/25/2013 05:48 PM
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**7.22**		**5.00**	**mg/Kg**	1	7/1/2013 05:42 AM
Surr: Selenate (surr)	*105*		*85-115*	*%REC*	1	7/1/2013 05:42 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client: Navajo Refining Company
Project: Gas-Oil Release Investigation
Work Order: 1306935
Sample ID: BH-4 16-17
Lab ID: 1306935-08
Collection Date: 6/20/2013 01:50 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO - 8015C			**SW8015M**		Prep Date: **6/26/2013**	Analyst: **RPM**
TPH (Diesel Range)	**190**		**34**	**mg/Kg**	20	6/27/2013 10:13 AM
TPH (Motor Oil Range)	**920**		**68**	**mg/Kg**	20	6/27/2013 10:13 AM
Surr: 2-Fluorobiphenyl	*0*	S	*60-135*	*%REC*	20	6/27/2013 10:13 AM
GASOLINE RANGE ORGANICS - SW8015C			**SW8015**			Analyst: **KKP**
Gasoline Range Organics	**0.041**	J	**0.050**	**mg/Kg**	1	6/25/2013 05:05 PM
Surr: 4-Bromofluorobenzene	*109*		*70-130*	*%REC*	1	6/25/2013 05:05 PM
BTEX			**SW8021B**			Analyst: **KKP**
Benzene	**2.0**		**1.0**	**µg/Kg**	1	6/25/2013 06:08 PM
Toluene	**2.3**		**1.0**	**µg/Kg**	1	6/25/2013 06:08 PM
Ethylbenzene	U		1.0	µg/Kg	1	6/25/2013 06:08 PM
Xylenes, Total	U		3.0	µg/Kg	1	6/25/2013 06:08 PM
Surr: 4-Bromofluorobenzene	*115*		*75-131*	*%REC*	1	6/25/2013 06:08 PM
Surr: Trifluorotoluene	*101*		*73-130*	*%REC*	1	6/25/2013 06:08 PM
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**8.15**		**5.00**	**mg/Kg**	1	7/1/2013 05:56 AM
Surr: Selenate (surr)	*115*		*85-115*	*%REC*	1	7/1/2013 05:56 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client: Navajo Refining Company
Project: Gas-Oil Release Investigation
Work Order: 1306935
Sample ID: TB-06-21-13-01
Lab ID: 1306935-09
Collection Date: 6/19/2013
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	U		1.0	µg/L	1	7/1/2013 07:47 PM
Toluene	U		1.0	µg/L	1	7/1/2013 07:47 PM
Ethylbenzene	U		1.0	µg/L	1	7/1/2013 07:47 PM
Xylenes, Total	U		3.0	µg/L	1	7/1/2013 07:47 PM
Surr: 4-Bromofluorobenzene	*98.7*		*75-129*	*%REC*	1	7/1/2013 07:47 PM
Surr: Trifluorotoluene	*94.0*		*75-130*	*%REC*	1	7/1/2013 07:47 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **71054** Instrument ID **FID-7** Method: **SW8015M**

MBLK Sample ID: **FBLKS1-130626-71054** Units: **mg/Kg** Analysis Date: **6/26/2013 03:00 PM**

Client ID: Run ID: **FID-7_130626B** SeqNo: **3269372** Prep Date: **6/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	1.7								
TPH (Motor Oil Range)	U	3.4								
Surr: 2-Fluorobiphenyl	3.078	0.10	*3.33*	*0*	*92.4*	*60-135*	*0*			

LCS Sample ID: **FLCSS1-130626-71054** Units: **mg/Kg** Analysis Date: **6/26/2013 03:24 PM**

Client ID: Run ID: **FID-7_130626B** SeqNo: **3269373** Prep Date: **6/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	27.01	1.7	33.33	0	81	70-130				
TPH (Motor Oil Range)	26.63	3.4	33.33	0	79.9	70-130				
Surr: 2-Fluorobiphenyl	2.192	0.10	*3.33*	*0*	*65.8*	*60-135*	*0*			

MS Sample ID: **1306935-01CMS** Units: **mg/Kg** Analysis Date: **6/26/2013 04:35 PM**

Client ID: **BH-1 13-13.5** Run ID: **FID-7_130626B** SeqNo: **3269375** Prep Date: **6/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	296.6	1.7	33.3	183	341	70-130				SEO
TPH (Motor Oil Range)	59.93	3.4	33.3	13.25	140	70-130				S
Surr: 2-Fluorobiphenyl	3.895	0.10	*3.327*	*0*	*117*	*60-135*	*0*			

MSD Sample ID: **1306935-01CMSD** Units: **mg/Kg** Analysis Date: **6/26/2013 04:58 PM**

Client ID: **BH-1 13-13.5** Run ID: **FID-7_130626B** SeqNo: **3269376** Prep Date: **6/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	268.8	1.7	33.3	183	258	70-130	296.6	9.81	30	SEO
TPH (Motor Oil Range)	55.27	3.4	33.3	13.25	126	70-130	59.93	8.09	30	
Surr: 2-Fluorobiphenyl	3.65	0.10	*3.327*	*0*	*110*	*60-135*	*3.895*	*6.49*	*30*	

The following samples were analyzed in this batch:

1306935-01C	1306935-02C	1306935-03C
1306935-04C	1306935-05C	1306935-06C
1306935-07C	1306935-08C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1306935
Project: Gas-Oil Release Investigation

QC BATCH REPORT

Batch ID: **R149530** Instrument ID **BTEX3** Method: **SW8021B**

MBLK Sample ID: **BBLKS1-130625-R149530** Units: **µg/Kg** Analysis Date: **6/25/2013 01:26 PM**
Client ID: Run ID: **BTEX3_130625A** SeqNo: **3266651** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	1.0								
Toluene	U	1.0								
Ethylbenzene	U	1.0								
Xylenes, Total	U	3.0								
Surr: 4-Bromofluorobenzene	35.53	1.0	*30*	*0*	*118*	*75-131*	*0*			
Surr: Trifluorotoluene	32.05	1.0	*30*	*0*	*107*	*73-130*	*0*			

LCS Sample ID: **BLCSS1-130625-R149530** Units: **µg/Kg** Analysis Date: **6/25/2013 12:46 PM**
Client ID: Run ID: **BTEX3_130625A** SeqNo: **3266650** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	22.34	1.0	20	0	112	74-129				
Toluene	22.24	1.0	20	0	111	75-128				
Ethylbenzene	22.64	1.0	20	0	113	73-127				
Xylenes, Total	67.34	3.0	60	0	112	74-127				
Surr: 4-Bromofluorobenzene	36.75	1.0	*30*	*0*	*123*	*75-131*	*0*			
Surr: Trifluorotoluene	32.29	1.0	*30*	*0*	*108*	*73-130*	*0*			

MS Sample ID: **1306935-04AMS** Units: **µg/Kg** Analysis Date: **6/25/2013 03:47 PM**
Client ID: **BH-3 14-15** Run ID: **BTEX3_130625A** SeqNo: **3266658** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.79	1.0	20	0	104	74-129				
Toluene	20.49	1.0	20	0	102	75-128				
Ethylbenzene	20.86	1.0	20	0	104	73-127				
Xylenes, Total	62.26	3.0	60	0	104	74-127				
Surr: 4-Bromofluorobenzene	30.59	1.0	*30*	*0*	*102*	*75-131*	*0*			
Surr: Trifluorotoluene	28.13	1.0	*30*	*0*	*93.8*	*73-130*	*0*			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1306935
Project: Gas-Oil Release Investigation

QC BATCH REPORT

Batch ID: **R149530** Instrument ID **BTEX3** Method: **SW8021B**

MSD Sample ID: **1306935-04AMSD** Units: **µg/Kg** Analysis Date: **6/25/2013 04:07 PM**

Client ID: **BH-3 14-15** Run ID: **BTEX3_130625A** SeqNo: **3266659** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	21.62	1.0	20	0	108	74-129	20.79	3.92	30	
Toluene	21.58	1.0	20	0	108	75-128	20.49	5.2	30	
Ethylbenzene	22.05	1.0	20	0	110	73-127	20.86	5.55	30	
Xylenes, Total	66	3.0	60	0	110	74-127	62.26	5.83	30	
Surr: 4-Bromofluorobenzene	32.98	1.0	*30*	*0*	*110*	*75-131*	*30.59*	*7.54*	*30*	
Surr: Trifluorotoluene	29.65	1.0	*30*	*0*	*98.8*	*73-130*	*28.13*	*5.26*	*30*	

The following samples were analyzed in this batch:

1306935-01A	1306935-02A	1306935-03A
1306935-04A	1306935-05A	1306935-06A
1306935-07A	1306935-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1306935
Project: Gas-Oil Release Investigation

QC BATCH REPORT

Batch ID: **R149566** Instrument ID **FID-14** Method: **SW8015**

MBLK Sample ID: **GBLKS-130625-R149566** Units: **mg/Kg** Analysis Date: **6/25/2013 12:15 PM**
Client ID: Run ID: **FID-14_130625A** SeqNo: **3267424** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
Surr: 4-Bromofluorobenzene	0.1207	0.0050	*0.1*	*0*	*121*	*70-130*	*0*			

LCS Sample ID: **GLCSS-130625-R149566** Units: **mg/Kg** Analysis Date: **6/25/2013 10:54 AM**
Client ID: Run ID: **FID-14_130625A** SeqNo: **3267423** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9953	0.050	1	0	99.5	70-130				
Surr: 4-Bromofluorobenzene	0.1202	0.0050	*0.1*	*0*	*120*	*70-130*	*0*			

MS Sample ID: **1306935-08BMS** Units: **mg/Kg** Analysis Date: **6/25/2013 05:21 PM**
Client ID: **BH-4 16-17** Run ID: **FID-14_130625A** SeqNo: **3267437** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.025	0.050	1	0.04141	98.3	70-130				
Surr: 4-Bromofluorobenzene	0.1165	0.0050	*0.1*	*0*	*117*	*70-130*	*0*			

MSD Sample ID: **1306935-08BMSD** Units: **mg/Kg** Analysis Date: **6/25/2013 05:37 PM**
Client ID: **BH-4 16-17** Run ID: **FID-14_130625A** SeqNo: **3267438** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9769	0.050	1	0.04141	93.5	70-130	1.025	4.78	30	
Surr: 4-Bromofluorobenzene	0.1204	0.0050	*0.1*	*0*	*120*	*70-130*	*0.1165*	*3.26*	*30*	

The following samples were analyzed in this batch:

1306935-01B	1306935-02B	1306935-03B
1306935-04B	1306935-05B	1306935-06B
1306935-07B	1306935-08B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1306935
Project: Gas-Oil Release Investigation

QC BATCH REPORT

Batch ID: **R149841** Instrument ID **BTEX1** Method: **SW8021B**

MBLK Sample ID: **BBLKW1-130701-R149841** Units: **µg/L** Analysis Date: **7/1/2013 11:24 AM**
Client ID: Run ID: **BTEX1_130701A** SeqNo: **3274465** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	1.0								
Toluene	U	1.0								
Ethylbenzene	U	1.0								
Xylenes, Total	U	3.0								
Surr: 4-Bromofluorobenzene	28.76	1.0	*30*	*0*	*95.9*	*75-129*	*0*			
Surr: Trifluorotoluene	28.23	1.0	*30*	*0*	*94.1*	*75-130*	*0*			

LCS Sample ID: **BLCSW1-130701-R149841** Units: **µg/L** Analysis Date: **7/1/2013 11:06 AM**
Client ID: Run ID: **BTEX1_130701A** SeqNo: **3274464** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	19.4	1.0	20	0	97	75-126				
Toluene	19.36	1.0	20	0	96.8	75-125				
Ethylbenzene	19.18	1.0	20	0	95.9	75-125				
Xylenes, Total	57.94	3.0	60	0	96.6	75-125				
Surr: 4-Bromofluorobenzene	29.35	1.0	*30*	*0*	*97.8*	*75-129*	*0*			
Surr: Trifluorotoluene	29.63	1.0	*30*	*0*	*98.8*	*75-130*	*0*			

MS Sample ID: **13061031-12AMS** Units: **µg/L** Analysis Date: **7/1/2013 03:41 PM**
Client ID: Run ID: **BTEX1_130701A** SeqNo: **3274477** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	35.55	1.0	20	16.75	94	75-126				
Toluene	17.92	1.0	20	0	89.6	75-125				
Ethylbenzene	9.962	1.0	20	0	49.8	75-125				S
Xylenes, Total	84.03	3.0	60	24.76	98.8	75-125				
Surr: 4-Bromofluorobenzene	32.89	1.0	*30*	*0*	*110*	*75-129*	*0*			
Surr: Trifluorotoluene	83.99	1.0	*30*	*0*	*280*	*75-130*	*0*			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1306935
Project: Gas-Oil Release Investigation

QC BATCH REPORT

Batch ID: **R149841** Instrument ID **BTEX1** Method: **SW8021B**

MSD Sample ID: **13061031-12AMSD** Units: **µg/L** Analysis Date: **7/1/2013 03:59 PM**

Client ID: Run ID: **BTEX1_130701A** SeqNo: **3274538** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	34.93	1.0	20	16.75	90.9	75-126	35.55	1.76	20	
Toluene	18.76	1.0	20	0	93.8	75-125	17.92	4.58	20	
Ethylbenzene	12.09	1.0	20	0	60.5	76-125	9.962	19.3	20	S
Xylenes, Total	83.61	3.0	60	24.76	98.1	75-125	84.03	0.497	20	
Surr: 4-Bromofluorobenzene	34.91	1.0	*30*	*0*	*116*	*75-129*	*32.89*	*5.94*	*20*	
Surr: Trifluorotoluene	82.54	1.0	*30*	*0*	*275*	*75-130*	*83.99*	*1.74*	*20*	S

The following samples were analyzed in this batch: 1306935-09A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1306935
Project: Gas-Oil Release Investigation

QC BATCH REPORT

Batch ID: **71202** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK Sample ID: **WBLKS1-71202** Units: **mg/Kg** Analysis Date: **7/1/2013 01:09 AM**
Client ID: Run ID: **ICS2100_130701A** SeqNo: **3274051** Prep Date: **6/29/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	4.75	5.0								J
Surr: Selenate (surr)	55.34	1.0	*50*	*0*	*111*	*85-115*	*0*			

LCS Sample ID: **WLCSS1-71202** Units: **mg/Kg** Analysis Date: **7/1/2013 01:24 AM**
Client ID: Run ID: **ICS2100_130701A** SeqNo: **3274052** Prep Date: **6/29/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	203.2	5.0	200	0	102	90-110				
Surr: Selenate (surr)	53.14	1.0	*50*	*0*	*106*	*85-115*	*0*			

MS Sample ID: **1306935-08CMS** Units: **mg/Kg** Analysis Date: **7/1/2013 06:11 AM**
Client ID: **BH-4 16-17** Run ID: **ICS2100_130701A** SeqNo: **3274071** Prep Date: **6/29/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	117.8	4.2	83.63	8.155	131	75-125				S
Surr: Selenate (surr)	47.22	0.84	*41.81*	*0*	*113*	*80-120*	*0*			

MSD Sample ID: **1306935-08CMSD** Units: **mg/Kg** Analysis Date: **7/1/2013 06:25 AM**
Client ID: **BH-4 16-17** Run ID: **ICS2100_130701A** SeqNo: **3274072** Prep Date: **6/29/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	117.6	4.2	83.37	8.155	131	75-125	117.8	0.158	20	S
Surr: Selenate (surr)	46.86	0.83	*41.68*	*0*	*112*	*80-120*	*47.22*	*0.775*	*20*	

The following samples were analyzed in this batch:

1306935-01C	1306935-02C	1306935-03C
1306935-04C	1306935-05C	1306935-06C
1306935-07C	1306935-08C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: Gas-Oil Release Investigation
WorkOrder: **1306935**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Units Reported	Description
µg/Kg	Micrograms per Kilogram
µg/L	Micrograms per Liter
mg/Kg	Milligrams per Kilogram

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING** Date/Time Received: **22-Jun-13 09:45**

Work Order: **1306935** Received by: **RDH**

Checklist completed by Paresh M. Giga (eSignature) 24-Jun-13 (Date) Reviewed by: Sonia West (eSignature) 25-Jun-13 (Date)

Matrices: soil/Water
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
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 ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.3c/2.3c,1.9c/1.9c,2.7c/2.7c,3.2c/3.2c C/U	IR1	
Cooler(s)/Kit(s):	4696,4096,3172,3036		
Date/Time sample(s) sent to storage:	6/24/13 13:15		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

ALS Environmental

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Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070

Chain of Custody For

Page 1 of 1

COC ID: 82290

1306935

NAVAJO REFINING: Navajo Refining Company

Project: 196364.5000.0000

ALS Project Manager:

Customer Information		Project Information			
Purchase Order		Project Name		A	BTEX (8021)
Work Order		Project Number	196364.5000.0000	B	GRO (8015)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015)
Send Report To	Robert Combs, Bryan Gilbert	Invoice Attn	Robert Combs	D	ORO (8015)
Address	501 East Main	Address	501 East Main	E	Anions (300) Cl
				F	Chloride & Sulfate (300)
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	
Phone	(505) 748-3311	Phone	(575) 748-6733	H	
Fax	(505) 746-5421	Fax	(575) 746-5421	I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	BH-1 13-13.5	6-19-13	2030	Soil	8	3	X	X	X	X	X						
2	BH-1 6-7		2110														
3	BH-3 7-8		2225														
4	BH-3 14-15		2230														
5	BH-2 12-13	6-20-13	1030														
6	BH-2 14-14.5		1040														
7	BH-4 14-15		1340														
8	BH-4 16-17		1350														
9	TB-06-21-13-01	—	—	Water	8/3	2											
10																	

Sampler(s) Please Print & Sign: Josh Ward

Shipment Method:

Required Turnaround Time: (Check Box) ☑ Std 10 W/K Days ☐ 5 W/K Days ☐ 2 W/K Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date: 6/21/13	Time: 1805	Received by:	Notes: 10 Day TAT. CC report to Bryan Gilbert & Julie Spear bgilbert/jspear@trcsolutions.com	
Relinquished by:	Date:	Time:	Received by (Laboratory): 6/22/13	Cooler ID	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other / EDD

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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ORIGIN ID:AUSA (512) 329-6080
T R C ENVIRONMENTAL CORP
505 E HUNTLAND DR STE 250
AUSTIN, TX 787523740
UNITED STATES US

ACTWGT: 66.9 LB
CAD: /POS1400
DIMS: 24x14x15 IN
BILL RECIPIENT

TO
ALS LABORATORY SERVICES
10450 STANCLIFF RD
STE 210
HOUSTON TX 77099
(281) 530-5656 REF:
INV:
PO: DEPT:

FedEx Express

5 of 5
MPS# 0681 7957 9201 4462
Mstr# 8020 3307 4443
0215
SATURDAY 12:00P
PRIORITY OVERNIGHT
XO SGRA
77099
TX-US IAH
4646

ORIGIN ID:AUSA (512) 329-6080
T R C ENVIRONMENTAL CORP
505 E HUNTLAND DR STE 250
AUSTIN, TX 787523740
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Suite 210
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Company:

CUSTODY SEAL
Time:
Seal Broken By:
Date: 6/22/13

ALS Environmental
Stancliff Rd., Suite 210
ston, TX 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
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Date:
Name:
Company:

CUSTODY SEAL
Time:
Seal Broken By:
Date: 6/22/13

ORIGIN ID:HOBA (512) 329-6080
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Houston, Texas 77099
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Fax. +1 281 530 5887

3172

CUSTODY SEAL
Date: 6/21/13 Time:
Name: J. LARA
Company: TRC
Seal Broken By:
Date: 6/22/13

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Houston, Texas 77099
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Fax. +1 281 530 5887

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Houston, Texas 77099
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Date: 6/22/13

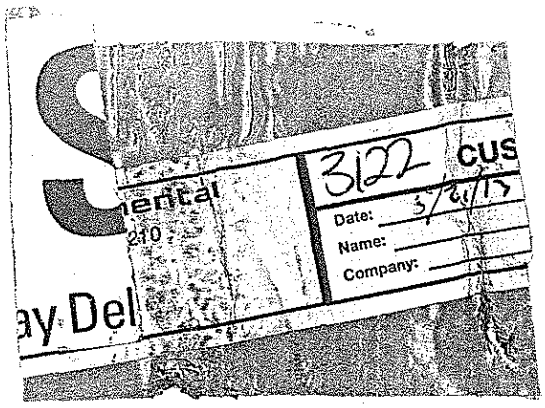
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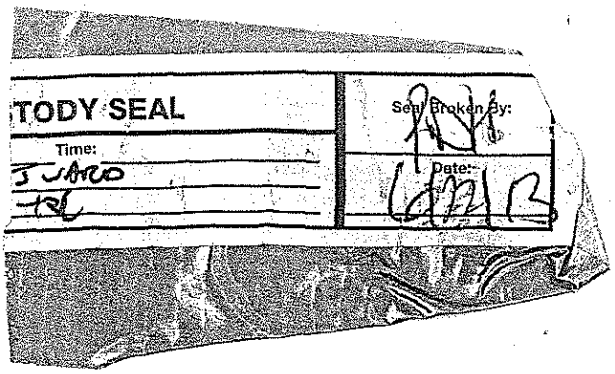
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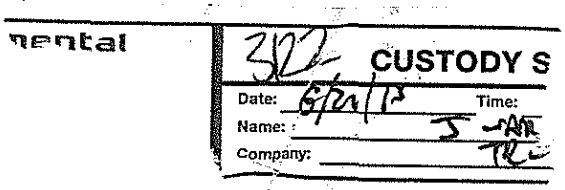
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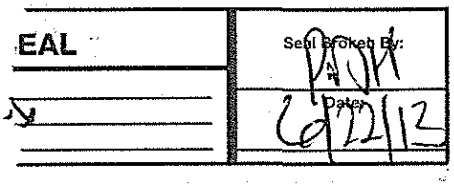
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Seal Broken By:
Date: 6/22/13

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Houston, Texas 77099
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CUSTODY
Date: 6/21/13
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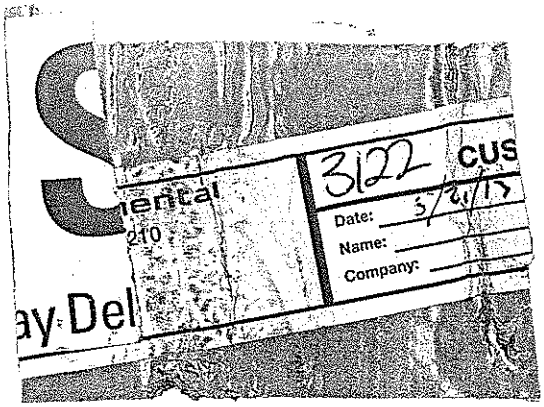
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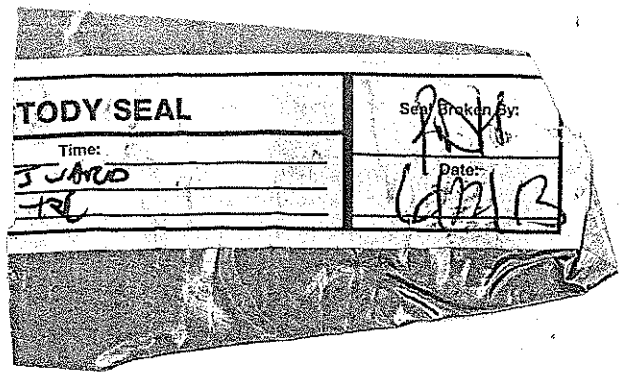
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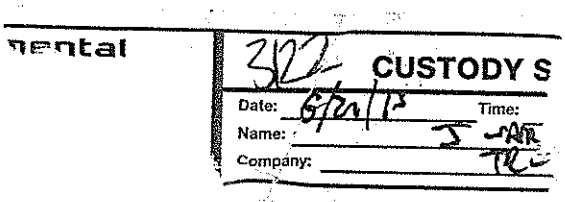
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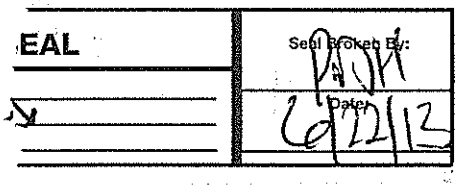
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ATTACHMENT F

SSL Calculation for Chloride Leaching to Groundwater

EVALUATION OF SOIL SCREENING LEVEL FOR CHLORIDE LEACHING TO GROUNDWATER

$$SSL = C_w \times \left[K_d + \left(\frac{\theta_w + \theta_a H'}{\rho_b} \right) \right]$$

Parameter	Definition (units)	Value	Source of Value
SSL	Soil Screening Level for migration to groundwater pathway (mg/kg)	**867**	Calculated (above equation)
C_w	Target soil leachate concentration (mg/L)	5,000	Calculated; Cw=NM WQCC Human Health Standard x DAF
HHS	Chloride WQCC Human Health Standard (mg/L)	250	20.6.2.3103 of the New Mexico Administrative Code
DAF	Dilution Attenuation Factor (unitless)	20	Default (Risk Assessment Guidance for Investigations and Remediations, Volume 1 (updated June 2012)
θ_w	Water-filled soil porosity (L_{water}/L_{soil})	0.26	Default (Risk Assessment Guidance for Investigations and Remediations, Volume 1 (updated June 2012)
K_d	Soil-water partition coefficient (L/kg)	0.00	Default conservative value
θ_a	Air-filled soil porosity (L_{air}/L_{soil})	0.17	Default (Risk Assessment Guidance for Investigations and Remediations, Volume 1 (updated June 2012)
H'	Henry's Law Constant (unitless)	0.00	Default conservative value
ρ_b	Dry soil bulk density (kg/L)	1.50	Default (Risk Assessment Guidance for Investigations and Remediations, Volume 1 (updated June 2012)

ATTACHMENT G

Material Safety Data Sheet for Gas Oil

HOLLYFRONTIER
NAVAJO REFINING COMPANY, LLC

MATERIAL SAFETY DATA SHEET - GAS OIL

SECTION 1 - PRODUCT and COMPANY IDENTIFICATION

MANUFACTURER:

NAVAJO REFINING COMPANY, LLC
PO BOX 159
ARTESIA, NM 88211-0159

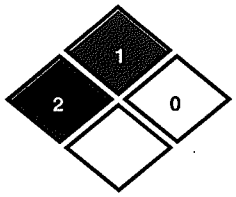
CONTACT INFORMATION:

Main Telephone – (575) 748-3311
Safety Department – (575) 365-8364 (24 Hours)
Environmental Department – (575) 365-8365 (24 Hours)

EMERGENCY PHONE NUMBERS:

CHEMTREC: 1-800-424-9300 (for fire, spill and emergency response information)
New Mexico Poison Information Center: 1-800-432-6866
Texas (El Paso) Poison Information Center: (915) 533-1244
Arizona Poison Information Center: 1-800-362-0101 or (602) 253-3334

PRODUCT NAME: Gas Oil
CAS NUMBER: 68783-08-4
CHEMICAL FAMILY: Petroleum Hydrocarbon
FORMULA: Mixture
SYNONYMS: FCC Feed Stock, VGO, Flasher Gas Oil, AGO, Light Vacuum Gas Oil, LVGO, Heavy Vacuum Gas Oil, HVGO



NFPA 704 (SECTION 16)

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS			OSHA LIMITS (TWA)		NIOSH LIMITS (TWA)			ACGIH LIMITS (TWA)	
COMPONENTS	VOL %	CAS NO.	PEL	STEL	REL	STEL	IDLH	TLV	STEL
Gas Oil Containing	100%	68783-08-4	NE	NE	NE	NE	NE	NE	NE
Vacuum Distillate	40%	70592-78-8	NE	NE	NE	NE	NE	NE	NE

OTHER INGREDIENT INFORMATION: Gas Oil may contain traces of sulfur. **NE** designates Not Established.

SECTION 3 - PHYSICAL DATA

BOILING POINT: 350° – 1000°F
VAPOR PRESSURE: <1.0 mmHg @20°C
VAPOR DENSITY (AIR=1): N/A
SOLUBILITY IN WATER: Negligible
ODOR THRESHOLD: N/A
SPECIFIC GRAVITY (WATER=1): 0.914 – 0.928
% VOLATILE BY VOLUME: 0%
EVAPORATION RATE: N/A
AUTOIGNITION TEMP: 505°F*
APPEARANCE AND ODOR: Dark brown liquid with a hydrocarbon odor.
*Data for Fuel Oil #4.

GAS OIL

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

CLASSIFICATION: Class IIIB
FLASH POINT: >200°F
FLAMMABLE LIMITS: LEL = 1.0%* UEL = 5.0%*
EXTINGUISHING MEDIA: Dry chemical (Class B fire extinguisher), carbon dioxide (CO_2), water spray or foam
SPECIAL FIRE FIGHTING PROCEDURES: Move container from fire area, if possible. Use water to keep fire-exposed containers cool. Use foam for spill control.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Evacuate a radius of 1500 feet for uncontrolled fires. Vapors are heavier than air and may travel great distances and flash back. Extinguish only if flow can be stopped.
*Data for Fuel Oil No. 4.

NFPA FIRE = 1 (low)

SECTION 5 - REACTIVITY DATA

STABILITY: Stable
HAZARDOUS POLYMERIZATION: Will not occur
CONDITIONS TO AVOID/INCOMPATABILITY: Strong oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, sulfur dioxide

NFPA REACTIVITY = 0 (minimal)

SECTION 6 - HEALTH HAZARD DATA

ROUTES OF ENTRY: Ingestion, skin contact, inhalation.

HEALTH HAZARDS: Depression of central nervous system ranging from mild headache to anesthesia, coma, and death. Liver and kidney damage may occur.

CARCINOGENICITY: No data available.

SIGNS AND SYMPTOMS OF EXPOSURE: May cause nausea, vomiting, dizziness, headache, coughing or gagging and depression of the central nervous system.

EMERGENCY AND FIRST AID PROCEDURES:
INGESTION: Immediately seek medical attention. DO NOT induce vomiting. Give water to dilute, if conscious. Extreme care must be used to prevent aspiration.
INHALATION: Maintain respiration, assist with artificial respiration if needed and give oxygen if available and trained to do so. Seek medical attention.

NFPA HEALTH = 2 (Moderate)

GAS OIL

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Eliminate all sources of ignition. Contain spill. Use water fog to dilute or foam to suppress vapor cloud. Use SCBA to avoid breathing vapors. Absorb liquid with sand or clay. Larger spills may be picked up with a vacuum truck.

WASTE DISPOSAL: Dispose in accordance with RCRA regulations. Do not put in sewers or any watercourse.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: All equipment and storage containers should be properly grounded. This material is subject to OHSA and DOT regulations. Portable metal containers should be bonded to the storage container before transferring liquid.

OTHER PRECAUTIONS: Do not weld on containers unless they have been properly cleaned and purged using safe work practices. Avoid breathing vapors.

SECTION 8 - ENVIRONMENTAL AND SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Use NIOSH/MSHA-approved respiratory protection in areas exceeding exposure limits, the type to be determined by the degree of exposure.

VENTILATION: Use in well-ventilated area. Mechanical exhaust should be explosion-proof.

EYE/SKIN PROTECTION: Full-face protection, chemical protective gloves, and coveralls with long sleeves.

WORK/HYGIENIC PRACTICES: Remove contaminated clothing as soon as possible. Always wash after handling hazardous chemicals.

REFER TO DEPARTMENT OF TRANSPORTATION (DOT) EMERGENCY RESPONSE GUIDEBOOK GUIDE 128 FOR ADDITIONAL EMERGENCY INFORMATION.

This information is believed to be accurate and as reliable as information available to us. We make no warranty or guarantee as to its accuracy and assume no liability from its use. Users should determine the suitability of the information for their particular purposes.

SAMPLE T104B GAS OIL LOVINGTON

ASTM D-97 Pour Point of petroleum products

ASTM D-97 85°F

ASTM D-4402 Rotational Viscosity @ temperatures below

ASTM D-4402 @ 80°F 2780

ASTM D-4402 @ 90°F 678

ASTM D-4402 @ 100°F 169

ASTM D-4402 @ 110°F 61

ASTM D-4402 @ 120°F 36

ASTM D-4402 @ 200°F 19.2

ASTM D-4402 @ 210°F 17.6

DATE 7/30/12

#1 TESTER R.GREEN / M.BROWN

Note: From R. Green 10/17/12, units are Centipoise, cP (phone call w/D.Boyer)

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, August 20, 2013 4:06 PM
To: Combs, Robert (Robert.Combs@hollyfrontier.com)
Cc: Holder, Mike (Mike.Holder@hollyfrontier.com); Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Gonzales, Elidio L, EMNRD
Subject: Cooling Tower Release Soil Investigation (July 29, 2013)

Robert:

Good afternoon.

The OCD has completed its review of the above subject investigation with recommendations.

The recommendation states: "Additional surface soil samples will be collected to delineate the lateral extent of elevated chloride and sulfate concentrations. Proposed additional surface soil sample locations are depicted in Fig. 2. The path forward will be determined based on the analytical results of the additional soil samples. Chloride and surface concentrations in groundwater at well MW-29 will be watched closely during the next GW monitoring event."

OCD review of the investigation report and figures indicates the following:

1) Historical operator ground water monitoring reports indicate the water table is at about 90 ft. below ground level and the facility is within the Well Head Protection Area (WHPA) of the City of Lovington.
2) The WQCC Chloride and Sulfate limits in water media are: 250 mg/L and 600 mg/L respectively.
3) Figure 2 exhibits the cooling tower stained soils from the release, which appears to contain elevated levels of chlorides and sulfates at less than 1 ft. depth in soil.
4) The TBs recommended to delineate the spill are clearly outside of the Fig. 2 map to scale.

OCD requires the following:

1) OCD recommends removal of the stained soils as depicted in Fig. 2 map to the cleanup level of at least 500 mg/kg chlorides. Conduct a 5-point composite for chlorides and sulfates after the removal to reassess the cleanup of chlorides and sulfate.
2) The operator should flag areas within the Fig. 2 map for removal. The operator may utilize field kits to assist with the removal of chloride contaminated soils and soils observed by "Best Professional Judgment" to be stained, exhibit olfactory odor, etc.
3) A final C-141 with analytical laboratory data summary sheet and QA/QC and DQO information from the final verification of soil remediation sampling post removal (see No. 1 above) be attached with final photo of the Fig. 2 area after the removal.
4) Contaminated soils shall be disposed at an OCD Permitted facility.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau

1220 South St. Francis Drive, Santa Fe, New Mexico 87505
Office: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
Website: http://www.emnrd.state.nm.us/ocd/
"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental

505 East Huntland Drive
Suite 250
Austin, TX 78752

512.329.6080 PHONE
512.329.8750 FAX

www.TRCsolutions.com

RECEIVED OCD

2013 JUL 31 A 11: 06

July 29, 2013

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

Re: April 2012 Cooling Tower Release Soil Investigation, Navajo Refining Company, Lea Refinery, Lovington, New Mexico, AP-110

Dear Mr. Chavez:

On behalf of Navajo Refining Company (NRC), TRC Environmental Corporation (TRC) is submitting this letter to document the results of the cooling tower release investigation conducted at the NRC Lea Refinery located near Lovington, Lea County, New Mexico.

The cooling tower release occurred on April 30, 2012, as operators were adding "makeup water" (reverse osmosis permeate supplemented with freshwater) to the basin of the refinery cooling tower. The cooling tower level increased more quickly than anticipated and approximately 10 barrels of cooling water overflowed to the ground surface along the northeast and northwest sides of the cooling tower. The site plan and cooling tower location are shown on Figure 1 while the approximate area impacted by the April 2012 release is shown on Figure 2.

SOIL INVESTIGATION ACTIVITIES

Initial release investigation activities were conducted by NRC personnel on January 16, 2013, and included the collection of two surface soil samples as follows:

- Cooling Tower Background sample – collected from surface soils located outside the extent of the release area.
- Cooling Tower Spill Area sample – collected from the estimated center of the release area.

The January 2013 surface soil samples were submitted to ALS Environmental Laboratory (ALS) in Houston, Texas for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX) by method SW8021B, Resource Conservation and Recovery Act (RCRA) 8 metals by methods

SW6020 and SW7471, anions by method E300, and reactivity, corrosivity, and ignitability (RCI) by method SW846 and SW1030.

Additional soil investigation was conducted by TRC on June 20 and 21, 2013, based on the January 2013 soil sample analytical results. The June 2013 investigation included the advancement of a soil boring (TB-1) to 15 feet below ground surface (bgs) and collection of surface soil samples. Soil samples were submitted to ALS for laboratory analysis of chloride and sulfate by method E300 as follows:

- TB-1 – samples were collected from 0-1 feet bgs and 14-15 feet bgs to provide vertical delineation of chloride and sulfate within the spill area.
- TB-2, TB-3, TB-4, and TB-5 – samples were collected from 0-0.5 feet bgs along the perimeter of the affected area to delineate the lateral extent of chloride and sulfate in surface soils.

A soil boring log of TB-1 is presented in Attachment A. Photographs of the June 2012 investigation area are included in Attachment B.

INVESTIGATION RESULTS

Analytical results of the January 2013 soil samples indicated elevated chloride concentrations in the Cooling Tower Spill Area sample (2,140 milligrams per kilogram [mg/kg]) compared to the chloride concentrations in the Cooling Tower Background sample (419 mg/kg). The remaining constituent of concern (COC) concentrations in the Cooling Tower Spill Area sample were similar to or lower than COC concentrations in the Cooling Tower Background sample.

The July 2013 soil samples were analyzed for sulfate in addition to chloride because the cooling water may have contained elevated sulfate levels due to the use of sulfuric acid in the cooling water to control pH levels. Chloride and sulfate analytical results from the January 2013 and June 2013 investigations are summarized in the table below. Laboratory analytical reports are provided in Attachment C.

January and June 2013 Chloride and Sulfate Analytical Results in Soil

Boring/Sample ID	Sample Depth (feet below ground surface)	Chloride Concentration (mg/kg)	Sulfate Concentration (mg/kg)
Leaching to Groundwater Pathway SSL (mg/kg)		867	2,080
Cooling Tower Background	0-1	419	1,310
Cooling Tower Spill Area	0-1	**2,140**	536
TB-1	0-1	216	**2,210**
TB-1	14-15	82.8	99.5
TB-2	0-0.5	**2,080**	**2,650**
TB-3	0-0.5	**1,530**	1,990
TB-4	0-0.5	47.7	83.3
TB-5	0-0.5	12.8	20.0

Note: **Bold** cells exceed the SSL for leaching to groundwater pathway.

The January and June 2013 soil sample analytical results were compared to chemical-specific Soil Screening Levels (SSLs) for the leaching to groundwater pathway. The leaching to groundwater pathway SSLs were developed in accordance with the New Mexico Environment Department's (NMED's) *Risk Assessment Guidance for Site Investigation and Remediation* dated February 2012 and updated June 2012. The SSLs were developed using a dilution attenuation factor (DAF) of 20 based on the following:

- The depth to groundwater is approximately 100 feet (a DAF of 1 is generally used at sites with shallow groundwater or karst topography);
- The volume of cooling water released (10 barrels) and the resulting spill area (0.07 acres) were minor (smaller source areas typically result in larger DAFs); and
- The absence of elevated chloride and sulfate concentrations in the sample collected from 14-15 feet bgs at TB-1 indicate COCs have been vertically delineated beneath the spill area.

The SSL calculation spreadsheet is provided as Attachment D.

As shown, chloride was detected at concentrations above the leaching to groundwater pathway SSL of 867 mg/kg in three surface samples (Cooling Tower Spill Area, TB-2, and TB-3). Sulfate was detected at concentrations above the leaching to groundwater pathway SSL of 2,080 mg/kg in two surface samples (TB-1 and TB-2).

It should be noted that neither chloride nor sulfate have been detected in groundwater at concentrations above New Mexico Water Quality Control Commission (WQCC) groundwater standards in well MW-29, which is located immediately southeast (downgradient) of the cooling tower. This includes the July 2012 and February 2013 sampling results (which occurred after the April 2012 release) and indicates that COCs from the release have not impacted groundwater.

RECOMMENDATIONS

Additional surface soil samples will be collected to delineate the lateral extent of elevated chloride and sulfate concentrations. Proposed additional surface soil sample locations are depicted on Figure 2. The path forward will be determined based on the analytical results of the additional soil samples. Chloride and sulfate concentrations in groundwater at well MW-29 will be watched closely during the next groundwater monitoring event.

If you have any further questions, please do not hesitate to contact Robert Combs of NRC at (575) 746-5382, Bryan Gilbert of TRC at (512) 684-3104, or Julie Speer of TRC at (512) 684-3148.

Sincerely,

Bryan Gilbert, P.G.
Project Manager

Sincerely,

Julie Speer, E.I.T.
Associate Project Manager

Attachments:

Attachment A – TB-1 Boring Log
Attachment B – Photographic Log
Attachment C – ALS Environmental Laboratory Reports
Attachment D – SSL Calculation Spreadsheet

cc: Robert Combs, Navajo Refining Company, Artesia, New Mexico
Michael Holder, Navajo Refining Company, Artesia, New Mexico
Arsin Sahba, TRC, Austin, Texas

TRC

FIGURES



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LEGEND

RAILROAD

SITE BOUNDARY

COOLING TOWER

1 inch = 400 feet

0 200 400 600 800

FEET

N

Service Layer Credits: Image courtesy of USGS © 2013 Microsoft Corporation ImagePatch.com © 2010 NAVTEQ © AND

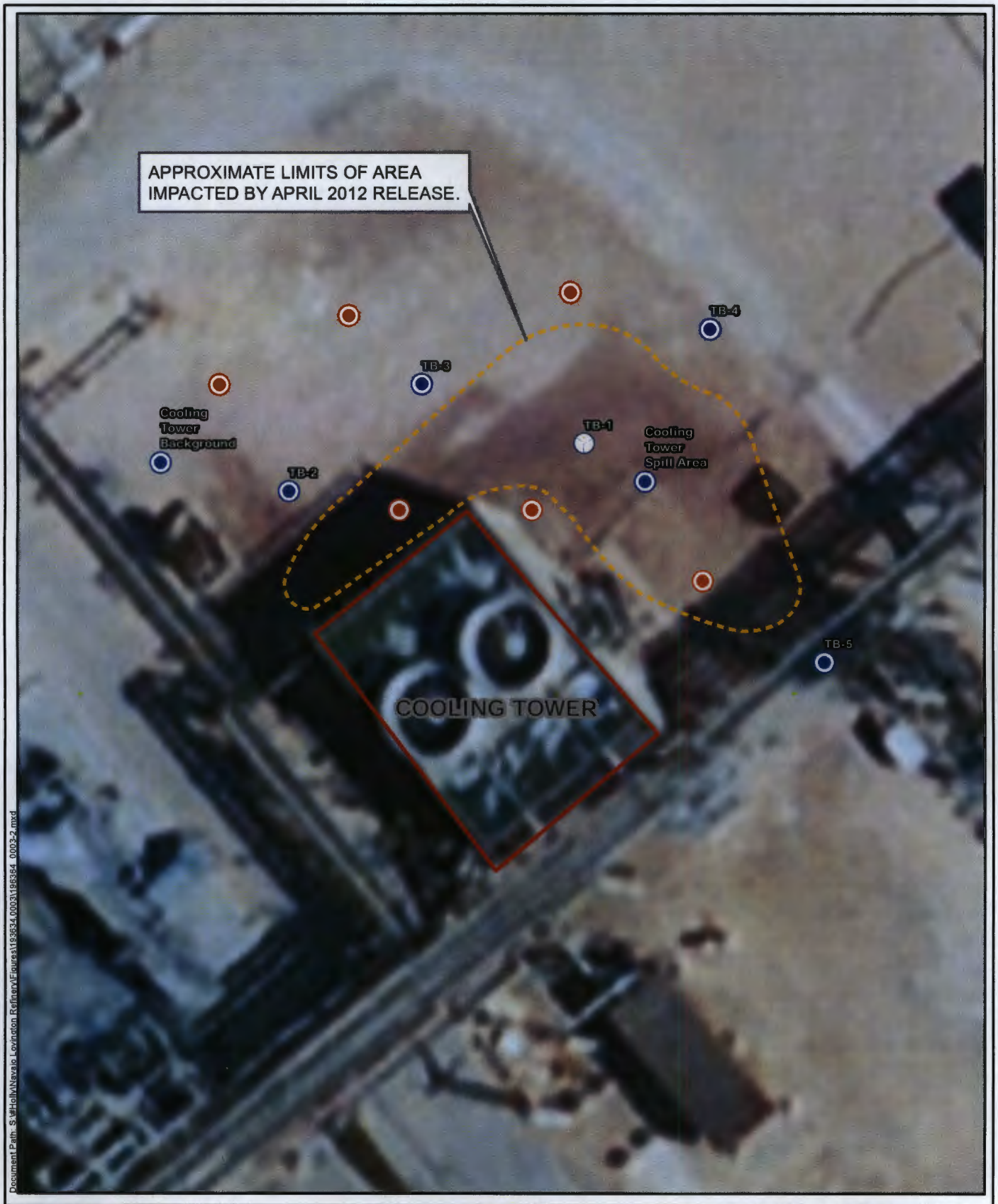
REFINERY VICINITY MAP

NAVAJO REFINING COMPANY
LEA REFINERY LOVINGTON, NM

PROJECT NO: 196364.0003	MXD: 196364.0003-1
AUTHOR: DGM	DATE: 7/29/2013

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

FIGURE 1



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LEGEND

- SOIL BORING
- SURFACE SOIL SAMPLES
- PROPOSED SURFACE SOIL SAMPLES
- IMPACTED AREA (APPROXIMATE)
- BUILDINGS

1 inch = 30 feet

0 10 20 30

FEET

N

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the

COOLING TOWER SOIL SAMPLE LOCATION MAP

NAVAJO REFINING COMPANY
LEA REFINERY LOVINGTON, NM

PROJECT NO: 196364.0003	MXD: 196364_0003-2
AUTHOR: DGM	DATE: 7/29/2013

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329-6080

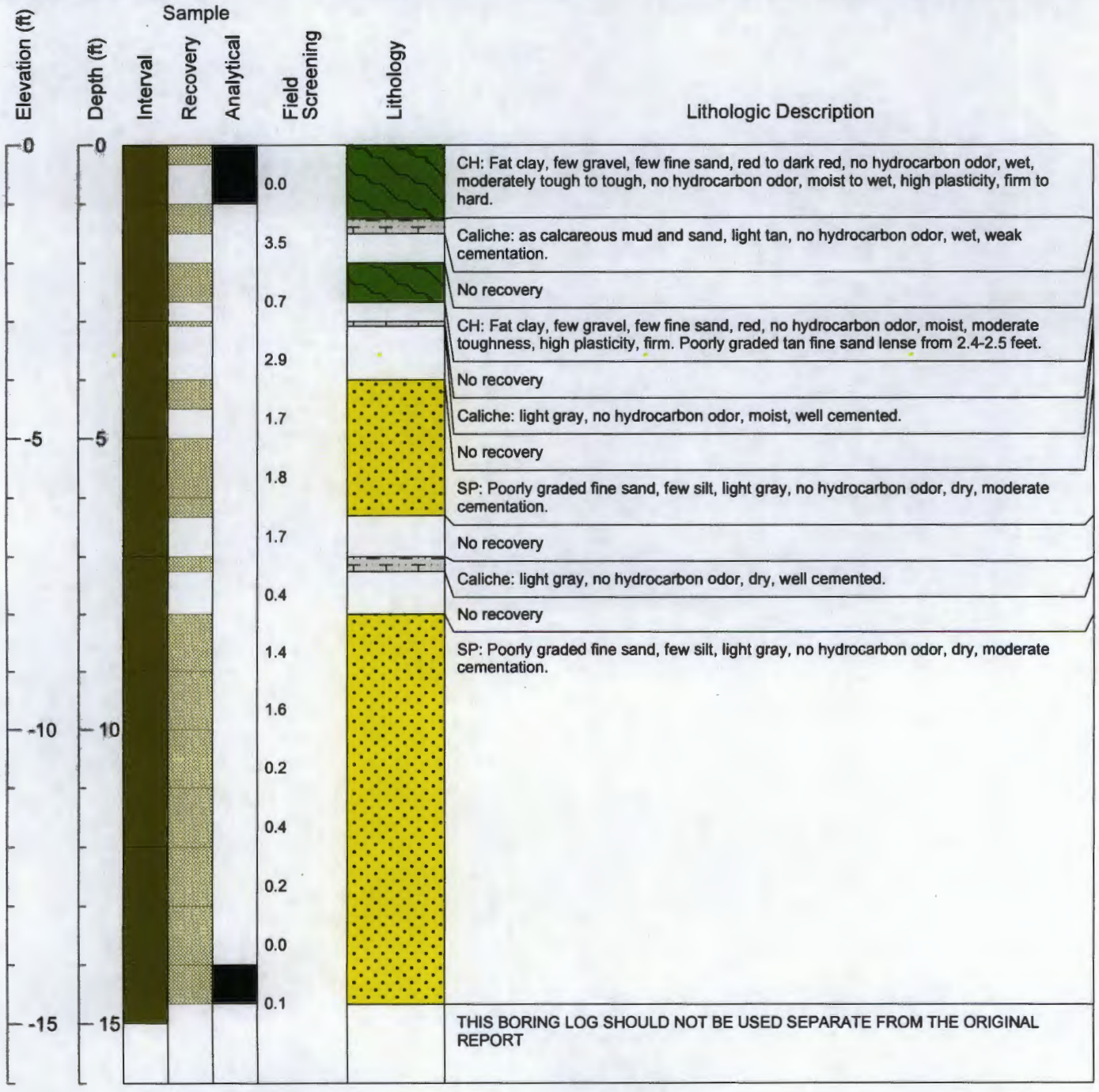
FIGURE 2

ATTACHMENT A

TB-1 Boring Log

BORING LOG — TB-1

Client: Navajo Refining Company	TRC Project #: 196364.0003.0000
Site: Lea Refinery	Start Date: 6/20/2013
Address: 7406 South Main Street, Lovington, NM	Finish Date: 6/20/2013
Project: Spill Remediation	Permit #: NA
Drilling Company: Talon Drilling — Drilling Crew: Gabe Perez and crew	TRC Site Rep.: J. Ward
Drilling Method: Air rotary	TRC Reviewer: B. Gilbert
Boring Diameter (in): 6.25 — Boring Depth (ft bgs): 15	X-Y Coord. Sys.: NA
Sampling Method: 2' x 2" split spoon sampler	X-Coord: NA
Blow Count Method: NA — Grout: Hydrated 3/8" bentonite chips	Y-Coord: NA
Field Screening Parameter: Volatile organic compounds	Elevation Datum: NA
Meter: MiniRAE PID — Units: ppm	Ground Elevation (ft): NA



ATTACHMENT B

Photographic Log



Photo 1: East side of spill area and TB-5.



Photo 2: West side of spill area and clockwise from top left; TB-2, TB-3, TB-4, TB-1.

ATTACHMENT C

ALS Environmental Laboratory Reports

ALS Environmental

28-Jan-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: CT-1201 Spill Area Lovington Work Order: **1301633**

Dear Robert,

ALS Environmental received 3 samples on 19-Jan-2013 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 25.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Sonia West

Electronically approved by: Luke F. Hernandez

Sonia West
Project Manager

Certificate No: T104704231-09A-TX

ALS Environmental

Date: 28-Jan-13

Client: Navajo Refining Company
Project: CT-1201 Spill Area Lovington
Work Order: **1301633**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1301633-01	Cooling Tower Background	Solid		1/16/2013 08:50	1/19/2013 09:20	☐
1301633-02	Cooling Tower Spill Area	Solid		1/16/2013 08:56	1/19/2013 09:20	☐
1301633-03	Trip Blank - 110812-86	Water		1/16/2013	1/19/2013 09:20	☐

ALS Environmental *Date: 28-Jan-13*

Client:	Navajo Refining Company
Project:	CT-1201 Spill Area Lovington
Work Order:	1301633

Case Narrative

The analyses for Reactive Cyanide and Reactive Sulfide were subcontracted to ALS Environmental in Holland, MI.

Batch 67330, Total Metals 6020, Sample 1301668-10C: MS/MSD is for an unrelated sample.

Batch 67350, Anions 300.0, Sample Cooling Tower Background (1301633-01A): MS/MSD for Sulfate was below the quality control limits due to matrix interference.

ALS Environmental

Date: *28-Jan-13*

Client: Navajo Refining Company
Project: CT-1201 Spill Area Lovington
Work Order: 1301633
Sample ID: Cooling Tower Background
Lab ID: 1301633-01
Collection Date: 1/16/2013 08:50 AM
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX			**SW8021B**			Analyst: **SMA**
Benzene	U		0.0010	mg/Kg	1	1/21/2013 03:55 PM
Toluene	U		0.0010	mg/Kg	1	1/21/2013 03:55 PM
Ethylbenzene	U		0.0010	mg/Kg	1	1/21/2013 03:55 PM
Xylenes, Total	U		0.0030	mg/Kg	1	1/21/2013 03:55 PM
Surr: 4-Bromofluorobenzene	*92.9*		*75-131*	*%REC*	1	1/21/2013 03:55 PM
Surr: Trifluorotoluene	*90.5*		*73-130*	*%REC*	1	1/21/2013 03:55 PM
MERCURY - SW7471B			**SW7471A**		Prep Date: **1/24/2013**	Analyst: **OFO**
Mercury	**3.10**	J	**3.44**	**µg/Kg**	1	1/25/2013 12:13 PM
METALS			**SW6020**		Prep Date: **1/25/2013**	Analyst: **SKS**
Arsenic	**4.40**		**0.372**	**mg/Kg**	1	1/28/2013 02:32 PM
Barium	**130**		**3.72**	**mg/Kg**	10	1/28/2013 03:36 PM
Cadmium	**0.0873**	J	**0.372**	**mg/Kg**	1	1/28/2013 02:32 PM
Chromium	**23.7**		**0.372**	**mg/Kg**	1	1/28/2013 02:32 PM
Lead	**8.67**		**0.372**	**mg/Kg**	1	1/28/2013 02:32 PM
Selenium	**0.511**		**0.372**	**mg/Kg**	1	1/28/2013 02:32 PM
Silver	U		0.372	mg/Kg	1	1/28/2013 02:32 PM
REACTIVE CYANIDE			**SW-846**			Analyst: **HN**
Reactive Cyanide	U		40.0	mg/Kg	1	1/24/2013 09:00 AM
REACTIVE SULFIDE			**SW-846**			Analyst: **HN**
Reactive Sulfide	U		40.0	mg/Kg	1	1/24/2013 09:00 AM
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **1/24/2013**	Analyst: **JKP**
Chloride	**419**		**4.78**	**mg/Kg**	1	1/24/2013 05:52 PM
Fluoride	**3.58**		**0.957**	**mg/Kg**	1	1/24/2013 05:52 PM
Nitrogen, Nitrate (As N)	**16.8**		**0.957**	**mg/Kg**	1	1/24/2013 05:52 PM
Nitrogen, Nitrite (As N)	U		0.957	mg/Kg	1	1/24/2013 05:52 PM
Sulfate	**1,310**		**23.9**	**mg/Kg**	5	1/25/2013 10:44 AM
Surr: Selenate (surr)	*106*		*85-115*	*%REC*	5	1/25/2013 10:44 AM
Surr: Selenate (surr)	*106*		*85-115*	*%REC*	1	1/24/2013 05:52 PM
IGNITABILITY			**SW1030**			Analyst: **KL**
Ignitability, Solid	**Negative**			**Burn Rate, mm/sec**	1	1/24/2013 10:00 AM
PH - SOIL - SW9045D			**SW9045B**			Analyst: **KL**
pH	**7.69**		**0.100**	**pH Units**	1	1/24/2013 11:00 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *28-Jan-13*

Client: Navajo Refining Company
Project: CT-1201 Spill Area Lovington
Work Order: 1301633
Sample ID: Cooling Tower Spill Area
Lab ID: 1301633-02
Collection Date: 1/16/2013 08:56 AM
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX			**SW8021B**			Analyst: **SMA**
Benzene	U		0.0010	mg/Kg	1	1/21/2013 04:51 PM
Toluene	U		0.0010	mg/Kg	1	1/21/2013 04:51 PM
Ethylbenzene	U		0.0010	mg/Kg	1	1/21/2013 04:51 PM
Xylenes, Total	U		0.0030	mg/Kg	1	1/21/2013 04:51 PM
Surr: 4-Bromofluorobenzene	*92.9*		*75-131*	*%REC*	1	1/21/2013 04:51 PM
Surr: Trifluorotoluene	*92.3*		*73-130*	*%REC*	1	1/21/2013 04:51 PM
MERCURY - SW7471B			**SW7471A**		Prep Date: **1/24/2013**	Analyst: **OFO**
Mercury	**6.16**		**3.49**	**µg/Kg**	1	1/25/2013 12:15 PM
METALS			**SW6020**		Prep Date: **1/25/2013**	Analyst: **SKS**
Arsenic	**4.67**		**0.366**	**mg/Kg**	1	1/28/2013 02:34 PM
Barium	**155**		**3.66**	**mg/Kg**	10	1/28/2013 03:38 PM
Cadmium	**0.130**	J	**0.366**	**mg/Kg**	1	1/28/2013 02:34 PM
Chromium	**26.4**		**0.366**	**mg/Kg**	1	1/28/2013 02:34 PM
Lead	**6.69**		**0.366**	**mg/Kg**	1	1/28/2013 02:34 PM
Selenium	**0.362**	J	**0.366**	**mg/Kg**	1	1/28/2013 02:34 PM
Silver	U		0.366	mg/Kg	1	1/28/2013 02:34 PM
REACTIVE CYANIDE			**SW-846**			Analyst: **HN**
Reactive Cyanide	U		40.0	mg/Kg	1	1/24/2013 09:00 AM
REACTIVE SULFIDE			**SW-846**			Analyst: **HN**
Reactive Sulfide	U		40.0	mg/Kg	1	1/24/2013 09:00 AM
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **1/24/2013**	Analyst: **JKP**
Chloride	**2,140**		**46.2**	**mg/Kg**	10	1/24/2013 07:17 PM
Fluoride	**3.04**		**0.924**	**mg/Kg**	1	1/24/2013 06:56 PM
Nitrogen, Nitrate (As N)	**58.4**		**0.924**	**mg/Kg**	1	1/24/2013 06:56 PM
Nitrogen, Nitrite (As N)	U		0.924	mg/Kg	1	1/24/2013 06:56 PM
Sulfate	**536**		**4.62**	**mg/Kg**	1	1/24/2013 06:56 PM
Surr: Selenate (surr)	*106*		*85-115*	*%REC*	10	1/24/2013 07:17 PM
Surr: Selenate (surr)	*105*		*85-115*	*%REC*	1	1/24/2013 06:56 PM
IGNITABILITY			**SW1030**			Analyst: **KL**
Ignitability, Solid	**Negative**			**Burn Rate, mm/sec**	1	1/24/2013 10:00 AM
PH - SOIL - SW9045D			**SW9045B**			Analyst: **KL**
pH	**7.65**		**0.100**	**pH Units**	1	1/24/2013 11:00 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 28-Jan-13

Client: Navajo Refining Company

Work Order: 1301633

Project: CT-1201 Spill Area Lovington

QC BATCH REPORT

Batch ID: **R141418** Instrument ID **BTEX3** Method: **SW8021B**

MBLK Sample ID: **BBLKS1-130121-R141418** Units: **µg/Kg** Analysis Date: **1/21/2013 02:53 PM**

Client ID: Run ID: **BTEX3_130121A** SeqNo: **3087226** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	1.0								
Toluene	U	1.0								
Ethylbenzene	U	1.0								
Xylenes, Total	U	3.0								
Surr: 4-Bromofluorobenzene	29.58	1.0	*30*	0	*98.6*	*75-131*	0			
Surr: Trifluorotoluene	28.3	1.0	*30*	0	*94.3*	*73-130*	0			

LCS Sample ID: **BLCSS1-130121-R141418** Units: **µg/Kg** Analysis Date: **1/21/2013 02:15 PM**

Client ID: Run ID: **BTEX3_130121A** SeqNo: **3087224** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	21.12	1.0	20	0	106	74-129	0			
Toluene	22.21	1.0	20	0	111	75-128	0			
Ethylbenzene	22.88	1.0	20	0	114	73-127	0			
Xylenes, Total	68.77	3.0	60	0	115	74-127	0			
Surr: 4-Bromofluorobenzene	30.88	1.0	*30*	0	*103*	*75-131*	0			
Surr: Trifluorotoluene	28.98	1.0	*30*	0	*96.6*	*73-130*	0			

LCSD Sample ID: **BLCSDS1-130121-R141418** Units: **µg/Kg** Analysis Date: **1/21/2013 02:34 PM**

Client ID: Run ID: **BTEX3_130121A** SeqNo: **3087225** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.95	1.0	20	0	105	74-129	21.12	0.798	30	
Toluene	22.07	1.0	20	0	110	75-128	22.21	0.647	30	
Ethylbenzene	22.69	1.0	20	0	113	73-127	22.88	0.844	30	
Xylenes, Total	68.41	3.0	60	0	114	74-127	68.77	0.528	30	
Surr: 4-Bromofluorobenzene	31.06	1.0	*30*	0	*104*	*75-131*	30.88	*0.597*	*30*	
Surr: Trifluorotoluene	29.31	1.0	*30*	0	*97.7*	*73-130*	28.98	*1.13*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301633
Project: CT-1201 Spill Area Lovington

QC BATCH REPORT

Batch ID: **R141418** Instrument ID **BTEX3** Method: **SW8021B**

MS Sample ID: **1301633-01AMS** Units: **µg/Kg** Analysis Date: **1/21/2013 04:14 PM**
Client ID: **Cooling Tower Background** Run ID: **BTEX3_130121A** SeqNo: **3087230** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	19.87	1.0	20	0	99.3	74-129	0			
Toluene	20.62	1.0	20	0	103	75-128	0			
Ethylbenzene	20.52	1.0	20	0	103	73-127	0			
Xylenes, Total	61.48	3.0	60	0	102	74-127	0			
Surr: 4-Bromofluorobenzene	28.75	1.0	*30*	0	*95.8*	*75-131*	0			
Surr: Trifluorotoluene	27.16	1.0	*30*	0	*90.5*	*73-130*	0			

MSD Sample ID: **1301633-01AMSD** Units: **µg/Kg** Analysis Date: **1/21/2013 04:32 PM**
Client ID: **Cooling Tower Background** Run ID: **BTEX3_130121A** SeqNo: **3087231** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	19.49	1.0	20	0	97.5	74-129	19.87	1.91	30	
Toluene	20.23	1.0	20	0	101	75-128	20.62	1.92	30	
Ethylbenzene	20.38	1.0	20	0	102	73-127	20.52	0.679	30	
Xylenes, Total	61.48	3.0	60	0	102	74-127	61.48	0.00219	30	
Surr: 4-Bromofluorobenzene	32.98	1.0	*30*	0	*110*	*75-131*	28.75	*13.7*	*30*	
Surr: Trifluorotoluene	29.92	1.0	*30*	0	*99.7*	*73-130*	27.16	*9.66*	*30*	

The following samples were analyzed in this batch: 1301633-01A 1301633-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301633
Project: CT-1201 Spill Area Lovington

QC BATCH REPORT

Batch ID: **67303** Instrument ID **HG02** Method: **SW7471A**

MBLK Sample ID: **GBLKS1-012413-67303** Units: **µg/Kg** Analysis Date: **1/24/2013 02:31 PM**
Client ID: Run ID: **HG02_130124A** SeqNo: **3090889** Prep Date: **1/23/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.6667	3.3								J

LCS Sample ID: **GLCSS1-012413-67303** Units: **µg/Kg** Analysis Date: **1/24/2013 02:33 PM**
Client ID: Run ID: **HG02_130124A** SeqNo: **3090891** Prep Date: **1/23/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	325.3	3.3	333.3	0	97.6	85-115	0			

MS Sample ID: **1301572-02BMS** Units: **µg/Kg** Analysis Date: **1/24/2013 02:44 PM**
Client ID: Run ID: **HG02_130124A** SeqNo: **3090895** Prep Date: **1/23/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	322	3.5	353.1	3.971	90.1	85-115	0			

MSD Sample ID: **1301572-02BMSD** Units: **µg/Kg** Analysis Date: **1/24/2013 02:46 PM**
Client ID: Run ID: **HG02_130124A** SeqNo: **3090896** Prep Date: **1/23/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	332.5	3.5	352.2	3.971	93.3	85-115	322	3.2	20	

DUP Sample ID: **1301572-02BDUP** Units: **µg/Kg** Analysis Date: **1/24/2013 02:42 PM**
Client ID: Run ID: **HG02_130124A** SeqNo: **3090894** Prep Date: **1/23/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	4.318	3.5	0	0	0		3.971	8.37	20	

The following samples were analyzed in this batch: 1301633-01A 1301633-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301633
Project: CT-1201 Spill Area Lovington

QC BATCH REPORT

Batch ID: **67330** Instrument ID **ICPMS05** Method: **SW6020**

MBLK Sample ID: **MBLKS1-012513-67330** Units: **mg/Kg** Analysis Date: **1/28/2013 03:29 PM**
Client ID: Run ID: **ICPMS05_130128A** SeqNo: **3093821** Prep Date: **1/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.50								
Barium	U	0.50								
Cadmium	U	0.50								
Chromium	U	0.50								
Lead	U	0.50								
Selenium	U	0.50								
Silver	U	0.50								

LCS Sample ID: **MLCSS1-012513-67330** Units: **mg/Kg** Analysis Date: **1/28/2013 01:21 PM**
Client ID: Run ID: **ICPMS05_130128A** SeqNo: **3093637** Prep Date: **1/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	10.25	0.50	10	0	102	80-120	0			
Barium	10.36	0.50	10	0	104	80-120	0			
Cadmium	10.04	0.50	10	0	100	80-120	0			
Chromium	10.33	0.50	10	0	103	80-120	0			
Lead	10.26	0.50	10	0	103	80-120	0			
Selenium	10.12	0.50	10	0	101	80-120	0			
Silver	10.58	0.50	10	0	106	80-120	0			

MS Sample ID: **1301668-10CMS** Units: **mg/Kg** Analysis Date: **1/28/2013 02:58 PM**
Client ID: Run ID: **ICPMS05_130128A** SeqNo: **3093752** Prep Date: **1/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	13.93	0.48	9.59	4.866	94.5	75-125	0			
Barium	55.74	0.48	9.59	41.6	147	75-125	0			SO
Cadmium	9.646	0.48	9.59	0.1618	98.9	75-125	0			
Chromium	31.98	0.48	9.59	21.77	106	75-125	0			
Lead	14.56	0.48	9.59	5.487	94.6	75-125	0			
Selenium	9.227	0.48	9.59	0.6281	89.7	75-125	0			
Silver	9.554	0.48	9.59	0.02448	99.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301633
Project: CT-1201 Spill Area Lovington

QC BATCH REPORT

Batch ID: **67330** Instrument ID **ICPMS05** Method: **SW6020**

MSD Sample ID: **1301668-10CMSD** Units: **mg/Kg** Analysis Date: **1/28/2013 03:01 PM**
Client ID: Run ID: **ICPMS05_130128A** SeqNo: **3093753** Prep Date: **1/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	14.08	0.47	9.48	4.866	97.2	75-125	13.93	1.09	25	
Barium	58.3	0.47	9.48	41.6	176	75-125	55.74	4.48	25	SO
Cadmium	9.599	0.47	9.48	0.1618	99.5	75-125	9.646	0.484	25	
Chromium	33.64	0.47	9.48	21.77	125	75-125	31.98	5.07	25	S
Lead	15.31	0.47	9.48	5.487	104	75-125	14.56	5.07	25	
Selenium	9.236	0.47	9.48	0.6281	90.8	75-125	9.227	0.106	25	
Silver	9.407	0.47	9.48	0.02448	99	75-125	9.554	1.55	25	

DUP Sample ID: **1301668-10CDUP** Units: **mg/Kg** Analysis Date: **1/28/2013 02:56 PM**
Client ID: Run ID: **ICPMS05_130128A** SeqNo: **3093751** Prep Date: **1/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.448	0.48	0	0	0	0-0	4.866	8.96	25	
Cadmium	0.1615	0.48	0	0	0	0-0	0.1618	0	25	J
Lead	5.144	0.48	0	0	0	0-0	5.487	6.46	25	
Selenium	0.4475	0.48	0	0	0	0-0	0.6281	0	25	J
Silver	U	0.48	0	0	0	0-0	0.02448	0	25	

DUP Sample ID: **1301668-10CDUP** Units: **mg/Kg** Analysis Date: **1/28/2013 03:57 PM**
Client ID: Run ID: **ICPMS05_130128A** SeqNo: **3093919** Prep Date: **1/25/2013** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	41.65	0.97	0	0	0	0-0	40.89	1.85	25	
Chromium	21.22	0.97	0	0	0	0-0	20.92	1.4	25	

The following samples were analyzed in this batch: 1301633-01A 1301633-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301633
Project: CT-1201 Spill Area Lovington

QC BATCH REPORT

Batch ID: **67350** Instrument ID **ICS3000** Method: **E300** **(Dissolve)**

MBLK Sample ID: **WBLKS1-67350** Units: **mg/Kg** Analysis Date: **1/24/2013 05:09 PM**
Client ID: Run ID: **ICS3000_130124A** SeqNo: **3091903** Prep Date: **1/24/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	5.0								
Fluoride	U	1.0								
Nitrogen, Nitrate (As N)	U	1.0								
Nitrogen, Nitrite (As N)	U	1.0								
Sulfate	U	5.0								
Surr: Selenate (surr)	53.03	1.0	*50*	0	*106*	*85-115*	0			

LCS Sample ID: **WLCSS1-67350** Units: **mg/Kg** Analysis Date: **1/24/2013 05:30 PM**
Client ID: Run ID: **ICS3000_130124A** SeqNo: **3091906** Prep Date: **1/24/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	210.2	5.0	200	0	105	90-110	0			
Fluoride	39.63	1.0	40	0	99.1	90-110	0			
Nitrogen, Nitrate (As N)	39.77	1.0	40	0	99.4	90-110	0			
Nitrogen, Nitrite (As N)	40.48	1.0	40	0	101	90-110	0			
Sulfate	203.8	5.0	200	0	102	90-110	0			
Surr: Selenate (surr)	54.91	1.0	*50*	0	*110*	*85-115*	0			

MS Sample ID: **1301633-01AMS** Units: **mg/Kg** Analysis Date: **1/24/2013 06:13 PM**
Client ID: **Cooling Tower Background** Run ID: **ICS3000_130124A** SeqNo: **3091911** Prep Date: **1/24/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	495.3	4.7	93.76	418.7	81.7	75-125	0			O
Fluoride	22.4	0.94	18.75	3.578	100	75-125	0			
Nitrogen, Nitrate (As N)	34.33	0.94	18.75	16.85	93.2	75-125	0			
Nitrogen, Nitrite (As N)	19.96	0.94	18.75	0	106	75-125	0			
Sulfate	1233	4.7	93.76	1183	52.5	75-125	0			SEO
Surr: Selenate (surr)	49.08	0.94	*46.88*	0	*105*	*80-120*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301633
Project: CT-1201 Spill Area Lovington

QC BATCH REPORT

Batch ID: **67350** Instrument ID **ICS3000** Method: **E300** **(Dissolve)**

MSD Sample ID: **1301633-01AMSD** Units: **mg/Kg** Analysis Date: **1/24/2013 06:34 PM**

Client ID: **Cooling Tower Background** Run ID: **ICS3000_130124A** SeqNo: **3091912** Prep Date: **1/24/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	490.2	4.6	92.67	418.7	77.2	75-125	495.3	1.03	20	O
Fluoride	22.18	0.93	18.53	3.578	100	75-125	22.4	1	20	
Nitrogen, Nitrate (As N)	34	0.93	18.53	16.85	92.5	75-125	34.33	0.982	20	
Nitrogen, Nitrite (As N)	19.77	0.93	18.53	0	107	75-125	19.96	0.983	20	
Sulfate	1220	4.6	92.67	1183	39.2	75-125	1233	1.05	20	SEO
Surr: Selenate (surr)	48.46	0.93	*46.33*	0	*105*	*80-120*	49.08	*1.29*	*20*	

The following samples were analyzed in this batch: 1301633-01A 1301633-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301633
Project: CT-1201 Spill Area Lovington

QC BATCH REPORT

Batch ID: **R141567** Instrument ID **WetChem** Method: **SW1030** **(Dissolve)**

DUP Sample ID: **1301633-01ADUP** Units: **Burn Rate, mm/se** Analysis Date: **1/24/2013 10:00 AM**

Client ID: **Cooling Tower Background** Run ID: **WETCHEM_130124B** SeqNo: **3090636** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability, Solid	U	0	0	0	0		0	0	25	

The following samples were analyzed in this batch: 1301633-01A 1301633-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301633
Project: CT-1201 Spill Area Lovington

QC BATCH REPORT

Batch ID: **R141568** Instrument ID **WetChem** Method: **SW9045B** **(Dissolve)**

LCS Sample ID: **WLCSS1-130124-R141568** Units: **pH Units** Analysis Date: **1/24/2013 11:00 AM**
Client ID: Run ID: **WETCHEM_130124C** SeqNo: **3090656** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.01	0.10	6	0	100	90-110	0			

DUP Sample ID: **1301705-02ADUP** Units: **pH Units** Analysis Date: **1/24/2013 11:00 AM**
Client ID: Run ID: **WETCHEM_130124C** SeqNo: **3090665** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.53	0.10	0	0	0	0-0	7.56	0.398	20	

The following samples were analyzed in this batch: 1301633-01A 1301633-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: CT-1201 Spill Area Lovington
WorkOrder: **1301633**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Units Reported	Description
µg/Kg	Micrograms per Kilogram
Burn Rate, mm/sec	
mg/Kg	Milligrams per Kilogram
pH Units	

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING** Date/Time Received: **19-Jan-13 09:20**

Work Order: **1301633** Received by: **RDN**

Checklist completed by Parish M. Giza eSignature 21-Jan-13 Date Reviewed by: Patricia L. Lynch eSignature 22-Jan-13 Date

Matrices: Solid
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
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 ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.5c C/U	005	
Cooler(s)/Kit(s):	5201		
Date/Time sample(s) sent to storage:	1/21/13 11:40		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

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(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

1301633

NAVAJO REFINING: Navajo Refining Company

Project: CT-1201 Spill Area - Lovington

ALS Project Manager: Pat Lynch

Customer Information		Project Information			
Purchase Order		Project Name	CT-1201 Spill Area - Lovington	A	BTEX
Work Order		Project Number		B	RCRA 8 Metals
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Mercury
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	Anions
Address	P. O. Box 159	Address	501 East Main	E	R. C. I.
				F	
City/State/Zip	Artesia, New Mexico 88211-0159	City/State/Zip	Artesia, New Mexico 88210	G	
Phone	(575) 748-3311	Phone	(575) 748-3311	H	
Fax	(575) 746-5451	Fax	(575) 746-5451	I	
e-Mail Address	Robert.Combs@hollyfrontier.com	e-Mail Address	Robert.Combs@hollyfrontier.com	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Cooling Tower Background	1/16/13	8:50	Solid	Chill	1	X	X	X	X	X						
2	Cooling Tower Spill Area	1/16/13	8:56	Solid	Chill	1	X	X	X	X	X						
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign
Robert Combs

Shipment Method: FedEx

Required Turnaround Time: ☑ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date: 1/18/13	Time: 9:30	Received by:	Notes:
Relinquished by:	Date: 1/19/13	Time: 09:20	Received by (Laboratory):	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

QC Package: (Check Box Below)

- ☐ Level II: Standard QC
- ☐ Level III: Std QC + Raw Data
- ☐ Level IV: SW846 CLP-Like
- ☐ Other: _____
- ☐ TRRP-Checklist
- ☐ TRRP Level IV

Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

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ALS Group USA, Corp

Date: 25-Jan-13

Client: ALS Environmental
Project: 1301633
Work Order: **1301631**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1301631-01	1301633-01B	Solid		1/16/2013 08:50	1/22/2013 10:00	☐
1301631-02	1301633-02B	Solid		1/16/2013 08:56	1/22/2013 10:00	☐

ALS Group USA, Corp

Date: 25-Jan-13

Client: ALS Environmental
Project: 1301633
WorkOrder: **1301631**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
mg/Kg	Milligrams per Kilogram

ALS Group USA, Corp

Date: *25-Jan-13*

Client: ALS Environmental
Project: 1301633

Work Order: 1301631

Lab ID: 1301631-01A
Client Sample ID: 1301633-01B

Collection Date: 1/16/2013 8:50:00 AM
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **EE**
Cyanide, Reactive	ND		40.0	mg/Kg	1	1/24/2013 09:00 AM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **EE**
Sulfide, Reactive	ND		40.0	mg/Kg	1	1/24/2013 09:00 AM

Lab ID: 1301631-02A
Client Sample ID: 1301633-02B

Collection Date: 1/16/2013 8:56:00 AM
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **EE**
Cyanide, Reactive	ND		40.0	mg/Kg	1	1/24/2013 09:00 AM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **EE**
Sulfide, Reactive	ND		40.0	mg/Kg	1	1/24/2013 09:00 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jan-13

Client: ALS Environmental

Work Order: 1301631

Project: 1301633

QC BATCH REPORT

Batch ID: **R115466** Instrument ID **WETCHEM** Method: **SW7.3.4.2**

MBLK Sample ID: **WBLKW1-012413-R115466** Units: **mg/Kg** Analysis Date: **1/24/2013 09:00 AM**

Client ID: Run ID: **WETCHEM_130124G** SeqNo: **2200683** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 1301631-01A 1301631-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1301631
Project: 1301633

QC BATCH REPORT

Batch ID: **R115468** Instrument ID **WETCHEM** Method: **SW7.3.3.2**

MBLK Sample ID: **WBLKW1-012413-R115468** Units: **mg/Kg** Analysis Date: **1/24/2013 09:00 AM**
Client ID: Run ID: **WETCHEM_130124I** SeqNo: **2200711** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: **WLCSW1-012413-R115468** Units: **mg/Kg** Analysis Date: **1/24/2013 09:00 AM**
Client ID: Run ID: **WETCHEM_130124I** SeqNo: **2200712** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	0			

MS Sample ID: **1301627-01A MS** Units: **mg/Kg** Analysis Date: **1/24/2013 09:00 AM**
Client ID: Run ID: **WETCHEM_130124I** SeqNo: **2200717** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	223.2	40	250	0	89.3	50-150	0			

MSD Sample ID: **1301627-01A MSD** Units: **mg/Kg** Analysis Date: **1/24/2013 09:00 AM**
Client ID: Run ID: **WETCHEM_130124I** SeqNo: **2200718** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	223.2	40	250	0	89.3	50-150	223.2	0	35	

The following samples were analyzed in this batch: 1301631-01A 1301631-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1301631



Subcontractor:	
ALS Laboratory Group	
3352 128th Ave.	TEL: (616) 399-6070
	FAX: (616) 399-6185
Holland, MI 49424	Acct #:

CHAIN-OF-CUSTODY RECORD

Date: 21-Jan-13
COC ID: 13128
Due Date 25-Jan-13

Salesperson	Mala H. Belmonte

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	1301633	A	Reactive Cyanide (SW-846)
Work Order		Project Number		B	Reactive Sulfide (SW-846)
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C	
Send Report To	Patricia L. Lynch	Inv Attn	Accounts Payable	D	
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E	
				F	
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G	
Phone	(281) 530-5656	Phone	(281) 530-5656	H	
Fax	(281) 530-5887	Fax	(281) 530-5887	I	
eMail Address	pat.lynch@alsglobal.com	eMail CC		J	

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
1301633-01B (Cooling Tower Background)	Solid	16/Jan/2013 8:50	(1) 4OZGNEAT	X	X								
1301633-02B (Cooling Tower Spill Area)	Solid	16/Jan/2013 8:56	(1) 4OZGNEAT	X	X								

Comments:

Please analyze for reactive cyanide & reactive sulfide. Due on 1/25/13. Send report to pat.lynch@alsglobal.com & cc : results to jumoke.lawal@alsglobal.com & luke.hernandez@alsglobal.com

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
	1/21/13 1800				Std
Relinquished by:	Date/Time	Received by:	Date/Time		
			1/22/13 1000		

4.0°c

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **ALS - HOUSTON** Date/Time Received: **22-Jan-13 10:00**

Work Order: **1301631** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 22-Jan-13 (Date) Reviewed by: Bill Carey (eSignature) 22-Jan-13 (Date)

Matrices: Solid
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
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 ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0 c		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	1/22/2013 12:59:00 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

ORIGIN ID: SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 21JAN13
ACTWGT: 28.2 LB
CAD: 300130/CAFE2606

BILL SENDER

TO JEFF GLASER
ALS ENVIRONMENTAL
3352 128TH AVE.

HOLLAND MI 49424
(281) 530-5656
REF: (SUBCONTRACT) PMG

FedEx Express

TUE - 22 JAN

TRK# 0201 4340 2173 8787

PRIORITY OVERNIGHT

NA GRRA

49424
MI-US GRR

Part # 156148-434 HIT2 04/12



25 of 25

09-Jul-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: Cooling Tower Release Investigation Work Order: **1306934**

Dear Robert,

ALS Environmental received 6 samples on 22-Jun-2013 09:45 AM for the analyses presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

The total number of pages in this revised report is 17.

Regards,

Electronically approved by: Sonia West

Sonia West
Project Manager

Certificate No: T104704231-13-12

ALS Environmental

Date: 09-Jul-13

Client: Navajo Refining Company
Project: Cooling Tower Release Investigation
Work Order: **1306934**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1306934-01	TB-1 0-1	Soil		6/20/2013 21:30	6/22/2013 09:45	☐
1306934-02	TB-1 14-15	Soil		6/20/2013 21:35	6/22/2013 09:45	☐
1306934-03	TB-2 0-0.5	Soil		6/21/2013 10:30	6/22/2013 09:45	☐
1306934-04	TB-3 0-0.5	Soil		6/21/2013 10:35	6/22/2013 09:45	☐
1306934-05	TB-4 0-0.5	Soil		6/21/2013 10:45	6/22/2013 09:45	☐
1306934-06	TB-5 0-0.5	Soil		6/21/2013 10:50	6/22/2013 09:45	☐

ALS Environmental

Date: 09-Jul-13

Client:	Navajo Refining Company
Project:	Cooling Tower Release Investigation
Work Order:	1306934

Case Narrative

As per your request, this report has been revised to change the project name.

Batch 71202, Anions 300.0, Sample 1306935-08C: MS/MSD are for an unrelated sample.

ALS Environmental

Date: *09-Jul-13*

Client: Navajo Refining Company
Project: Cooling Tower Release Investigation
Work Order: 1306934
Sample ID: TB-1 0-1
Lab ID: 1306934-01
Collection Date: 6/20/2013 09:30 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**216**		**5.00**	**mg/Kg**	1	7/1/2013 02:18 AM
Sulfate	**2,210**		**25.0**	**mg/Kg**	5	7/1/2013 10:42 AM
Surr: Selenate (surr)	*108*		*85-115*	*%REC*	5	7/1/2013 10:42 AM
Surr: Selenate (surr)	*106*		*85-115*	*%REC*	1	7/1/2013 02:18 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client: Navajo Refining Company
Project: Cooling Tower Release Investigation
Work Order: 1306934
Sample ID: TB-1 14-15
Lab ID: 1306934-02
Collection Date: 6/20/2013 09:35 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**82.8**		**5.00**	**mg/Kg**	1	7/1/2013 02:32 AM
Sulfate	**99.5**		**5.00**	**mg/Kg**	1	7/1/2013 02:32 AM
Surr: Selenate (surr)	*110*		*85-115*	*%REC*	1	7/1/2013 02:32 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client: Navajo Refining Company
Project: Cooling Tower Release Investigation
Work Order: 1306934
Sample ID: TB-2 0-0.5
Lab ID: 1306934-03
Collection Date: 6/21/2013 10:30 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**2,080**		**49.9**	**mg/Kg**	10	7/1/2013 02:47 AM
Sulfate	**2,650**		**49.9**	**mg/Kg**	10	7/1/2013 02:47 AM
Surr: Selenate (surr)	*106*		*85-115*	*%REC*	10	7/1/2013 02:47 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client: Navajo Refining Company
Project: Cooling Tower Release Investigation
Work Order: 1306934
Sample ID: TB-3 0-0.5
Lab ID: 1306934-04
Collection Date: 6/21/2013 10:35 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**1,530**		**50.0**	**mg/Kg**	10	7/1/2013 03:01 AM
Sulfate	**1,990**		**50.0**	**mg/Kg**	10	7/1/2013 03:01 AM
Surr: Selenate (surr)	*108*		*85-115*	*%REC*	10	7/1/2013 03:01 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client: Navajo Refining Company
Project: Cooling Tower Release Investigation
Work Order: 1306934
Sample ID: TB-4 0-0.5
Lab ID: 1306934-05
Collection Date: 6/21/2013 10:45 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**47.7**		**4.99**	**mg/Kg**	1	7/1/2013 03:16 AM
Sulfate	**83.3**		**4.99**	**mg/Kg**	1	7/1/2013 03:16 AM
Surr: Selenate (surr)	*114*		*85-115*	*%REC*	1	7/1/2013 03:16 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *09-Jul-13*

Client: Navajo Refining Company
Project: Cooling Tower Release Investigation
Work Order: 1306934
Sample ID: TB-5 0-0.5
Lab ID: 1306934-06
Collection Date: 6/21/2013 10:50 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ANIONS - EPA 300.0 (1993)			**E300**		Prep Date: **6/29/2013**	Analyst: **JKP**
Chloride	**12.8**		**5.00**	**mg/Kg**	1	7/1/2013 03:31 AM
Sulfate	**20.0**		**5.00**	**mg/Kg**	1	7/1/2013 03:31 AM
Surr: Selenate (surr)	*102*		*85-115*	*%REC*	1	7/1/2013 03:31 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 09-Jul-13

Client: Navajo Refining Company

Work Order: 1306934

Project: Cooling Tower Release Investigation

QC BATCH REPORT

Batch ID: **71202** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK Sample ID: **WBLKS1-71202** Units: **mg/Kg** Analysis Date: **7/1/2013 01:09 AM**

Client ID: Run ID: **ICS2100_130701A** SeqNo: **3274051** Prep Date: **6/29/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	4.75	5.0								J
Sulfate	2.15	5.0								J
Surr: Selenate (surr)	55.34	1.0	*50*	*0*	*111*	*85-115*	*0*			

LCS Sample ID: **WLCSS1-71202** Units: **mg/Kg** Analysis Date: **7/1/2013 01:24 AM**

Client ID: Run ID: **ICS2100_130701A** SeqNo: **3274052** Prep Date: **6/29/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	203.2	5.0	200	0	102	90-110				
Sulfate	218.2	5.0	200	0	109	90-110				
Surr: Selenate (surr)	53.14	1.0	*50*	*0*	*106*	*85-115*	*0*			

MS Sample ID: **1306935-08CMS** Units: **mg/Kg** Analysis Date: **7/1/2013 06:11 AM**

Client ID: Run ID: **ICS2100_130701A** SeqNo: **3274071** Prep Date: **6/29/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	117.8	4.2	83.63	8.155	131	75-125				S
Sulfate	236.4	4.2	83.63	154.5	97.9	75-125				
Surr: Selenate (surr)	47.22	0.84	*41.81*	*0*	*113*	*80-120*	*0*			

MSD Sample ID: **1306935-08CMSD** Units: **mg/Kg** Analysis Date: **7/1/2013 06:25 AM**

Client ID: Run ID: **ICS2100_130701A** SeqNo: **3274072** Prep Date: **6/29/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	117.6	4.2	83.37	8.155	131	75-125	117.8	0.158	20	S
Sulfate	238.1	4.2	83.37	154.5	100	75-125	236.4	0.714	20	
Surr: Selenate (surr)	46.86	0.83	*41.68*	*0*	*112*	*80-120*	*47.22*	*0.775*	*20*	

The following samples were analyzed in this batch: 1306934-01A, 1306934-02A, 1306934-03A, 1306934-04A, 1306934-05A, 1306934-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 1

Client: Navajo Refining Company
Project: Cooling Tower Release Investigation
WorkOrder: **1306934**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Units Reported	Description
mg/Kg	Milligrams per Kilogram

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING** Date/Time Received: **22-Jun-13 09:45**

Work Order: **1306934** Received by: **RDH**

Checklist completed by Makenzie L. Henderson (eSignature) 24-Jun-13 (Date) Reviewed by: Sonia West (eSignature) 25-Jun-13 (Date)

Matrices: Soil
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
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 ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.3c/2.3c 1.9c/1.6c 2.7c/2.7c 3.2c/3.2c C/U	IR1	
Cooler(s)/Kit(s):	4696, 4096, 3271, 3036		
Date/Time sample(s) sent to storage:	6/24/13 12:59		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

ALS Environmental

Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 82292

1306934

NAVAJO REFINING: Navajo Refining Company

Project: 196364.0003.0000

ALS Project Manager:

Customer Information		Project Information	
Purchase Order		Project Name	
Work Order		Project Number	196364.0003.0000
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company
Send Report To	Robert Combs, Bryan Gilbert	Invoice Attn	Robert Combs
Address	501 East Main	Address	501 East Main
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211
Phone	(505) 748-3311	Phone	(575) 746-6733
Fax	(505) 746-5421	Fax	(575) 746-5421
e-Mail Address		e-Mail Address	

A	BTEX (8021)
B	GRO (8015)
C	DRO (8015)
D	ORO (8015)
E	Anions (300) Cl
F	Chloride & Sulfate (300)
G	
H	
I	
J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	TB-1 0-1	6/20/13	2130	Soil	8	1						X					
2	TB-1 14-15	6/20/13	2135														
3	TB-2 0-0.5	6/21/13	1030														
4	TB-3 0-0.5		1035														
5	TB-4 0-0.5		1045														
6	TB-5 0-0.5		1050														
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: JOSH WARD

Shipment Method:

Required Turnaround Time: (Check Box) ☑ Std 10 WK Days ☐ 5 WK Days ☐ Other 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by: Date: 6/21/13 Time: 1805 Received by:

Relinquished by: Date: Time: Received by (Laboratory): 6/22/13 0745

Logged by (Laboratory): Date: Time: Checked by (Laboratory):

Notes: 10 Day TAT. CC report to Bryan Gilbert & Julie Spear bgilbert@spearenvironmental.com

Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other / EDD

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2011 by ALS Environmental.

ORIGIN ID:HOBA (512) 328-6080
T R C ENVIRONMENTAL CORP
505 E HUNTLAND DR STE 250
AUSTIN, TX 787523740
UNITED STATES US

SHIP DATE: 21JUN13
ACTWGT: 66.9 LB
CAD: /POS1400
DIMS: 24x14x15 IN
BILL RECIPIENT

TO
ALS LABORATORY SERVICES
10450 STANCLIFF RD
STE 210
HOUSTON TX 77099
(281) 530-5656 REF:
INV:
PO: DEPT:

FedEx Express

5 of 5
MPS# 0681 7957 9201 4462
Mstr# 8020 3307 4443
0215
SATURDAY 12:00P
PRIORITY OVERNIGHT
XO SGRA
77099
TX-US IAH
4696

ORIGIN ID:HOBA (512) 328-6080
T R C ENVIRONMENTAL CORP
505 E HUNTLAND DR STE 250
AUSTIN, TX 787523740
UNITED STATES US

SHIP DATE: 21JUN13
ACTWGT: 66.9 LB
CAD: /POS1400
DIMS: 24x14x15 IN
BILL RECIPIENT

TO
ALS LABORATORY SERVICES
10450 STANCLIFF RD
STE 210
HOUSTON TX 77099
(281) 530-5656 REF:
INV:
PO: DEPT:

FedEx Express

4 of 5
MPS# 0681 7957 9201 4451
Mstr# 8020 3307 4443
0215
SATURDAY 12:00P
PRIORITY OVERNIGHT
XO SGRA
77099
TX-US IAH
4696

ALS Environmental
Suite 210
Date:
Name:
Company:

CUSTODY SEAL
Time:
Date: 6/22/13

1300934

ALS Environmental
Suite 210
Tel. +1 281 530 5656
Fax. +1 281 530 5887
4696
Date:
Name:
Company:

CUSTODY SEAL
Time:
Date: 6/22/13

ORIGIN ID:HOBA (512) 329-6080
T R C ENVIRONMENTAL CORP

505 E HUNTLAND DR STE 250

AUSTIN, TX 787523740
UNITED STATES US

SHIP DATE: 21JUN13
ACTWGT: 66.9 LB
CAD: /PDS1400
DIMS: 24x14x15 IN

BILL RECIPIENT

TO

ALS LABORATORY SERVICES
10450 STANCLIFF RD
STE 210
HOUSTON TX 77099
(281) 530-5656 REF:
INV:
PO: DEPT:

FedEx Express

2 of 5
MPS# 0681 7957 9201 4430
Mstr# 8020 3307 4443 0215

SATURDAY 12:00
PRIORITY OVERNIGH

XO SGRA

77099
TX-US IAH

3172



ORIGIN ID:HOBA (512) 329-6080
T R C ENVIRONMENTAL CORP

505 E HUNTLAND DR STE 250

AUSTIN, TX 787523740
UNITED STATES US

SHIP DATE: 21JUN13
ACTWGT: 66.9 LB
CAD: /PDS1400
DIMS: 24x14x15 IN

BILL RECIPIENT

TO

ALS LABORATORY SERVICES
10450 STANCLIFF RD
STE 210
HOUSTON TX 77099
(281) 530-5656 REF:
INV:
PO: DEPT:

FedEx Express

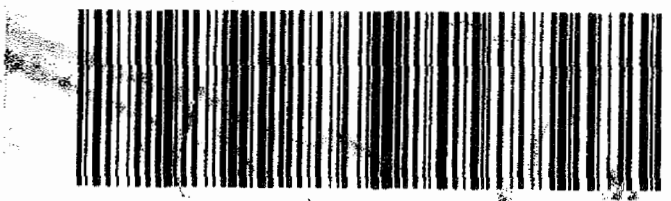
1 of 5
TRK# 0215 8020 3307 4443
MASTER

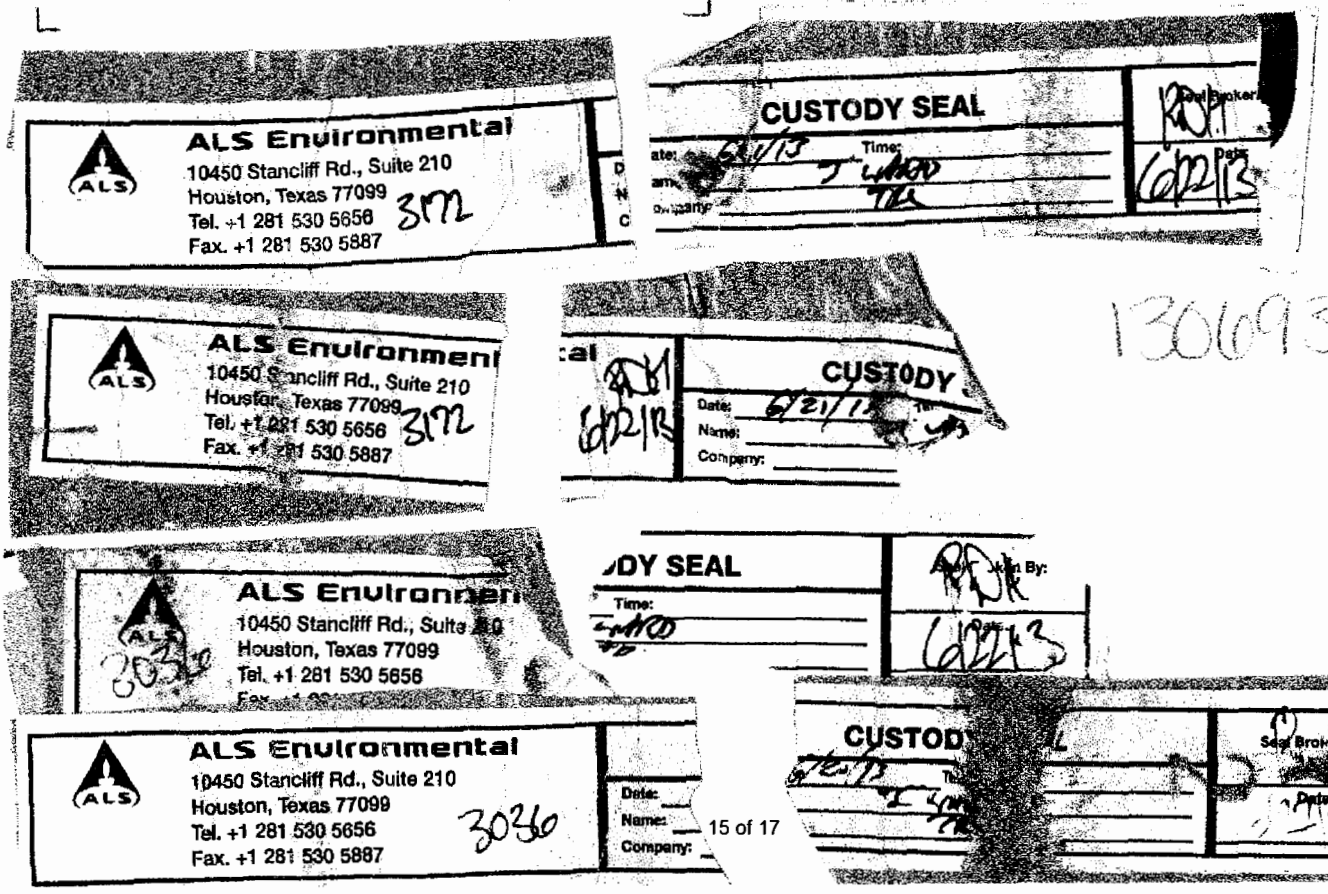
SATURDAY 12:00P
PRIORITY OVERNIGHT

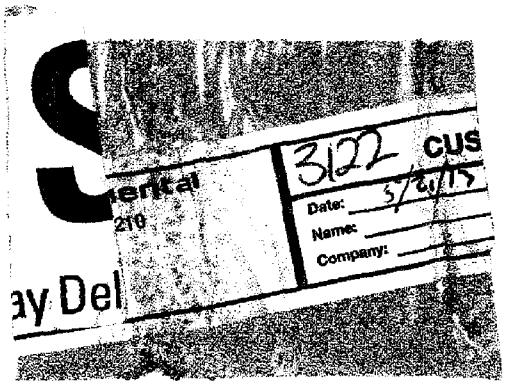
XO SGRA

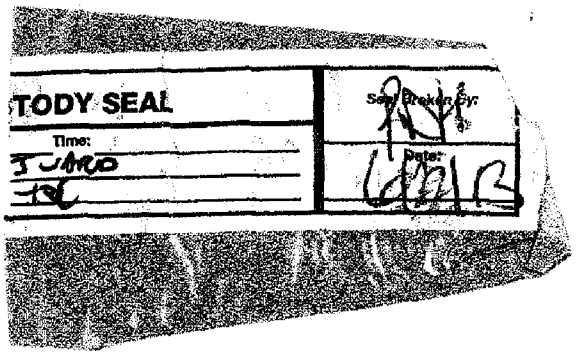
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TX-US IAH

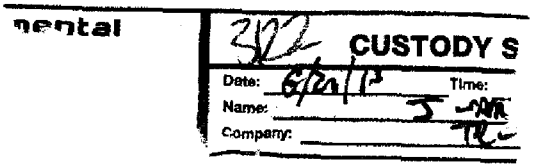
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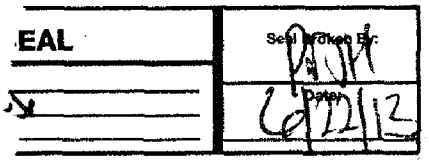




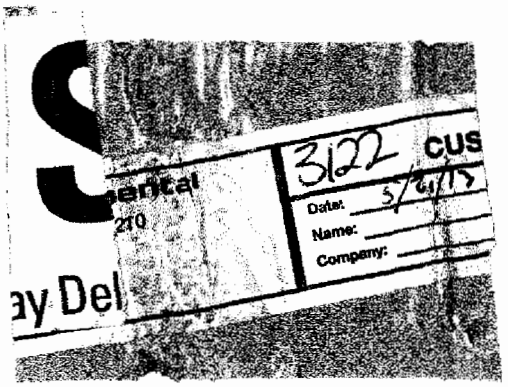

3122 CUS
Date: 3/21/13
Name:
Company:

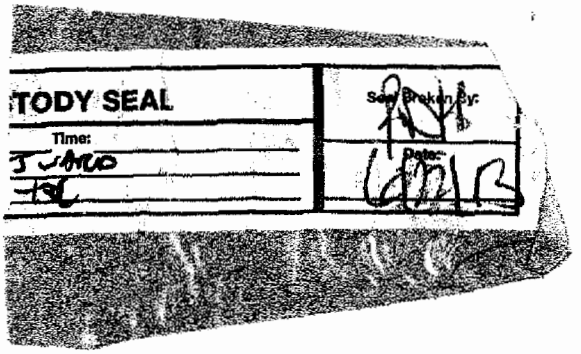

TODY SEAL
Time:
Seal Broken By:
Date:

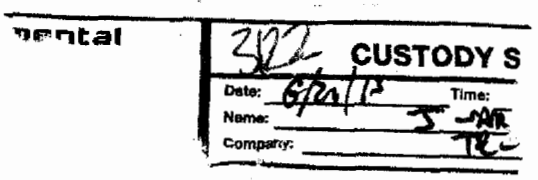

3122 CUSTODY S
Date: 6/21/13 Time:
Name:
Company:

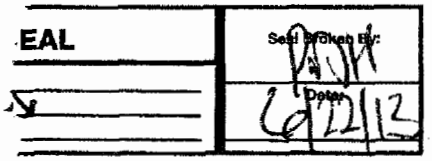

EAL
Seal Broken By:
Date: 6/22/13

1360934


3122 CUS
Date: 5/21/13
Name:
Company:


TODY SEAL
Time:
Seal Broken By:
Date:


3122 CUSTODY S
Date: 6/21/13 Time:
Name:
Company:


EAL
Seal Broken By:
Date: 6/21/13

1366934

ATTACHMENT D

SSL Calculation Spreadsheet

EVALUATION OF SOIL SCREENING LEVEL FOR CHLORIDE LEACHING TO GROUNDWATER

$$SSL = C_w \times \left[K_d + \left(\frac{\theta_w + \theta_a H'}{\rho_b} \right) \right]$$

Parameter	Definition (units)	Value	Source of Value
SSL	Soil Screening Level for migration to groundwater pathway (mg/kg)	**867**	Calculated (above equation)
C_w	Target soil leachate concentration (mg/L)	5,000	Calculated; Cw=NM WQCC Human Health Standard x DAF
HHS	Chloride WQCC Human Health Standard (mg/L)	250	20.6.2.3103 of the New Mexico Administrative Code
DAF	Dilution Attenuation Factor (unitless)	20	Default (Risk Assessment Guidance for Investigations and Remediations, Volume 1 (updated June 2012)
θ_w	Water-filled soil porosity (L_{water}/L_{soil})	0.26	Default (Risk Assessment Guidance for Investigations and Remediations, Volume 1 (updated June 2012)
K_d	Soil-water partition coefficient (L/kg)	0.00	Default conservative value
θ_a	Air-filled soil porosity (L_{air}/L_{soil})	0.17	Default (Risk Assessment Guidance for Investigations and Remediations, Volume 1 (updated June 2012)
H'	Henry's Law Constant (unitless)	0.00	Default conservative value
ρ_b	Dry soil bulk density (kg/L)	1.50	Default (Risk Assessment Guidance for Investigations and Remediations, Volume 1 (updated June 2012)

EVALUATION OF SOIL SCREENING LEVEL FOR SULFATE LEACHING TO GROUNDWATER

$$SSL = C_w \times \left[K_d + \left(\frac{\theta_w + \theta_a H'}{\rho_b} \right) \right]$$

Parameter	Definition (units)	Value	Source of Value
SSL	Soil Screening Level for migration to groundwater pathway (mg/kg)	**2,080**	Calculated (above equation)
C_w	Target soil leachate concentration (mg/L)	12,000	Calculated; Cw=HHS x DAF
HHS	Sulfate WQCC Human Health Standard for Sulfate(mg/L)	600	20.6.2.3103 of the New Mexico Administrative Code
DAF	Dilution Attenuation Factor (unitless)	20	Default (Risk Assessment Guidance for Investigations and Remediations, Volume 1 (updated June 2012)
θ_w	Water-filled soil porosity (L_{water}/L_{soil})	0.26	Default (Risk Assessment Guidance for Investigations and Remediations, Volume 1 (updated June 2012)
K_d	Soil-water partition coefficient (L/kg)	0.00	Default conservative value
θ_a	Air-filled soil porosity (L_{air}/L_{soil})	0.17	Default (Risk Assessment Guidance for Investigations and Remediations, Volume 1 (updated June 2012)
H'	Henry's Law Constant (unitless)	0.00	Default conservative value
ρ_b	Dry soil bulk density (kg/L)	1.5	Default (Risk Assessment Guidance for Investigations and Remediations, Volume 1 (updated June 2012)

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, September 10, 2013 4:32 PM
To: 'Combs, Robert'
Cc: Holder, Mike; Strange, Aaron; Schultz, Michele; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Gonzales, Elidio L, EMNRD; Leking, Geoffrey R, EMNRD
Subject: RE: Final C-141--2012-06-07 Lovington T-104B gasoil spill

Robert, et al.:

The New Mexico Oil Conservation Division (OCD) has completed its review of the above subject corrective action report. It appears that the corrective action(s) is complete on the condition that the operator responds to the verification requests below.

First, OCD requests an update on the Section 5 "Findings and Recommendations" seven recommendations with "Date to be Completed" to verify completion of the recommendations and/or any explanation for not addressing each recommendation.

Second, OCD requests verification that in the event of a similar satellite communication interuption that could shut down the pump that this could not occur again with an explanation.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
Office: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
Website: http://www.emnrd.state.nm.us/ocd/
"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental

---

From: Combs, Robert [mailto:Robert.Combs@hollyfrontier.com]
Sent: Tuesday, May 14, 2013 4:39 PM
To: Chavez, Carl J, EMNRD
Cc: Holder, Mike; Strange, Aaron; Schultz, Michele
Subject: Final C-141--2012-06-07 Lovington T-104B gasoil spill

Carl,

Attached is the Final C-141 form for the Lovington T-104B gasoil spill. The support documents will be by FEDEX to OCD along with a compact disk containing the electronic files of the photos, PSM event investigation report, lab analyses and reports from third-party consultants.

Please let me know if you have any comments.

Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

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attachments. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.

ıavez, Carl J, EMNRD

From: Combs, Robert <Robert.Combs@hollyfrontier.com>
Sent: Tuesday, May 14, 2013 4:39 PM
To: Chavez, Carl J, EMNRD
Cc: Holder, Mike; Strange, Aaron; Schultz, Michele
Subject: Final C-141--2012-06-07 Lovington T-104B gasoil spill
Attachments: Final C-141 2012-06-07 Spill at T-104B.pdf

Carl,

Attached is the Final C-141 form for the Lovington T-104B gasoil spill. The support documents will be by FEDEX to OCD along with a compact disk containing the electronic files of the photos, PSM event investigation report, lab analyses and reports from third-party consultants.

Please let me know if you have any comments.

Thanks,
Robert

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Environmental Specialist
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Robert.Combs@hollyfrontier.com

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attachments. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.

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: Navajo Refining Co. LLC	Contact: Robert Combs
Address: 7406 South Main Lovington, N.M.	Telephone No. 575-746-5382
Facility Name: Lovington Plant	Facility Type: Petroleum 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

Latitude _____ **Longitude** _____

NATURE OF RELEASE

Type of Release: Gasoil	Volume of Release: 3,067 barrels	Volume Recovered: 2,956 barrels
Source of Release: T-104A Gasoil tank	Date and Hour of Occurrence: 12/10/2011 ~ 08:30	Date and Hour of Discovery: 12/10/2011 ~ 08:45
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Carl Chavez, OCD Santa Fe (505-476-3490), left a message. Lovington LEPC, left message.	
By Whom? Robert Combs and Micki Schultz	Date and Hour: 6/7/12 at ~07:50 to OCD Santa Fe office. 6/7/12 at ~08: to Lovington LEPC	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. NA	

If a Watercourse was Impacted, Describe Fully.* NA

Describe Cause of Problem and Remedial Action Taken.*

At approximately 23:00 on 6/6/12, satellite communications were interrupted with HEP's (Holly Energy Partners) controls and monitoring systems, which was unknown to the Lovington facility. The interruption shut down the pump that was transferring gasoil from T-104B to the Artesia facility, causing the tank level to increase rapidly since the tank outflow was stopped, but the gasoil rundown to the tank continued for several hours. At approximately 06:00 on 6/7/12, operators at the Lovington refinery discovered that T-104B had overflowed and released 3,067 bbls of gasoil. The gasoil transferred to T-104B was stopped and flow was diverted to T-1206, in addition, the Crude Unit process rate was reduced.

A Process Safety Root Cause Investigation was performed for the event (attached, "Unit 84 06072012 TK 104 B FINAL REPORT 0712201[1]") where a number of causal factors were identified and recommendations for corrective actions were proposed.

Describe Area Affected and Cleanup Action Taken.*

Tank 104B is contained inside a bermed area shared by four other tanks (T-106A, 104A, 103A, 103B, see markup attached to Initial C-141). The gasoil is a very low vapor pressure, viscous liquid that solidifies at temperatures below 85 °F. As the liquid level exceeded the tank capacity, the liquid began to run down the outside of the tank and pool at the base.

Vacuum trucks were utilized to collect to the fluid released and were able to recover 2,956 barrels. The remaining cleanup was addressed by excavation of the impacted area, which produced 564 cubic yards of non-hazardous waste that was transported to a R360 for disposal under an existing waste profile. An electronic file will be provided and copies of the manifests will be submitted to OCD by mail.

The area with the greatest impacts was on the north side to T-104B along the pipe racks. Below the pipe racks was the lowest point where the liquid released collected and had the heaviest impacts (see photos from 9/4/12). Excavation continued with caution, but was also limited, due to the structures themselves and the risk of undermining the pipe racks and the tanks. When the excavation was backfilled, the contractors were instructed to backfill such that any future releases would flow away from the pipe racks.

Safety and Environmental Solutions, Inc. (SESI) was contacted to consult on the event. They collected soil samples within the excavated area and evaluated results against the NMED Soil Screening Levels to evaluate SESI also produced a report for the event (attached, "SESI T-104B release report") following surface/confirmation sampling results were received. Their conclusion was that minimal subsurface impacts were present and due to the nature of the material, presents minimal risk of migration to groundwater. No further action was recommended.

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:	OIL CONSERVATION DIVISION		
Printed Name: Robert Combs	Approved by District Supervisor:		
Title: Environmental Specialist	Approval Date:	Expiration Date:	
E-mail Address: Robert.Combs@hollyfrontier.com	Conditions of Approval:	Attached ☐	
Date: 5/14/13 Phone: 575-746-5382			

HOLLYFRONTIER
THE HOLLYFRONTIER COMPANIES

RECEIVED OCD
2013 MAY 15 A 10:51

May 15, 2013

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

FEDEX

Re: Final Report for Lovington T-104B Spill June 7, 2012
Navajo Refining Co. LLC
Lovington, NM AP-110

Dear Carl,

Enclosed, please find the enclosed C-141 Final report and supporting documents for the T-104B spill that occurred at the Navajo-Lovington Refinery. If you have any questions concerning this submission, please contact me at 575-746-5382 or by email at Robert.Combs@hollyfrontier.com.

Sincerely,

Robert Combs, Ph.D.
Environmental Specialist

W/out enclosures:
Electronic cc: MWH, MLS, AMS

Env. File Release Reporting\2012\Lovington\2012-06-07 Spill at T-104B\Final Report

Final C-141 Form

Final Report for Lovington T-104B

June 7, 2012

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
Rio Brazos Road, Aztec, NM 87410
ict 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: Navajo Refining Co. LLC	Contact: Robert Combs
Address: 7406 South Main Lovington, N.M.	Telephone No. 575-746-5382
Facility Name: Lovington Plant	Facility Type: Petroleum 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

Latitude _____ **Longitude** _____

NATURE OF RELEASE

Type of Release: Gasoil	Volume of Release: 3,067 barrels	Volume Recovered: 2,956 barrels
Source of Release: T-104A Gasoil tank	Date and Hour of Occurrence: 12/10/2011 ~ 08:30	Date and Hour of Discovery: 12/10/2011 ~ 08:45
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Carl Chavez, OCD Santa Fe (505-476-3490), left a message. Lovington LEPC, left message.	
By Whom? Robert Combs and Micki Schultz	Date and Hour: 6/7/12 at ~07:50 to OCD Santa Fe office. 6/7/12 at ~08: to Lovington LEPC	
W'-s a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. NA	

If a Watercourse was Impacted, Describe Fully.* NA

Describe Cause of Problem and Remedial Action Taken.*

At approximately 23:00 on 6/6/12, satellite communications were interrupted with HEP's (Holly Energy Partners) controls and monitoring systems, which was unknown to the Lovington facility. The interruption shut down the pump that was transferring gasoil from T-104B to the Artesia facility, causing the tank level to increase rapidly since the tank outflow was stopped, but the gasoil rundown to the tank continued for several hours. At approximately 06:00 on 6/7/12, operators at the Lovington refinery discovered that T-104B had overflowed and released 3,067 bbls of gasoil. The gasoil transferred to T-104B was stopped and flow was diverted to T-1206, in addition, the Crude Unit process rate was reduced.

A Process Safety Root Cause Investigation was performed for the event (attached, "Unit 84 06072012 TK 104 B FINAL REPORT 0712201[1]") where a number of causal factors were identified and recommendations for corrective actions were proposed.

Describe Area Affected and Cleanup Action Taken.*

Tank 104B is contained inside a bermed area shared by four other tanks (T-106A, 104A, 103A, 103B, see markup attached to Initial C-141). The gasoil is a very low vapor pressure, viscous liquid that solidifies at temperatures below 85 °F. As the liquid level exceeded the tank capacity, the liquid began to run down the outside of the tank and pool at the base.

Vacuum trucks were utilized to collect to the fluid released and were able to recover 2,956 barrels. The remaining cleanup was addressed by excavation of the impacted area, which produced 564 cubic yards of non-hazardous waste that was transported to a R360 for disposal under an existing waste profile. An electronic file will be provided and copies of the manifests will be submitted to OCD by mail.

The area with the greatest impacts was on the north side to T-104B along the pipe racks. Below the pipe racks was the lowest point where the liquid released collected and had the heaviest impacts (see photos from 9/4/12). Excavation continued with caution, but was also limited, due to the structures themselves and the risk of undermining the pipe racks and the tanks. When the excavation was backfilled, the contractors were instructed to backfill such that any future releases would flow away from the pipe racks.

Safety and Environmental Solutions, Inc. (SESI) was contacted to consult on the event. They collected soil samples within the excavated area and e- -ated results against the NMED Soil Screening Levels to evaluate SESI also produced a report for the event (attached, "SESI T-104B release report") t -ing surface/confirmation sampling results were received. Their conclusion was that minimal subsurface impacts were present and due to the nature of the material, presents minimal risk of migration to groundwater. No further action was recommended.

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:	**OIL CONSERVATION DIVISION**	
Printed Name: Robert Combs	Approved by District Supervisor:	
Title: Environmental Specialist	Approval Date:	Expiration Date:
E-mail Address: Robert.Combs@hollyfrontier.com	Conditions of Approval:	Attached ☐
Date: 5/14/13 Phone: 575-746-5382		

Supporting Documents to Final C-141 Form

Final Report for Lovington T-104B

June 7, 2012

Initial C-141 Form

Final Report for Lovington T-104B

June 7, 2012

District I
1625 N. French Dr., Hobbs, NM 88240
District II
'301 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: Navajo Refining Co. LLC	Contact: Robert Combs
Address: 7406 South Main Lovington, N.M.	Telephone No. 575-746-5382
Facility Name: Lovington Plant	Facility Type: Petroleum 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

Latitude _____ **Longitude** _____

NATURE OF RELEASE

Type of Release: Gasoil	Volume of Release: ~3000 bbls	Volume Recovered: 2956 barrels
Source of Release: T-104A Gasoil tank	Date and Hour of Occurrence: Unknown time on 6/7/12	Date and Hour of Discovery: 6/7/12 ~ 06:00
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Carl Chavez, OCD Santa Fe (505-476-3490), left a message. Lovington LEPC, left message, spoke with Lorenzo Velasquez	
By Whom? Robert Combs and Micki Schultz	Date and Hour: 6/7/12 at ~07:50 to OCD Santa Fe office. 6/7/12 at ~08:30 to Lovington LEPC	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. NA	

If a Watercourse was Impacted, Describe Fully.* NA

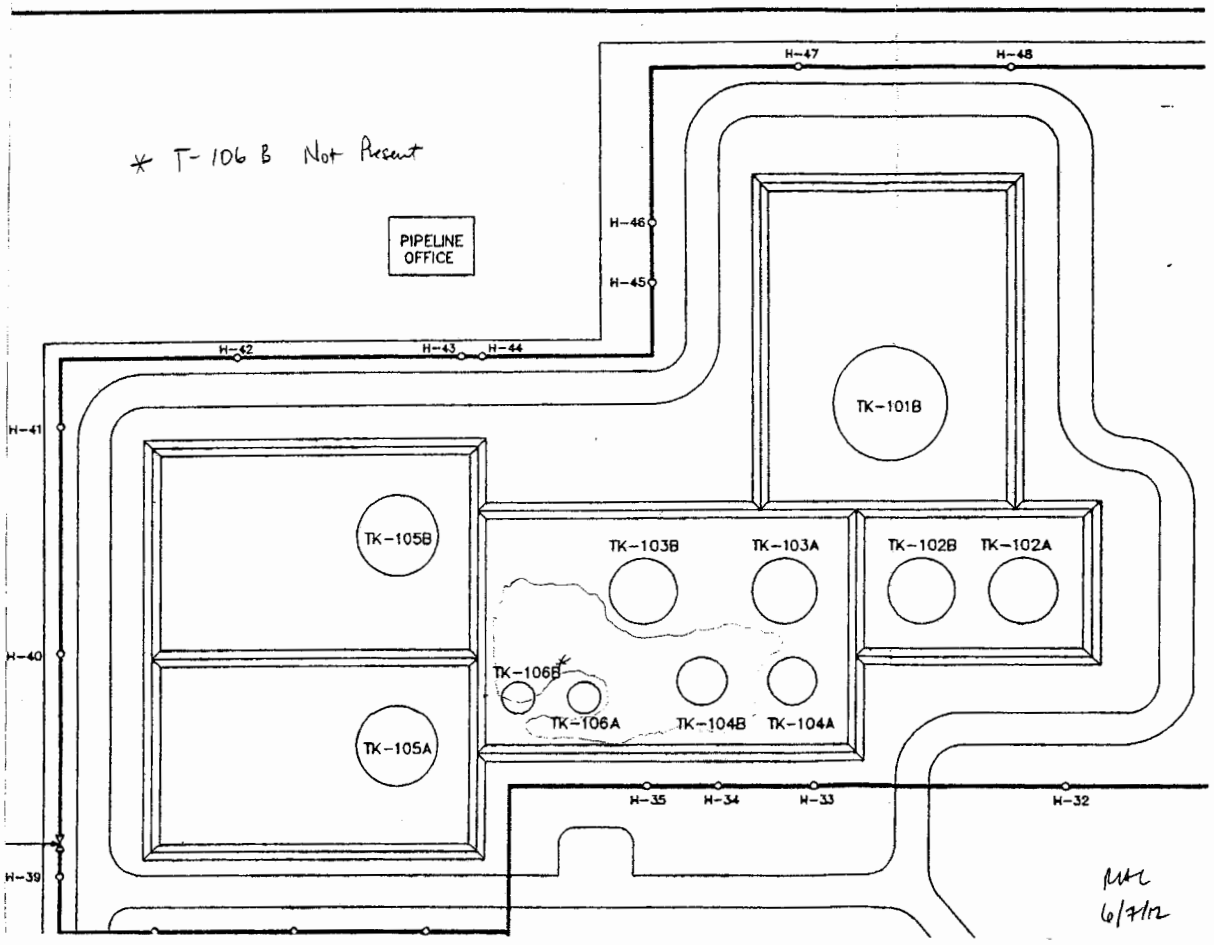
Describe Cause of Problem and Remedial Action Taken.*
At ~23:00 on 6/6/12, satellite communications were interrupted with HEP's (Holly Energy Partners) controls and monitoring systems, whic was unknown to the Lovington facility. The interruption shut down the pump that was transferring gasoil from T-104B to the Artesia facility, causing the tank level to increase rapidly since the tank outflow was stopped, but he gasoil rundown to the tank continued for several hours. At ~06:00 on 6/7/12, operators at the Lovington refinery discovered that T-104B had overflowed and released approximately 3000 bbls of gasoil. The gasoil rundown to T-104B was stopped and flow was diverted to T-1206, in addition, the Crude Unit process rate was reduced.

Describe Area Affected and Cleanup Action Taken.*
The tank is contained inside a bermed area shared by four other tanks (T-106A, 104A, 103A, 103B, see attachment). This is a very low vapor pressure, viscous liquid. As the liquid level exceeded the tank capacity, the liquid began to run down the outside of the tank and pool at the base. Some of the liquid was carried as mist and contaminated soil downwind of the tank, but did not migrate outside of the bermed area. At this point, 2956 barrels of gasoil were recovered and contractors have begun removal of contaminated soil. The waste is being disposed at R360 in Hobbs and eighteen bins (12 cy capacity) have been disposed under a preexisting profile for gasoil contaminated soil.

A Final C-141 will be submitted and will include soil sample analyses, photos, and disposal records.

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:	OIL CONSERVATION DIVISION	
Printed Name: Robert Combs	Approved by District Supervisor:	
Title: Environmental Specialist	Approval Date:	Expiration Date:
ail Address: Robert.Combs@hollyfrontier.com	Conditions of Approval:	Attached ☐
Date: 6/11/12 Phone: 575-746-5382		


* T-106 B Not Present
PIPELINE OFFICE
H-47
H-48
H-46
H-45
H-42
H-43
H-44
H-41
H-40
H-39
H-35
H-34
H-33
H-32
TK-101B
TK-105B
TK-105A
TK-103B
TK-103A
TK-102B
TK-102A
TK-106B
TK-106A
TK-104B
TK-104A
6/7/12

PSM Incident Investigation Final Report

Final Report for Lovington T-104B

June 7, 2012

INCIDENT INVESTIGATION REPORT
Unit 84 LRC Tankage
Tank 104 B AGO Overflow
June 7, 2012

KMS Incident Number: 5075

Investigation Team Leader: *Donna Suter*

Location of Incident (Facility/Process/Equipment):
Lovington, Tank 104B AGO product gas oil

1. *Summary of Incident*

Holly Energy Partners (HEP) suffered a loss of communications on 06 June 2012 @ 2230 hours. This resulted in the shutdown of all pipelines in Artesia and Lovington both inter-refinery as well as inflow and outflow pipelines. The loss of outflow pipelines affected TK-104B which is in gas oil transfer service between Lovington and Artesia. While the outflow of product was lost, the transfer into the tank continued. The tank overflowed at approximately 0215 hours with 3067 barrels of oil overflowing into the containment dike. No personnel were injured or directly exposed to the product as a result of this incident. This incident is considered a Process Safety Tier 1 Incident.

2. *Incident Investigation Team*

The initial investigation and fact gathering started on Thursday, 07 June 2012, @ 0600, with a formal incident investigation team formed on Friday, 08 June 2012. The Lovington Refining Company (LRC) incident investigation team members are listed below:

Ken Hackmann	Process Engineer
Brian Stone	Environmental Specialist
James Hodges	Fire Chief /Safety Specialist
Mike Ford	Maintenance
Urbano Perez	HEP Terminal Supervisor
Donna Suter	Process Safety Management Engineer, Incident Investigation Team Leader

3. *Incident Investigation Methodology*

The Tap Root methodology was used to conduct this investigation. Section 5 elaborates on details associated with the root causes, causal factors and recommendations.

Incident investigation team members interviewed LRC operations personnel and HEP personnel.
List of persons interviewed:
Gary Jordan—A Operator Night Shift
Kevin Crockett—B Operator Night Shift
Britton "Hunter" North- B Operator Day Shift

The information contained in the remainder of this report was derived from interviews, witness statements and documentation. Interviews and the collection of supporting documentation were conducted during the period of June 07-14, 2012.

4. ***Detailed description of the events leading to the incident through timeline***

TANK 104B—		TANK 1206—	
Lea Plant Safe Max Level:	37'2"	Lea Plant Safe Max Level:	44'8"
Navajo Inspection Max Level:	38'2"	Navajo Inspection Max Level:	45'8"
Minimum Level:	2'0"	Minimum Level:	1'6"
Barrels per foot:	378	Barrels per foot:	2048
Service:	Gas Oil	Service:	Gas Oil

Wind out of southwest--away from refinery

06 June 2012

HEP--AGO transfer scheduled sent out on 06/06/2012—Lovington 10 inch line—
SOURCE: Artesia Pumping Schedule

0725 1940 rate Volume 11000
1305 down Volume 4
1705 1940 rate Volume 25000

- ***Transfer is made with majority of rate from TK 1206 and makeup from TK 104 B. At the time of transfer, flow is going into TK 104B from TK 1206 and also going out of TK 104B mixing with TK 1206 flow to pipeline.***

1242-1800 TK 104B level 31.7 indicating AGO transfer had stopped --- *SOURCE: LRC PhD data*

1300

HEP planned shutdown on satellite system for testing data circuits into backup control center
SOURCE: Artesia Pumping Schedule and interviews

- LRC control room was aware of planned shutdown.
- Mode of operation at time of shutdown was AGO transfer from TK 1206 to TK 104B and out to pipeline

TK 104B level 31.7 indicating transfer had stopped --- *SOURCE: LRC PhD data*

- One level probe 84LI104B (LRC maintains)
- HEP has signal from level indication on level probe back to control center on Wonderware. When pipeline communications are normal, HEP control center can see tank levels as well as audible and visual high level alarms.
- LRC has signal from same level indication on level probe back to DCS--84LI104B. LRC has visual tank level indication on DCS and on Tankmaster.
- Visual Tankmaster high level alarm is in place
- No DCS high level visual or audible alarms are in place.
- No audible Tankmaster high level alarm in place.
- Tankmaster system has been unreliable and not user friendly.

1800-1830
Satellite system back on-line
System resumes AGO transfer where transfer was stopped.

- LRC control room was not communicated to that system was back on-line
- It is not a common practice for HEP to contact LRC when a transfer begins or ends

1911
Level in TK-104B starts increasing indicating AGO transfer started again-- *SOURCE: LRC PhD data*

1930
HEP control center operator calls NRC Artesia blender to have him help with the startup of the 6" El Paso line

2230
T K104B level -28.7 *SOURCE: LRC PhD data*
HEP Denver communications shutdown--hail storm hit- SOURCE: HEP e-mails

- HEP Empire 10" pipeline to Artesia pump automatically shutdown after two minutes without communication--MOV at HEP pump station closes *SOURCE: JD Fanning written summary and U Perez verbal*
- HEP Control Center Operator attempted to close MOV at TK 104B but lost communication. Valve did not close.
- MOV control valve to/from TK-104B is operated by HEP--AGO transfer valve
- In a power failure, MOV will hold its last state. It has to receive an open or close command to operate.

HEP Operator is required to call all customers when communications failure occurs per procedure.

- No call from HEP to LRC telling them communications were down

NRC Artesia Blender called HEP to find out why blenders were down—no answer at HEP

- HEP control operator called NRC Artesia Blender from his personal phone to tell him all communications were down.
- No call from NRC Artesia Blender to LRC Control room because HEP did not indicate all lines were down and because it has not been a requirement to communicate with Lovington on transfers.

06/07/2012
00:00
TK104B level 31'8"- *SOURCE: LRC PhD data*

- Night relief operator gauged water in tanks--TK 104B 30' 1/4" Nightly routine--Tank farm normal *SOURCE: Witness Statement*

LRC C operator made rounds around tank *SOURCE: Witness Statement and interviews*

- Routine is to visually gauge product in tanks reading Varec and Radar
- The midnight tank gauging is the last time operations makes rounds in south tank farm.

0100 TK104B level 34'6"- *SOURCE: LRC PhD data*

Operator caught asphalt sample at TK-105. No problems with tankage. *SOURCE: Witness Statement*

0200 TK104B level 37'6"- *SOURCE: LRC PhD data*

0215 TK104B level 38'3"-*SOURCE: LRC PhD data*

- Navajo Inspection Max Level: 38'2"

0215-220

EVENT---- TK-104B starts overflowing through holes in roof and roof vent

- No audible high level alarms on TK-104B on Tankmaster or DCS
- LRC tankmaster --red error indication on Tankmaster but not seen by operator

0415

HEP gathering superintendent received call from HEP control center telling him they were in "Com Fail" indicated no problems with systems- *SOURCE: Pipeline, Terminal, Crude Gathering Superintendent Statement*

- HEP control center had no communications therefore notank levels or pipeline valve positions could be seen.

0530

LRC Personnel arriving for 0600 shift change. Total of 8 persons.
HEP Personnel arriving for 0600 shift change

0534

HEP Terminal Operator notified HEP Gathering Superintendent that pipeline control called him to close MOV#10 (valve on Mapco line HEP receives Iso Butane, Normal Butane, and Casing Head). Superintendent told him where and how to close valve and he did. *SOURCE: Pipeline, Terminal, Crude Gathering Superintendent Statement*

- LRC Night crew had no knowledge of high level in tank or tank had run over

0546

Day shift HEP Pipeline Control Operator noticed MOV for AGO transfer was blue on DCS screen which means it is in travel –OPEN

- HEP Pipeline Control Operator called Terminal Operator to check AGO transfer valve because they were in AGO transfer when pipeline went down on COMP FAIL and they didn't know if valve had closed.

HEP Terminal Operator found TK-104B overflowing and notified HEP Gathering Superintendent.

- HEP gathering superintendent told terminal operator how to stop flow to TK 104 B and told terminal operator to call LRC control room. *SOURCE: Pipeline, Terminal, Crude Gathering Superintendent Statement*

0550

HEP terminal operator called LRC control room to tell them to shutdown transfer pump P-1233 to stop flow from TK 1206 to TK104B because tank was running over.

IMMEDIATE CORRECTIVE ACTIONS

LRC A operator immediately went to tank farm and shut off transfer pump P-1233 and blocked in discharge valve stopping transfer from TK1206 to TK104B.

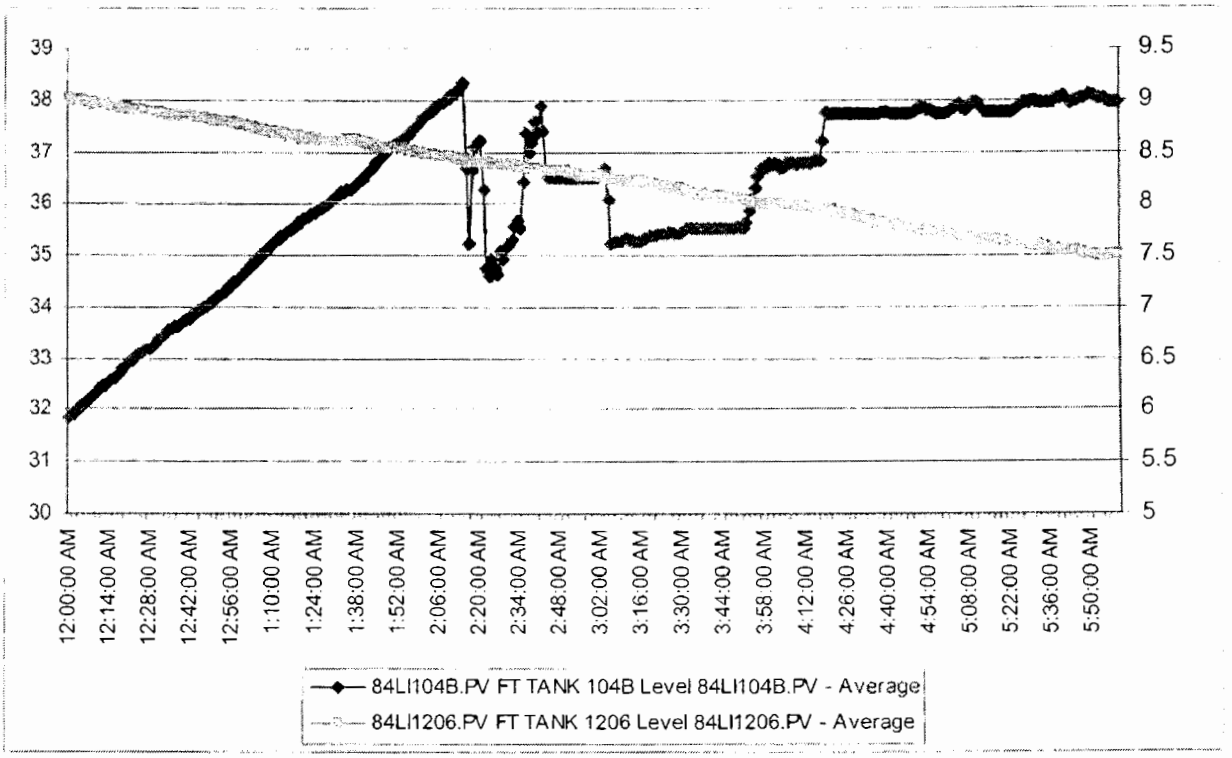
- Pump is located downstream of TK 1206 feeding TK-104B. LRC operates this pump and discharge valve. LRC pump at TK-1206 is always on circulation--LRC maintains pump.

1305

HEP gathering superintendent went to the Empire 10" VFD building and manipulated the AGO transfer valve on Tk 104B to the closed position.

LRC Management developed spill cleanup procedure in detail for TK-104B spill

1300 HEP Satellite Stratus back up



5. ***Findings and Recommendations***

The investigation team has identified the causal factors and root causes that led to the incident.

CAUSAL FACTOR 1

HEP Control center operator failed to contact LRC control room to inform them that HEP communication system went down in the middle of a AGO transfer.

Root Cause: Individual Performance—Procedures not followed

HEP is conducting their own investigation to determine mitigation measures to ensure this event does not happen again.

CAUSAL FACTOR 2-

No clear expectations of tank level monitoring and communications conveyed to blenders/operators.

Root Cause: Human Performance Difficulty-Management System-No Standards, Policies or Administrative Controls in place

RECOMMENDATION 1: Navajo management personnel (NRC/LRC) to develop an integrated communications plan for future pipeline status communication in the event of an outage. Train responsible blenders, operators and shift foreman.

Responsible Person: Robert Boans, Eloy Hernandez, David Latham, Charlie Ebarb

Date to be completed: 06/30/2012

RECOMMENDATION 2: Navajo management personnel (NRC/LRC) to establish clear expectations of tank level monitoring and communications. Convey expectations to responsible blenders, operators and shift foreman.

Responsible Person: Robert Boans, Eloy Hernandez, David Latham, Charlie Ebarb

Date to be completed: 09/30/2012

CAUSAL FACTOR 3-

LRC Tankmaster level audible alarms not working properly and no visual and audible alarms set up in the DCS.

Root Cause: Equipment difficulty-Tolerable failure (see Causal factor/root cause 2 above)

No priority had been put on completing the Tankmaster audible alarms or DCS visual or audible alarms because the operators rely on HEP to contact them if tank levels reach high levels.

- In the last month, Tank 101B Naphtha and TK 104A Kero have both had high levels where HEP had to contact LRC during transfers because HEP received a high level alarm at the Artesia control center. *SOURCE: Interviews*

RECOMMENDATION 3: Configure TK 104 B MOV to fail closed. In the event of a pipeline communication failure that the MOV travel to the closed position or remain closed.
Responsible Person: Urbano Perez/Eloy Hernandez
Date to be completed: 08/31/2012

RECOMMENDATION 4: Install audible tank level alarms in Tankmaster and configure audible and visual alarms on DCS for all tank farm tanks.

Responsible Person: Vaughn Klontz
Date to be completed: 09/30/2012

Additional Findings: There is a disconnect between HEP and LRC personnel about TK-104B operations regarding fill levels in preparation for transfers, level alarm set points, instrumentation, etc.

RECOMMENDATION 5: Evaluate the AGO transfer starting volume in TK-104B to determine a maximum fill level that is appropriate for maintaining the integrity of the tank and to provide an adequate response time from LRC in the event of an equipment or transfer malfunction. As a part of this evaluation, consider installing an alarm to the LRC DCS which alarms when a rate of volume increases at some increment to be determined by engineering and operations.
Responsible Person: Ken Hackmann and Eloy Hernandez
Date to be completed: 09/30/2012

RECOMMENDATION 6: Evaluate larger alternative tank(s) already in the tank farm to replace TK-104B for AGO transfer.
Responsible Person: Ken Hackmann and Eloy Hernandez
Date to be completed: 09/30/2012

RECOMMENDATION 7: Consider installing separate with a high high level alarm on TK-104B with automatic valve shutoff (MOV) at TK-1206 to stop flow to TK-104B.
Responsible Person: Ken Hackmann and Eloy Hernandez
Date to be completed: 09/30/2012

6. *THREE YEAR HISTORY OF SIMILAR INCIDENTS*

After an evaluation of the events and releases over the last three years, two events were similar with a tank overflowing.

Lovington – Operations filling
7/26/2009 1400
INC - 733 Tank 1214 Overflowed and Spilled Gas Oil (~33 Bbls) Onto Ground
At ~03:31 on 07/26/2009, Tank TK-1214 over-filled. Estimation of spill is as much as 25 bbls of gas-oil. Tank 1214 is normally a slop tank, but because of the problems this week in Artesia, they had emptied the slop out of the tank and were using it for additional gas-oil storage.

The tank chart listed the tank over-fill height as 39 ft, but the actual overfill level is closer to 38 ft 6 inches. The operators were concerned about the level, so they stopped filling the tank when the radar gauge read 38 ft 4 inches. When the operators went to do a hand-line tank measurement to verify the level, they discovered that it had overflowed. The actual level in the tank was 38 ft 6 inches.
No recommendations

Artesia – HEP transfer
10/30/2009 12:45
INC - 805 Tank 1225 Crude Oil Overfilled Spilled - 2 Cups Crude onto ground
1225 Tank, Crude Tank, ran over. Approximately 2 cups of crude hit the ground. BPL and Operations personnel were at the tank trying to get the water pump going when the Operations Manager came to us and told us the tank was running over. He then made some phone calls to Pipeline to get them to shut down everything that might be going to the tank. The gauge was showing 33'-2" and the digital gauge was at 33'-9". The information we had on tank levels showed 34'-6" as max fill and it overflowed at 35'-0".
3 Recommendations. All completed.
R2009061-001- Lower operating high level alarm on TK 1225 on DCS to 30'.
COMMENTS: Complete.

R2009061-002 - Evaluate and correct the discrepancy between Tk 1225 overflow level and previous strapping calculations. COMMENTS: Manually strapped tank on 11/05/09, overflow heights at 35'-3", exactly as per fabrication drawings. Drawings in inspection 1225TK file.

R2009063-001 Calibrate level indicators on TK 1225 to ensure accuracy.
COMMENTS: Level checked and was OK.

Unit 84 LRC Tankage
Tank 104 B AGO Overflow

6. *Incident Investigation Team Sign-Off*

Ken Hackmann
Process Engineer

7-26-12
Date

BM STONE
Brian Stone
Environmental Specialist

7/26/12
Date

James Hodges
Fire Chief /Safety Specialist

7-23-12
Date

Mike Ford
LRC Maintenance

7-18-12
Date

Urbano Perez
HEP Terminal Supervisor

07/18/12
Date

Donna Suter
Process Safety Management Engineer

7/12/12
Date

Unit 84 LRC Tankage
Tank 104 B AGO Overflow

7. LRC INCIDENT INVESTIGATION REPORT SUPERVISORY APPROVAL

Michael McKee
Refinery Manager

26 July 2012
Date

Bill Welch
Operations Manager

7-23-12
Date

Steve Hollis
Safety Manager

7/16/2012
Date

Donna Suter
Investigation Team Leader

7/16/2012
Date

Letter Report—Tank 104B GasOil Release

Prepared by Safety and Environmental Solutions, Inc. (SESI)

Final Report for Lovington T-104B

June 7, 2012

P.O. Box 1613
703 E. Clinton
Hobbs, New Mexico 88240
575/397-0510
FAX 575/393-4388
www.sesi-nm.com

Safety & Environmental Solutions, Inc.

October 30, 2012

. Robert Combs, Ph.D
Environmental Specialist
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211-0159

RE: Report of Investigation, Tank 104B GasOil Release, June 7, 2012, Navajo Lea Refinery, Lovington, New Mexico.

Dear Mr. Combs:

This letter report presents the results of a limited investigation conducted by Safety and Environmental Solutions in response to a gasoil release from Tank 104B at the Lea Refinery. The investigation involved the collection of soil samples, review of gas oil properties, and evaluation of near-surface lithology at the location to support a conclusion of no impact to groundwater, now or in the future.

Background

Due to an electronic communications interruption at 23:00 on June 6, 2012, a pump, which transfers gasoil from Tank 104B at the Lovington facility to the pipeline to the Artesia refinery, shut down. However, gasoil from the Lea process area continued flowing to the tank for several hours resulting in overtopping which was discovered at 06:00 on the morning of June 7. At the time of discovery, an estimated 3,000 barrels of gasoil had been released. The release was entirely contained within the bermed area surrounding this tank and several adjacent tanks. The release was reported to the NM Oil Conservation Division (OCD) Santa Fe office at approximately 07:50 June 7. An estimated 2,956 barrels of gasoil were recovered with the remaining gasoil in surface gravel and soil inside the berm. The attached C-141 provides details of the release, Navajo's initial response and a sketch of the impacted area.

At the request of Navajo, Safety and Environmental Solutions (SESI) responded to the location on June 20 to discuss the release with Navajo Staff, take photographs, and provide information regarding site lithological composition. On June 21 SESI returned to meet with Hobbs OCD representative Geoff Leking. Photographs from the June 20 and subsequent visits are provided in the attachment.

Subsequently, Navajo provided a MSDS for GasOil which shows it to be a heavy, high viscosity hydrocarbon with high paraffin content, a flashpoint in excess of 200°F, a boiling point in excess of 350°F, and negligible solubility in groundwater. It is stable and non-reactive at ambient temperatures. Further information from Navajo shows the product to have a pour-point of 85°F. The pour-point is the lowest temperature at which it becomes semi-solid and loses its flow characteristics. The latter property is especially important as the material becomes immobile in the subsurface once near-surface temperatures decrease below the pour point.

Lithologic Information

SESI previously performed subsurface investigations at the facility including installation of new monitoring wells. The most recent work in the vicinity of the release occurred in May 2010 with the installation of new monitor wells MW-20 and MW-21 (boring logs attached). Near surface lithology is dominated by caliche with hard, well cemented caliche from the surface to 2 to 5 feet. Softer caliche intermixed with sand and silty sand/sandy silt is found from the base of the hard caliche to a depth of 10 to 15 feet below which fine-grained sands and poorly cemented sandstone predominate.

Work Performed

SESI returned to the location on July 16 to obtain soil samples from inside the bermed area. Prior to arrival Navajo had worked to recover contaminated soil material for stockpiling before disposal. The remaining non-excavated material collected for analysis was mainly a thin layer of soil over hard stained caliche (See sampling photolog). A composite sample was collected by a Navajo representative on August 1. On August 14 samples were collected by SESI from an open excavation where a collection sump for water drained from tank rooftops was being constructed. The results of these three sets of samples are discussed below.

Sample ID (07/16/12)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	T. Xylenes (mg/kg)	GRO (mg/kg)	ORO (mg/kg)	ExtDRO (mg/kg)
SS-1	<0.050	<0.050	<0.050	<0.150	<50.0	8,750	5,750
SS-2	<0.050	<0.050	<0.050	<0.150	<50.0	11,500	7,410
SS-3	<0.050	<0.050	<0.050	<0.150	<50.0	13,900	10,200
SS-4	0.530	6.01	6.35	10.9	323	32,800	23,100
Composite (08/01/12)							
TK 104B soil	<0.0050	<0.0050	<0.0050	<0.015	--	--	--
Excavation (08/14/12)							
2ft. BGS	<0.050	<0.050	<0.050	<0.150	<10.0	50.8	<10.0
4ft. BGS	<0.050	<0.050	<0.050	<0.150	<10.0	219	<10.0

Table notes:
Samples (except composite 08/01/12) analyzed by Cardinal Laboratories, Hobbs, NM. BTEX by EPA SW-846 method 8021B, TPH by 8015M.
Analysis range: GO C6- C10, ORO >C10- C28, Ext ORO >C28- C35
Composite 08/01/12 analyzed by ALS Environmental, Houston, Texas

Comparison with NM ED Soil Screening levels

With the exception of SS-4, BTEX volatiles were not detected in either July or August samples. This sample was compared with the Environment Department's soil screening levels* for a determination as to risk for industrial/commercial and construction worker exposure, and risk-based SSL in groundwater for a dilution-attenuation factor (DAF) of 20. The residential scenario was not considered given continued use as an industrial facility for the foreseeable future.

* NM Environment Department Risk Assessment Guidance for Site Investigations and Remediation, June 2012

SS-4 Sample Results	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	T. Xylenes (mg/kg)
Concentration:	0.530	6.01	6.35	10.9
Industrial/ Occupational soil	84.7	57,700	378	3,980
Construction Worker Soil	138	13,400	1,830	743
Groundwater Risk-based SSL (DAF 20)	0.0345	25.3	0.260	3.13

The detection of benzene in SS-4 is two orders of magnitude lower than the NM Environment Department Soil Screening levels for Industrial/Occupational and Construction worker categories. Similar results are seen for the other BTEX constituents. The Groundwater Risk-based SSL is shown for completeness, but the comparison is irrelevant as the assumptions for use of this SSL (discussed below) are not met at this location and under these circumstances.

As described in the guidance, some model assumptions include:

1. An infinite source (i.e. a constant concentration is maintained for the duration of the exposure period);

2. Contamination is uniformly distributed from the surface to the water table;

3. There is no attenuation to the contaminate in the soil or the aquifer (i.e. irreversible adsorption, chemical transformation or biological degradation); and

4. NAPL's are not present.

Attenuation is accounted for in the model using the DAF of 20. There are other assumptions discussed for use of the model, however, the ones presented above are most relevant. In the model discussion, the NMED states that use of a DAF of 20 is most appropriate in areas close to perennial streams or where groundwater is very shallow. Neither condition exists at the Lovington Refinery where groundwater depths are near or exceed 100 feet. In addition, the spill was of limited extent, liquids quickly removed and remaining gasoil solidified quickly (as discussed further below.)

In summary the circumstances of the spill and the fact that model assumptions are not met at the release location make use of the ground-water risk SSL's inappropriate.

Pour Point Significance

As mentioned above, the Pour Point of Lea Refinery gas oil is 85°F. At temperatures lower than that it becomes a semi-solid much like soft candle wax. At temperatures above that it will be mobile in the shallow soil zone until the temperature drops below the pour point. On hot summer days there can be some infiltration until the oil temperature declines to the pour point, likely at depth between 6 and 20 inches.

Various soil studies have shown the mean annual soil temperature is rather closely related to mean annual air temperature. Below 20 inches, soil temperature seldom changes and can be

approximated by adding 2°F to the mean annual air temperature. The mean annual air temperature for Lovington (1919-1967) is 59.9°F. Thus at 20 inches the mean soil temperature is approximately 62°F.

Further, groundwater temperature measurements for MW-21, located 250 feet north of Tank 1048, confirm subsurface temperatures also well below the pour point. Groundwater averaged 72°F for two samples collected in late January and mid-July 2012. Groundwater depth at that location is about 96 feet below land surface.

Conclusions

The release of approximately 3,000 barrels of gasoil with recovery of all but an estimated 44 barrels has resulted in minimal impact to the subsurface environment except for soil and fill material above the zone of well cemented caliche located immediately below the surface. As seen in the soil sample photos, penetration has not occurred into the caliche (with the possible exception of small fractures) and calculation of subsurface soil temperatures below 20 inches show temperatures to be below the measured pour point. In addition to solidification due to decreasing temperature with depth, the lithology in the top 15 feet of the subsurface has poor permeability and is not conducive to vertical movement of fluids, especially high viscosity liquids of the type released here.

Remaining cleanup in any areas where the material was not previously been removed was completed in late October. Therefore, no further action is necessary or recommended.

If you have any questions regarding the report, please contact me at (575) 397-0510.

Sincerely yours,

David G. Boyer, P.G.

Encl. (Figures, photo logs, analytical results, monitoring well logs)

GasOil Tank 104B Overtop, June 7, 2012
Navajo Lea Refinery, Lovington, NM

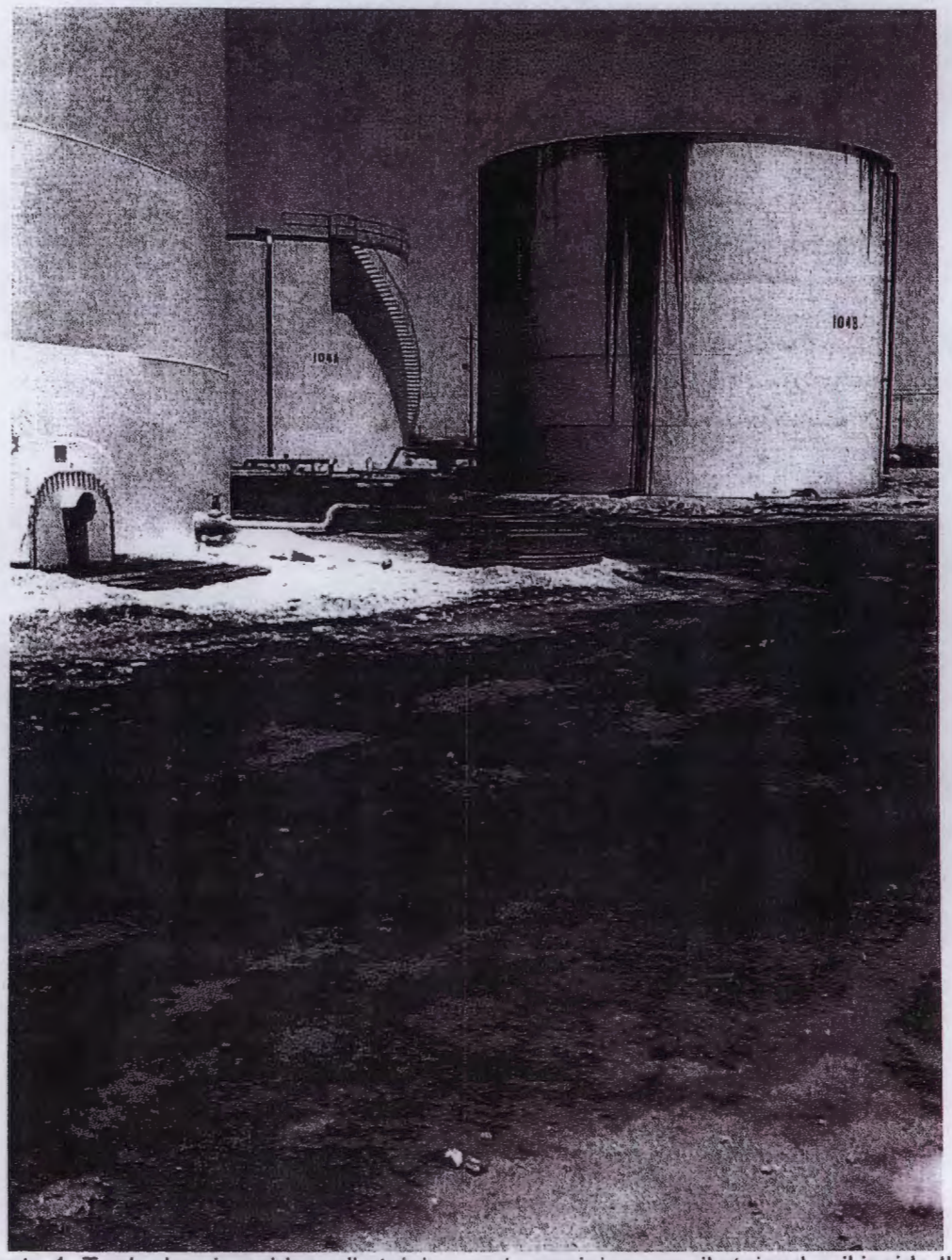


Photo 1. Tank showing side wall staining and remaining gasoil stained soil inside the tank berm. Hydrocarbon saturated soil has been removed in foreground. June 20, 2012

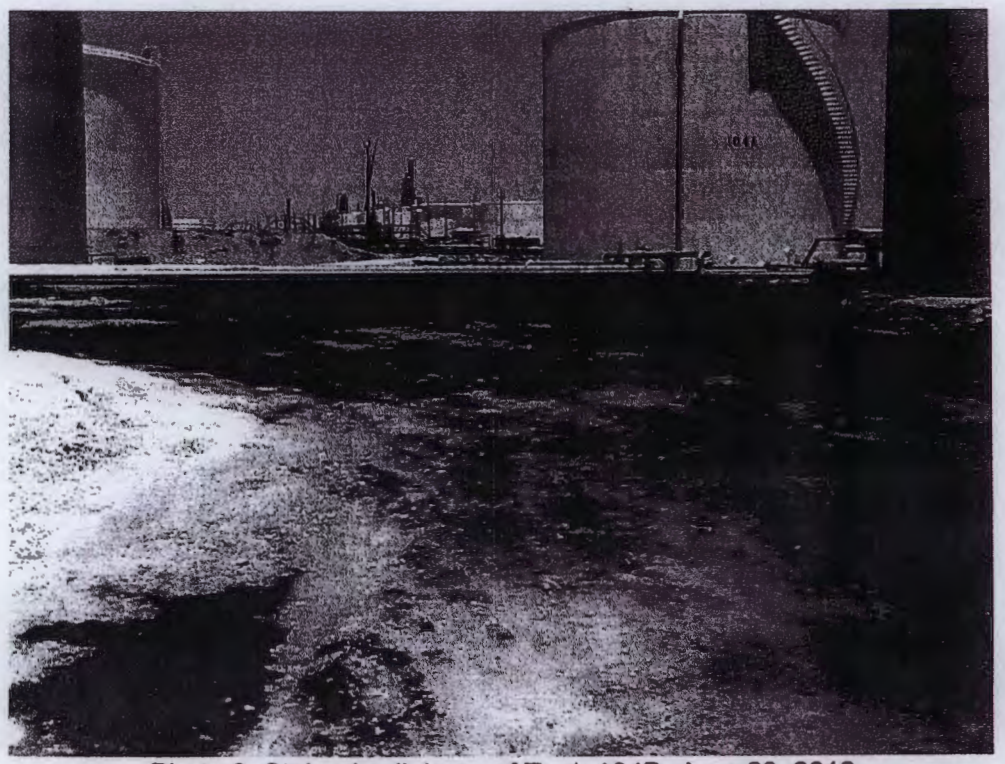


Photo 2. Stained soil, base of Tank 104B, June 20, 2012



Photo 3. Stained soil, base of Tank 104B, June 20, 2012

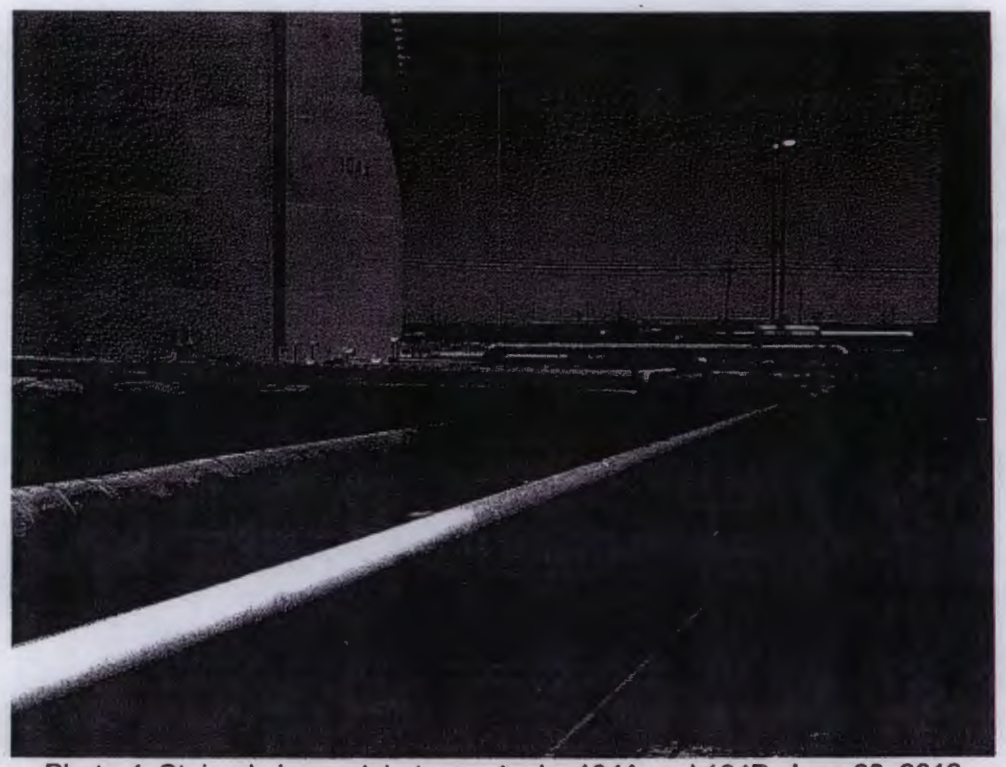


Photo 4. Stained pipe rack between tanks 104A and 104B, June 20. 2012

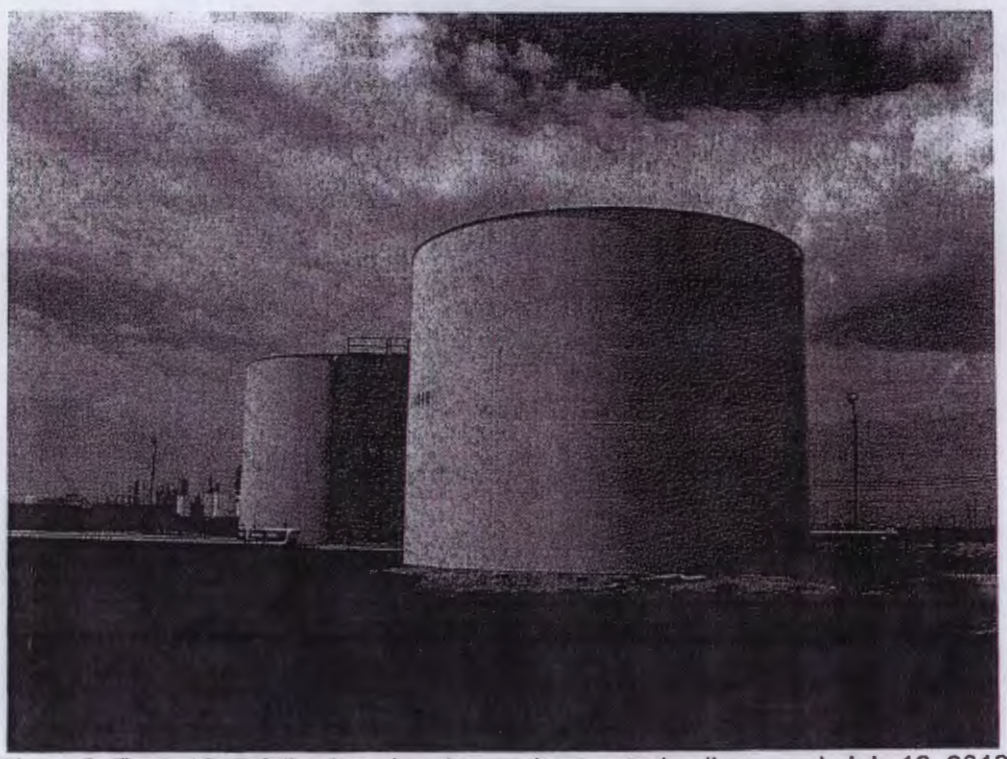


Photo 5. Tank 104B following cleaning and saturated soil removal, July 16, 2012

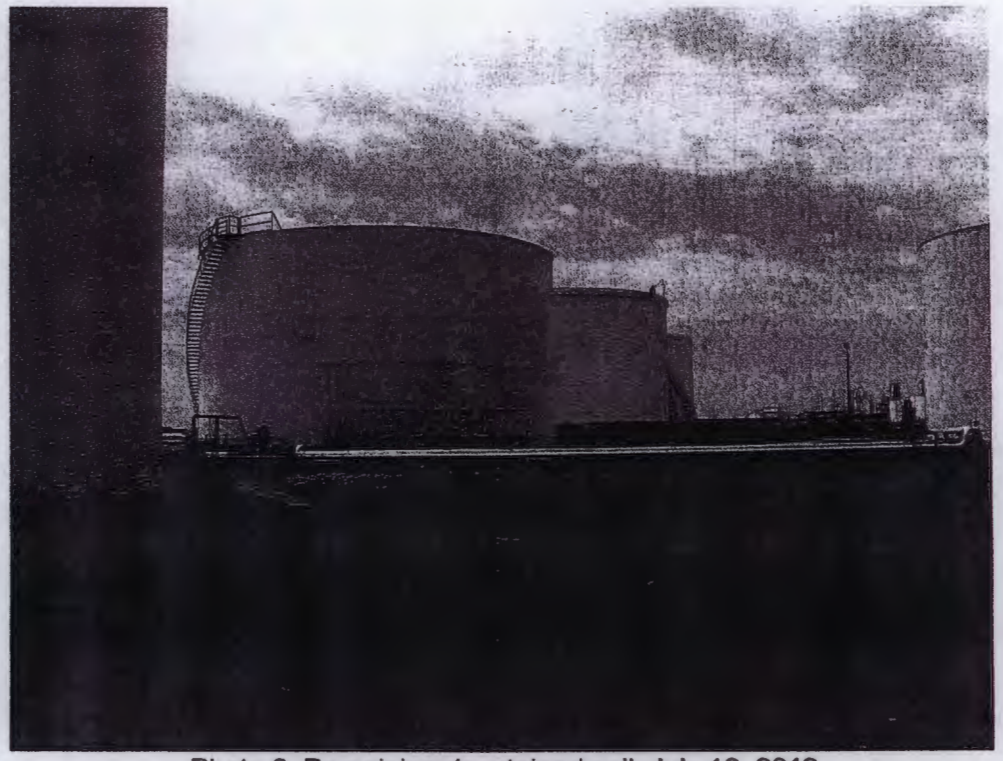


Photo 6. Remaining dry stained soil, July 16, 2012



Photo 7. Excavation for tank roof drain collection sump showing maximum penetration of gasoil into cemented caliche, August 2, 2012

Soil Sampling Locations
GasOil Tank 104B Overtop, June 7, 2012
Navajo Lea Refinery, Lovington, NM

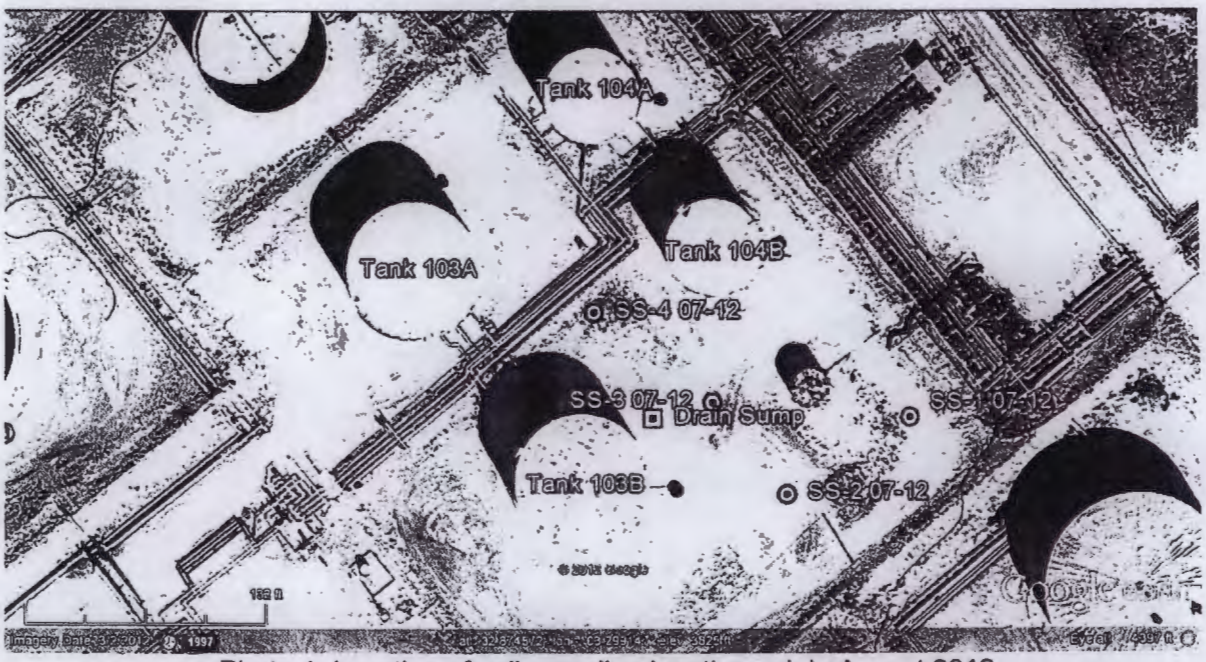


Photo 1. Location of soil sampling locations, July-August 2012



Photo 2. Location of soil sample SS-1, July 16, 2012



Photo 3. Location of SS-2 with sample of well cemented caliche rock, July 16, 2012



Photo 4. Location of SS-3. Caliche rock present immediately beneath thin soil layer, July 16, 2012



Photo 5. Location of SS-4. Caliche rock present immediately beneath thin soil layer, July 16, 2012



Photo 6. Location for SS-5. No sample, caliche rock at surface, July 16, 2012



Photo 7. Excavation for tank roof drain collection sump showing maximum penetration of gasoil into cemented caliche, August 2, 2012



Photo 8. Location of west wall soil samples, tank drain collection sump, 2 and 4 feet below surface, August 14, 2012

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Navajo Refining Co. LLC	Contact: Robert Combs
Address: 7406 South Main Lovington, N.M.	Telephone No. 575-746-5382
Facility Name: Lovington Plant	Facility Type: Petroleum 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

Latitude _____ **Longitude** _____

NATURE OF RELEASE

Type of Release: Gasoil	Volume of Release: ~3000 bbls	Volume Recovered: 2956 barrels
Source of Release: T-104A Gasoil tank	Date and Hour of Occurrence: Unknown time on 6/7/12	Date and Hour of Discovery: 6/7/12 ~ 06:00 .
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Carl Chavez, OCD Santa Fe (505-476-3490), left a message. Lovington LEPC, left message, spoke with Lorenzo Velasquez	
By Whom? Robert Combs and Micki Schultz	Date and Hour: 6/7/12 at ~07:50 to OCD Santa Fe office. 6/7/12 at ~08:30 to Lovington LEPC	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. NA	

If a Watercourse was Impacted, Describe Fully.* NA

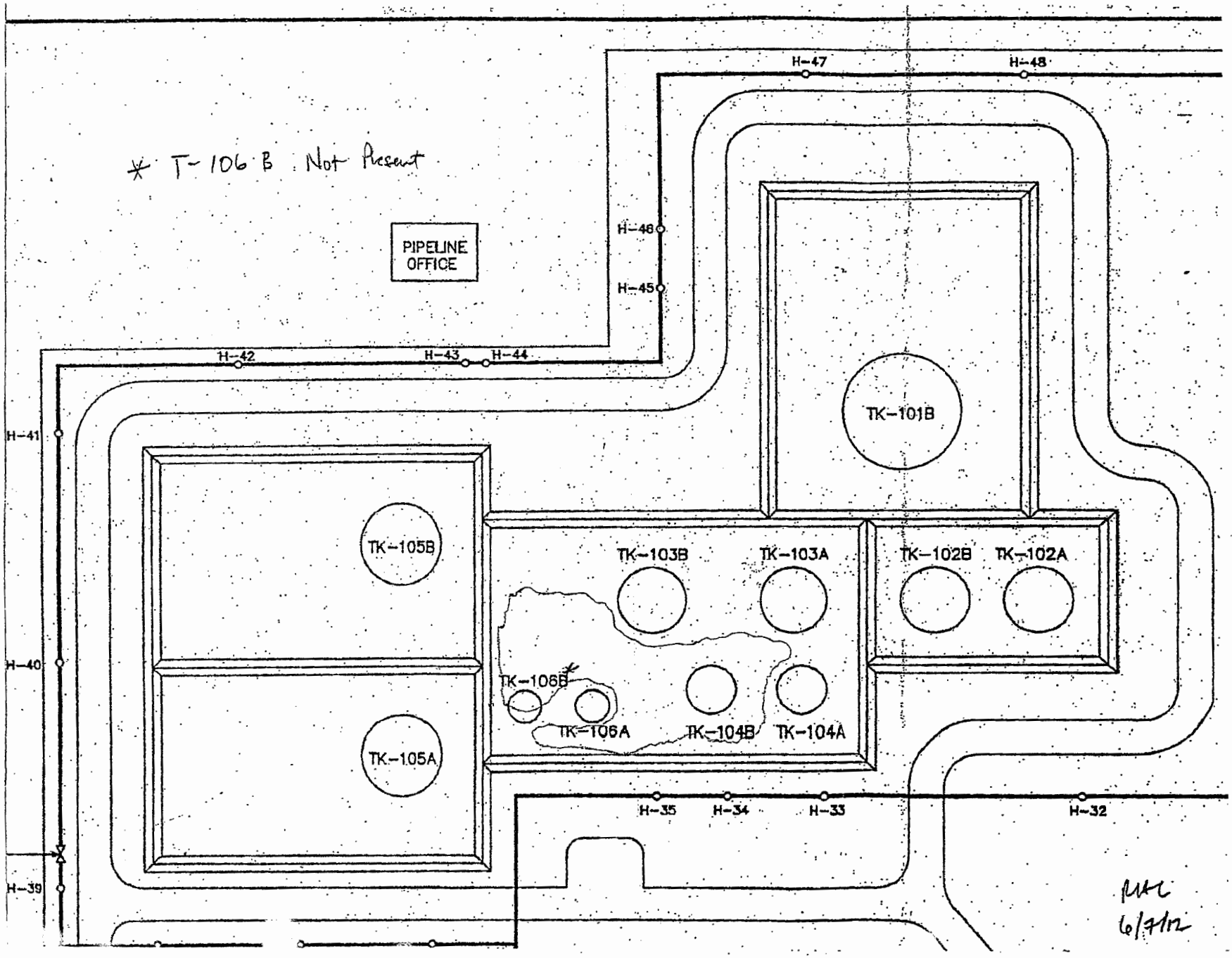
Describe Cause of Problem and Remedial Action Taken.*
At ~23:00 on 6/6/12, satellite communications were interrupted with HEP's (Holly Energy Partners) controls and monitoring systems, whic was unknown to the Lovington facility. The interruption shut down the pump that was transferring gasoil from T-104B to the Artesia facility, causing the tank level to increase rapidly since the tank outflow was stopped, but he gasoil rundown to the tank continued for several hours. At ~06:00 on 6/7/12, operators at the Lovington refinery discovered that T-104B had overflowed and released approximately 3000 bbls of gasoil. The gasoil rundown to T-104B was stopped and flow was diverted to T-1206, in addition, the Crude Unit process rate was reduced.

Describe Area Affected and Cleanup Action Taken.*
The tank is contained inside a bermed area shared by four other tanks (T-106A, 104A, 103A, 103B, see attachment). This is a very low vapor pressure, viscous liquid. As the liquid level exceeded the tank capacity, the liquid began to run down the outside of the tank and pool at the base. Some of the liquid was carried as mist and contaminated soil downwind of the tank, but did not migrate outside of the bermed area. At this point, 2956 barrels of gasoil were recovered and contractors have begun removal of contaminated soil. The waste is being disposed at R360 in Hobbs and eighteen bins (12 cy capacity) have been disposed under a preexisting profile for gasoil contaminated soil.

A Final C-141 will be submitted and will include soil sample analyses, photos, and disposal records.

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:	OIL CONSERVATION DIVISION	
Printed Name: Robert Combs	Approved by District Supervisor:	
Title: Environmental Specialist	Approval Date:	Expiration Date:
E-mail Address: Robert.Combs@hollyfrontier.com	Conditions of Approval:	Attached ☐
Date: 6/11/12 Phone: 575-746-5382		


* T-106 B Not Present
PIPELINE OFFICE
H-47
H-48
H-46
H-45
H-42
H-43
H-44
H-41
H-40
H-39
H-35
H-34
H-33
H-32
TK-101B
TK-105B
TK-105A
TK-103B
TK-103A
TK-102B
TK-102A
TK-106B
TK-106A
TK-104B
TK-104A
6/7/12

HOLLYFRONTIER
NAVAJO REFINING COMPANY, LLC

MATERIAL SAFETY DATA SHEET - GAS OIL

SECTION 1 - PRODUCT and COMPANY IDENTIFICATION

MANUFACTURER:

NAVAJO REFINING COMPANY, LLC
PO BOX 159
ARTESIA, NM 88211-0159

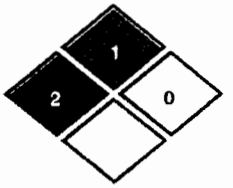
CONTACT INFORMATION:

Main Telephone – (575) 748-3311
Safety Department – (575) 365-8364 (24 Hours)
Environmental Department – (575) 365-8365 (24 Hours)

EMERGENCY PHONE NUMBERS:

CHEMTREC: 1-800-424-9300 (for fire, spill and emergency response information)
New Mexico Poison Information Center: 1-800-432-6866
Texas (El Paso) Poison Information Center: (915) 533-1244
Arizona Poison Information Center: 1-800-362-0101 or (602) 253-3334

PRODUCT NAME: Gas Oil
CAS NUMBER: 68783-08-4
CHEMICAL FAMILY: Petroleum Hydrocarbon
FORMULA: Mixture
SYNONYMS: FCC Feed Stock, VGO, Flasher Gas Oil, AGO, Light Vacuum Gas Oil, LVGO, Heavy Vacuum Gas Oil, HVGO



NFPA 704 (SECTION 16)

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS			OSHA LIMITS (TWA)		NIOSH LIMITS (TWA)			ACGIH LIMITS (TWA)	
COMPONENTS	VOL %	CAS NO.	PEL	STEL	REL	STEL	IDLH	TLV	STEL
Gas Oil Containing	100%	68783-08-4	NE	NE	NE	NE	NE	NE	NE
Vacuum Distillate	40%	70592-78-8	NE	NE	NE	NE	NE	NE	NE

OTHER INGREDIENT INFORMATION: Gas Oil may contain traces of sulfur. **NE** designates Not Established.

SECTION 3 - PHYSICAL DATA

BOILING POINT: 350° – 1000°F
VAPOR PRESSURE: <1.0 mmHg @20°C
VAPOR DENSITY (AIR=1): N/A
SOLUBILITY IN WATER: Negligible
ODOR THRESHOLD: N/A
SPECIFIC GRAVITY (WATER=1): 0.914 – 0.928
% VOLATILE BY VOLUME: 0%
EVAPORATION RATE: N/A
AUTOIGNITION TEMP: 505°F*
APPEARANCE AND ODOR: Dark brown liquid with a hydrocarbon odor.
*Data for Fuel Oil #4.

GAS OIL

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

CLASSIFICATION: Class IIIB
FLASH POINT: >200°F
FLAMMABLE LIMITS: LEL = 1.0%* UEL = 5.0%*
EXTINGUISHING MEDIA: Dry chemical (Class B fire extinguisher), carbon dioxide (CO_2), water spray or foam
SPECIAL FIRE FIGHTING PROCEDURES: Move container from fire area, if possible. Use water to keep fire-exposed containers cool. Use foam for spill control.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Evacuate a radius of 1500 feet for uncontrolled fires. Vapors are heavier than air and may travel great distances and flash back. Extinguish only if flow can be stopped.
*Data for Fuel Oil No. 4.

NFPA FIRE = 1 (low)

SECTION 5 - REACTIVITY DATA

STABILITY: Stable
HAZARDOUS POLYMERIZATION: Will not occur
CONDITIONS TO AVOID/INCOMPATABILITY: Strong oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, sulfur dioxide

NFPA REACTIVITY = 0 (minimal)

SECTION 6 - HEALTH HAZARD DATA

ROUTES OF ENTRY: Ingestion, skin contact, inhalation.

HEALTH HAZARDS: Depression of central nervous system ranging from mild headache to anesthesia, coma, and death. Liver and kidney damage may occur.

CARCINOGENICITY: No data available.

SIGNS AND SYMPTOMS OF EXPOSURE: May cause nausea, vomiting, dizziness, headache, coughing or gagging and depression of the central nervous system.

EMERGENCY AND FIRST AID PROCEDURES:
INGESTION: Immediately seek medical attention. DO NOT induce vomiting. Give water to dilute, if conscious. Extreme care must be used to prevent aspiration.
INHALATION: Maintain respiration, assist with artificial respiration if needed and give oxygen if trained to do so. Seek medical attention.

NFPA HEALTH = 2 (Moderate)

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Eliminate all sources of ignition. Contain spill. Use water fog to dilute or foam to suppress vapor cloud. Use SCBA to avoid breathing vapors. Absorb liquid with sand or clay. Larger spills may be picked up with a vacuum truck.

WASTE DISPOSAL: Dispose in accordance with RCRA regulations. Do not put in sewers or any watercourse.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: All equipment and storage containers should be properly grounded. This material is subject to OHSA and DOT regulations. Portable metal containers should be bonded to the storage container before transferring liquid.

OTHER PRECAUTIONS: Do not weld on containers unless they have been properly cleaned and purged using safe work practices. Avoid breathing vapors.

SECTION 8 - ENVIRONMENTAL AND SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Use NIOSH/MSHA-approved respiratory protection in areas exceeding exposure limits, the type to be determined by the degree of exposure.

VENTILATION: Use in well-ventilated area. Mechanical exhaust should be explosion-proof.

EYE/SKIN PROTECTION: Full-face protection, chemical protective gloves, and coveralls with long sleeves.

WORK/HYGIENIC PRACTICES: Remove contaminated clothing as soon as possible. Always wash after handling hazardous chemicals.

REFER TO DEPARTMENT OF TRANSPORTATION (DOT) EMERGENCY RESPONSE GUIDEBOOK GUIDE 128 FOR ADDITIONAL EMERGENCY INFORMATION.

This information is believed to be accurate and as reliable as information available to us. We make no warranty or guarantee as to its accuracy and assume no liability from its use. Users should determine the suitability of the information for their particular purposes.

SAMPLE T104B GAS OIL LOVINGTON

ASTM D-97 Pour Point of petroleum products

ASTM D-97 85°F

ASTM D-4402 Rotational Viscosity @ temperatures below

ASTM D-4402 @ 80°F 2780

ASTM D-4402 @ 90°F 678

ASTM D-4402 @ 100°F 169

ASTM D-4402 @ 110°F 61

ASTM D-4402 @ 120°F 36

ASTM D-4402 @ 200°F 19.2

ASTM D-4402 @ 210°F 17.6

DATE 7/30/12

#1 TESTER R.GREEN / M.BROWN

Note: From R. Green 10/17/12, units are Centipoise, cP (phone call w/D.Boyer)

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, [illegible]

July 19, 2012

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: NAV-12-004

Enclosed are the results of analyses for samples received by the laboratory on 07/16/12 17:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	07/16/2012	Sampling Date:	07/16/2012
Reported:	07/19/2012	Sampling Type:	Soil
Project Name:	NAV-12-004	Sampling Condition:	** (See Notes)
Project Number:	TANK 104 B RELEASE	Sample Received By:	Jodi Henson
Project Location:	LOVINGTON, NEW MEXICO		

Sample ID: SS - 1 (H201627-01)

BTEX 8021B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/18/2012	ND	1.91	95.7	2.00	0.781	
Toluene*	<0.050	0.050	07/18/2012	ND	1.94	97.1	2.00	2.18	
Ethylbenzene*	<0.050	0.050	07/18/2012	ND	1.98	99.0	2.00	1.91	
Total Xylenes*	<0.150	0.150	07/18/2012	ND	5.99	99.9	6.00	2.45	

Surrogate: 4-Bromofluorobenzene (PID *107 %* *89.4-126*

TPH 8015M mg/kg **Analyzed By: AM** **S-06**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	07/18/2012	ND	166	83.1	200	7.23	
DRO >C10-C28	**8750**	50.0	07/18/2012	ND	171	85.7	200	6.06	
EXT DRO >C28-C35	**5750**	50.0	07/18/2012	ND					

Surrogate: 1-Chlorooctane *74.9 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *195 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	07/16/2012	Sampling Date:	07/16/2012
Reported:	07/19/2012	Sampling Type:	Soil
Project Name:	NAV-12-004	Sampling Condition:	** (See Notes)
Project Number:	TANK 104 B RELEASE	Sample Received By:	Jodi Henson
Project Location:	LOVINGTON, NEW MEXICO		

Sample ID: SS - 2 (H201627-02)

BTEX 8021B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/18/2012	ND	1.91	95.7	2.00	0.781	
Toluene*	<0.050	0.050	07/18/2012	ND	1.94	97.1	2.00	2.18	
Ethylbenzene*	<0.050	0.050	07/18/2012	ND	1.98	99.0	2.00	1.91	
Total Xylenes*	<0.150	0.150	07/18/2012	ND	5.99	99.9	6.00	2.45	

Surrogate: 4-Bromofluorobenzene (PIL *102 %* *89.4-126*

TPH 8015M mg/kg **Analyzed By: AM** **S-06**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	07/18/2012	ND	166	83.1	200	7.23	
DRO >C10-C28	**11500**	50.0	07/18/2012	ND	171	85.7	200	6.06	
EXT DRO >C28-C35	**7410**	50.0	07/18/2012	ND					

Surrogate: 1-Chlorooctane *72.9 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *245 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	07/16/2012	Sampling Date:	07/16/2012
Reported:	07/19/2012	Sampling Type:	Soil
Project Name:	NAV-12-004	Sampling Condition:	** (See Notes)
Project Number:	TANK 104 B RELEASE	Sample Received By:	Jodi Henson
Project Location:	LOVINGTON, NEW MEXICO		

Sample ID: SS - 3 (H201627-03)

BTEX 8021B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/18/2012	ND	1.91	95.7	2.00	0.781	
Toluene*	<0.050	0.050	07/18/2012	ND	1.94	97.1	2.00	2.18	
Ethylbenzene*	<0.050	0.050	07/18/2012	ND	1.98	99.0	2.00	1.91	
Total Xylenes*	<0.150	0.150	07/18/2012	ND	5.99	99.9	6.00	2.45	

Surrogate: 4-Bromofluorobenzene (PID *102 %* *89.4-126*

TPH 8015M mg/kg **Analyzed By: AM** **S-06**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	07/18/2012	ND	166	83.1	200	7.23	
DRO >C10-C28	**13900**	50.0	07/18/2012	ND	171	85.7	200	6.06	
EXT DRO >C28-C35	**10200**	50.0	07/18/2012	ND					

Surrogate: 1-Chlorooctane *74.7 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *260 %* *63.6-154*

Cardinal Laboratories *=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	07/16/2012	Sampling Date:	07/16/2012
Reported:	07/19/2012	Sampling Type:	Soil
Project Name:	NAV-12-004	Sampling Condition:	** (See Notes)
Project Number:	TANK 104 B RELEASE	Sample Received By:	Jodi Henson
Project Location:	LOVINGTON, NEW MEXICO		

Sample ID: SS - 4 (H201627-04)

BTEX 8021B mg/kg Analyzed By: AP S-04

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**0.530**	0.050	07/18/2012	ND	1.91	95.7	2.00	0.781	
Toluene*	**6.01**	0.050	07/18/2012	ND	1.94	97.1	2.00	2.18	
Ethylbenzene*	**6.35**	0.050	07/18/2012	ND	1.98	99.0	2.00	1.91	
Total Xylenes*	**10.9**	0.150	07/18/2012	ND	5.99	99.9	6.00	2.45	

Surrogate: 4-Bromofluorobenzene (PID *158 %* *89.4-126*

TPH 8015M mg/kg Analyzed By: AM S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**323**	100	07/18/2012	ND	166	83.1	200	7.23	
DRO >C10-C28	**32800**	100	07/18/2012	ND	171	85.7	200	6.06	
EXT DRO >C28-C35	**23100**	100	07/18/2012	ND					

Surrogate: 1-Chlorooctane *86.1 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *390 %* *63.6-154*

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Celey D. Keene, Lab Director/Quality Manager

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Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240
(505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page____ of ____

Company Name:	Safety & Environmental Solutions, Inc.	BILL TO	
Project Manager:	Bob Allen	P.O. #:	
Address:	703 East Clinton	Company:	Same
City:	Hobbs State: NM Zip: 88240	Attn:	
Phone #:	575-397-0510 Fax #: 575-393-4388	Address:	
Project #:	NAV-12-004 Project Owner: NAVAJO	City:	
Project Name:	Tank 104 B Removal	State: Zip:	
Project Location:	Lea County	Phone #:	
Sampler Name:	B. Boyd Boggs (SESI-NM)	Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING DATE	SAMPLING TIME	BTEX	TPH (8015 GRO, DRO, MRO)											
H2D16627													2012														
1	SS-1	G	1			X					X		7/16	1325	X	X											
2	SS-2	"	"			"					"		"	1400	X	X											
3	SS-3	"	"			"					"		"	1405	X	X											
4	SS-4	G	1			X					X		7/16	1410	X	X											

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Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished:	Date: 7/16/12	Received By:	Phone Result: ☐ Yes ☒ No Add'l Phone #:
	Time: 1700		Fax Result: ☐ Yes ☒ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: copy Results to ballen@sesi-nm.com samples taken & brought directly to lab.
	Time:		
Delivered By: (Circle One)	Temp. 10°	Sample Condition: Cool ☐ Yes ☐ No; Intact ☒ Yes ☐ No	CHECKED BY: (Initials)

Sampler - UPS - Bus - (

† Cardinal cannot ac erbal changes. Please fax written changes to 575-393-2476.

#26

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

August 21, 2012

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: NAV-12-004

Enclosed are the results of analyses for samples received by the laboratory on 08/14/12 16:02.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	08/14/2012	Sampling Date:	08/14/2012
Reported:	08/21/2012	Sampling Type:	Soil
Project Name:	NAV-12-004	Sampling Condition:	** (See Notes)
Project Number:	TANK 104 B EXCAVATION	Sample Received By:	Jodi Henson
Project Location:	LOVINGTON, NEW MEXICO		

Sample ID: EXCAVATION 2' BGS (H201895-01)

BTEX 8021B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/21/2012	ND	1.60	80.1	2.00	2.96	
Toluene*	<0.050	0.050	08/21/2012	ND	2.13	107	2.00	2.06	
Ethylbenzene*	<0.050	0.050	08/21/2012	ND	2.34	117	2.00	1.15	
Total Xylenes*	<0.150	0.150	08/21/2012	ND	8.11	135	6.00	0.158	

Surrogate: 4-Bromofluorobenzene (PID *102 %* *89.4-126*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/16/2012	ND	191	95.4	200	0.211	
DRO >C10-C28	**50.8**	10.0	08/16/2012	ND	201	100	200	3.86	
EXT DRO >C28-C35	<10.0	10.0	08/16/2012	ND					

Surrogate: 1-Chlorooctane *101 %* *65 2-140*

Surrogate: 1-Chlorooctadecane *111 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	08/14/2012	Sampling Date:	08/14/2012
Reported:	08/21/2012	Sampling Type:	Soil
Project Name:	NAV-12-004	Sampling Condition:	** (See Notes)
Project Number:	TANK 104 B EXCAVATION	Sample Received By:	Jodi Henson
Project Location:	LOVINGTON, NEW MEXICO		

Sample ID: EXCAVATION 4' BGS (H201895-02)

BTEX 8021B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/21/2012	ND	1.93	96.7	2.00	0.697	
Toluene*	<0.050	0.050	08/21/2012	ND	1.97	98.3	2.00	0.323	
Ethylbenzene*	<0.050	0.050	08/21/2012	ND	1.98	99.1	2.00	0.0178	
Total Xylenes*	<0.150	0.150	08/21/2012	ND	6.40	107	6.00	0.202	

Surrogate: 4-Bromofluorobenzene (PIL *102 %* *89.4-126*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/16/2012	ND	191	95.4	200	0.211	
DRO >C10-C28	**219**	10.0	08/16/2012	ND	201	100	200	3.86	
EXT DRO >C28-C35	<10.0	10.0	08/16/2012	ND					

Surrogate: 1-Chlorooctane *96.0 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *110 %* *63.6-154*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240
(505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page ____ of ____

Company Name:	Safety & Environmental Solutions, Inc.	BILL TO	
Project Manager:	Bob Allen	P.O. #:	
Address:	703 East Clinton	Company:	Same
City:	Hobbs State: NM Zip: 88240	Attn:	
Phone #:	575-397-0510 Fax #: 575-393-4388	Address:	
Project #:	NAVY-12-004 Project Owner: NAVAJO	City:	
Project Name:	Tank 104 R Excavation	State: Zip:	
Project Location:	Ace Refining	Phone #:	
Sampler Name:	D. Raylor	Fax #:	

ANALYSIS REQUEST: RTEX; TPH 8015 GRO (DRO) ORO

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV: ACID/BASE	ICE / COOL	OTHER	SAMPLING: DATE	TIME	RTEX	TPH 8015 GRO (DRO) ORO
H201845													5/14			
1	Excavation 2 BGS	G	1			X						X	5/14	1420	X	X
2	Excavation 4' BGS	G	1			X						X	5/14	1435	X	X

*PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.

Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished:	Date: 5/14/14	Received By:	Phone Result:	☐ Yes	☒ No
Bob Bayley	Time: 1600	Yolanda Henderson	Fax Result:	☐ Yes	☐ No
Relinquished By:	Date:	Received By:	REMARKS: sample taken & brought directly to lab.		
	Time:				

Delivered By: (Circle One)	Temp.	Sample Condition: Cool	Intact	CHECKED BY: (Initials)
Sampler - UPS - Bus - Other	33°C	☐ Yes ☒ No	☒ Yes ☐ No	

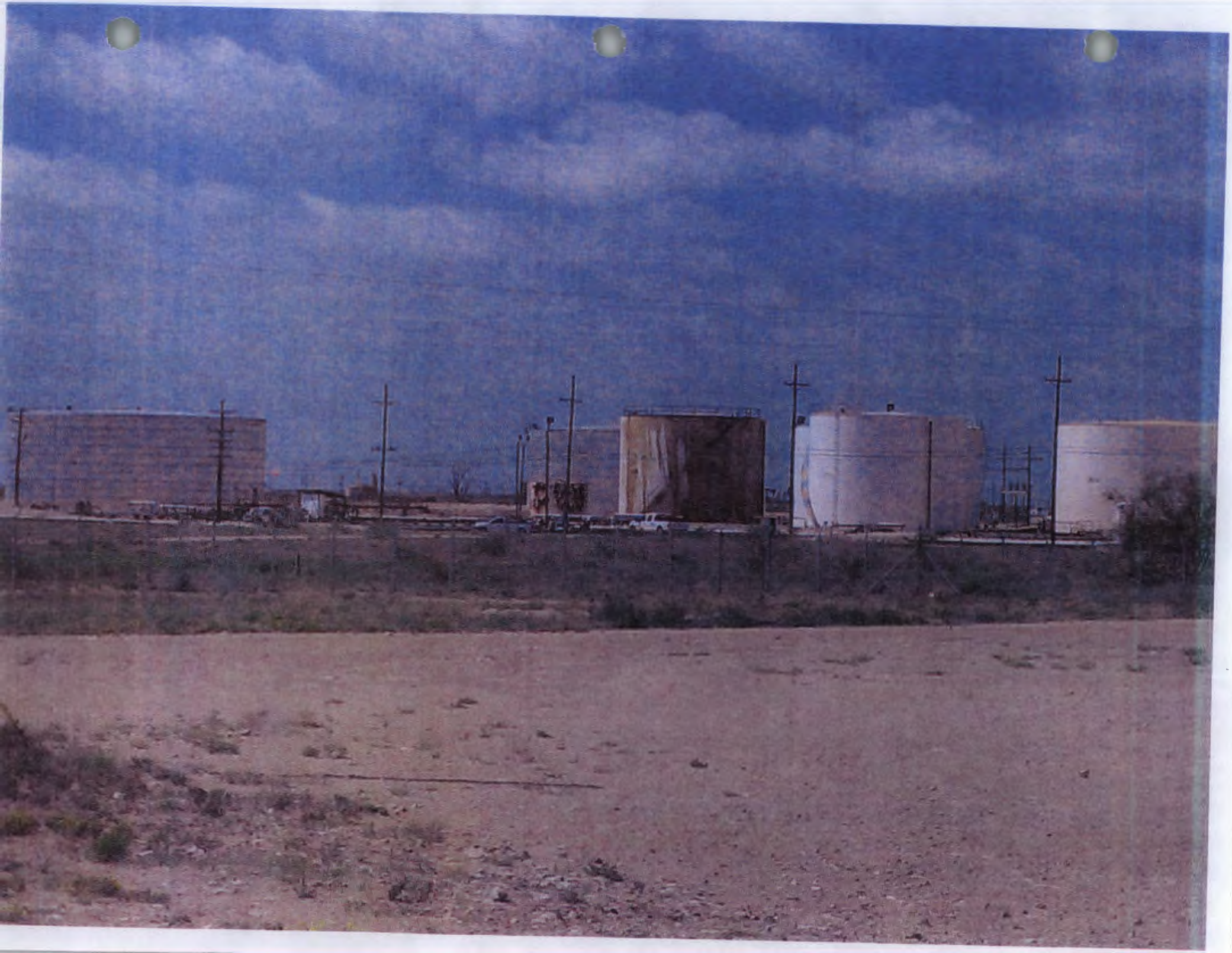
Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.

#26

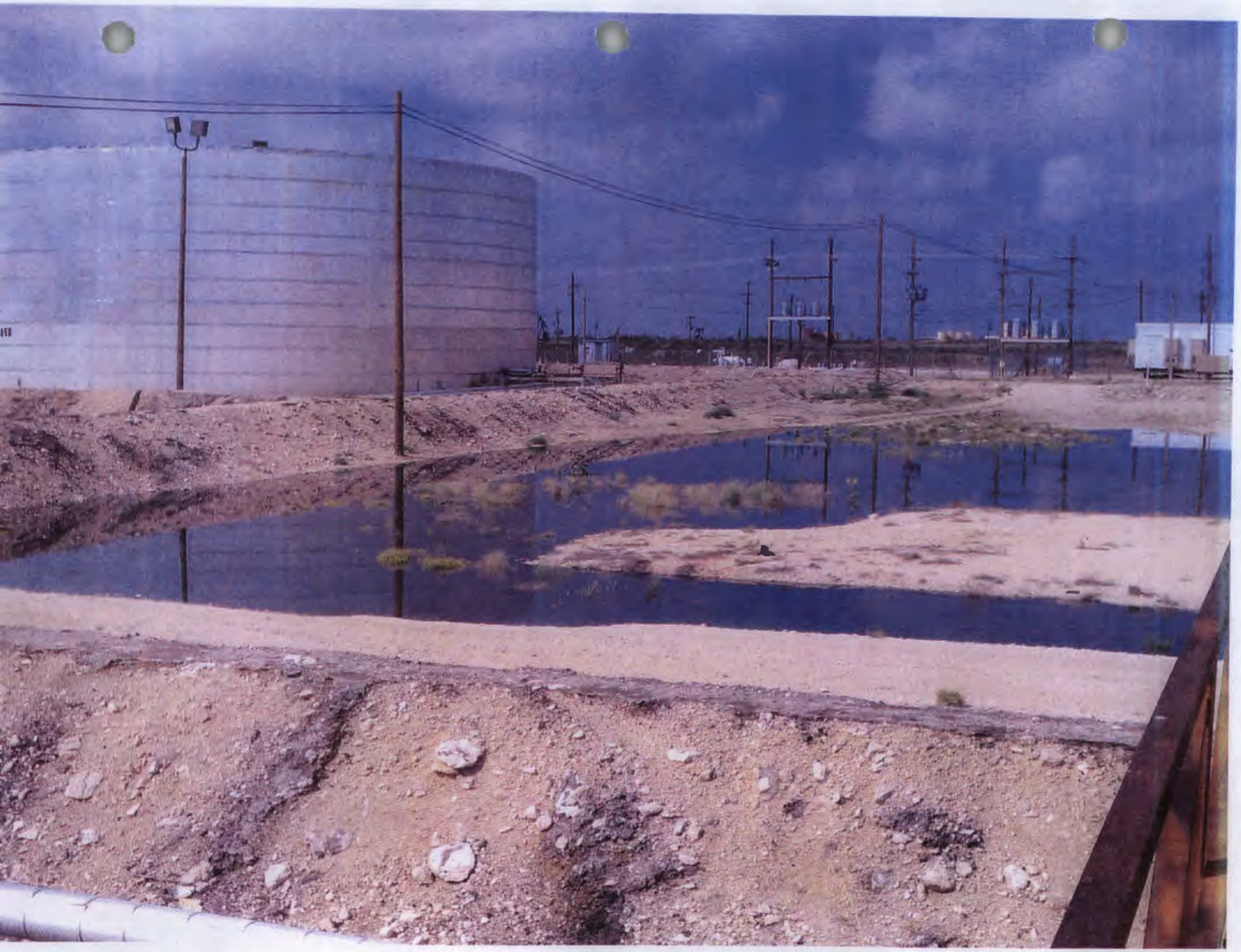
Photos June 7, 2012

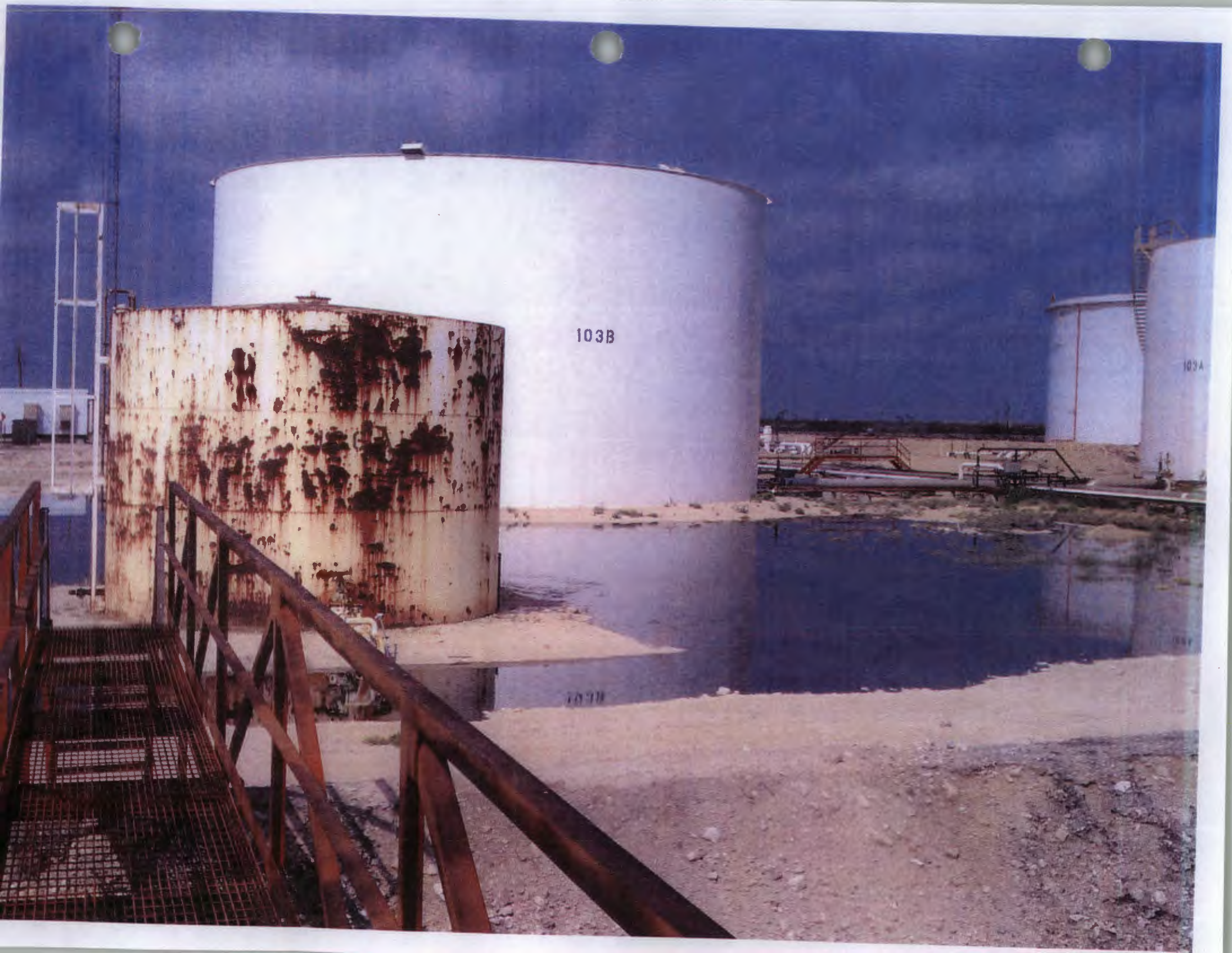
Final Report for Lovington T-104B

June 7, 2012




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103B


104B
104B
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103A




104A
104A

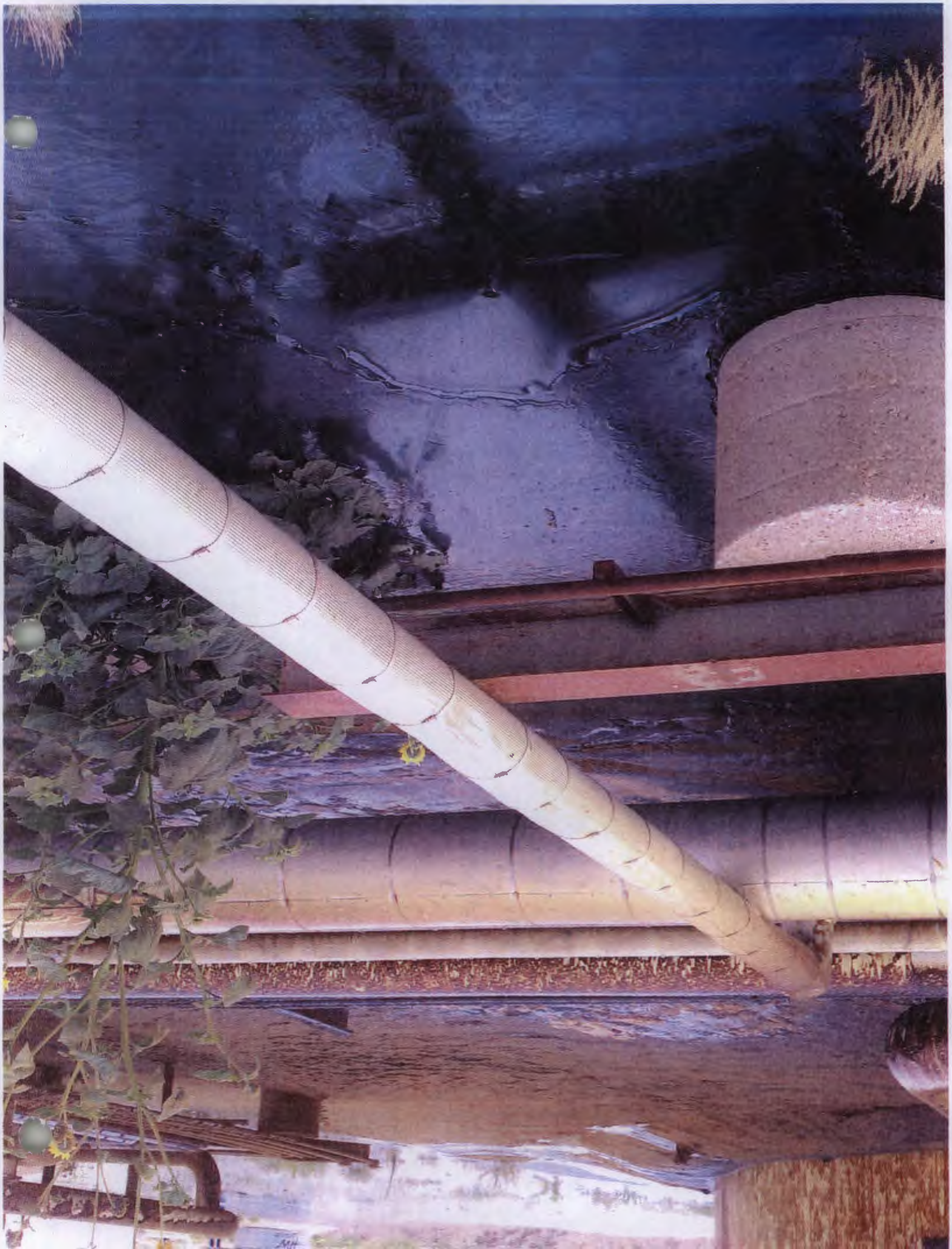

104B








103B
103B







Photos of Composite Sample Collection and Analytical Report August 2, 2012

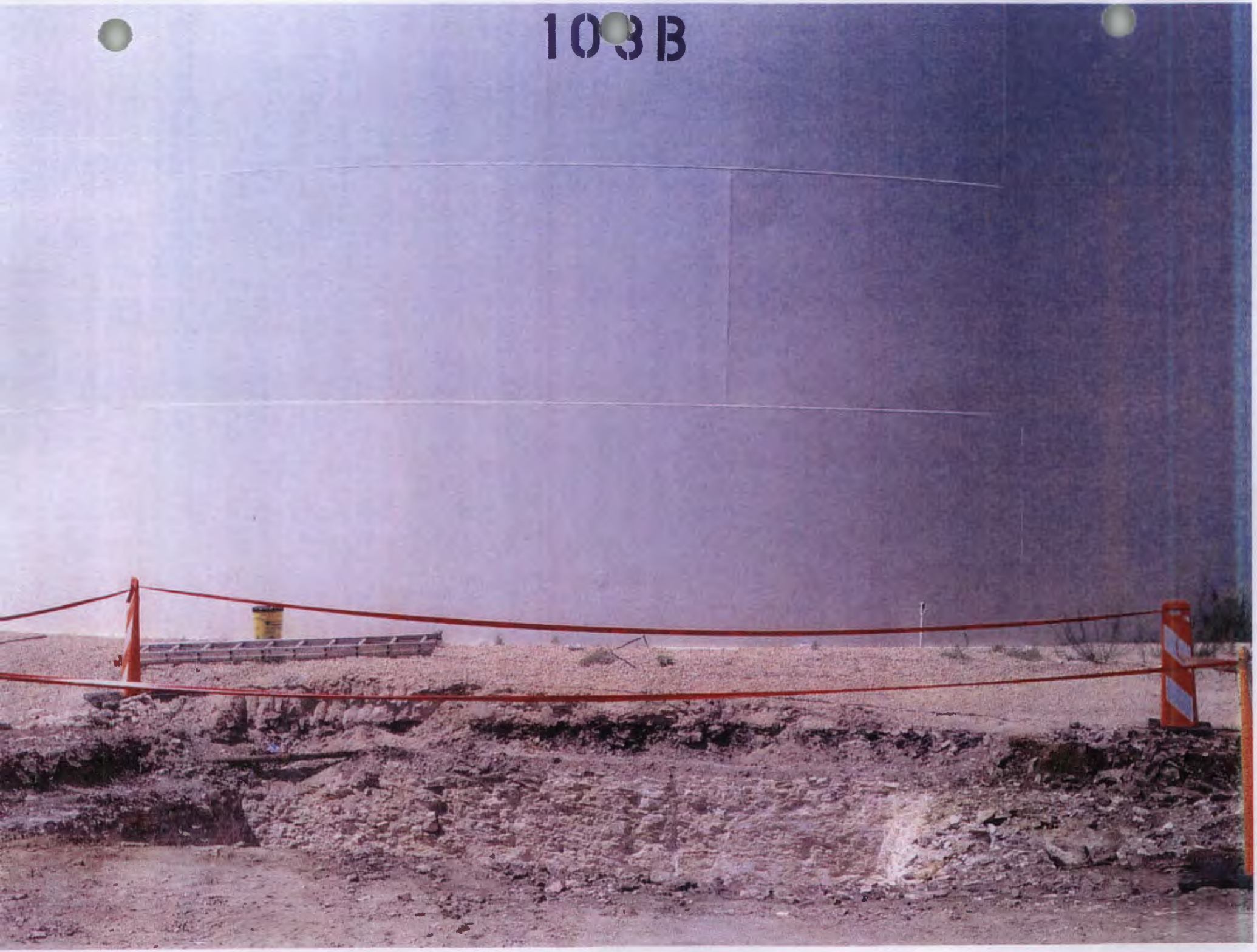
Final Report for Lovington T-104B

June 7, 2012








103B







25-Aug-2012

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: TK-104B Work Order: **1208226**

Dear Aaron,

ALS Environmental received 1 sample on 04-Aug-2012 09:15 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 13.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Patricia L. Lynch

Electronically approved by Jumoke M Lawal

Patricia L. Lynch
Project Manager

Certificate No: T104704231-09A-TX

ALS Environmental

Date: 25-Aug-12

Client: Navajo Refining Company
Project: TK-104B
Work Order: **1208226**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1208226-01	TK-104B Soil	Soil		8/1/2012 10:25	8/4/2012 09:15	☐

Client: Navajo Refining Company
Project: TK-104B
Work Order: 1208226

Case Narrative

Batch 63326, Semivolatiles: Sample TK-104B Soil could not be analyzed without dilution due to the sample matrix. During extraction, the sample would not concentrate to the routine final volume. Several recoveries in the MS/MSD were below the control limits. However, all LCS/LCSD recoveries and MS/MSD RPDs were in control.

Batch R132762, Volatile Organics, Sample 1208218-01Z: MS/MSD is for an unrelated sample.

ALS Environmental

Date: *25-Aug-12*

Client: Navajo Refining Company
Project: TK-104B
Sample ID: TK-104B Soil
Collection Date: 8/1/2012 10:25 AM

Work Order: 1208226
Lab ID: 1208226-01
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMIVOLATILES			**SW8270**		Prep Date: **8/10/2012**	Analyst: **JLJ**
1,4-Dichlorobenzene	ND		5,000	µg/Kg	10	8/13/2012 11:05 PM
2,4-Dinitrophenol	ND		5,000	µg/Kg	10	8/13/2012 11:05 PM
2-Methylphenol	ND		5,000	µg/Kg	10	8/13/2012 11:05 PM
3&4-Methylphenol	ND		5,000	µg/Kg	10	8/13/2012 11:05 PM
4-Nitrophenol	ND		5,000	µg/Kg	10	8/13/2012 11:05 PM
Dimethyl phthalate	ND		5,000	µg/Kg	10	8/13/2012 11:05 PM
Naphthalene	ND		5,000	µg/Kg	10	8/13/2012 11:05 PM
Phenol	ND		5,000	µg/Kg	10	8/13/2012 11:05 PM
Quinoline	ND		5,000	µg/Kg	10	8/13/2012 11:05 PM
Surr: 2,4,6-Tribromophenol	*78.4*		*36-126*	*%REC*	10	8/13/2012 11:05 PM
Surr: 2-Fluorobiphenyl	*82.7*		*43-125*	*%REC*	10	8/13/2012 11:05 PM
Surr: 2-Fluorophenol	*37.6*		*37-125*	*%REC*	10	8/13/2012 11:05 PM
Surr: 4-Terphenyl-d14	*106*		*32-125*	*%REC*	10	8/13/2012 11:05 PM
Surr: Nitrobenzene-d5	*59.1*		*37-125*	*%REC*	10	8/13/2012 11:05 PM
Surr: Phenol-d6	*48.3*		*40-125*	*%REC*	10	8/13/2012 11:05 PM
VOLATILES			**SW8260**			Analyst: **WLR**
1,2-Dibromoethane	ND		0.0050	mg/Kg	1	8/9/2012 10:47 AM
Benzene	ND		0.0050	mg/Kg	1	8/9/2012 10:47 AM
Carbon disulfide	ND		0.010	mg/Kg	1	8/9/2012 10:47 AM
Chlorobenzene	ND		0.0050	mg/Kg	1	8/9/2012 10:47 AM
Chloroform	ND		0.0050	mg/Kg	1	8/9/2012 10:47 AM
Ethylbenzene	ND		0.0050	mg/Kg	1	8/9/2012 10:47 AM
Methyl tert-butyl ether	ND		0.0050	mg/Kg	1	8/9/2012 10:47 AM
Styrene	ND		0.0050	mg/Kg	1	8/9/2012 10:47 AM
Tetrachloroethene	ND		0.0050	mg/Kg	1	8/9/2012 10:47 AM
Toluene	ND		0.0050	mg/Kg	1	8/9/2012 10:47 AM
Xylenes, Total	ND		0.015	mg/Kg	1	8/9/2012 10:47 AM
Surr: 1,2-Dichloroethane-d4	*88.3*		*70-128*	*%REC*	1	8/9/2012 10:47 AM
Surr: 4-Bromofluorobenzene	*93.1*		*73-126*	*%REC*	1	8/9/2012 10:47 AM
Surr: Dibromofluoromethane	*98.6*		*71-128*	*%REC*	1	8/9/2012 10:47 AM
Surr: Toluene-d8	*101*		*73-127*	*%REC*	1	8/9/2012 10:47 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Batch ID: **63326** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKS1-120810-63326** Units: **µg/Kg** Analysis Date: **8/13/2012 05:47 PM**

Client ID: Run ID: **SV-3_120813B** SeqNo: **2901986** Prep Date: **8/10/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	ND	170								
2,4-Dinitrophenol	ND	170								
2-Methylphenol	ND	170								
3&4-Methylphenol	ND	170								
4-Nitrophenol	ND	170								
Dimethyl phthalate	ND	170								
Naphthalene	ND	170								
Phenol	ND	170								
Quinoline	ND	170								
Surr: 2,4,6-Tribromophenol	*3202*	170	*3333*	0	*96.1*	*36-126*	0			
Surr: 2-Fluorobiphenyl	*3158*	170	*3333*	0	*94.7*	*43-125*	0			
Surr: 2-Fluorophenol	*2529*	170	*3333*	0	*75.9*	*37-125*	0			
Surr: 4-Terphenyl-d14	*3418*	170	*3333*	0	*103*	*32-125*	0			
Surr: Nitrobenzene-d5	*2894*	170	*3333*	0	*86.8*	*37-125*	0			
Surr: Phenol-d6	*2490*	170	*3333*	0	*74.7*	*40-125*	0			

LCS Sample ID: **SLCSS1-120810-63326** Units: **µg/Kg** Analysis Date: **8/13/2012 06:10 PM**

Client ID: Run ID: **SV-3_120813B** SeqNo: **2901989** Prep Date: **8/10/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	1458	170	1667	0	87.5	55-120	0			
2,4-Dinitrophenol	2665	170	3333	0	79.9	40-125	0			
2-Methylphenol	2308	170	3333	0	69.2	55-120	0			
3&4-Methylphenol	3568	170	5000	0	71.4	55-120	0			
4-Nitrophenol	3168	170	3333	0	95	50-130	0			
Dimethyl phthalate	1481	170	1667	0	88.9	55-120	0			
Naphthalene	1526	170	1667	0	91.6	55-120	0			
Phenol	2300	170	3333	0	69	50-120	0			
Quinoline	1583	170	1667	0	95	55-130	0			
Surr: 2,4,6-Tribromophenol	*3271*	170	*3333*	0	*98.1*	*36-126*	0			
Surr: 2-Fluorobiphenyl	*3040*	170	*3333*	0	*91.2*	*43-125*	0			
Surr: 2-Fluorophenol	*2760*	170	*3333*	0	*82.8*	*37-125*	0			
Surr: 4-Terphenyl-d14	*3318*	170	*3333*	0	*99.5*	*32-125*	0			
Surr: Nitrobenzene-d5	*2915*	170	*3333*	0	*87.4*	*37-125*	0			
Surr: Phenol-d6	*2563*	170	*3333*	0	*76.9*	*40-125*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1208226
Project: TK-104B

QC BATCH REPORT

Batch ID: **63326** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID: **SLCSDS1-120810-63326** Units: **µg/Kg** Analysis Date: **8/13/2012 06:32 PM**

Client ID: Run ID: **SV-3_120813B** SeqNo: **2901992** Prep Date: **8/10/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	1371	170	1667	0	82.2	55-120	1458	6.19	30	
2,4-Dinitrophenol	2495	170	3333	0	74.9	40-125	2665	6.56	30	
2-Methylphenol	2275	170	3333	0	68.3	55-120	2308	1.45	30	
3&4-Methylphenol	3550	170	5000	0	71	55-120	3568	0.488	30	
4-Nitrophenol	2883	170	3333	0	86.5	50-130	3168	9.4	30	
Dimethyl phthalate	1397	170	1667	0	83.8	55-120	1481	5.85	30	
Naphthalene	1449	170	1667	0	87	55-120	1526	5.15	30	
Phenol	2305	170	3333	0	69.2	50-120	2300	0.231	30	
Quinoline	1511	170	1667	0	90.7	55-130	1583	4.65	30	
Surr: 2,4,6-Tribromophenol	*3120*	170	*3333*	0	*93.6*	*36-126*	3271	*4.71*	*30*	
Surr: 2-Fluorobiphenyl	*2951*	170	*3333*	0	*88.5*	*43-125*	3040	*2.99*	*30*	
Surr: 2-Fluorophenol	*2690*	170	*3333*	0	*80.7*	*37-125*	2760	*2.56*	*30*	
Surr: 4-Terphenyl-d14	*3197*	170	*3333*	0	*95.9*	*32-125*	3318	*3.72*	*30*	
Surr: Nitrobenzene-d5	*2759*	170	*3333*	0	*82.8*	*37-125*	2915	*5.49*	*30*	
Surr: Phenol-d6	*2557*	170	*3333*	0	*76.7*	*40-125*	2563	*0.221*	*30*	

MS Sample ID: **1208226-01AMS** Units: **µg/Kg** Analysis Date: **8/13/2012 11:27 PM**

Client ID: **TK-104B Soil** Run ID: **SV-3_120813B** SeqNo: **2901999** Prep Date: **8/10/2012** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	814.3	5,000	1657	0	49.1	55-120	0			JS
2,4-Dinitrophenol	3876	5,000	3315	0	117	40-125	0			J
2-Methylphenol	1696	5,000	3315	0	51.2	55-120	0			JS
3&4-Methylphenol	2894	5,000	4972	0	58.2	55-120	0			J
4-Nitrophenol	3037	5,000	3315	0	91.6	50-130	0			J
Dimethyl phthalate	1304	5,000	1657	0	78.7	55-120	0			J
Naphthalene	1218	5,000	1657	0	73.5	55-120	0			J
Phenol	1508	5,000	3315	0	45.5	50-120	0			JS
Quinoline	552.4	5,000	1657	0	33.3	55-130	0			JS
Surr: 2,4,6-Tribromophenol	*2489*	5,000	*3315*	0	*75.1*	*36-126*	0			*J*
Surr: 2-Fluorobiphenyl	*2822*	5,000	*3315*	0	*85.2*	*43-125*	0			*J*
Surr: 2-Fluorophenol	*1319*	5,000	*3315*	0	*39.8*	*37-125*	0			*J*
Surr: 4-Terphenyl-d14	*3029*	5,000	*3315*	0	*91.4*	*32-125*	0			*J*
Surr: Nitrobenzene-d5	*1897*	5,000	*3315*	0	*57.2*	*37-125*	0			*J*
Surr: Phenol-d6	*1570*	5,000	*3315*	0	*47.4*	*40-125*	0			*J*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1208226
Project: TK-104B

QC BATCH REPORT

Batch ID: **63326** Instrument ID **SV-3** Method: **SW8270**

MSD Sample ID: **1208226-01AMSD** Units: **µg/Kg** Analysis Date: **8/13/2012 11:50 PM**

Client ID: **TK-104B Soil** Run ID: **SV-3_120813B** SeqNo: **2902000** Prep Date: **8/10/2012** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	957.5	5,000	1658	0	57.8	55-120	814.3	0	30	J
2,4-Dinitrophenol	4012	5,000	3316	0	121	40-125	3876	0	30	J
2-Methylphenol	2086	5,000	3316	0	62.9	55-120	1696	0	30	J
3&4-Methylphenol	3513	5,000	4973	0	70.6	55-120	2894	0	30	J
4-Nitrophenol	3595	5,000	3316	0	108	50-130	3037	0	30	J
Dimethyl phthalate	1483	5,000	1658	0	89.4	55-120	1304	0	30	J
Naphthalene	1454	5,000	1658	0	87.7	55-120	1218	0	30	J
Phenol	1733	5,000	3316	0	52.3	50-120	1508	0	30	J
Quinoline	822.8	5,000	1658	0	49.6	55-130	552.4	0	30	JS
Surr: 2,4,6-Tribromophenol	*3702*	5,000	*3316*	0	*112*	*36-126*	2489	*0*	*30*	*J*
Surr: 2-Fluorobiphenyl	*3228*	5,000	*3316*	0	*97.4*	*43-125*	2822	*0*	*30*	*J*
Surr: 2-Fluorophenol	*1330*	5,000	*3316*	0	*40.1*	*37-125*	1319	*0*	*30*	*J*
Surr: 4-Terphenyl-d14	*3838*	5,000	*3316*	0	*116*	*32-125*	3029	*0*	*30*	*J*
Surr: Nitrobenzene-d5	*2034*	5,000	*3316*	0	*61.4*	*37-125*	1897	*0*	*30*	*J*
Surr: Phenol-d6	*1913*	5,000	*3316*	0	*57.7*	*40-125*	1570	*0*	*30*	*J*

The following samples were analyzed in this batch: 1208226-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1208226
Project: TK-104B

QC BATCH REPORT

Batch ID: **R132762** Instrument ID **VOA3** Method: **SW8260**

MBLK Sample ID: **VBLKS1-080812-R132762** Units: **µg/Kg** Analysis Date: **8/8/2012 05:22 AM**

Client ID: Run ID: **VOA3_120808A** SeqNo: **2895208** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2-Dibromoethane	ND	5.0								
Benzene	ND	5.0								
Carbon disulfide	ND	10								
Chlorobenzene	ND	5.0								
Chloroform	ND	5.0								
Ethylbenzene	ND	5.0								
Methyl tert-butyl ether	ND	5.0								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*38.37*	0	*50*	0	*76.7*	*70-128*	0			
Surr: 4-Bromofluorobenzene	*47.75*	0	*50*	0	*95.5*	*73-126*	0			
Surr: Dibromofluoromethane	*43.69*	0	*50*	0	*87.4*	*71-128*	0			
Surr: Toluene-d8	*49.26*	0	*50*	0	*98.5*	*73-127*	0			

LCS Sample ID: **VLCSS1-080812-R132762** Units: **µg/Kg** Analysis Date: **8/8/2012 04:05 AM**

Client ID: Run ID: **VOA3_120808A** SeqNo: **2895204** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2-Dibromoethane	49.86	5.0	50	0	99.7	79-120	0			
Benzene	48.81	5.0	50	0	97.6	79-120	0			
Carbon disulfide	97.63	10	100	0	97.6	80-124	0			
Chlorobenzene	51.11	5.0	50	0	102	79-120	0			
Chloroform	44.41	5.0	50	0	88.8	78-120	0			
Ethylbenzene	50.81	5.0	50	0	102	80-122	0			
Methyl tert-butyl ether	45.94	5.0	50	0	91.9	76-121	0			
Styrene	50.99	5.0	50	0	102	78-124	0			
Tetrachloroethene	46.65	5.0	50	0	93.3	80-121	0			
Toluene	49.88	5.0	50	0	99.8	79-120	0			
Xylenes, Total	154.6	15	150	0	103	80-120	0			
Surr: 1,2-Dichloroethane-d4	*43.81*	0	*50*	0	*87.6*	*70-128*	0			
Surr: 4-Bromofluorobenzene	*50.74*	0	*50*	0	*101*	*73-126*	0			
Surr: Dibromofluoromethane	*44.83*	0	*50*	0	*89.7*	*71-128*	0			
Surr: Toluene-d8	*50.31*	0	*50*	0	*101*	*73-127*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1208226
Project: TK-104B

QC BATCH REPORT

Batch ID: **R132762** Instrument ID **VOA3** Method: **SW8260**

LCSD Sample ID: **VLCSDS1-080812-R132762** Units: **µg/Kg** Analysis Date: **8/8/2012 04:24 AM**

Client ID: Run ID: **VOA3_120808A** SeqNo: **2895206** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2-Dibromoethane	52.32	5.0	50	0	105	79-120	49.86	4.82	30	
Benzene	49.58	5.0	50	0	99.2	79-120	48.81	1.57	30	
Carbon disulfide	98.08	10	100	0	98.1	80-124	97.63	0.454	30	
Chlorobenzene	51.75	5.0	50	0	103	79-120	51.11	1.25	30	
Chloroform	45.05	5.0	50	0	90.1	78-120	44.41	1.43	30	
Ethylbenzene	50.12	5.0	50	0	100	80-122	50.81	1.38	30	
Methyl tert-butyl ether	46.2	5.0	50	0	92.4	76-121	45.94	0.558	30	
Styrene	52.09	5.0	50	0	104	78-124	50.99	2.13	30	
Tetrachloroethene	50.64	5.0	50	0	101	80-121	46.65	8.19	30	
Toluene	50.12	5.0	50	0	100	79-120	49.88	0.497	30	
Xylenes, Total	158	15	150	0	105	80-120	154.6	2.17	30	
Surr: 1,2-Dichloroethane-d4	*47.08*	0	*50*	0	*94.2*	*70-128*	43.81	*7.18*	*30*	
Surr: 4-Bromofluorobenzene	*49.97*	0	*50*	0	*99.9*	*73-126*	50.74	*1.53*	*30*	
Surr: Dibromofluoromethane	*46.05*	0	*50*	0	*92.1*	*71-128*	44.83	*2.68*	*30*	
Surr: Toluene-d8	*48.68*	0	*50*	0	*97.4*	*73-127*	50.31	*3.28*	*30*	

MS Sample ID: **1208218-01ZMS** Units: **µg/Kg** Analysis Date: **8/8/2012 06:38 AM**

Client ID: Run ID: **VOA3_120808A** SeqNo: **2895213** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2-Dibromoethane	44.23	5.0	50	0	88.5	79-120	0			
Benzene	43.53	5.0	50	0	87.1	79-120	0			
Carbon disulfide	91.73	10	100	0	91.7	80-124	0			
Chlorobenzene	44.85	5.0	50	0	89.7	79-120	0			
Chloroform	40.41	5.0	50	0	80.8	78-120	0			
Ethylbenzene	46.3	5.0	50	0	92.6	80-122	0			
Methyl tert-butyl ether	37.92	5.0	50	0	75.8	76-121	0			S
Styrene	43.74	5.0	50	0	87.5	78-124	0			
Tetrachloroethene	40.75	5.0	50	0	81.5	80-121	0			
Toluene	47.22	5.0	50	0	94.4	79-120	0			
Xylenes, Total	139.1	15	150	0	92.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	*45.08*	0	*50*	0	*90.2*	*70-128*	0			
Surr: 4-Bromofluorobenzene	*48.82*	0	*50*	0	*97.6*	*73-126*	0			
Surr: Dibromofluoromethane	*43.7*	0	*50*	0	*87.4*	*71-128*	0			
Surr: Toluene-d8	*50.63*	0	*50*	0	*101*	*73-127*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1208226
Project: TK-104B

QC BATCH REPORT

Batch ID: **R132762** Instrument ID **VOA3** Method: **SW8260**

MSD Sample ID: **1208218-01ZMSD** Units: **µg/Kg** Analysis Date: **8/8/2012 06:57 AM**

Client ID: Run ID: **VOA3_120808A** SeqNo: **2895215** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2-Dibromoethane	48.61	5.0	50	0	97.2	79-120	44.23	9.42	30	
Benzene	48.75	5.0	50	0	97.5	79-120	43.53	11.3	30	
Carbon disulfide	100.8	10	100	0	101	80-124	91.73	9.41	30	
Chlorobenzene	49.96	5.0	50	0	99.9	79-120	44.85	10.8	30	
Chloroform	45.56	5.0	50	0	91.1	78-120	40.41	12	30	
Ethylbenzene	52.09	5.0	50	0	104	80-122	46.3	11.8	30	
Methyl tert-butyl ether	44.63	5.0	50	0	89.3	76-121	37.92	16.3	30	
Styrene	48.94	5.0	50	0	97.9	78-124	43.74	11.2	30	
Tetrachloroethene	45.02	5.0	50	0	90	80-121	40.75	9.96	30	
Toluene	51.89	5.0	50	0	104	79-120	47.22	9.43	30	
Xylenes, Total	157.8	15	150	0	105	80-120	139.1	12.6	30	
Surr: 1,2-Dichloroethane-d4	*42.36*	0	*50*	0	*84.7*	*70-128*	45.08	*6.21*	*30*	
Surr: 4-Bromofluorobenzene	*49.37*	0	*50*	0	*98.7*	*73-126*	48.82	*1.12*	*30*	
Surr: Dibromofluoromethane	*45.12*	0	*50*	0	*90.2*	*71-128*	43.7	*3.19*	*30*	
Surr: Toluene-d8	*49.37*	0	*50*	0	*98.7*	*73-127*	50.63	*2.52*	*30*	

The following samples were analyzed in this batch: 1208226-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: TK-104B
WorkOrder: 1208226

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Units Reported	Description
µg/Kg	Micrograms per Kilogram
mg/Kg	Milligrams per Kilogram

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING** Date/Time Received: **04-Aug-12 09:15**

Work Order: **1208226** Received by: **PMG**

Checklist completed by Parish M. Goya eSignature 04-Aug-12 Date Reviewed by: Patricia L. Lynch eSignature 08-Aug-12 Date

Matrices: Soil
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
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 ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2 2c C/U	003	
Cooler(s)/Kit(s):	4260		
Date/Time sample(s) sent to storage:	8/4/12 14:45		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

Photos of Cleanup Progress
September 4, 2012

Final Report for Lovington T-104B
June 7, 2012


104A
09.04.2012 14:31

Photos of Cleanup Progress
September 25, 2012

Final Report for Lovington T-104B
June 7, 2012








HW

Photos of Completed Cleanup November 1, 2012

Final Report for Lovington T-104B

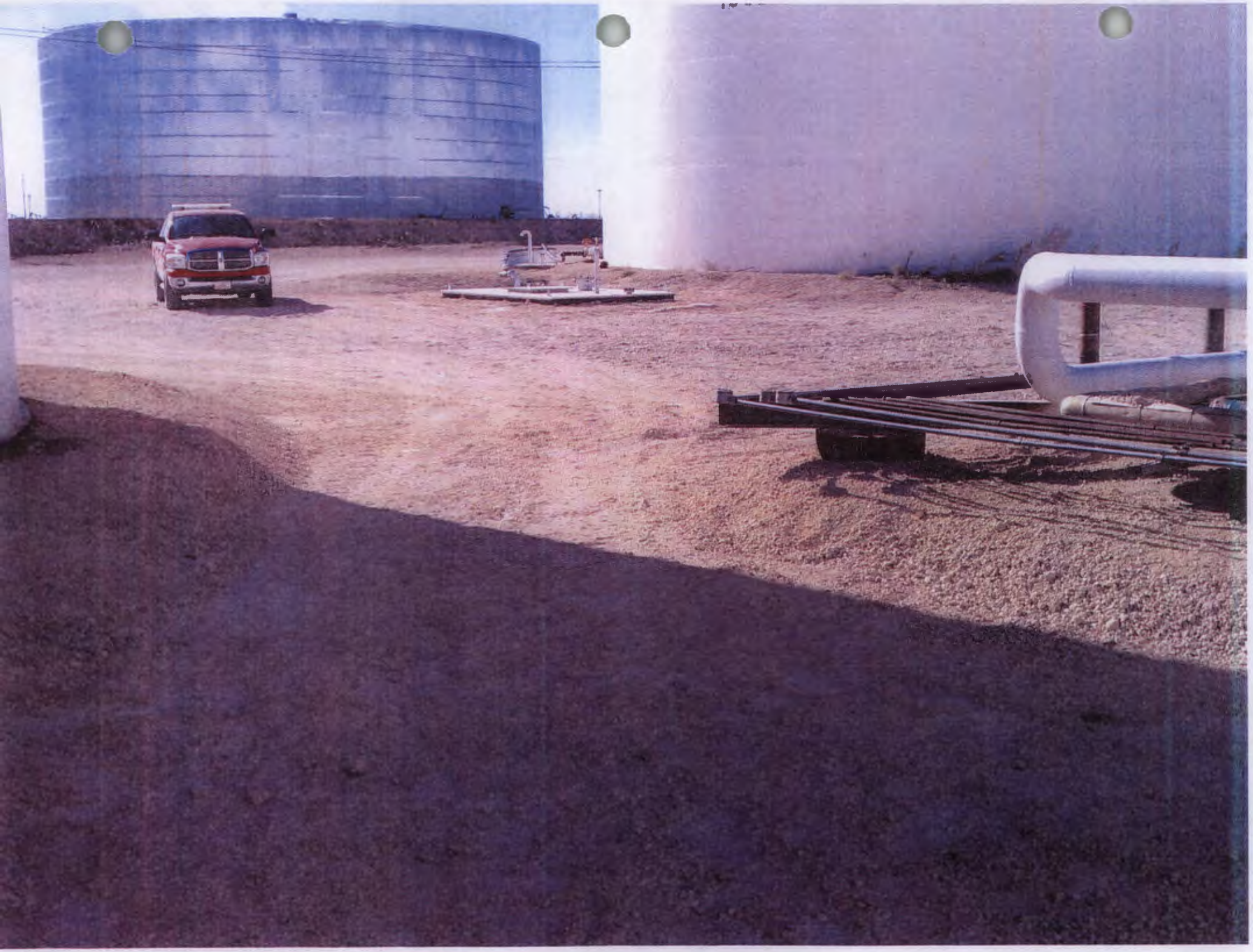
June 7, 2012







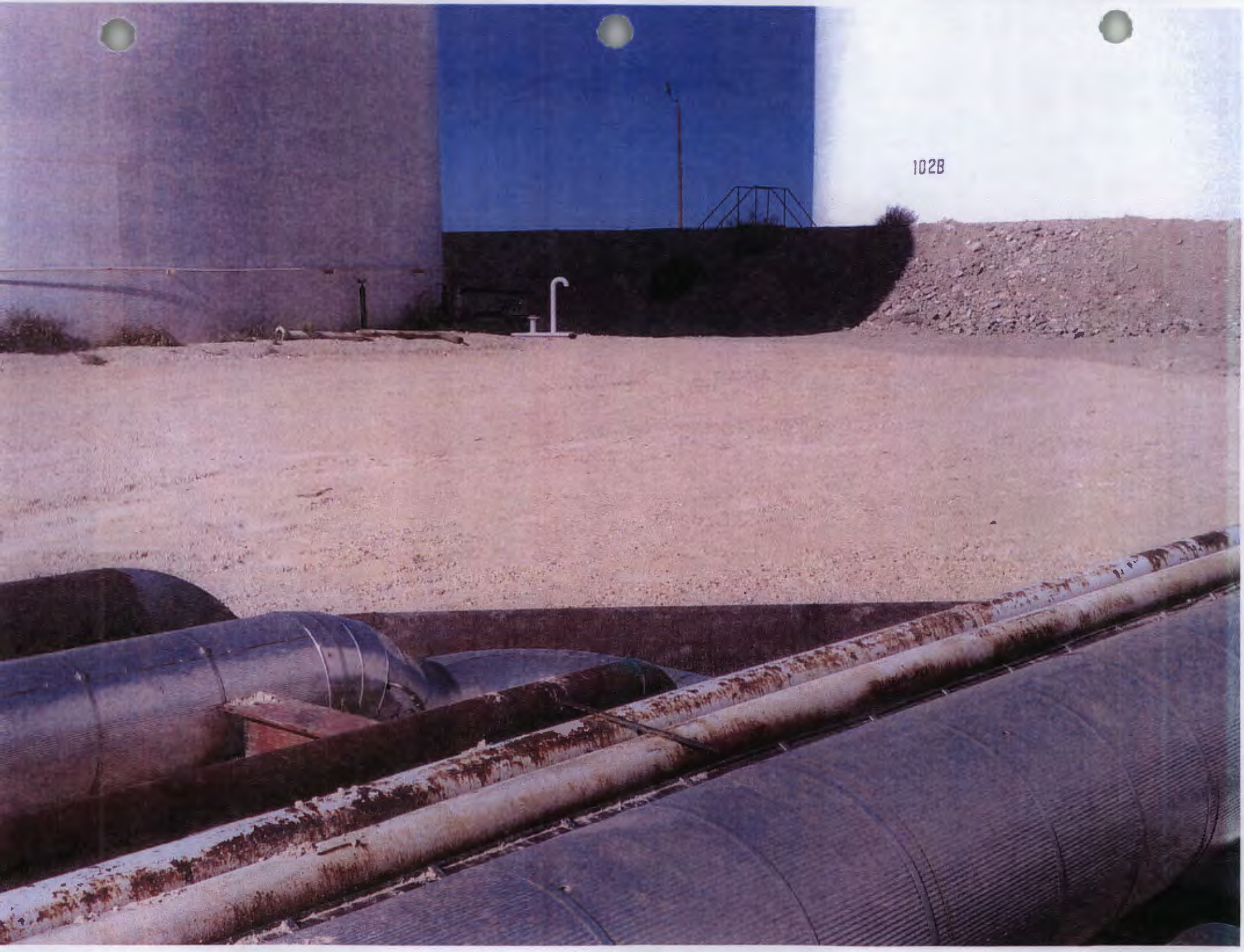









103B

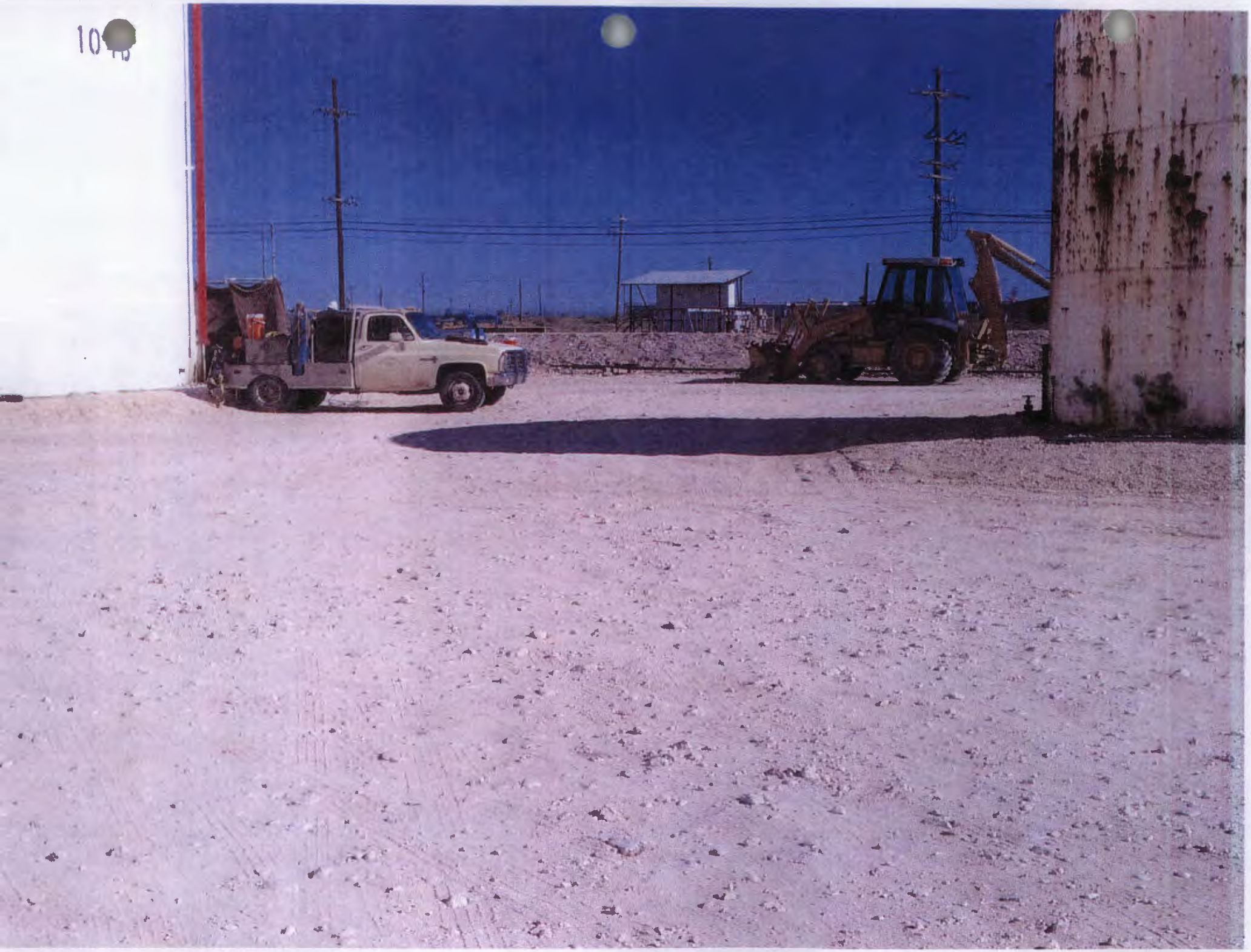

102B











Spill Cleanup
Non-Hazardous Waste
Disposal Manifests

Final Report for Lovington T-104B

June 7, 2012

NON-HAZARDOUS WASTE MANIFEST

91203

PART I: Generator Navajo Refining - Lovington Plant
Address 7406 S. Main
City/State Lovington, N.M. 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials	✓	Pit No.	

DESCRIPTION / NOTES

~~Crude Spill Grass mat at Head Pump Station~~

12 Yards Contaminated Concrete in Plant

104B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

6-5-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 88
City/State Snyder, Tx.

Telephone No

437
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below

Signature of Transporter's Agent

6-5-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/5/12 1:12 pm
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91275

PART I: Generator _____ (505) 396-5521
Address _____ Telephone No.
City/State _____

ORGINATION OF WASTE:

Operations Center _____ Permit No. _____

Property Name _____
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	_____	Other Materials	_____	Pit No.	_____
DESCRIPTION / NOTES					

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

_____ _____
Signature of Generator's Authorized Agent Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name _____ _____
Address _____ Telephone No.
City/State _____ _____
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

_____ _____
Signature of Transporter's Agent Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.** **(575) 393-1079**
Address **P.O. Box 388** Telephone No.
City/State **Hobbs, N.M. 88241-0388** **www.crihobbs.com**
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

_____ _____
Signature of Facility Agent Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91308

PART I: Generator [illegible]
Address [illegible]
City/State [illegible]

(575) [illegible]
Telephone No.

ORGINATION OF WASTE:

Operations Center _____

Permit No. NA [redacted]

Property Name [illegible]
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	[illegible]	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

[illegible]

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name [redacted]
Address _____
City/State _____

Telephone No

Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91214

PART I: Generator Navajo Refining-Lovington Plant (575) 396-5821
Address 7406 S. Main
City/State Lovington, NM 88260
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil Box # AWS-RT8
from spill on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport 325-573-5421
Address P.O. Box 88 Telephone No.
City/State Snyder, Texas 79550 433, 409A
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-9-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.** **(575) 393-1079**
Address **P.O. Box 388** Telephone No.
City/State **Hobbs, N.M. 88241-0388** **www.crihobbs.com**
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/9/12 9:31am
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91220

PART I: Generator Navajo Refining-Lovington
Address 7406 S. Main
City/State Lovington, NM 88260
(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards of Contaminated soil
From spill on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

06-09-12 9.45
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address 4647 West Lamesa Hwy
City/State Snyder, TX

800-523-5344
Telephone No.

428
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below. 9.45 AM

Adam Romero
Signature of Transporter's Agent

06-09-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/9/12 9:38 am
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91216

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396 5821
Telephone No

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM D 360010367

Property Name Lovington
(Well, Tank Battery, Plant Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	✓	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards contaminated soil
from spill on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge. 12:30

James W Hall
Signature of Generator's Authorized Agent

06-09-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address 4647 West Lubbock Hiway
City/State Snyder TX

800-523-5843
Telephone No.

428
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below. 12:30

Adam Romero
Signature of Transporter's Agent

06-09-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/9/12 12:19pm
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91215

PART I: Generator Navajo Refining - Lovington Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360001036?

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil — Box # M+K 25-5

from spill on 10+-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 88
City/State Snyder, Texas 79550

325-573-5421
Telephone No.

433-4091
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-9-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/9/12 12:25pm
Date and Time Received

TCP - #7520-A

20-5

NON-HAZARDOUS WASTE MANIFEST

91219

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260

(575) 396-5801
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD 360001036 2

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil
from spill on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge. 3:00 P.M.

Signature of Generator's Authorized Agent

06-09-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address 4647 Lamesa Hwy.
City/State Snyder TX

800-523-5543
Telephone No.

428
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

06-09-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/9/12 2:44pm
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91213

PART I: Generator Navajo Refining-Lovington Plant
Address 7406 S. Main (575)396-5821
City/State Lovington, NM 88260 Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD3600103607

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated dirt Box # 2523

From spill on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge

Signature of Generator's Authorized Agent _____ Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport 325-573-5421
Address P.O. Box 88 Telephone No
City/State Snyder, Texas 79550 433-409A
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Steve Broker 6-9-12
Signature of Transporter's Agent Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.** **(575) 393-1079**
Address **P.O. Box 388** Telephone No
City/State **Hobbs, N.M. 88241-0388** **www.crihobbs.com**
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent 6/9/12 2:57 pm
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91224

PART I: Generator Navajo Refining- Lovington
Address 7406 S. Main
City/State Lovington, NM 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil

From 104-B tank Cleanup

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

James W Hoby
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address 4641 West Lamesa Hwy
City/State Snyder, TX

800 523-5843
Telephone No

428
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below

Adan Romero
Signature of Transporter's Agent

06-10-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/10/12 6:56 pm
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91206

PART I: Generator Navajo Refining - Lovington Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	✓	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards Contaminated dirt Box # 20-4 ~~A005 K178~~

From 104-B Tank Cleanup

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

6-8-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 88
City/State Snyder, Texas 79550

_____
Telephone No.

433-409A
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Steve Broker
Signature of Transporter's Agent

6-10-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/10/12 7:15am
Date and Time Received

TCP - #7520-A

AUS RT-#8

91217

NON-HAZARDOUS WASTE MANIFEST

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

From spill on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

James W Hyde
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address 4647 West Lamesa Hwy
City/State Snyder TX
800 523-5243
Telephone No.
428
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Adam Romero
Signature of Transporter's Agent

06-1C-12.
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/10/12 8:20 am
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91205

PART I: Generator Navajo Refining - Lovington Plant
Address 7406 S. Main
City/State Lovington, NM 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010867

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

Box # 20-2

12 yards contaminated soil

From spill on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Sam W Hall
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P. O. Box 98
City/State Snyder, Texas 79550

Telephone No.

433-4098
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Steve Proter
Signature of Transporter's Agent

6-10-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/10/12 8:23am
Date and Time Received

TCP - #7520-A

~~20529~~ 20529
91218

NON-HAZARDOUS WASTE MANIFEST

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards Contaminated soil
From spill on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

06-10-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address 4647 West-Lamesa Hi-Way
City/State Snyder, TX
800-523-8542
Telephone No
428
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Addin Romero
Signature of Transporter's Agent

06-10-12 10:30
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II

Signature of Facility Agent

6/10/12 10:07am
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91221

PART I: Generator Navajo Refining - Lovington
Address 7400 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil Box # 2520

From spill on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent — Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
433-4094
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below

Signature of Transporter's Agent — 6-10-12 Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent — 6/10/12 10:54am Date and Time Received

TCP - #7520-A

25-5

91223

NON-HAZARDOUS WASTE MANIFEST

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards Contaminated Soil

From 104-B tank Cleanup

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

James W. Holly
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address 1647 West Lamesa Hi-Way
City/State Snyder TX
800-523-5843
Telephone No.
428
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Hedin Rowell
Signature of Transporter's Agent

1:30 P.m.
06-10-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/10/12 12:24pm
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91204

PART I: Generator Navajo Refining - Lovington Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES Box # 2523

~~[illegible]~~

12 yards Contaminated soil + sand
From 104-B Tank Cleanup.

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Sam N Hoy
Signature of Generator's Authorized Agent

6-8-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 88
City/State Snyder, Texas 79550

Telephone No.

433-409A
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Steve Brasher
Signature of Transporter's Agent

6-10-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II

Signature of Facility Agent

6/10/12 12:56pm
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91225

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	✓	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards Contaminated soil Box # 20-3
from tank cleanup 1004-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge

Jamie W Hoby
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 88
City/State Snyder, Texas 79550

Telephone No.

434-409A
Truck No

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below

Steve Brooks
Signature of Transporter's Agent

6-11-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Jacob DeLosSantos
Signature of Facility Agent

6/11/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91227

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil Box # 20554

From tank clean up on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent _____ Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 58
City/State Snyder, Texas 79550

Telephone No

434
Truck No

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent _____ 6-11-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.** **(575) 393-1079**
Telephone No.
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388** **www.crihobbs.com**
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent _____ 6/11/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91226

PART I: Generator Navajo Refining - Lovington
Address 708 S. Main
City/State Lovington, NM 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

Box # 20529

12 yards contaminated soil

From tank cleanup on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 88
City/State Sayder, Texas 79550

Telephone No.

434
Truck No

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-12-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/12/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91241

PART I: Generator Navajo Refining - Lovington
Address 7448 S. Main
City/State Lovington, NM 88260
575 396 5821
Telephone No

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil
from tank cleanup 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Sam W Hyde
Signature of Generator's Authorized Agent

6-8-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name ~~Ethel T~~ S. Brothers Waste Services
Address 512 W. Texas
City/State Artesia, N.M. 88210
Telephone No.
3
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Greg Shuma
Signature of Transporter's Agent

6-8-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91238

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360001867

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil Box 2520

From Cleanup ox 02-8

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 88
City/State Snyder, Texas 79550

Telephone No.

434
Truck No

CERTIFICATION: I certify that the waste quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-12-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/12/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91236

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260

(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010867

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil
From tank cleanup on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

James W Hohn
Signature of Generator's Authorized Agent

6-8-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name [redacted] S. Brothers
Address 312 W. Jones
City/State Artesia NM, 88210

Telephone No
3
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Greg
Signature of Transporter's Agent

6-8-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Jacob DeLos Santos
Signature of Facility Agent

6/12/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91234

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260
(575)396-5891
Telephone No

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM3600010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil

From tank Clean up on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge

James W Hoh
Signature of Generator's Authorized Agent

6-12-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name [redacted] GANDY'S (575) 396-4948
Telephone No
Address P.O Box 2140
City/State Lovington N.M 88260
360
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below

Signature of Transporter's Agent

6-12-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/12/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91237

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil Box # 20554

From tank cleanup on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Samm W Hodges
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 88
City/State Snyder, Texas 79550

Telephone No.

434
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-12-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/12/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91229

PART I: Generator Navajo Refining - Lovington
Address 7406 S Main
City/State Lovington, NM 88260

(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil Box # 20529

From tank cleanup on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 88
City/State Snyder, Texas 79550

Telephone No.

434
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/12/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91233

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260
(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

from tank cleanup on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

6-12-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name [redacted] + GANDY (575) 396-4948
Telephone No
Address P.O. Box 2140
City/State Lovington NM, 88260
360
Truck No

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-12-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**
(575) 393-1079
Telephone No
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part II was received by me via the transporter described in Part II.

Signature of Facility Agent

6/12/12
Date and Time Received

TCP - #7520-A

91239

NON-HAZARDOUS WASTE MANIFEST

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260
(575)396.5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil

From clean up on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

6-12-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name ~~Elliott Transportation~~ S. Brothers
Address 512 W. Dallas
City/State Artesia N.M 88210
Telephone No.
3
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-12-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II

Signature of Facility Agent

6/12/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91231

PART I: Generator Navajo Refining-Lovington
Address 7406 S. Main
City/State Lovington, NM 88260

(575)396-5821
Telephone No

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010867

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards Contaminated Soil

From tank clean up on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

James W. Hyde
Signature of Generator's Authorized Agent

6-12-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name ~~Elliott Transport~~ GANDY'S
Address P.O. BOX 2140
City/State LOVINGTON N.M, 88260

396-4948
Telephone No

360
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below

Signature of Transporter's Agent

6-12-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Jacob De Los Santos
Signature of Facility Agent

6/12/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91230

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260

(575)396-5801
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360220367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil. Box # 20-4

From tank cleanup on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Jamie W Holy
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 58
City/State Snyder, Texas 79550

Telephone No.

434
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Dave Brotter
Signature of Transporter's Agent

6-13-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Jacob DeRossette
Signature of Facility Agent

6/13/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91228

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260

(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards Contaminated Soil

~~Tank~~ From tank clean up on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Sam W Hoby
Signature of Generator's Authorized Agent

6-13-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name [redacted] S. Brothers
Address 512 W Texas
City/State Artesia NM, 88210

Telephone No.

3
Truck No

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Greg
Signature of Transporter's Agent

6-13-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/13/12 7:48am
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91232

PART I: Generator Navajo Refining - Lovington
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5811
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMB3610010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil

from tank clean-up on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

6-13-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name [redacted] GANDY, S (575) 396-4948
Telephone No.
Address P.O. Box 2140
City/State Lovington N.M, 88260
360
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-13-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/13/12 8:2[illegible]
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91235

PART I: Generator Navajo Refining Lovington
Address 7406 S. Main
City/State Lovington, NM 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____

Permit No. NMD3600103607

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	✓	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES — Box # MK20-2

12 yards Contaminated Soil

From Tank Clean up on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 58
City/State Snyder, Texas 79550

Telephone No.

434
Truck No

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-13-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Jacob DeRosa Santos
Signature of Facility Agent

6/13/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91252

PART I: Generator NAVAJO REFINING - LOVINGTON
Address 7406 S. MAIN
City/State LOVINGTON, N.M. 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD986610367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

Clean up on tank 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

6-13-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name S. BROTHERS
Address 512 W. TEXAS
City/State ARTESIA NM, 88210

Telephone No

3
Truck No

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below

Signature of Transporter's Agent

6-13-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II

Signature of Facility Agent

6/13/12 10:32am
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91253

PART I: Generator NAVAJO REFINING - LOVINGTON
Address 7406 S. MAIN
City/State LOVINGTON NM, 88260
(575) 396-582'
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM0360010367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	_____	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards contaminated soil

From Cleanup on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

James W Holy
Signature of Generator's Authorized Agent

6-13-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name GANDY'S
Address P.O. BOX 2140
City/State LOVINGTON NM, 88260

(575) 396-4948
Telephone No.

360
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-13-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Jacob DeLos Santos
Signature of Facility Agent

6/13/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91240

PART I: Generator Navajo Refining-Lovington
Address 7406 S. Main
City/State Lovington, NM 88260
(575)396-5821
Telephone No

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES — Box # 20529

12 yards contaminated soil

From Cleanup on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge

James W Holt
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address P.O. Box 88
City/State Snyder, Texas 79550

Telephone No.

434
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below

Signature of Transporter's Agent

6-13-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II

Signature of Facility Agent

6/13/12 12:50pm
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91254

PART I: Generator NAVAJO REFINING - LOVINGTON
Address 7406 S. MAIN
City/State LOVINGTON, NM 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM0360010367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	✓	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards contaminated soil

From tank clean up on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

6-13-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name S. BROTHERS
Address 512 W. TEXAS
City/State ARTESIA NM 88210

Telephone No.
3
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-13-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/13/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91257

PART I: Generator NAVAJO - REFINING - LOVINGTON
Address 7406 S. MAIN
City/State LOVINGTON N. M. 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD 786440367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contamenated dirt

From tank cleanup on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

6-13-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name SANDY'S
Address P.O. Box 2140
City/State LOVINGTON NM, 88260

(575) 396-9464
Telephone No.

360
Truck No

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-13-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II

Signature of Facility Agent

6/13/12 1:38 pm
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91255

PART I: Generator NAVAJO REFINING - LOVINGTON
Address 2406 S. MAIN
City/State LOVINGTON NM, 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No	

DESCRIPTION / NOTES

12 yards contaminated soil

From tank cleanup on 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

6-13-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name CANDY'S
Address P.O. Box 2140
City/State LOVINGTON NM, 88260

(575) 396-4948
Telephone No.

360
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-13-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/13/12 4:20pm
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91259

PART I: Generator NAVAJO- REFINING LOVINGTON
Address 7406 S. MAIN
City/State LOVINGTON NM, 88260

(575) 396-5821
Telephone No

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM0360010367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards con taminated soil

From cleanup on tank 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

6-14-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name GANDY'S
Address P.O. BOX 2140
City/State LOVINGTON NM, 88260

(575) 396-4948
Telephone No

360
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-14-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/14/12 @ 3:10 pm
Date and Time Received

TCP #7520-A

NON-HAZARDOUS WASTE MANIFEST

91258

PART I: Generator NAVAJO REFINING - LOVINGTON
Address 7406 S. MAIN
City/State LOVINGTON NM, 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards Contaminated soil

From Cleanup on tank 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

James W Hardy
Signature of Generator's Authorized Agent

6-14-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name GANDY'S
Address P.O. Box 2140
City/State LOVINGTON NM, 88260

(575) 396-4948
Telephone No.

360
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-14-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/14/12 10:59am
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91256

PART I: Generator NAVAJO REFINING - LOVINGTON
Address 1406 S MAIN
City/State LOVINGTON N.M, 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards Contaminated Soil

From Cleanup on tank 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

6-19-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name S. BROTHERS
Address 512 W. TEXAS
City/State ARTESIA N.M., 88210

Telephone No.

3
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-19-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/19/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91264

PART I: Generator NAVAJO REFINING - LOVINGTON (575) 396-5821
Address 7406 S. MAIN Telephone No
City/State LOVINGTON NM, 88260

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD-3600 10367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil
From Cleanup on Tank 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge

James W Hobbs
Signature of Generator's Authorized Agent

6-19-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name GANDY'S (575) 396-4948
Address P.O. Box 2140 Telephone No
City/State LOVINGTON N.M, 88260

360
Truck No

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below

Signature of Transporter's Agent

6-19-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.** **(575) 393-1079**
Address **P.O. Box 388** Telephone No.
City/State **Hobbs, N.M. 88241-0388** **www.crihobbs.com**
E mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/19/12 10:31am
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91265

PART I: Generator NAVAJO REFINING-LOVINGTON
Address 7406 S. MAIN
City/State LOVINGTON N.M, 88260

(575)396-5821
Telephone No

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD-3460010367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

From Cleanup on tank 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge

Signature of Generator's Authorized Agent

6-19-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name S. BROTHERS
Address 512 W. TEXAS
City/State ARTESIA N.M, 88210

Telephone No

3
Truck No

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Greg
Signature of Transporter's Agent

6-19-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Jacob Dellos Santos
Signature of Facility Agent

6/19/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91260

PART I: Generator NAVAJO-REFINING-LOVINGTON
Address 7406 S. MAIN
City/State LOVINGTON NM, 88260

(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

From cleanup on Tank 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

6-19-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name SANDY'S
Address P.O. BOX 2140
City/State LOVINGTON NM, 88260

(575) 396-4948
Telephone No.

360
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-19-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Jacque De Los Santos
Signature of Facility Agent

6/19/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91262

PART I: Generator HAVASU-REFINING-LOVINGTON
Address 7406 S. MAIN
City/State LOVINGTON N.M. 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM0966010367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	✓	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards contaminated dirt

From Cleanup on Tank 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge

Signature of Generator's Authorized Agent

6-19-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name GANDYS
Address P.O. BOX 2140
City/State LOVINGTON N.M. 88260

(575) 396-4948
Telephone No.

360
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

6-19-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

6/19/12
Date and Time Received

TCP - #7520-A

NON-HAZARDOUS WASTE MANIFEST

91266

PART I: Generator NAVAJO REFINING - LOVINGTON
Address 7406 S. MAIN
City/State LOVINGTON NM, 88260
(575) 396-5821
Telephone No

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM0-360010367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated dirt

From cleanup on tank 104-B

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge

Signature of Generator's Authorized Agent

6-20-12
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name GANDY'S
Address P.O. BOX 2140
City/State LOVINGTON N.M, 88260

(575) 396-4998
Telephone No

360
Truck No

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below

Signature of Transporter's Agent

6-20-12
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II

Signature of Facility Agent

6/20/12 10:5 am
Date and Time Received

TCP - #7520-A

HOLLYFRONTIER
THE HOLLYFRONTIER COMPANIES

September 10, 2012

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

FEDEX

Re: Final Report for Lovington T-1215 leak August 1, 2011
Navajo Refining Co. LLC
Lovington, NM GW-014

Dear Carl,

Please find the enclosed manifests for non-hazardous waste disposal for excavation of impacted soil from the T-1215 spill. If you have any questions concerning this submission, please contact me at 575-746-5382 or by email at Robert.Combs@hollyfrontier.com.

Sincerely,

Robert Combs, Ph.D.
Environmental Specialist

Electronic cc: MGM, MH, MLS, AMS

NON-HAZARDOUS WASTE MANIFEST

76205

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, N.M. 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM0360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated dirt

Bo. 20535

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
42
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

8-1-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

8/1/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST 44276

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, N.M. 88260
(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 [illegible] yards contaminated dirt

Box 20521

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin Crudup
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
424
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Steve Brown
Signature of Transporter's Agent

8-1-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

8/1/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST 44282

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, N.M. 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM0360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards ~~[illegible]~~ contaminated dirt

Box 20529

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin Crabtree
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

Telephone No.
424
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

8-2-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

8/2/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

78210

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, N.M. 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. ~~NM360010367~~

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	✓	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards contaminated dirt + concrete

Rx # 3523

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

9-5-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address 4647 W Hwy 180
City/State Snyder TX

Telephone No.

404
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-5-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9-5-11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST 44281

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. MAin
City/State Lovington, N.M. 88260
575 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	~~_____~~	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	~~_____~~	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards ~~[illegible]~~ ~~[illegible]~~
Contaminated soil + concrete
120 x DRTS

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin Crabtree
Signature of Generator's Authorized Agent

5-5-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address 4647 W Hwy 180
City/State Hyden, NM
_____
Telephone No.
1134
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

[signature]
Signature of Transporter's Agent

5-5-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

[signature]
Signature of Facility Agent

5/5/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

78217

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, N.M. 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	✓	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

Originating Manifest Box 20521

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
4211 4091
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

8-5-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

8/5/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

78218

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, N.M. 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	_____	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

2 yards of contaminated soil

Box 30529

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin Crutchfield
Signature of Generator's Authorized Agent

_____
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

_____
Telephone No.

420 -09
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

8-8-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

_____
Signature of Facility Agent

8/16/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

10219

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, N.M. 88260
(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM0360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	_____	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.** **(575) 393-1079**
Address **P.O. Box 388** Telephone No.
City/State **Hobbs, N.M. 88241-0388** **www.crihobbs.com**
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

78227

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM036o010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil		Other Materials		Pit No.	
DESCRIPTION / NOTES					
12 yards contaminated dirt					

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
433 / 46 A
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

10/16/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

10/16/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

73228

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, N.M. 88260
(575) 396-5921
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM3600106?

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	~~_____~~	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

Soil contaminated with hydrocarbons

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

78229

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES
12 yards contaminated soil

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
453 [illegible]A
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

[illegible] TRANS
Signature of Transporter's Agent

8/16/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

78225

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, N.M. 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM0360010357

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES
12 yard contaminated dirt

Dec 31 '29

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin Condit
Signature of Generator's Authorized Agent

7-5-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

T6241

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. main
City/State Lovington, NM 88260
(575) 396-4821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. ~~NMD360910367~~

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	12	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards contaminated dirt

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

9/14/11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9/14/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

Date and Time Received

TCP - #7520-A

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NON-HAZARDOUS WASTE MANIFEST

70223

PART I: Generator Navajo Refining - Lee Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES
12 yards contaminated soil

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Nov 20 09

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
Truck No. 701

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9 Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

Date and Time Received

TCP - #7520-A

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NON-HAZARDOUS WASTE MANIFEST

78244

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. AP-03660010357

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	
DESCRIPTION / NOTES					
12 yards contaminated dirt					

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

9-14-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-572-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-14-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name **Controlled Recovery, Inc.**
Address **P.O. Box 388**
City/State **Hobbs, N.M. 88241-0388**

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/14/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76245

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated dirt

Box 2523

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent — Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
424-410
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent — 9-14-11 Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent — 9/14/11 Date and Time Received

TCP - #7520-A

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NON-HAZARDOUS WASTE MANIFEST

10209

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, N.M. 88260
(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD3[illegible]1636

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	✓	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards contaminated dirt

Box AWS-RT9

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin Crosett
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
424-410A
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Steve Brooks
Signature of Transporter's Agent

9-14-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Richard Dunn
Signature of Facility Agent

9/14/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76242

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. ~~NMD360010367~~

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated dirt

Box 20-2

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent — Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
424 - 4104
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent — 9-15-11 Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent — 9/15/11 Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76239

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

9-15-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
325-573-5421
Telephone No.
421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-15-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/15/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76226

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, N.M. 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	12	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards contaminated dirt
Box 2569

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin Condrey
Signature of Generator's Authorized Agent

9-15-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
_____
Telephone No.
424-4104
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Steve Border
Signature of Transporter's Agent

9-15-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Debbie Lappin
Signature of Facility Agent

9/15/11
Date and Time Received

TCP-#7520-A

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NON-HAZARDOUS WASTE MANIFEST

76240

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. ~~NMD360010367~~

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials	✓	Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil and crude bottom drums

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

9-15-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
325-573-5421
Telephone No.
421
Truck No.

CERTIFICATION: I certify that the ~~waste in quantity above~~ was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-15-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/15/11
Date and Time Received

TCP - #7520-A

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NON-HAZARDOUS WASTE MANIFEST

76243

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5 821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. ~~NMD360010367~~

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated dirt

Box 30521

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent — Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
4/24 - 4110 P
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent — 9-15-11 Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent — 9/15/11 Date and Time Received

TCP - #7520-A

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NON-HAZARDOUS WASTE MANIFEST

76237

PART I: Generator Navajo Refining - LeaPlant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5021
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent — Date and Time of Shipment: 9/15/11

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
325-573-5421
Telephone No.
421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent — Date and Time Received: 9/15/11

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent — Date and Time Received: 9/15/11

TCP-#7520-A

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NON-HAZARDOUS WASTE MANIFEST

76233

PART I: Generator Navajo Refining Co - Lea Plant
Address 7406 S.Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	12	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil

Box 20 - 2.

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
424 - 4110
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-16-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/16/11
Date and Time Received

TCP- #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76235

PART I: Generator ~~Navajo Refining - Lea Plant~~
Address 7406 S. Main
City/State Lovington, NM 88260
(575) ~~396-5821~~ Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. ~~NMD360010367~~

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated dirt

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent — 9-16-11 Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
325·573·5421 Telephone No.
421 Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent — 9-16-11 Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079 Telephone No.
www.crihobbs.com E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent — 9/15/11 Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76236

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. ~~NM0360010367~~

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated dirt

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

9-19-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address
City/State

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-19-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/19/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76246

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated dirt

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin Crockett
Signature of Generator's Authorized Agent

9-19-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

[signature]
Signature of Transporter's Agent

9-19-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

[signature]
Signature of Facility Agent

9/19/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76248

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM3600010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated dirt

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

9-19-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-19-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/19/11
Date and Time Received

TCP - #7520-A

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NON-HAZARDOUS WASTE MANIFEST

76253

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S.Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMO360010357

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yds Contaminated Soil

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

9-20-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-20-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/20/11
Date and Time Received

TCP - #7520-A

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NON-HAZARDOUS WASTE MANIFEST

76252

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. ~~NM360010367~~

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yds. CONTAMINATED SOIL

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

9-20-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid TRansport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9/20/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/20/11
Date and Time Received

TCP - #7520-A

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NON-HAZARDOUS WASTE MANIFEST

76251

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S.Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. ~~NMD360010367~~

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yds CONTAMINADED SOIL

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent — 9-20-11 Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport — 325-573-5421 Telephone No.
Address _____
City/State _____ — 421 Truck No.

CERTIFICATION: I certify that the waste in quantity above was ~~received by me for~~ shipment to the destination below.

Signature of Transporter's Agent — 9-20-11 Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc. — (575) 393-1079 Telephone No.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388 — www.crihobbs.com E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent — 9/20/11 Date and Time Received

TCP - #7520-A

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NON-HAZARDOUS WASTE MANIFEST

76270

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main (575) 396-5821
City/State Lovington, NM 88260 Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM0360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil

Box 20535

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Edwin T. Hernandez
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____ Telephone No.
City/State _____ 424 - 410A Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Steve Proffer
Signature of Transporter's Agent

9-21-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc. (575) 393-1079
Address P.O. Box 388 Telephone No.
City/State Hobbs, N.M. 88241-0388 www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76271

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S,Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

Box 20529

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Elon T. Hernandez
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
424-4104
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-21-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Debbie Tolson
Signature of Facility Agent

9/21/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76250

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated dirt

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin Crabtree
Signature of Generator's Authorized Agent

9-21-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9/21/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76234

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

Box # 25537

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
424 - 410A
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-21-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/21/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76254

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S.Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yds CONTAMINATED SOIL

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

K. Corbett
Signature of Generator's Authorized Agent

9-21-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in ~~quantity~~ above was received by me for shipment to the destination below.

W Fletcher
Signature of Transporter's Agent

9-21-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/21/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76262

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	
DESCRIPTION / NOTES					
12 yards contaminated soil					

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

9/21/11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
325-573-5421
Telephone No.
421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9/21/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/21/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76257

PART I: Generator NAVAJO REFINING - LEA PLANT
Address 7406 S. Main
City/State LOVINGTON, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD369010367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent — Date and Time of Shipment: 9/23/11

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name FLUID TRANSPORT
Address _____
City/State _____
325-573-5421
Telephone No.
421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent — Date and Time Received: 9/23/11

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent — Date and Time Received: 9/23/11

TCP-#7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76255

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S.Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. ~~NMD360010367~~

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

Box 25537

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
424 - 410 A
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-23-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/23/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76258

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	
DESCRIPTION / NOTES					
12 yards Contaminated Soil					

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin Condit
Signature of Generator's Authorized Agent

9/22/11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9/22/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/22/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76259

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S.Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM0360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil		Other Materials		Pit No.	
DESCRIPTION / NOTES					
12 yards contaminated soil					

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

9/22/11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9/22/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/22/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76256

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM. 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

Box 20-29

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
424 410H
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-22-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/22/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76264

PART I: Generator ~~Navajo Refining - Lea Plant~~
Address 7406 S. Main
City/State Lovington, NM 88260

(575) ~~396-5021~~
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. ~~NMD360010367~~

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

Box 20535

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Elton T. Hernandez
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

Telephone No.

424 - 410A
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Steve Trosper
Signature of Transporter's Agent

Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Debbie Leptin
Signature of Facility Agent

9/22/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76269

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 395-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____

DESCRIPTION / NOTES

12 yards contaminated soil

Box # 20529

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
424 - 41011
Truck No.

CERTIFICATION: I certify that the waste in quantities above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-22-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/22/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76260

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	
DESCRIPTION / NOTES					
12 yards contaminated soil					

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin Colbert
Signature of Generator's Authorized Agent

9-22-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-22-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/22/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76247

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated dirt

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

9/26/11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
325-513-5421
Telephone No.
421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9/26/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/26/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76263

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. ~~NMD360010367~~

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	
DESCRIPTION / NOTES					
12 yards contaminated soil					

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin C Sett
Signature of Generator's Authorized Agent

9/26/11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

[signature]
Signature of Transporter's Agent

9/26/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Debbie Tippin
Signature of Facility Agent

9/26/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76275

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM0360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	
DESCRIPTION / NOTES					
12 yards contaminated soil					

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Eldon T. Hernandez
Signature of Generator's Authorized Agent

9/27/11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9/27/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/27/11
Date and Time Received

TCP-#7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76278

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NM3601O367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	✓	C117 No.	_____
Contaminated Soil	_____	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards contaminated materials

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Eloy T Hernandez
Signature of Generator's Authorized Agent

9-27-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-27-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/27/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76291

PART I: Generator NAVAJO REFINING - LEA PLANT
Address 7406 S. MAIN
City/State LOVINGTON, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360000367

Property Name LOVINGTON
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste	✓	C117 No.	
Contaminated Soil		Other Materials		Pit No.	
DESCRIPTION / NOTES					
12 yards contaminated material					

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Eloy T. Hernandez
Signature of Generator's Authorized Agent

9-27-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name FLUID TRASNPORT
Address _____
City/State _____

325-573-5421
Telephone No.

#421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-27-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/27/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76265

PART I: Generator Navajo Refining @ Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	

DESCRIPTION / NOTES

12 yards contaminated soil

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Eloy T. Hernandez
Signature of Generator's Authorized Agent

9-27-11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9-27-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/27/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76274

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575)396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	____	Tank Bottoms	____	Exempt Fluids	____
Completion Fluids	____	Gas Plant Waste	____	C117 No.	____
Contaminated Soil	✓	Other Materials	____	Pit No.	____
DESCRIPTION / NOTES					
12 yards contaminated soil					

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Floyd Howard
Signature of Generator's Authorized Agent

9/28/11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____

325-573-5421
Telephone No.

421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

9/28/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388

(575) 393-1079
Telephone No.

www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

9/28/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

76282

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids	_____	Tank Bottoms	_____	Exempt Fluids	_____
Completion Fluids	_____	Gas Plant Waste	_____	C117 No.	_____
Contaminated Soil	✓	Other Materials	_____	Pit No.	_____

DESCRIPTION / NOTES

12 yards Contaminated soil

Orange Navajo box

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Kevin Crandell
Signature of Generator's Authorized Agent

Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
Telephone No.
434 - 4104
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

11-15-11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Jessica Pepon
Signature of Facility Agent

11-15-11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

NON-HAZARDOUS WASTE MANIFEST

78283

PART I: Generator Navajo Refining - Lea Plant
Address 7406 S. Main
City/State Lovington, NM 88260
(575) 396-5821
Telephone No.

ORGINATION OF WASTE:

Operations Center _____ Permit No. NMD360010367

Property Name Lovington
(Well, Tank Battery, Plant, Facility)

WASTE IDENTIFICATION AND AMOUNT (BARRELS, YARDS, TONS, CU.FT., LBS., UNITS, ETC.)					
Drilling Fluids		Tank Bottoms		Exempt Fluids	
Completion Fluids		Gas Plant Waste		C117 No.	
Contaminated Soil	✓	Other Materials		Pit No.	
DESCRIPTION / NOTES					
12 yards contaminated soil wood					

CERTIFICATION: The waste described above is not hazardous pursuant to 40 CFR Part 261 and was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature of Generator's Authorized Agent

11/15/11
Date and Time of Shipment

PART II: TRANSPORTER: (To be completed in full by Transporter)

Name Fluid Transport
Address _____
City/State _____
325-573-5421
Telephone No.
421
Truck No.

CERTIFICATION: I certify that the waste in quantity above was received by me for shipment to the destination below.

Signature of Transporter's Agent

11/15/11
Date and Time Received

PART III: DISPOSAL OR RECLAMATION SITE:

Name Controlled Recovery, Inc.
Address P.O. Box 388
City/State Hobbs, N.M. 88241-0388
(575) 393-1079
Telephone No.
www.crihobbs.com
E-mail

CERTIFICATION: I certify that the waste described in Part I was received by me via the transporter described in Part II.

Signature of Facility Agent

11/15/11
Date and Time Received

TCP - #7520-A

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, September 05, 2012 4:54 PM
To: 'Combs, Robert'
Cc: Holder, Mike; Strange, Aaron; Schultz, Michele
Subject: RE: Final C-141--Lovington T-1215 080111

Robert:

Approved.

Please be advised that OCD approval of this corrective action does not relieve Navajo Refining Company of responsibility should their operations fail to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval of this corrective action does not relieve Navajo Refining Company of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
Office: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
Website: http://www.emnrd.state.nm.us/ocd/
"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental

---

From: Combs, Robert [mailto:Robert.Combs@hollyfrontier.com]
Sent: Friday, August 24, 2012 3:41 PM
To: Chavez, Carl J, EMNRD
Cc: Holder, Mike; Strange, Aaron; Schultz, Michele
Subject: Final C-141--Lovington T-1215 080111
Importance: High

Carl,
Please see the attached Final C-141 for the Lovington T-1215 spill that occurred on 8/1/11. Also provided are supporting documents for disposal, photos, and repairs (this will be broken up to ~10 MB portions, so two additional emails will follow).

As mentioned in our previous communications, we would like to pursue the repairs ASAP; please let me know if this path forward is acceptable to OCD. Navajo appreciates OCD's insights and feedback. We would appreciate a response as soon as possible to proceed with the tank repairs.

Please let me know if you have any questions.

Thanks,
Robert

Robert Combs

Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

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Chavez, Carl J, EMNRD

From: Combs, Robert <Robert.Combs@hollyfrontier.com>
Sent: Friday, August 24, 2012 3:41 PM
To: Chavez, Carl J, EMNRD
Cc: Holder, Mike; Strange, Aaron; Schultz, Michele
Subject: Final C-141--Lovington T-1215 080111
Attachments: Final C-141--T-1215 spill 080111.pdf; Photos 080111.txt

Importance: High

Carl,
Please see the attached Final C-141 for the Lovington T-1215 spill that occurred on 8/1/11. Also provided are supporting documents for disposal, photos, and repairs (this will be broken up to ~10 MB portions, so two additional emails will follow).

As mentioned in our previous communications, we would like to pursue the repairs ASAP; please let me know if this path forward is acceptable to OCD. Navajo appreciates OCD's insights and feedback. We would appreciate a response as soon as possible to proceed with the tank repairs.

Please let me know if you have any questions.

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Robert

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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 August 8, 2011

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 Navajo Lea Refining Co.	Contact Robert Combs
Address 7401 S. Main Lovington, NM 88260	Telephone No. 575-746-5382
Facility Name	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

Latitude_____ **Longitude**_____

NATURE OF RELEASE

Type of Release Crude Bottoms (Asphalt, vacuum gas oil)	Volume of Release est. 350 bbls	Volume Recovered 280 bbls
Source of Release T-1215	Date and Hour of Occurrence 8/1/11 01:00	Date and Hour of Discovery 8/1/11 01:00
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? Carl Chavez by email	
By Whom? Darrell Moore	Date and Hour 8/1/11 07:35	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
At 1 am on August 1, 2011, during routine rounds, an operator at the Lovington facility noticed a small pool of hydrocarbon on the south side of T-1215, estimated at 3 bbl. The operator made the internal notification and it was determined that the tank may have a hole in the floor. Operations began to transfer the contents of T-1215 to T-1214. At the time the leak was noticed, T-1215 contained ~15,000 bbl of its 20,000 bbl capacity. By 07:00, the leak had spread to almost completely surround the tank. It appears that with the heat of the day, the material became more mobile and spread. This was not reported immediately because initially, it was a 3 bbl leak, and was considered to be due to a pinhole leak in the floor.

Describe Area Affected and Cleanup Action Taken.*
The area affected was inside the dike that contains T-1214 and T-1215. Please see the attached photos (Photos 080111). The spill almost encircled T-1215 and ran to the southwest inside the dike and pooled in the southwest portion of the dike area. Small dikes were constructed to prevent further spread of the liquid. Two vacuum trucks were used to recover the spilled material, and then transfered to T-1214. After the free liquid was removed, the contaminated soil was excavated, placed in roll-off bins, sampled, and transported to R360/CRI for disposal (see attachments "1108460 Disposal Final" and "T-1215 spill Non-Haz Waste Manifests"). Soil investigations were performed by a consultant to delineate the spill, please see the attachments "T-1215 Interior Investigation docs" and T-1215 Exterior Investigation docs". The consultant recommended that no further investigation was necessary, but low lying areas needed to be backfilled to prevent pooling on the exterior of the tank; this also has been completed, please see the attached photos (Photos 080912).

Prior to returning to service, T-1215 will be repaired, following OCD's recommendation, by installing a double steel floor (see attached email file and "HollyFrontier- Tulsa 60x40 Proposal 17645rev1 FINAL_2"). Praxair probes will be installed in 2013 to serve as a leak detection system; a 'typical' installation drawing is attached ("70' AST Map-Probe Radius 20'" and "AST method statement"). This type installation has been completed for tanks in Artesia, as approved by OCD. As-built drawings can be provided once the installation is complete for both the floor and Praxair probes.

There are monitor wells in the area of T-1215 and those will continue to be monitored semiannually. This will be a long-term indicator of impacts to groundwater as a result of the event.

HOLLYFRONTIER
THE HOLLYFRONTIER COMPANIES

August 29, 2012

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

FEDEX

Re: Final Report for Lovington T-1215 leak August 1, 2011
Navajo Refining Co. LLC
Lovington, NM GW-014

Dear Carl,

Enclosed, please find the enclosed C-141 Final report and supporting documents for the T-1215 for the Navajo-Lovington Refinery. If you have any questions concerning this submission, please contact me at 575-746-5382 or by email at Robert.Combs@hollyfrontier.com.

Sincerely,

Robert Combs, Ph.D.
Environmental Specialist

W/out enclosures:
Electronic cc: MGM, MH, MLS, AMS

District I
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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 August 8, 2011

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 Navajo Lea Refining Co.	Contact Robert Combs
Address 7401 S. Main Lovington, NM 88260	Telephone No. 575-746-5382
Facility Name	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

Latitude_____ **Longitude**_____

NATURE OF RELEASE

Type of Release Crude Bottoms (Asphalt, vacuum gas oil)	Volume of Release est. 350 bbls	Volume Recovered 280 bbls
Source of Release T-1215	Date and Hour of Occurrence 8/1/11 01:00	Date and Hour of Discovery 8/1/11 01:00
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? Carl Chavez by email	
By Whom? Darrell Moore	Date and Hour 8/1/11 07:35	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
At 1 am on August 1, 2011, during routine rounds, an operator at the Lovington facility noticed a small pool of hydrocarbon on the south side of T-1215, estimated at 3 bbl. The operator made the internal notification and it was determined that the tank may have a hole in the floor. Operations began to transfer the contents of T-1215 to T-1214. At the time the leak was noticed, T-1215 contained ~15,000 bbl of its 20,000 bbl capacity. By 07:00, the leak had spread to almost completely surround the tank. It appears that with the heat of the day, the material became more mobile and spread. This was not reported immediately because initially, it was a 3 bbl leak, and was considered to be due to a pinhole leak in the floor.

Describe Area Affected and Cleanup Action Taken.*
The area affected was inside the dike that contains T-1214 and T-1215. Please see the attached photos (Photos 080111). The spill almost encircled T-1215 and ran to the southwest inside the dike and pooled in the southwest portion of the dike area. Small dikes were constructed to prevent further spread of the liquid. Two vacuum trucks were used to recover the spilled material, and then transfered to T-1214. After the free liquid was removed, the contaminated soil was excavated, placed in roll-off bins, sampled, and transported to R360/CRI for disposal (see attachments "1108460 Disposal Final" and "T-1215 spill Non-Haz Waste Manifests"). Soil investigations were performed by a consultant to delineate the spill, please see the attachments "T-1215 Interior Investigation docs" and T-1215 Exterior Investigation docs". The consultant recommended that no further investigation was necessary, but low lying areas needed to be backfilled to prevent pooling on the exterior of the tank; this also has been completed, please see the attached photos (Photos 080912).

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There are monitor wells in the area of T-1215 and those will continue to be monitored semiannually. This will be a long-term indicator of impacts to groundwater as a result of the event.

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:	OIL CONSERVATION DIVISION	
Printed Name: Robert Combs	Approved by Environmental Specialist:	
Title: Environmental Specialist	Approval Date:	Expiration Date:
E-mail Address: Robert.Combs@hollyfrontier.com	Conditions of Approval:	Attached ☐
Date: 8/24/12 Phone: 575-746-5382		

* Attach Additional Sheets If Necessary

Supporting Documents to Final C-141 Form

Final Report for Lovington T-1215

August 1, 2011

Initial C-141 Form

Final Report for Lovington T-1215

August 1, 2011

District I
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Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 1, 2011

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

x Initial Report ☐ Final Report

Name of Company Navajo Lea Refining Co	Contact Darrell Moore
Address 7401 South Main Lovington NM 88260	Telephone No. 575-746-5281
Facility Name	Facility Type Petroleum 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

Latitude_____ **Longitude**_____

NATURE OF RELEASE

Type of Release Crude Bottoms (Asphalt, vacuum gas oil)	Volume of Release est. 350 bbls	Volume Recovered 280 bbls
Source of Release Tk 1215	Date and Hour of Occurrence 8/1/11 1 am	Date and Hour of Discovery 8/1/11 1 am
Was Immediate Notice Given? ☐ Yes ☐ No x Not Required	If YES, To Whom? Carl Chavez by email	
By Whom? Darrell Moore	Date and Hour 8/1/11 7:35 am	
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If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
At 1 am on August 1, 2011, during routine rounds, an operator at the Lovington facility noticed a small pool of hydrocarbon on the south side of Tk 1215 estimated at 3 bbls.. He notified environmental and it was determined that the tank may have a hole in the floor. We then started emptying the tank into Tk 1214. The tank, which is a 20,000 bbl tank, was about ¾ full. By 7 am the leak had spread to almost all the way around the tank. We think that the heat of the day was making the product, which is an asphalt and vacuum gas oil mixture, more mobile. We did not immediately report the spill because we thought at the time it was a small 3 bbl leak from a pinhole in the floor of the tank.

Describe Area Affected and Cleanup Action Taken.*
The area affected is inside the dike that contains Tk 1214 and Tk 1215. The spill has almost entirely encircled Tk 1215 and then run southeast inside the dike and pooled up southeast of Tk 1215. Two vacuum trucks were called and began vacuuming up the spilled material. In addition we immediately started emptying Tk 1215 into Tk 1214. We also built small dikes to contain the spilled material into smaller areas. Tk 1215 should be empty by noon on August 2, 2011. We will then finish the vacuuming operation and begin picking up contaminated soil and placing into roll-off bins. Once we have picked up contaminated soil we will do drilling and sampling to insure cleanup.

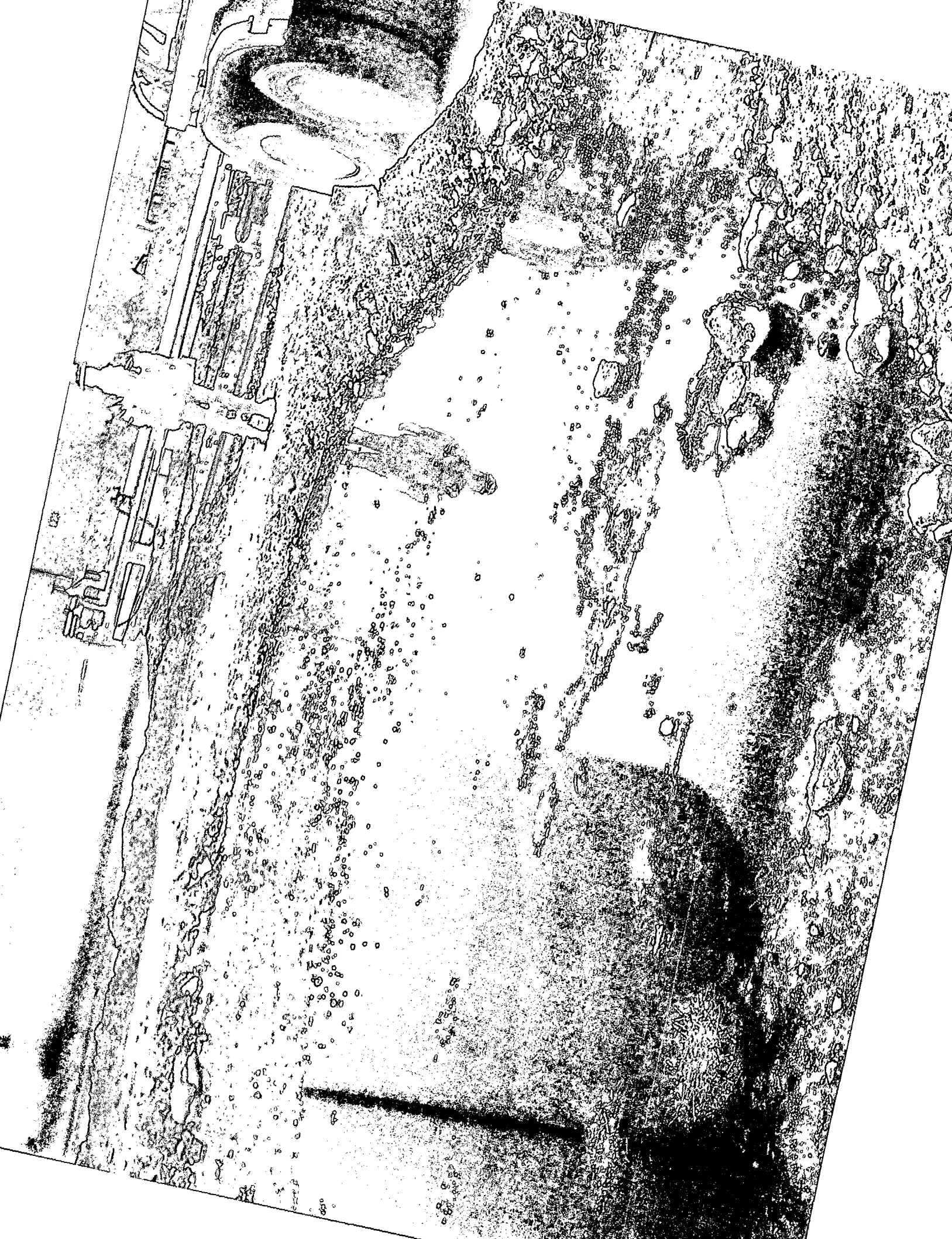
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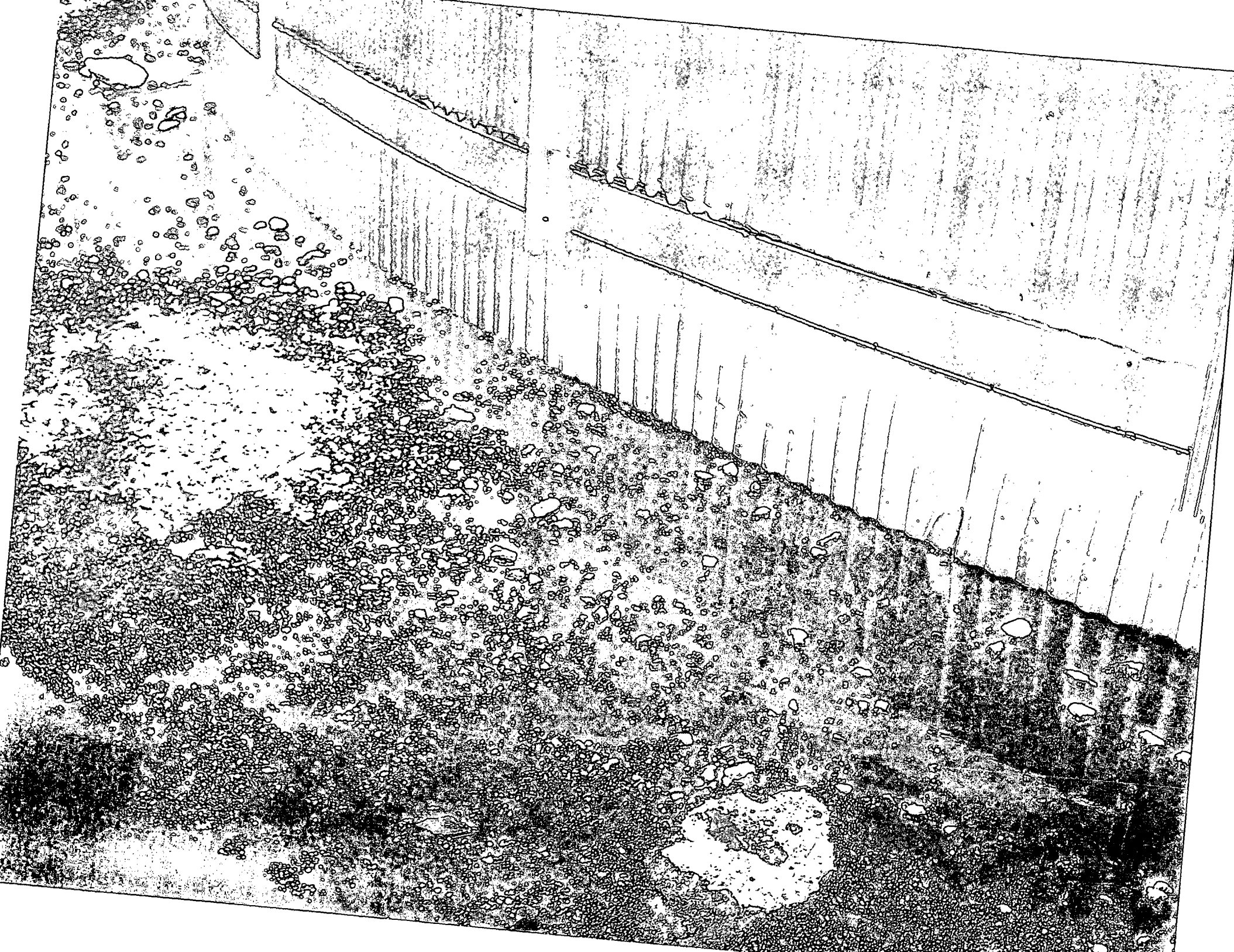
Signature: Darrell Moore	OIL CONSERVATION DIVISION	
Printed Name: Darrell Moore	Approved by District Supervisor:	
Title: Environmental Manager for Water and Waste	Approval Date:	Expiration Date:
E-mail Address: Darrell.moore@hollyfrontier.com	Conditions of Approval:	Attached ☐
Date: 8/2/11 Phone: 575-746-5281		

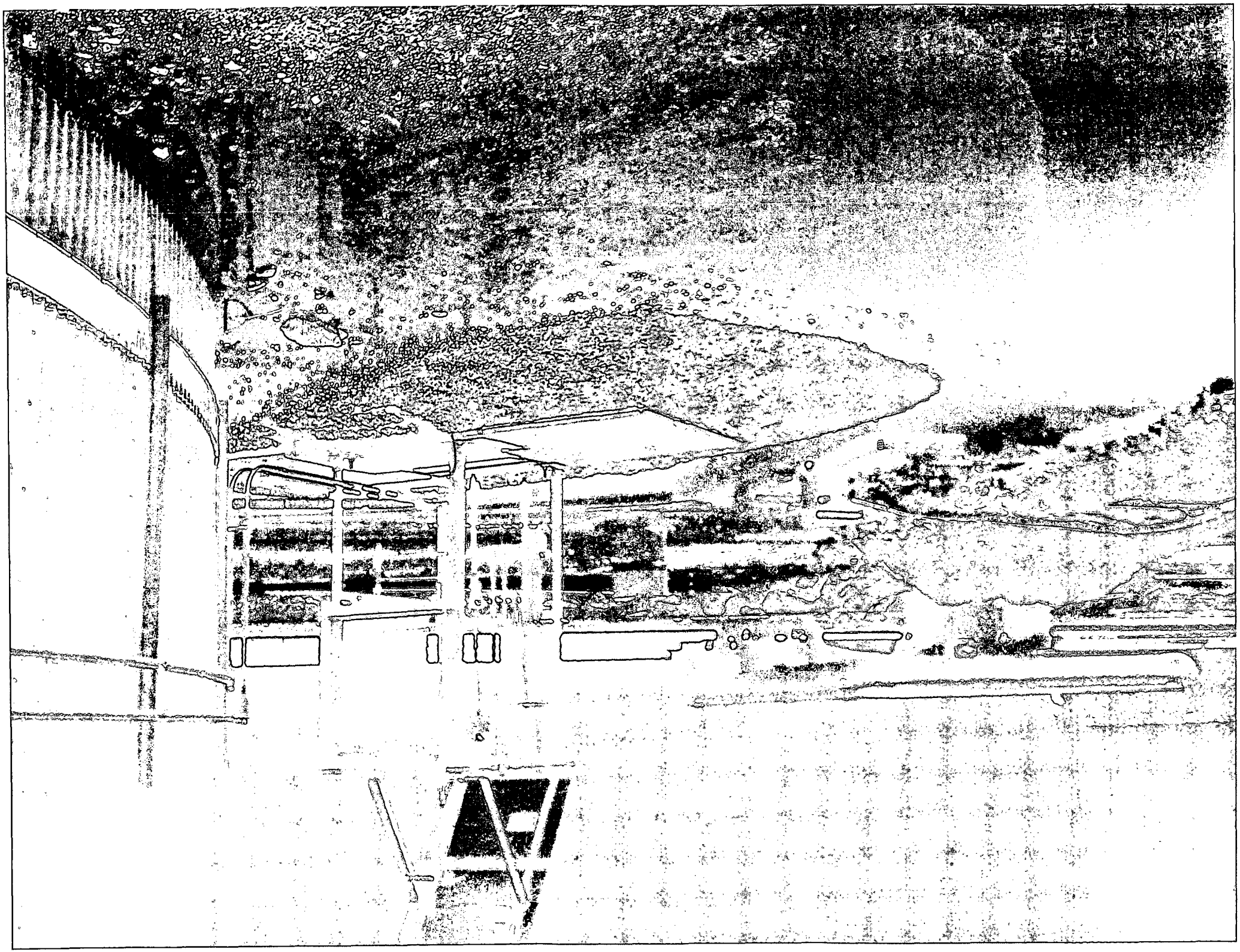
Photos 080111

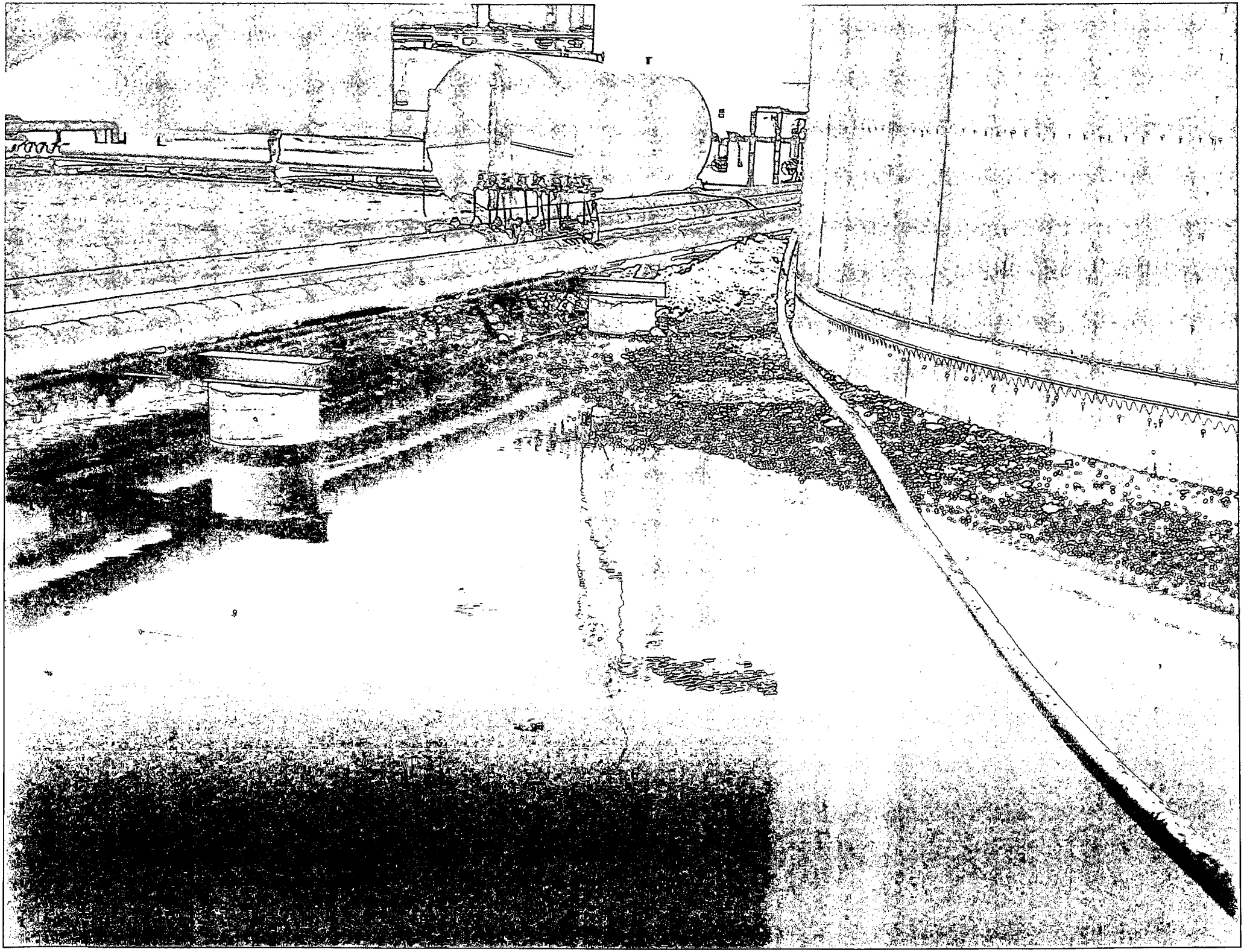
Final Report for Lovington T-1215

August 1, 2011

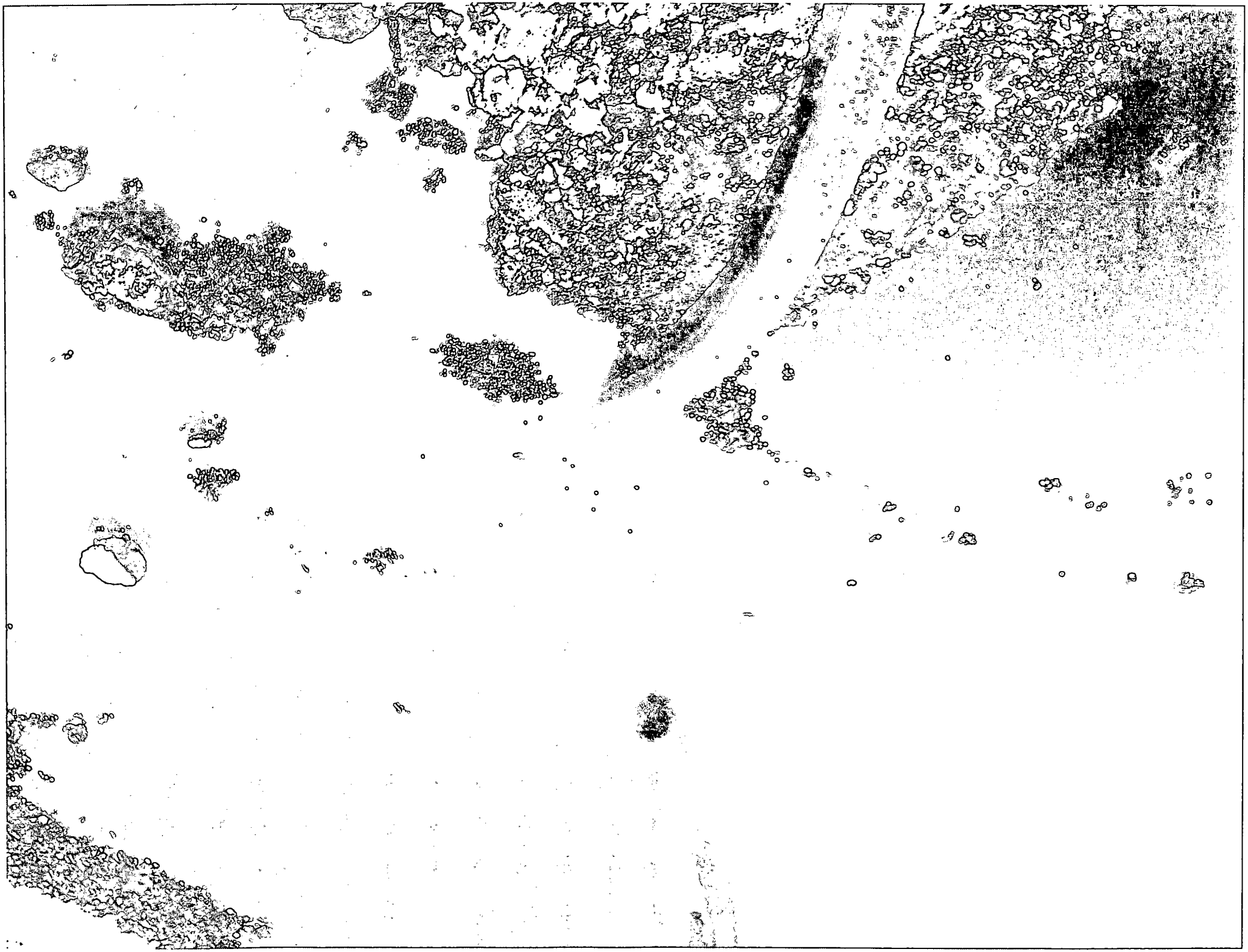









1214



1108460 Disposal Final

Final Report for Lovington T-1215

August 1, 2011

ALS Environmental

25-Aug-2011

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-3311
Fax: (575) 746-5421

Re: Disposal

Work Order: **1108460**

Dear Aaron,

ALS Environmental received 1 sample on 13-Aug-2011 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 27.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Chris Bryson

Electronically approved by: Yvan K. Ty

Chris Bryson
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac

Certificate No: T104704231-09A-TX

ALS Environmental

Date: 25-Aug-11

Client: Navajo Refining Company
Project: Disposal
Work Order: **1108460**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1108460-01	TK-1215 Spill	Soil		8/12/2011 06:15	8/13/2011 09:30	☐

Client:	Navajo Refining Company
Project:	Disposal
Work Order:	1108460

Case Narrative

Batch 54856, Semivolatile Organics, Sample SLCST1-110821-54856: The recovery of total cresols in the LCS was above the control limit. Recovery in the LCSD was acceptable. The result in the sample was non detect.

Batch 54934, Metals, Sample 1108562-01B: MS/MSD is for an unrelated sample.

Batch R115037, Volatile Organics, Sample 1108567-01Z: MS/MSD is for an unrelated sample.

ALS Environmental

Date: *25-Aug-11*

Client: Navajo Refining Company
Project: Disposal
Work Order: 1108460
Sample ID: TK-1215 Spill
Lab ID: 1108460-01
Collection Date: 8/12/2011 06:15 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY			**SW7470**		Prep Date: **8/19/2011**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	8/19/2011 04:48 PM
TCLP METALS			**SW1311/6020**		Prep Date: **8/19/2011**	Analyst: **IGF**
Arsenic	ND		0.0500	mg/L	10	8/20/2011 02:41 PM
Barium	**0.299**		**0.0500**	**mg/L**	10	8/20/2011 02:41 PM
Cadmium	ND		0.0200	mg/L	10	8/20/2011 02:41 PM
Chromium	ND		0.0500	mg/L	10	8/20/2011 02:41 PM
Lead	ND		0.0500	mg/L	10	8/20/2011 02:41 PM
Selenium	ND		0.0500	mg/L	10	8/20/2011 02:41 PM
Silver	ND		0.0500	mg/L	10	8/20/2011 02:41 PM
TCLP SEMIVOLATILES			**SW1311/8270**		Prep Date: **8/21/2011**	Analyst: **JLJ**
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	8/22/2011 06:48 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	8/22/2011 06:48 PM
2,4-Dinitrotoluene	ND		0.0050	mg/L	1	8/22/2011 06:48 PM
Cresols, Total	ND		0.015	mg/L	1	8/22/2011 06:48 PM
Hexachlorobenzene	ND		0.0050	mg/L	1	8/22/2011 06:48 PM
Hexachlorobutadiene	ND		0.0050	mg/L	1	8/22/2011 06:48 PM
Hexachloroethane	ND		0.0050	mg/L	1	8/22/2011 06:48 PM
Nitrobenzene	ND		0.0050	mg/L	1	8/22/2011 06:48 PM
Pentachlorophenol	ND		0.0050	mg/L	1	8/22/2011 06:48 PM
Pyridine	ND		0.0050	mg/L	1	8/22/2011 06:48 PM
Surr: 2,4,6-Tribromophenol	*84.5*		*42-124*	*%REC*	1	8/22/2011 06:48 PM
Surr: 2-Fluorobiphenyl	*69.7*		*48-120*	*%REC*	1	8/22/2011 06:48 PM
Surr: 2-Fluorophenol	*72.0*		*20-120*	*%REC*	1	8/22/2011 06:48 PM
Surr: 4-Terphenyl-d14	*73.8*		*51-135*	*%REC*	1	8/22/2011 06:48 PM
Surr: Nitrobenzene-d5	*70.0*		*41-120*	*%REC*	1	8/22/2011 06:48 PM
Surr: Phenol-d6	*86.0*		*20-120*	*%REC*	1	8/22/2011 06:48 PM
TCLP VOLATILES			**SW1311/8260B**		Prep Date: **8/20/2011**	Analyst: **PC**
1,1-Dichloroethene	ND		0.10	mg/L	20	8/23/2011 07:17 AM
1,2-Dichloroethane	ND		0.10	mg/L	20	8/23/2011 07:17 AM
1,4-Dichlorobenzene	ND		0.10	mg/L	20	8/23/2011 07:17 AM
2-Butanone	ND		0.20	mg/L	20	8/23/2011 07:17 AM
Benzene	ND		0.10	mg/L	20	8/23/2011 07:17 AM
Carbon tetrachloride	ND		0.10	mg/L	20	8/23/2011 07:17 AM
Chlorobenzene	ND		0.10	mg/L	20	8/23/2011 07:17 AM
Chloroform	ND		0.10	mg/L	20	8/23/2011 07:17 AM
Tetrachloroethene	ND		0.10	mg/L	20	8/23/2011 07:17 AM
Trichloroethene	ND		0.10	mg/L	20	8/23/2011 07:17 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *25-Aug-11*

Client: Navajo Refining Company
Project: Disposal
Work Order: 1108460
Sample ID: TK-1215 Spill
Lab ID: 1108460-01
Collection Date: 8/12/2011 06:15 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl chloride	ND		0.10	mg/L	20	8/23/2011 07:17 AM
Surr: 1,2-Dichloroethane-d4	*101*		*70-125*	*%REC*	20	8/23/2011 07:17 AM
Surr: 4-Bromofluorobenzene	*98.6*		*72-125*	*%REC*	20	8/23/2011 07:17 AM
Surr: Dibromofluoromethane	*100*		*71-125*	*%REC*	20	8/23/2011 07:17 AM
Surr: Toluene-d8	*100*		*75-125*	*%REC*	20	8/23/2011 07:17 AM
REACTIVE CYANIDE			**SW-846**			Analyst: **HN**
Reactive Cyanide	ND		0.100	mg/Kg	1	8/23/2011 01:00 PM
REACTIVE SULFIDE			**SW-846**			Analyst: **HN**
Reactive Sulfide	ND		40.0	mg/Kg	1	8/23/2011 01:00 PM
IGNITABILITY			**SW1030**			Analyst: **KAH**
Ignitability, Solid	**Negative**			**Burn Rate, mm/**	1	8/22/2011 04:35 PM
PH			**SW9045B**			Analyst: **DM**
pH	**8.73**		**0.100**	**pH Units**	1	8/15/2011 04:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 25-Aug-11

Client: Navajo Refining Company

Work Order: 1108460

Project: Disposal

QC BATCH REPORT

Batch ID: **54832** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW3-081911-54832** Units: **mg/L** Analysis Date: **8/19/2011 04:11 PM**

Client ID: Run ID: **MERCURY_110819A** SeqNo: **2500889** Prep Date: **8/19/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

MBLK Sample ID: **GBLKT1-081811-54832** Units: **mg/L** Analysis Date: **8/19/2011 04:21 PM**

Client ID: Run ID: **MERCURY_110819A** SeqNo: **2500892** Prep Date: **8/19/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW3-081911-54832** Units: **mg/L** Analysis Date: **8/19/2011 04:13 PM**

Client ID: Run ID: **MERCURY_110819A** SeqNo: **2500890** Prep Date: **8/19/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00476	0.00020	0.005	0	95.2	80-120	0			

MS Sample ID: **1108503-03AMS** Units: **mg/L** Analysis Date: **8/19/2011 04:27 PM**

Client ID: Run ID: **MERCURY_110819A** SeqNo: **2500895** Prep Date: **8/19/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00478	0.00020	0.005	-0.000029	96.2	75-125	0			

MSD Sample ID: **1108503-03AMSD** Units: **mg/L** Analysis Date: **8/19/2011 04:29 PM**

Client ID: Run ID: **MERCURY_110819A** SeqNo: **2500896** Prep Date: **8/19/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00475	0.00020	0.005	-0.000029	95.6	75-125	0.00478	0.63	20	

DUP Sample ID: **1108503-03ADUP** Units: **mg/L** Analysis Date: **8/19/2011 04:25 PM**

Client ID: Run ID: **MERCURY_110819A** SeqNo: **2500894** Prep Date: **8/19/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000029	0	20	

The following samples were analyzed in this batch: 1108460-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108460
Project: Disposal

QC BATCH REPORT

Batch ID: **54834** Instrument ID **ICPMS04** Method: **SW1311/6020**

MBLK Sample ID: **MBLKT1-081811-54834** Units: **mg/L** Analysis Date: **8/19/2011 02:50 PM**
Client ID: Run ID: **ICPMS04_110819A** SeqNo: **2500680** Prep Date: **8/19/2011** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.050								
Barium	ND	0.050								
Cadmium	ND	0.020								
Chromium	ND	0.050								
Lead	ND	0.050								
Selenium	ND	0.050								
Silver	ND	0.050								

MBLK Sample ID: **MBLKW2-081911-54834** Units: **mg/L** Analysis Date: **8/19/2011 02:56 PM**
Client ID: Run ID: **ICPMS04_110819A** SeqNo: **2500681** Prep Date: **8/19/2011** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.050								
Barium	ND	0.050								
Cadmium	ND	0.020								
Chromium	ND	0.050								
Lead	ND	0.050								
Selenium	ND	0.050								
Silver	ND	0.050								

LCS Sample ID: **MLCSW2-081911-54834** Units: **mg/L** Analysis Date: **8/19/2011 03:03 PM**
Client ID: Run ID: **ICPMS04_110819A** SeqNo: **2500682** Prep Date: **8/19/2011** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.4461	0.050	0.5	0	89.2	80-120	0			
Barium	0.4639	0.050	0.5	0	92.8	80-120	0			
Cadmium	0.4795	0.020	0.5	0	95.9	80-120	0			
Chromium	0.4478	0.050	0.5	0	89.6	80-120	0			
Lead	0.4791	0.050	0.5	0	95.8	80-120	0			
Selenium	0.4416	0.050	0.5	0	88.3	80-120	0			
Silver	0.4644	0.050	0.5	0	92.9	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108460
Project: Disposal

QC BATCH REPORT

Batch ID: **54834** Instrument ID **ICPMS04** Method: **SW1311/6020**

MS Sample ID: **1108562-01BMS** Units: **mg/L** Analysis Date: **8/19/2011 03:31 PM**
Client ID: Run ID: **ICPMS04_110819A** SeqNo: **2500755** Prep Date: **8/19/2011** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.4939	0.050	0.5	0.002195	98.3	75-125	0			
Barium	2.322	0.050	0.5	1.905	83.4	75-125	0			
Cadmium	0.4751	0.020	0.5	0.000484	94.9	75-125	0			
Chromium	0.4847	0.050	0.5	0.000104	96.9	75-125	0			
Lead	0.4781	0.050	0.5	0.008795	93.9	75-125	0			
Selenium	0.4875	0.050	0.5	0.000915	97.3	75-125	0			
Silver	0.4503	0.050	0.5	-0.000129	90.1	75-125	0			

MSD Sample ID: **1108562-01BMSD** Units: **mg/L** Analysis Date: **8/19/2011 03:37 PM**
Client ID: Run ID: **ICPMS04_110819A** SeqNo: **2500756** Prep Date: **8/19/2011** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.4655	0.050	0.5	0.002195	92.7	75-125	0.4939	5.94	25	
Barium	2.192	0.050	0.5	1.905	57.5	75-125	2.322	5.75	25	S
Cadmium	0.4593	0.020	0.5	0.000484	91.8	75-125	0.4751	3.39	25	
Chromium	0.4599	0.050	0.5	0.000104	92	75-125	0.4847	5.23	25	
Lead	0.4647	0.050	0.5	0.008795	91.2	75-125	0.4781	2.84	25	
Selenium	0.4727	0.050	0.5	0.000915	94.4	75-125	0.4875	3.09	25	
Silver	0.4299	0.050	0.5	-0.000129	86	75-125	0.4503	4.63	25	

DUP Sample ID: **1108562-01BDUP** Units: **mg/L** Analysis Date: **8/19/2011 03:22 PM**
Client ID: Run ID: **ICPMS04_110819A** SeqNo: **2500754** Prep Date: **8/19/2011** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.050	0	0	0	0-0	0.002195	0	25	
Barium	1.963	0.050	0	0	0	0-0	1.905	3.01	25	
Cadmium	ND	0.020	0	0	0	0-0	0.000484	0	25	
Chromium	ND	0.050	0	0	0	0-0	0.000104	0	25	
Lead	0.008035	0.050	0	0	0	0-0	0.008795	0	25	J
Selenium	ND	0.050	0	0	0	0-0	0.000915	0	25	
Silver	ND	0.050	0	0	0	0-0	-0.000129	0	25	

The following samples were analyzed in this batch: 1108460-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108460
Project: Disposal

QC BATCH REPORT

Batch ID: **54856** Instrument ID **SV-5** Method: **SW8270**

MBLK Sample ID: **SBLKT1-110821-54856** Units: **µg/L** Analysis Date: **8/22/2011 04:12 PM**

Client ID: Run ID: **SV-5_110822A** SeqNo: **2502716** Prep Date: **8/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
Cresols, Total	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachlorobutadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Pyridine	ND	5.0								
Surr: 2,4,6-Tribromophenol	*100*	5.0	*100*	0	*100*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*81.61*	5.0	*100*	0	*81.6*	*48-120*	0			
Surr: 2-Fluorophenol	*74.55*	5.0	*100*	0	*74.6*	*20-120*	0			
Surr: 4-Terphenyl-d14	*81.6*	5.0	*100*	0	*81.6*	*51-135*	0			
Surr: Nitrobenzene-d5	*82.78*	5.0	*100*	0	*82.8*	*41-120*	0			
Surr: Phenol-d6	*70.94*	5.0	*100*	0	*70.9*	*20-120*	0			

LCS Sample ID: **SLCST1-110821-54856** Units: **µg/L** Analysis Date: **8/22/2011 02:16 PM**

Client ID: Run ID: **SV-5_110822A** SeqNo: **2502714** Prep Date: **8/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	113.1	5.0	100	0	113	50-120	0			
2,4,6-Trichlorophenol	109.3	5.0	100	0	109	50-120	0			
2,4-Dinitrotoluene	52.04	5.0	50	0	104	50-120	0			
Cresols, Total	342.7	5.0	250	0	137	48-115	0			SE
Hexachlorobenzene	56.77	5.0	50	0	114	55-120	0			
Hexachlorobutadiene	48.21	5.0	50	0	96.4	55-120	0			
Hexachloroethane	48.65	5.0	50	0	97.3	55-120	0			
Nitrobenzene	54.21	5.0	50	0	108	55-120	0			
Pentachlorophenol	107.9	5.0	100	0	108	55-120	0			
Pyridine	36	5.0	50	0	72	35-120	0			
Surr: 2,4,6-Tribromophenol	*99.87*	5.0	*100*	0	*99.9*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*95.97*	5.0	*100*	0	*96*	*48-120*	0			
Surr: 2-Fluorophenol	*99.47*	5.0	*100*	0	*99.5*	*20-120*	0			
Surr: 4-Terphenyl-d14	*87.63*	5.0	*100*	0	*87.6*	*51-135*	0			
Surr: Nitrobenzene-d5	*94.2*	5.0	*100*	0	*94.2*	*41-120*	0			
Surr: Phenol-d6	*109.1*	5.0	*100*	0	*109*	*20-120*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108460
Project: Disposal

QC BATCH REPORT

Batch ID: **54856** Instrument ID **SV-5** Method: **SW8270**

LCSD Sample ID: **SLCSDT1-110821-54856** Units: **µg/L** Analysis Date: **8/22/2011 02:40 PM**

Client ID: Run ID: **SV-5_110822A** SeqNo: **2502715** Prep Date: **8/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	110.5	5.0	100	0	110	50-120	113.1	2.37	20	
2,4,6-Trichlorophenol	99.67	5.0	100	0	99.7	50-120	109.3	9.18	20	
2,4-Dinitrotoluene	50.8	5.0	50	0	102	50-120	52.04	2.4	20	
Cresols, Total	314.8	5.0	250	0	126		342.7	8.5		
Hexachlorobenzene	52.95	5.0	50	0	106	55-120	56.77	6.96	20	
Hexachlorobutadiene	47.7	5.0	50	0	95.4	55-120	48.21	1.06	20	
Hexachloroethane	49.55	5.0	50	0	99.1	55-120	48.65	1.84	20	
Nitrobenzene	52.36	5.0	50	0	105	55-120	54.21	3.48	20	
Pentachlorophenol	108.4	5.0	100	0	108	55-120	107.9	0.447	20	
Pyridine	37.03	5.0	50	0	74.1	35-120	36	2.83	20	
Surr: 2,4,6-Tribromophenol	*100.9*	5.0	*100*	0	*101*	*42-124*	99.87	*1.05*	*20*	
Surr: 2-Fluorobiphenyl	*90.08*	5.0	*100*	0	*90.1*	*48-120*	95.97	*6.34*	*20*	
Surr: 2-Fluorophenol	*92.95*	5.0	*100*	0	*92.9*	*20-120*	99.47	*6.78*	*20*	
Surr: 4-Terphenyl-d14	*86.22*	5.0	*100*	0	*86.2*	*51-135*	87.63	*1.62*	*20*	
Surr: Nitrobenzene-d5	*91.52*	5.0	*100*	0	*91.5*	*41-120*	94.2	*2.89*	*20*	
Surr: Phenol-d6	*100.9*	5.0	*100*	0	*101*	*20-120*	109.1	*7.8*	*20*	

The following samples were analyzed in this batch: 1108460-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108460
Project: Disposal

QC BATCH REPORT

Batch ID: **R115037** Instrument ID **VOA6** Method: **SW1311/8260B**

MBLK Sample ID: **VBLKW-082211-R115037** Units: **µg/L** Analysis Date: **8/23/2011 12:16 AM**

Client ID: Run ID: **VOA6_110822F** SeqNo: **2502942** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
1,4-Dichlorobenzene	ND	5.0								
2-Butanone	ND	10								
Benzene	ND	5.0								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroform	ND	5.0								
Tetrachloroethene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl chloride	ND	2.0								
Surr: 1,2-Dichloroethane-d4	*50.29*	5.0	*50*	0	*101*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*49.52*	5.0	*50*	0	*99*	*72.4-125*	0			
Surr: Dibromofluoromethane	*49.94*	5.0	*50*	0	*99.9*	*71.2-125*	0			
Surr: Toluene-d8	*50.15*	5.0	*50*	0	*100*	*75-125*	0			

MBLK Sample ID: **MBLKV1-081811-R115037** Units: **µg/L** Analysis Date: **8/23/2011 05:58 AM**

Client ID: Run ID: **VOA6_110822F** SeqNo: **2502958** Prep Date: **8/20/2011** DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	ND	100								
1,2-Dichloroethane	ND	100								
1,4-Dichlorobenzene	ND	100								
2-Butanone	ND	200								
Benzene	ND	100								
Carbon tetrachloride	ND	100								
Chlorobenzene	ND	100								
Chloroform	ND	100								
Tetrachloroethene	ND	100								
Trichloroethene	ND	100								
Vinyl chloride	ND	40								
Surr: 1,2-Dichloroethane-d4	*997.8*	100	*1000*	0	*99.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*986.1*	100	*1000*	0	*98.6*	*72.4-125*	0			
Surr: Dibromofluoromethane	*996.6*	100	*1000*	0	*99.7*	*71.2-125*	0			
Surr: Toluene-d8	*992.3*	100	*1000*	0	*99.2*	*75-125*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108460
Project: Disposal

QC BATCH REPORT

Batch ID: **R115037** Instrument ID **VOA6** Method: **SW1311/8260B**

LCS Sample ID: **VLCSW-082211-R115037** Units: **µg/L** Analysis Date: **8/23/2011 09:30 AM**
Client ID: Run ID: **VOA6_110822F** SeqNo: **2502954** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	51.31	5.0	50	0	103	73-124	0			
1,2-Dichloroethane	46.3	5.0	50	0	92.6	76-120	0			
1,4-Dichlorobenzene	48.82	5.0	50	0	97.6	70-130	0			
2-Butanone	85.85	10	100	0	85.8	70-130	0			
Benzene	48.26	5.0	50	0	96.5	70-128	0			
Carbon tetrachloride	49.74	5.0	50	0	99.5	70-130	0			
Chlorobenzene	49.98	5.0	50	0	100	72-127	0			
Chloroform	49.07	5.0	50	0	98.1	70-130	0			
Tetrachloroethene	49.27	5.0	50	0	98.5	70-130	0			
Trichloroethene	48.12	5.0	50	0	96.2	72-129	0			
Vinyl chloride	49.52	2.0	50	0	99	70-130	0			
Surr: 1,2-Dichloroethane-d4	*48.79*	5.0	*50*	0	*97.6*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*50.84*	5.0	*50*	0	*102*	*72-125*	0			
Surr: Dibromofluoromethane	*50.28*	5.0	*50*	0	*101*	*71-125*	0			
Surr: Toluene-d8	*49.45*	5.0	*50*	0	*98.9*	*75-125*	0			

MS Sample ID: **1108567-01ZMS** Units: **µg/L** Analysis Date: **8/23/2011 01:08 AM**
Client ID: Run ID: **VOA6_110822F** SeqNo: **2502956** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	445.1	50	500	0	89	73-124	0			
1,2-Dichloroethane	458.1	50	500	0	91.6	76-120	0			
1,4-Dichlorobenzene	440.2	50	500	0	88	70-130	0			
2-Butanone	862.7	100	1000	0	86.3	70-130	0			
Benzene	455.8	50	500	0	91.2	70-128	0			
Carbon tetrachloride	412.8	50	500	0	82.6	70-130	0			
Chlorobenzene	476.2	50	500	0	95.2	72-127	0			
Chloroform	465.3	50	500	0	93.1	70-130	0			
Tetrachloroethene	868.2	50	500	520	69.7	70-130	0			S
Trichloroethene	611	50	500	188.8	84.5	72-129	0			
Vinyl chloride	440.2	20	500	0	88	70-130	0			
Surr: 1,2-Dichloroethane-d4	*492.7*	50	*500*	0	*98.5*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*510.1*	50	*500*	0	*102*	*72-125*	0			
Surr: Dibromofluoromethane	*498.9*	50	*500*	0	*99.8*	*71-125*	0			
Surr: Toluene-d8	*498.6*	50	*500*	0	*99.7*	*75-125*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108460
Project: Disposal

QC BATCH REPORT

Batch ID: **R115037** Instrument ID **VOA6** Method: **SW1311/8260B**

MSD Sample ID: **1108567-01ZMSD** Units: **µg/L** Analysis Date: **8/23/2011 01:35 AM**

Client ID: Run ID: **VOA6_110822F** SeqNo: **2502957** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	438.1	50	500	0	87.6	73-124	445.1	1.6	20	
1,2-Dichloroethane	452.5	50	500	0	90.5	76-120	458.1	1.22	20	
1,4-Dichlorobenzene	446.7	50	500	0	89.3	70-130	440.2	1.46	20	
2-Butanone	879.9	100	1000	0	88	70-130	862.7	1.97	20	
Benzene	444.3	50	500	0	88.9	70-128	455.8	2.54	20	
Carbon tetrachloride	405.5	50	500	0	81.1	70-130	412.8	1.8	20	
Chlorobenzene	465.8	50	500	0	93.2	72-127	476.2	2.21	20	
Chloroform	455.1	50	500	0	91	70-130	465.3	2.22	20	
Tetrachloroethene	869.3	50	500	520	69.9	70-130	868.2	0.12	20	S
Trichloroethene	603.7	50	500	188.8	83	72-129	611	1.21	20	
Vinyl chloride	433.6	20	500	0	86.7	70-130	440.2	1.52	20	
Surr: 1,2-Dichloroethane-d4	*494*	50	*500*	0	*98.8*	*70-125*	492.7	*0.247*	*20*	
Surr: 4-Bromofluorobenzene	*501.1*	50	*500*	0	*100*	*72-125*	510.1	*1.79*	*20*	
Surr: Dibromofluoromethane	*507.6*	50	*500*	0	*102*	*71-125*	498.9	*1.73*	*20*	
Surr: Toluene-d8	*505*	50	*500*	0	*101*	*75-125*	498.6	*1.29*	*20*	

The following samples were analyzed in this batch: 1108460-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108460
Project: Disposal

QC BATCH REPORT

Batch ID: **R114682** Instrument ID **WetChem** Method: **SW9045B**

LCS Sample ID: **WLCSS1-081511-R114682** Units: **pH Units** Analysis Date: **8/15/2011 04:00 PM**

Client ID: Run ID: **WETCHEM_110815H** SeqNo: **2495535** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.06	0.10	6	0	101	90-110	0			

DUP Sample ID: **1108370-06BDUP** Units: **pH Units** Analysis Date: **8/15/2011 04:00 PM**

Client ID: Run ID: **WETCHEM_110815H** SeqNo: **2495557** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	3.49	0.10	0	0	0	0-0	3.46	0.863	20	

The following samples were analyzed in this batch: 1108460-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108460
Project: Disposal

QC BATCH REPORT

Batch ID: **R114993** Instrument ID **WetChem** Method: **SW1030**

DUP Sample ID: **1108551-01ADUP** Units: **Burn Rate, mm/se** Analysis Date: **8/22/2011 04:35 PM**

Client ID: Run ID: **WETCHEM_110822E** SeqNo: **2502266** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability, Solid	ND	0	0	0	0		0	0		

The following samples were analyzed in this batch: 1108460-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: Disposal
WorkOrder: 1108460

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Units Reported	Description
urn Rate, mm/se	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH Units	

ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Chain of Custody Form

Page 1 of 1

COC ID: 24872

1108460

NAVAJO REFINING: Navajo Refining Company

Project: Disposal

ALS Project Manager:

Customer Information		Project Information			
Purchase Order		Project Name	Disposal	A	TCLP VOAs
Work Order		Project Number		B	TCLP semi VOAs
Company Name		Bill To Company		C	TCLP Metals
Send Report To		Invoice Attn		D	RCI
Address		Address		E	
				F	
City/State/Zip		City/State/Zip		G	
Phone	—3311	Phone	—3311	H	
Fax	—5451	Fax	—5451	I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	TK-1215 Spill	8-12-11	0615	Soil	NO	1	X	X	X	X							
2	Temp blank																
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Aaron Strange

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ✓

Results Due Date:

Relinquished by: Aaron Strange Date: 8-12-11 Time: 16:15

Received by: RN ALS 8/13/11 0930

Notes:

Relinquished by: Date: Time:

Received by (Laboratory):

Cooler ID: 4157 Cooler Temp: 2.1°C

Logged by (Laboratory): Date: Time:

Checked by (Laboratory): 8/13/11 0930

QC Package: (Check One Box Below)

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note:
1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2010 by ALS Environmental.

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING** Date/Time Received: **13-Aug-11 09:30**

Work Order: **1108460** Received by: **HC**

Checklist completed by Hector Coronado eSignature 13-Aug-11 Date Reviewed by: Chris Bryson eSignature 15-Aug-11 Date

Matrices: soil
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
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 ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.1c	002	
Cooler(s)/Kit(s):	4157		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

110460

ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 8-12-11 Time: 1615

Name: Aaron Gillespie

Company: Navajo Refining Co.

Seal Broken By:

Date:

ORIGIN ID: ROWA

NAVAJO ARTESIA
501 E MAIN

ARTESIA , NM 882109440
UNITED STATES US

Ship Date: 12AUG11
ActWgt: 12.5 LB MAN
CAD: 634483/CAFE2472

TO (281) 530-5656

ALS LABORATORY GROUP
10450 STANCLIFF RD., SUITE 210

HOUSTON, TX 77099 (US)

FedEx Express

J1010100508011524

PRIORITY OVERNIGHT

10450 STANCLIFF RD., SUITE 210

PLACE LABEL ON PACKAGE
NEXT TO THE SHIPPING LABEL

ALS Group USA, Corp

Date: 24-Aug-11

Client: ALS Environmental
Project: 1108460
Work Order: **1108477**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1108477-01	1108460-01B	Soil		8/12/2011 06:15	8/16/2011 10:00	☐

ALS Group USA, Corp

Date: 24-Aug-11

Client: ALS Environmental
Project: 1108460
WorkOrder: **1108477**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
mg/Kg	Milligrams per Kilogram

ALS Group USA, Corp

Date: *24-Aug-11*

Client: ALS Environmental
Project: 1108460
Sample ID: 1108460-01B
Collection Date: 8/12/2011 06:15 AM

Work Order: 1108477
Lab ID: 1108477-01
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **EE**
Cyanide, Reactive	ND		40.0	mg/Kg	1	8/23/2011 01:00 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **EE**
Sulfide, Reactive	ND		40.0	mg/Kg	1	8/23/2011 01:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 24-Aug-11

Client: ALS Environmental

Work Order: 1108477

Project: 1108460

QC BATCH REPORT

Batch ID: **R93729** Instrument ID **WETCHEM** Method: **SW7.3.4.2**

MBLK Sample ID: **WBLKW1-082311-R93729** Units: **mg/Kg** Analysis Date: **8/23/2011 01:00 PM**

Client ID: Run ID: **WETCHEM_110823C** SeqNo: **1713910** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 1108477-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1108477
Project: 1108460

QC BATCH REPORT

Batch ID: **R93730** Instrument ID **WETCHEM** Method: **SW7.3.3.2**

MBLK Sample ID: **WBLKW1-082311-R93730** Units: **mg/Kg** Analysis Date: **8/23/2011 01:00 PM**
Client ID: Run ID: **WETCHEM_110823D** SeqNo: **1713914** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: **WLCSW1-082311-R93730** Units: **mg/Kg** Analysis Date: **8/23/2011 01:00 PM**
Client ID: Run ID: **WETCHEM_110823D** SeqNo: **1713915** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	0			

LCSD Sample ID: **WLCSDW1-082311-R93730** Units: **mg/Kg** Analysis Date: **8/23/2011 01:00 PM**
Client ID: Run ID: **WETCHEM_110823D** SeqNo: **1713921** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	234.9	0	35	

MS Sample ID: **1108506-08A MS** Units: **mg/Kg** Analysis Date: **8/23/2011 01:00 PM**
Client ID: Run ID: **WETCHEM_110823D** SeqNo: **1713918** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	50-150	0			

MSD Sample ID: **1108506-08A MSD** Units: **mg/Kg** Analysis Date: **8/23/2011 01:00 PM**
Client ID: Run ID: **WETCHEM_110823D** SeqNo: **1713919** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	50-150	249.6	0	35	

The following samples were analyzed in this batch: 1108477-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1108477



Subcontractor:
ALS Laboratory Group
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 15-Aug-11
COC ID: 10842
Due Date: 25-Aug-11

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	1108460	A	Reactive Cyanide (SW-846)
Work Order		Project Number		B	Reactive Sulfide (SW-846)
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C	
Send Report To	Chris Bryson	Inv Attn	Accounts Payable	D	
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E	
				F	
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G	
Phone	(281) 530-5656	Phone	(281) 530-5656	H	
Fax	(281) 530-5887	Fax	(281) 530-5887	I	
eMail Address	chris.bryson@alsglobal.com	eMail CC	Glenda.ramos@ &Mary.knowles	J	

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
1108460-01B (TK-1215 Spill)	Soil	12/Aug/2011 6:15	(1) 4OZGNEAT	X	X								

Comments:

Please test for Reactive Sulfide and Reactive Cyanide

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
			8/16/11 1000		Std
Relinquished by:	Date/Time	Received by:	Date/Time		

5.0 °C

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **ALS - HOUSTON** Date/Time Received: **16-Aug-11 10:00**

Work Order: **1108477** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 16-Aug-11 (Date) Reviewed by: Bill Carey (eSignature) 17-Aug-11 (Date)

Matrices: Soil
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
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 ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.0 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ORIGIN ID: SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 15AUG11
ACTWGT: 34.2 LB
CAD: 300130/CAFE2507

BILL SENDER

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
3352 128TH AVE.

HOLLAND MI 49424
(281) 530-5656
REF: SUBCONTRACT

FedEx Express

TRK# 0201 4340 2166 1267

TUE - 16 AUG A4
PRIORITY OVERNIGHT

NI GRRA

49424
MI-US GRR

T-1215 Exterior Investigation Docs

Final Report for Lovington T-1215

August 1, 2011

P.O. Box 1613
703 E. Clinton
Hobbs, New Mexico 88240
575/397-0510
FAX 575/393-4388
www.sesi-nm.com

Safety & Environmental Solutions, Inc.

January 10, 2012

Mr. Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

RE: Report of Investigation, Tank 1215 Release, Navajo Lea Refinery, Lovington, NM

Dear Darrell:

This letter report presents the results of a subsurface investigation conducted to ascertain impacts to soil and possible groundwater effects from a release of crude tank bottoms from Tank 1215 at the Navajo Lea Refinery. The refinery location and site plan are shown in Figures 1 and 2. The investigation involved drilling four boreholes in the vicinity of the subject tank, sampling the soil for volatile and semi volatile organic constituents, and comparing analytical results with soil screening guidance from the New Mexico Environment Department.

Background

On August 1, 2011, during routine rounds an operator at the Lovington facility noticed a small pool of hydrocarbon on the south side of Tank 1215 estimated to be a volume of three barrels. The material was a mixture of asphalt and vacuum gas oil. Because the source of the leak was suspected to be a leak in the floor, the tank was emptied by pumping the to the adjacent 1214 tank. Before emptying was completed, an estimated 280 barrels of material, made more mobile by the heat of the day, had been released to the ground surface and almost completely encircled the tank.

The New Mexico Oil Conservation Division was notified of the release by email to Mr. Carl Chavez on August 1 at 7:35 a.m. A form C-141 was prepared and submitted to the OCD on August 2, 2011.

Cleanup involved use of two vacuum trucks to remove the spilled material. In addition two small dikes were constructed to contain the material into smaller areas. The final action involved picking up contaminated soil and placing into roll-off bins. In addition to the released material surrounding Tank 1215 and the northwest side of Tank 1214, some liquid flowed in a small stream to the east about 140 feet and ponded in a shallow depression inside the bermed area. This material was also vacuumed and underlying soil removed.

Work Performed

Safety and Environmental Solutions (SESI) was requested to advance soil borings and collect samples in area of the release and at the location of the shallow depression to the east. Because the earth material immediately beneath the surface soil is hard, consolidated caliche a hollow-stem auger drilling rig was employed to drill the soil borings.

On October 25, 2011 after having performed NM one-call notification and receiving a Navajo excavation permit SESI drilled four boreholes in the interior of the berm that surrounds tank 1215 and others. The holes were drilled on the west, south and east sides of the tank. Due to piping and other infrastructure, no borings were possible on the north side of the tank. Borehole locations are shown on Figure 3.

Drilling was performed using a Foremost-Mobile B-57 hollow-stem auger with a bit diameter of 8 ¼ inches. Drilling was performed by Eco-Enviro Drilling of Lovington, NM which is a licensed New Mexico water well drilling company. The boreholes were drilled to a depth of 20 to 25 feet and soil samples collected for analysis. The boreholes were plugged back to surface with bentonite and hydrated. Borehole logs with lithologic information, drilling details and chemical testing results are included as an attachment.

Samples were collected every 5 feet for PID screening and submitted to the analytical laboratory (ALS Environmental, Houston Texas) for analysis. The results of the PID screening are shown in Table 1. Laboratory analyses were performed for total petroleum hydrocarbons (GRO, DRO and MORO TPH), and volatile and low-level semi-volatile hydrocarbons.

Results

The analytical results are shown in Table 2 together with reporting limits, EPA methods used and NMED soil screening levels. In general, analyses of the soil samples did not detect elevated levels of volatile or semi-volatile hydrocarbons except in the top 4 to 5 feet of two of the four boreholes.

The soil sample from the 4 to 5 feet interval in BH-1 (located adjacent to the west side of tank 1215) detected numerous low-level semi-volatiles all of which were below NMED industrial soil screening levels. The highest concentrations, exceeding 1.0 mg/Kg, were of chrysene, fluoranthene and pyrene with the highest being fluoranthene at 1.8 mg/Kg. These three constituents were also detected (together with Benzo(b)fluoranthene) in the 14-15 feet though at concentrations about 100 times less than in the upper interval. At 19 to 20 feet, only fluoranthene at 0.0077 mg/Kg was detected. No volatiles or gasoline range TPH organics were detected in the sample though diesel and motor oil range TPH organics were detected; total TPH organics were below the industrial soil screening level for fuel oils, which is most representative of the material released.

BH-2 was located near the northeast side of nearby tank 1214. No detections of volatiles or semi-volatiles were seen in this borehole except for a phthalate detected at the reporting level at 19-20 feet which may be a laboratory artifact. However a motor oil TPH of 340 mg/Kg was seen in the five foot sample which may be from stained caliche as no other organics were detected.

BH-3 located on the east side of the tank and about 30 feet away did not show any detections of volatile or semi-volatile organics in any soil interval from 10 to 20 feet (no sample was present in the sample tube at 5 feet). However a detection of diesel range organics slightly above the reporting limit was seen in the 19 to 20 feet interval.

Detections in BH-4 were dissimilar from the other boreholes in that volatiles were seen in the upper 4 to 5 feet interval including ethylbenzene, toluene and total xylenes. No benzene was detected and only two semivolatiles (benzo(g,h,i)perylene and naphthalene). Though xylenes and 1,2,4-trimethylbenzene were at or above 1.0 mg/Kg, these and other analytical values were below soil

screening values for industrial soil. Total TPH (449 mg/Kg) included a low level detection for GRO (8.5 mg/Kg) with the majority of the TPH being in the motor oil range.

Semi-volatiles in BH-4 in the 4 to 5 feet interval were naphthalene and 2-methylnaphthalene, and Benzo(g,h,i)perylene. All detections were in parts per billion range and well below the associated soil screening level for industrial soil. The only detection below 5 feet was Benzo(b)fluoranthene in the sample from 24 to 25 feet. The level of 0.0092 mg/Kg was over 2,000 times less than the soil screening value.

With one exception, all results in all boreholes were below associated soil screening levels for groundwater protection. The exception was 1,2,4-trimethylbenzene in the 4 to 5 foot interval in BH-4. The detection value was 1.5 mg/Kg and the groundwater soil screening value was 1.42 mg/Kg. Addition discussion of this is provided below.

Discussion:

The New Mexico Environment Department has developed a methodology for evaluating releases of hydrocarbons into the environment. Below is their rationale for its use:

> *Soil Screening Guidance provides site managers with a framework for developing and applying the SSLs, and is likely to be most useful for determining whether areas or entire sites are contaminated to an extent that warrants further investigation. It is intended to assist and streamline the site investigation and corrective action process by focusing resources on those sites or areas that pose the greatest risk to human health and the environment. Implementation of the methodologies outlined within this SSG may significantly reduce the time necessary to complete site investigations and cleanup actions at certain sites, as well as improve the consistency of these investigations.*
>
> *Between various sites there can exist a wide spectrum of contaminant types and concentrations. The level of concern associated with those concentrations depends on several factors, including the likelihood of exposure to levels of potential concern to human health or to ecological receptors. At one end of the spectrum are levels that clearly warrant a response action; at the other end are levels that are below regulatory concern. Appropriate cleanup goals for a site may fall anywhere within this range depending on site-specific conditions. It is important to note that SSLs do not in themselves represent cleanup standards, and the SSLs alone do not trigger the need for a response action or define "unacceptable" levels of contamination in soil. Screening levels such as SSLs identify the lower end of this spectrum – levels below which there is generally no need for further concern—provided the conditions associated with the development of the SSLs are consistent.*

The borehole soil samples showed semi-volatile hydrocarbons to be generally present only in the upper 4 to 5 feet interval in boreholes BH-1 and BH-4. Lower intervals showed only isolated impacts and all were well below soil screening levels for soil at industrial locations. Volatiles were present only in the 4 to 5 feet interval in BH-4.

As mentioned above, one volatile detection in BH-4 was slightly above the soil screening level for groundwater protection. However, the groundwater protection levels are very conservative and site

conditions at the Lea Refinery do not approach the assumptions provided for use. In the guidance, the screening levels assume a continuous leak to groundwater with no dilution or attenuation in the vadose zone and only dilution in the saturated zone. The leak at the refinery was a one time event, depth to groundwater is in excess of 100 feet, and drilling investigation showed no or only minor impacts at depths from 20 to 25 feet. Therefore the detection of 1,2,4-trimethylbenzene in the 4 to 5 feet interval in BH-4 will have no impact in groundwater given that detection is limited to that interval.

Conclusion:
The investigation showed that impacts of the release were limited in vertical extent and that removal of liquid and severely impacted near-surface soil material mitigated downward migration of hydrocarbons. The remaining hydrocarbons, mostly present at a depth of 4 to 5 feet interval are below soil screening guidance levels for industrial soil.

Therefore, based on the comparison and evaluation of the analytical results with the associated soil screening levels, no further subsurface investigation is necessary or cleanup required for soils surrounding the tank from which the release occurred. However it is suggested that clean fill material be used to fill in areas excavated to prevent ponding of rainwater or in the event of a reoccurrence.

If you have any questions regarding this report, please contact me at (575) 397-0510.

Sincerely yours,

David G. Boyer, P.G.

Encl. (tables, figures analytical results, form C-141)

Table 1. Soil PID Measurements, Tanks 834-838 Investigation, May 2001, Navajo Refining Company, Artesia, NM

BH-1			
Time	**Depth (feet)**	**PID (ppm)**	**Selected for Analysis?**
10:30	4-5	- -	Yes
- -	9-10	15.1	No (insufficient amount)
10:55	14-15	33.2	Yes
11:05	19-20	33.8	Yes
BH-2			
Time	**Depth (feet)**	**PID (ppm)**	**Selected for Analysis?**
11:45	4-5	30.9	Yes
11:55	9-10	43.1	Yes
12:05	14-15	30.6	Yes
12:15	19-20	- -	Yes
BH-3			
Time	**Depth (feet)**	**PID (ppm)**	**Selected for Analysis?**
- -	4-5	- -	No returns
12:50	9-10	26.7	Yes
13:05	14-15	35.6	Yes
13:15	19-20	43.4	Yes
BH-4			
Time	**Depth (feet)**	**PID (ppm)**	**Selected for Analysis?**
13:30	4-5	126	Yes (from cuttings)
13:40	9-10	44.9	Yes
13:50	14-15	39.0	Yes
15:05	19-20	42.3	Yes
14:15	24-25	44.0	Yes
Note:			
Sampling date October 25, 2011			
PID measurements made using a MiniRae 2000 calibrated with			
100 ppm of isobutylene.			
PID value not shown: Insufficient sample for analysis			

Table 2. Summary of Soil Constituent Concentrations in Boreholes, Tank 1215 Release Investigation, October 2011, Navajo Lea Refinery

Borehole	BH-1			NMED Soil Screening Levels	
Depth	4-5 feet	14-15 feet	19-20 feet	Industrial Soil	Groundwater DAF 20
ALS laboratory ID	1110902-01	1110902-02	1110902-03	(mg/Kg)	(mg/Kg)
Total Petroleum Hydrocarbons					
TPH-GRO (mg/Kg)	<0.050	<0.050	<0.050	--	--
TPH-DRO (mg/Kg)	**35**	<1.7	<1.7	--	--
TPH-MORO (mg/Kg)	**310**	<3.4	<3.4	--	--
Total TPH	**345**	--	--	890 (fuel oil)	--
Volatiles					
Benzene (mg/Kg)	<0.0050	<0.0050	<0.0050	25.8	0.0201
Ethylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	128	20.2
Toluene (mg/Kg)	<0.0050	<0.0050	<0.0050	252	21.7
Total Xylenes (mg/Kg)	<0.015	<0.015	<0.015	82.0	2.06
1,2,4-Trimethylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	213	1.42
1,3,5-Trimethyl-benzene (mg/Kg)	<0.0050	<0.0050	<0.0050	69.2	0.355
2-Butanone (MEK, mg/Kg)	<0.010	<0.010	<0.010	48700	25.5
4-Isopropyltoluene (mg/Kg)	<0.0050	<0.0050	<0.0050	--	--
Acetone (mg/Kg)	<0.020	<0.020	<0.020	100000	19.1
Carbon disulfide (mg/Kg)	<0.010	<0.010	<0.010	460	7.89
Isopropylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	--	--
MTBE (mg/Kg)	<0.0050	<0.0050	<0.0050	984	--
Naphthalene (8260, mg/Kg)	<0.0050	<0.0050	<0.0050	300	0.394
n-Butylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	62.1	5.40
n-Propylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	62.1	5.40
sec-Butylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	60.6	4.33
Notes:					
	1. Sampling date: October 25, 2011				
	2. Complete list of organic constituents analyzed and reporting limits included				
	with analytical results				
	3. Methods: TPH SW8015, Volatiles SW8260, Low-level semi-volatiles SW8270				
	4. Analyses performed by ALS Environmental, Houston, Texas				

Table 2. Summary of Soil Constituent Concentrations in Boreholes, Tank 1215 Release Investigation, October 2011, Navajo Lea Refinery

Borehole	BH-1			NMED Soil Screening Levels	
Depth	4-5 feet	14-15 feet	19-20 feet	Industrial Soil	Groundwater DAF 20
ALS laboratory ID	1110902-01	1110902-02	1110902-03	(mg/Kg)	(mg/Kg)
Semivolatiles					
1,1-Biphenyl (mg/Kg)	<0.0066	<0.0066	<0.0066	27,300	72.2
2-Methylnaphthalene (mg/Kg)	**0.0092**	<0.0066	<0.0066	1,000	--
Acenaphthlene (mg/Kg)	**0.0078**	<0.0066	<0.0066	33,500	54.9
Acenaphthylene (mg/Kg)	<0.0066	<0.0066	<0.0066	--	--
Acetophenone (mg/Kg)	<0.0066	<0.0066	<0.0066	1,480	2.95
Anthracene (mg/Kg)	**0.083**	<0.0066	<0.0066	100,000	1,620
Atrazine (mg/Kg)	<0.0066	<0.0066	<0.0066	--	--
Benz(a)anthracene (mg/Kg)	**0.59**	<0.0066	<0.0066	23.4	10.9
Benzo(a)pyrene (mg/Kg)	**0.36**	<0.0066	<0.0066	2.3	2.78
Benzo(b)fluoranthene (mg/Kg)	**0.92**	**0.0077**	<0.0066	23.4	33.5
Benzo(g,h,i)perylene (mg/Kg)	**0.27**	<0.0066	<0.0066	--	--
Benzo(k)fluoranthene (mg/Kg)	**0.32**	<0.0066	<0.0066	234	335
Bis(2-ethylhexyl)phthalate (mg/Kg)	<0.0066	<0.0066	<0.0066	1,370	21,500
Carbazole (mg/Kg)	**0.016**	<0.0066	<0.0066	--	--
Chrysene (mg/Kg)	**1.0**	**0.0081**	<0.0066	2,310	348
Dibenz(a,h)anthracene (mg/Kg)	**0.1**	<0.0066	<0.0066	2.34	10.4
Dibenzofuran (mg/Kg)	**0.011**	<0.0066	<0.0066	1,620	2.87
Fluoranthene (mg/Kg)	**1.8**	**0.010**	**0.0077**	24,400	4,690
Fluorene (mg/Kg)	**0.033**	<0.0066	<0.0066	26,500	58.5
Indeno(1,2,3-c,d)pyrene (mg/Kg)	**0.26**	<0.0066	<0.0066	23.4	94.6
Naphthalene (8270, mg/Kg)	<0.0066	<0.0066	<0.0066	300	0.394
Phenanthrene (mg/Kg)	**0.54**	<0.0066	<0.0066	20,500	464
Pyrene (mg/Kg)	**1.6**	**0.0079**	<0.0066	30,900	373
Notes:					
	1. Sampling date: October 25, 2011				
	2. Complete list of organic constituents analyzed and reporting limits included				
	with analytical results				
	3. Methods: TPH SW8015, Volatiles SW8260, Low-level semi-volatiles SW8270				
	4. Analyses performed by ALS Environmental, Houston, Texas				

Table 2. Summary of Soil Constituent Concentrations in Boreholes, Tank 1215 Release Investigation, October 2011, Navajo Lea Refinery

Borehole	BH-2				NMED Soil Screening Levels	
Depth	4-5 feet	9-10 feet	14-15 feet	19-20 feet	Industrial Soil	Groundwater DAF 20
ALS laboratory ID	1110902-04	1110902-05	1110902-06	1110902-07	(mg/Kg)	(mg/Kg)
Total Petroleum Hydrocarbons						
TPH-GRO (mg/Kg)	<0.050	<0.050	<0.050	<0.050	--	--
TPH-DRO (mg/Kg)	<34	<1.7	<1.7	<1.7	--	--
TPH-MORO (mg/Kg)	**340**	<3.4	<3.4	<3.4	--	--
Total TPH	**340**	--	--	--	890 (fuel oil)	--
Volatiles						
Benzene (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	25.8	0.0201
Ethylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	128	20.2
Toluene (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	252	21.7
Total Xylenes (mg/Kg)	<0.015	<0.015	<0.015	<0.015	82.0	2.06
1,2,4-Trimethylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	213	1.42
1,3,5-Trimethyl-benzene (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	69.2	0.355
2-Butanone (MEK, mg/Kg)	<0.010	<0.010	<0.010	<0.010	48700	25.5
4-Isopropyltoluene (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	--	--
Acetone (mg/Kg)	<0.020	<0.020	<0.020	<0.020	100000	19.1
Carbon disulfide (mg/Kg)	<0.010	<0.010	<0.010	<0.010	460	7.89
Isopropylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	--	--
MTBE (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	984	--
Naphthalene (8260, mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	300	0.394
n-Butylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	62.1	5.40
n-Propylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	62.1	5.40
sec-Butylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	60.6	4.33
Notes:						
	1. Sampling date: October 25, 2011					
	2. Complete list of organic constituents analyzed and reporting limits included					
	with analytical results					
	3. Methods: TPH SW8015; Volatiles SW8260, Low-level semi-volatiles SW8270					
	4. Analyses performed by ALS Environmental, Houston, Texas					

Table 2. Summary of Soil Constituent Concentrations in Boreholes, Tank 1215 Release Investigation, October 2011, Navajo Lea Refinery

Borehole	BH-2				NMED Soil Screening Levels	
Depth	4-5 feet	9-10 feet	14-15 feet	19-20 feet	Industrial Soil	Groundwater DAF 20
ALS laboratory ID	1110902-04	1110902-05	1110902-06	1110902-07	(mg/Kg)	(mg/Kg)
Semivolatiles						
1,1-Biphenyl (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	27,300	72.2
2-Methylnaphthalene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	1,000	--
Acenaphthlene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	33,500	54.9
Acenaphthylene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	--	--
Acetophenone (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	1,480	2.95
Anthracene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	100,000	1,620
Atrazine (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	--	--
Benz(a)anthracene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	23.4	10.9
Benzo(a)pyrene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	2.3	2.78
Benzo(b)fluoranthene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	23.4	33.5
Benzo(g,h,i)perylene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	--	--
Benzo(k)fluoranthene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	234	335
Bis(2-ethylhexyl)phthalate (mg/Kg)	<0.0066	<0.0066	<0.0066	0.0068	1,370	21,500
Carbazole (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	--	--
Chrysene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	2,310	348
Dibenz(a,h)anthracene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	2.34	10.4
Dibenzofuran (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	1,620	2.87
Fluoranthene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	24,400	4,690
Fluorene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	26,500	58.5
Indeno(1,2,3-c,d)pyrene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	23.4	94.6
Naphthalene (8270, mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	300	0.394
Phenanthrene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	20,500	464
Pyrene (mg/Kg)	<0.0066	<0.0066	<0.0066	<0.0066	30,900	373
Notes:						
	1. Sampling date: October 25, 2011					
	2. Complete list of organic constituents analyzed and reporting limits included					
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	3. Methods: TPH SW8015, Volatiles SW8260, Low-level semi-volatiles SW8270					
	4. Analyses performed by ALS Environmental, Houston, Texas					

Table 2. Summary of Soil Constituent Concentrations in Boreholes, Tank 1215 Release Investigation, October 2011, Navajo Lea Refinery

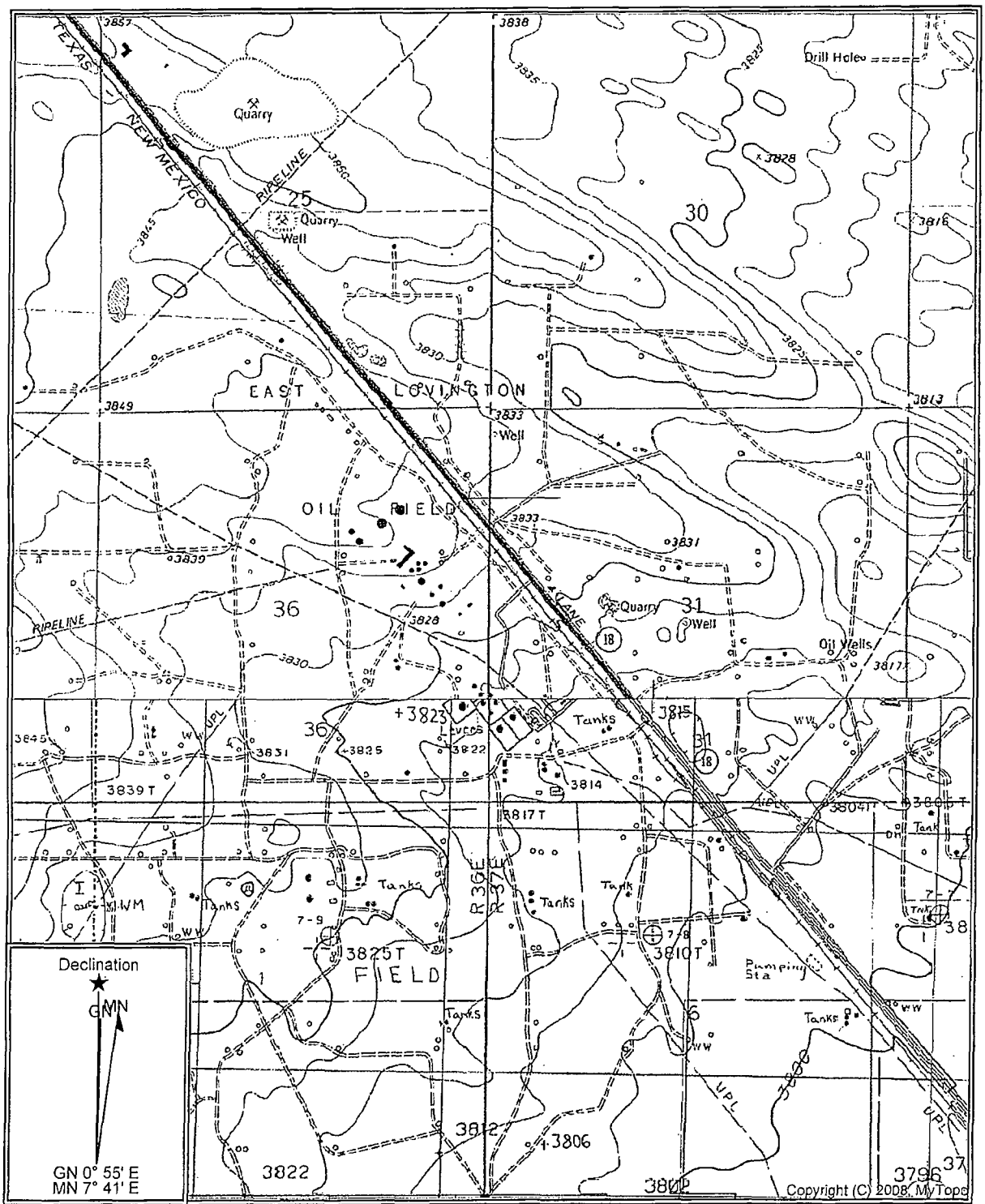
Borehole	BH-3			NMED Soil Screening Levels	
Depth	9-10 feet	14-15 feet	19-20 feet	Industrial Soil	Groundwater DAF 20
ALS laboratory ID	1110902-08	1110902-09	1110902-10	(mg/Kg)	(mg/Kg)
Total Petroleum Hydrocarbons					
TPH-GRO (mg/Kg)	<0.050	<0.050	<0.050	--	--
TPH-DRO (mg/Kg)	<1.7	<1.7	**2.4**	--	--
TPH-MORO (mg/Kg)	<3.4	<3.4	<3.4	--	--
Total TPH	--	--	--	890 (fuel oil)	--
Volatiles					
Benzene (mg/Kg)	<0.0050	<0.0050	<0.0050	25.8	0.0201
Ethylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	128	20.2
Toluene (mg/Kg)	<0.0050	<0.0050	<0.0050	252	21.7
Total Xylenes (mg/Kg)	<0.015	<0.015	<0.015	82.0	2.06
1,2,4-Trimethylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	213	1.42
1,3,5-Trimethyl-benzene (mg/Kg)	<0.0050	<0.0050	<0.0050	69.2	0.355
2-Butanone (MEK, mg/Kg)	<0.010	<0.010	<0.010	48700	25.5
4-Isopropyltoluene (mg/Kg)	<0.0050	<0.0050	<0.0050	--	--
Acetone (mg/Kg)	<0.020	<0.020	<0.020	100000	19.1
Carbon disulfide (mg/Kg)	<0.010	<0.010	<0.010	460	7.89
Isopropylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	--	--
MTBE (mg/Kg)	<0.0050	<0.0050	<0.0050	984	--
Naphthalene (8260, mg/Kg)	<0.0050	<0.0050	<0.0050	300	0.394
n-Butylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	62.1	5.40
n-Propylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	62.1	5.40
sec-Butylbenzene (mg/Kg)	<0.0050	<0.0050	<0.0050	60.6	4.33
Notes:					
	1. Sampling date: October 25, 2011				
	2. Complete list of organic constituents analyzed and reporting limits included				
	with analytical results				
	3. Methods: TPH SW8015, Volatiles SW8260, Low-level semi-volatiles SW8270				
	4. Analyses performed by ALS Environmental, Houston, Texas				

Table 2. Summary of Soil Constituent Concentrations in Boreholes, Tank 1215 Release Investigation, October 2011, Navajo Lea Refinery

Borehole	BH-3			NMED Soil Screening Levels	
Depth	9-10 feet	14-15 feet	19-20 feet	Industrial Soil	Groundwater DAF 20
ALS laboratory ID	1110902-08	1110902-09	1110902-10	(mg/Kg)	(mg/Kg)
Semivolatiles					
1,1-Biphenyl (mg/Kg)	<0.0066	<0.0066	<0.0066	27,300	72.2
2-Methylnaphthalene (mg/Kg)	<0.0066	<0.0066	<0.0066	1,000	--
Acenaphthlene (mg/Kg)	<0.0066	<0.0066	<0.0066	33,500	54.9
Acenaphthylene (mg/Kg)	<0.0066	<0.0066	<0.0066	--	--
Acetophenone (mg/Kg)	<0.0066	<0.0066	<0.0066	1,480	2.95
Anthracene (mg/Kg)	<0.0066	<0.0066	<0.0066	100,000	1,620
Atrazine (mg/Kg)	<0.0066	<0.0066	<0.0066	--	--
Benz(a)anthracene (mg/Kg)	<0.0066	<0.0066	<0.0066	23.4	10.9
Benzo(a)pyrene (mg/Kg)	<0.0066	<0.0066	<0.0066	2.3	2.78
Benzo(b)fluoranthene (mg/Kg)	<0.0066	<0.0066	<0.0066	23.4	33.5
Benzo(g,h,i)perylene (mg/Kg)	<0.0066	<0.0066	<0.0066	--	--
Benzo(k)fluoranthene (mg/Kg)	<0.0066	<0.0066	<0.0066	234	335
Bis(2-ethylhexyl)phthalate (mg/Kg)	<0.0066	<0.0066	<0.0066	1,370	21,500
Carbazole (mg/Kg)	<0.0066	<0.0066	<0.0066	--	--
Chrysene (mg/Kg)	<0.0066	<0.0066	<0.0066	2,310	348
Dibenz(a,h)anthracene (mg/Kg)	<0.0066	<0.0066	<0.0066	2.34	10.4
Dibenzofuran (mg/Kg)	<0.0066	<0.0066	<0.0066	1,620	2.87
Fluoranthene (mg/Kg)	<0.0066	<0.0066	<0.0066	24,400	4,690
Fluorene (mg/Kg)	<0.0066	<0.0066	<0.0066	26,500	58.5
Indeno(1,2,3-c,d)pyrene (mg/Kg)	<0.0066	<0.0066	<0.0066	23.4	94.6
Naphthalene (8270, mg/Kg)	<0.0066	<0.0066	<0.0066	300	0.394
Phenanthrene (mg/Kg)	<0.0066	<0.0066	<0.0066	20,500	464
Pyrene (mg/Kg)	<0.0066	<0.0066	<0.0066	30,900	373
Notes:					
	1. Sampling date: October 25, 2011				
	2. Complete list of organic constituents analyzed and reporting limits included				
	with analytical results				
	3. Methods: TPH SW8015, Volatiles SW8260, Low-level semi-volatiles SW8270				
	4. Analyses performed by ALS Environmental, Houston, Texas				

Table 2. Summary of Soil Constituent Concentrations in Boreholes, Tank 1215 Release Investigation, October 2011, Navajo Lea Refinery

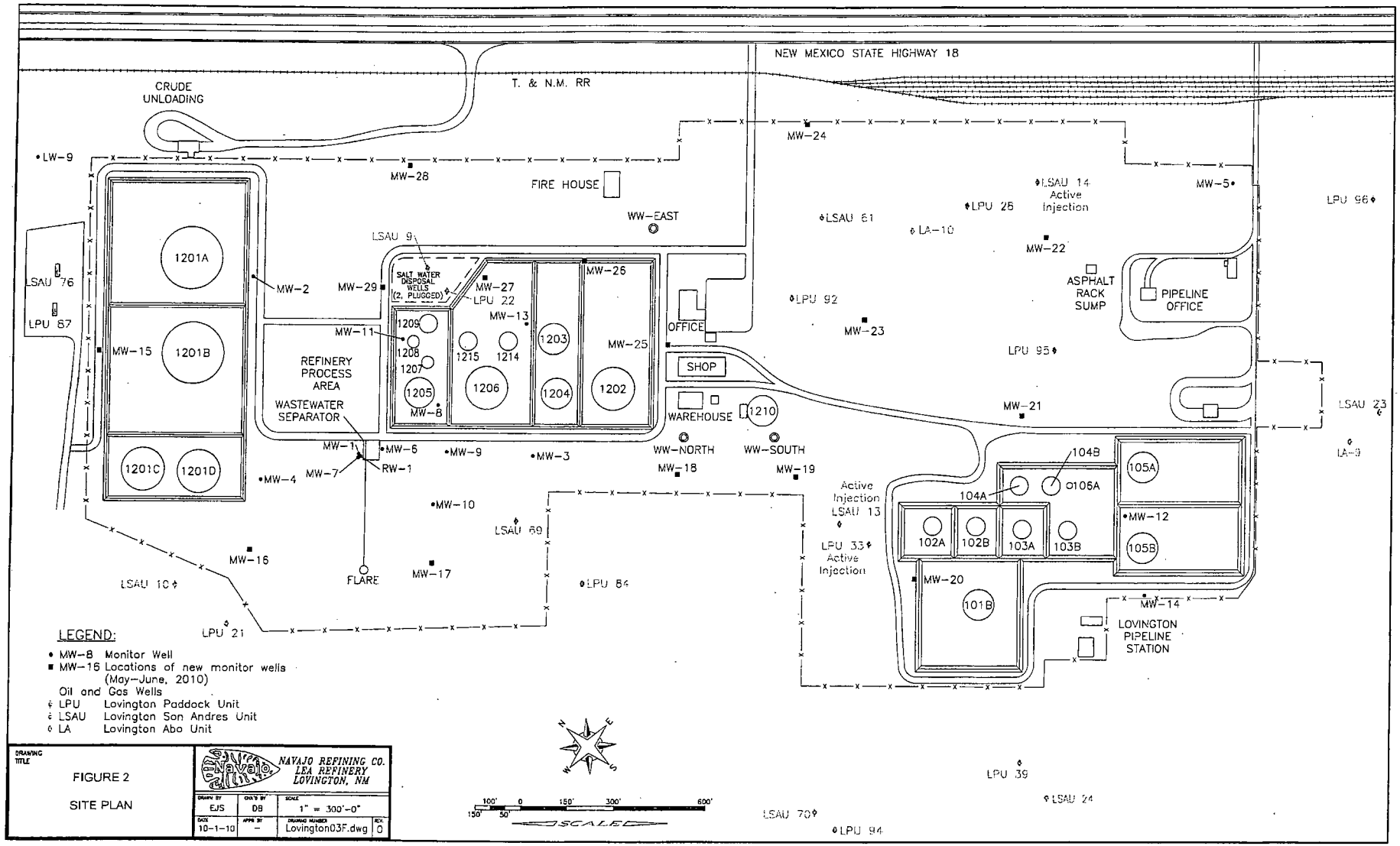
Borehole	BH-4					NMED Soil Screening Levels	
Depth	4-5 feet	9-10 feet	14-15 feet	19-20 feet	24-25 feet	Industrial Soil	Groundwater DAF 20
ALS laboratory ID	1110902-11	1110902-12	1110902-13	1110902-14	1110902-15	(mg/Kg)	(mg/Kg)
Total Petroleum Hydrocarbons							
TPH-GRO (mg/Kg)	**8.5**	<0.050	<0.050	<0.050	<0.050	--	--
TPH-DRO (mg/Kg)	**170**	<1.7	<1.7	<1.7	<1.7	--	--
TPH-MORO (mg/Kg)	**270**	<3.4	<3.4	<3.4	<3.4	--	--
Total TPH	**449**	--	--	--	--	890 (fuel oil)	--
Volatiles							
Benzene (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	25.8	0.0201
Ethylbenzene (mg/Kg)	**0.58**	<0.0050	<0.0050	<0.0050	<0.0050	128	20.2
Toluene (mg/Kg)	**0.0079**	<0.0050	<0.0050	<0.0050	<0.0050	252	21.7
Total Xylenes (mg/Kg)	**1.0**	<0.015	<0.015	<0.015	<0.015	82.0	2.06
1,2,4-Trimethylbenzene (mg/Kg)	**1.5**	<0.0050	<0.0050	<0.0050	<0.0050	213	1.42
1,3,5-Trimethyl-benzene (mg/Kg)	**0.10**	<0.0050	<0.0050	<0.0050	<0.0050	69.2	0.355
2-Butanone (MEK, mg/Kg)	<0.010	<0.010	<0.010	<0.010	<0.010	48700	25.5
4-Isopropyltoluene (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--
Acetone (mg/Kg)	<0.020	<0.020	<0.020	<0.020	<0.020	100000	19.1
Carbon disulfide (mg/Kg)	<0.010	<0.010	<0.010	<0.010	<0.010	460	7.89
Isopropylbenzene (mg/Kg)	**0.088**	<0.0050	<0.0050	<0.0050	<0.0050	--	--
MTBE (mg/Kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	984	--
Naphthalene (8260, mg/Kg)	**0.095**	<0.0050	<0.0050	<0.0050	<0.0050	300	0.394
n-Butylbenzene (mg/Kg)	**0.072**	<0.0050	<0.0050	<0.0050	<0.0050	62.1	5.40
n-Propylbenzene (mg/Kg)	**0.13**	<0.0050	<0.0050	<0.0050	<0.0050	62.1	5.40
sec-Butylbenzene (mg/Kg)	**0.046**	<0.0050	<0.0050	<0.0050	<0.0050	60.6	4.33
Notes:							
	1. Sampling date: October 25, 2011						
	2. Complete list of organic constituents analyzed and reporting limits included with analytical results						
	3. Methods: TPH SW8015, Volatiles SW8260, Low-level semi-volatiles SW8270						
	4. Analyses performed by ALS Environmental, Houston, Texas						



Map Name: LOVINGTON,
Scale: 1 inch = 2,000 ft.

Map Center: 032.8785358° N 103.2992131° W
Horizontal Datum: WGS84

Figure 1. Location Map, Navajo Lea Refinery, Lovington, New Mexico


NEW MEXICO STATE HIGHWAY 18
T. & N.M. RR
CRUDE UNLOADING
FIRE HOUSE
WW-EAST
LSAU 9
SALT WATER DISPOSAL WELLS (2, PLUGGED)
LPU 22
OFFICE
SHOP
WAREHOUSE
REFINERY PROCESS AREA
WASTEWATER SEPARATOR
FLARE
ASPHALT RACK SUMP
PIPELINE OFFICE
LOVINGTON PIPELINE STATION
WW-NORTH
WW-SOUTH
LSAU 14 Active Injection
LPU 25
LSAU 61
LA-10
LPU 92
LPU 95
LPU 96
LSAU 23
LA-9
LSAU 76
LPU 87
LSAU 10
LPU 21
LSAU 69
LPU 84
LPU 33 Active Injection
Active Injection LSAU 13
LPU 39
LSAU 24
LSAU 70
LPU 94
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
MW-8
MW-9
MW-10
MW-11
MW-12
MW-13
MW-14
MW-15
MW-16
MW-17
MW-18
MW-19
MW-20
MW-21
MW-22
MW-23
MW-24
MW-25
MW-26
MW-27
MW-28
MW-29
RW-1
LW-9
1201A
1201B
1201C
1201D
1202
1203
1204
1205
1206
1207
1208
1209
1210
1214
1215
101B
102A
102B
103A
103B
104A
104B
105A
105B
0106A
LEGEND:
MW-8 Monitor Well
MW-16 Locations of new monitor wells (May-June, 2010)
Oil and Gas Wells
LPU Lovington Paddock Unit
LSAU Lovington San Andres Unit
LA Lovington Abo Unit
DRAWING TITLE
FIGURE 2
SITE PLAN
NAVAJO REFINING CO.
LEA REFINERY
LOVINGTON, NM
DRAWN BY EJS
CHK'D BY DB
SCALE 1" = 300'-0"
DATE 10-1-10
APP'D BY -
DRAWING NUMBER Lovington03F.dwg
REV. 0
100' 0 150' 300' 600'
150' 50'
SCALE

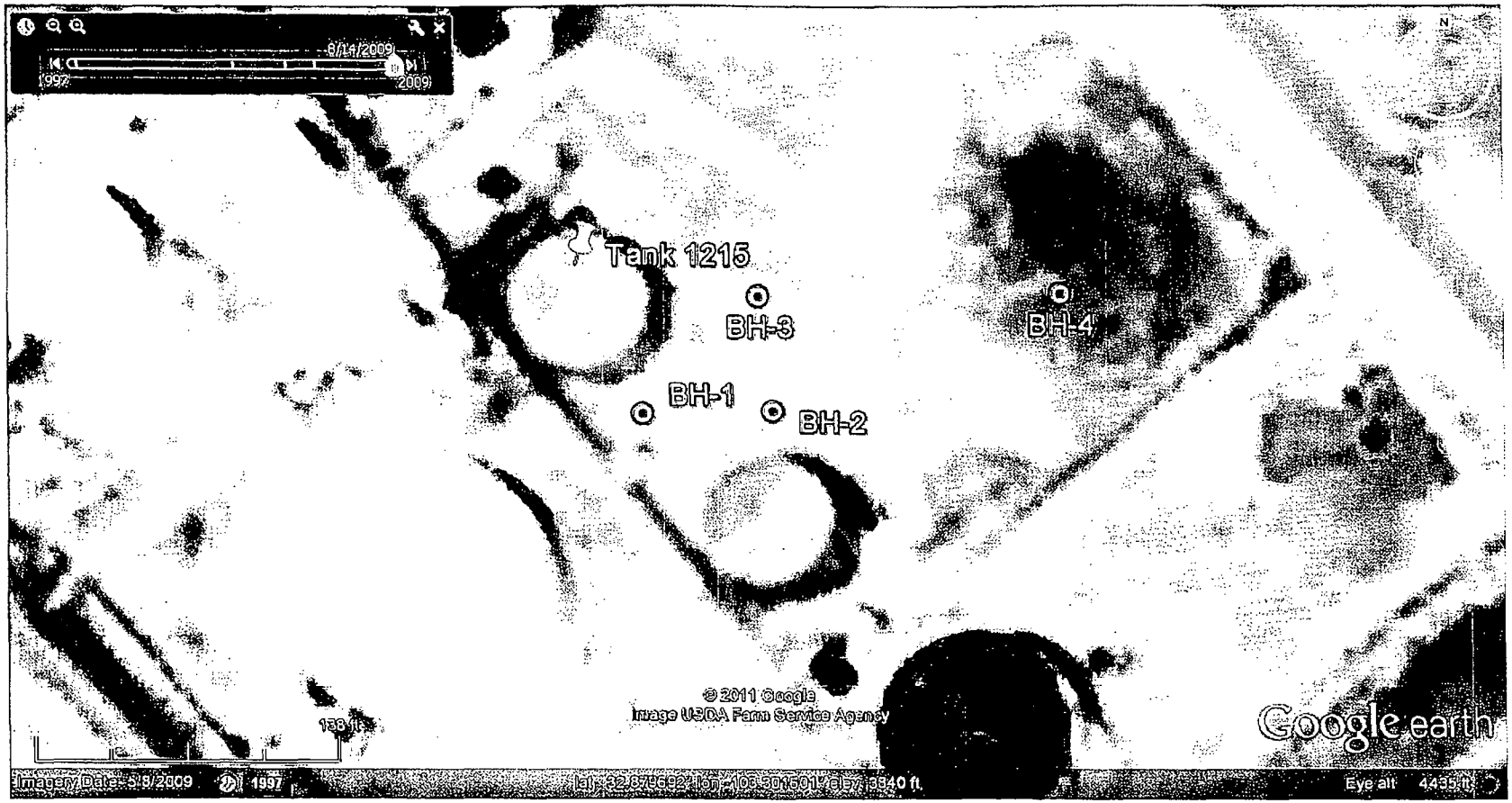


Figure 3. Location of Exploratory Boreholes, Tank 1215 Release Investigation, Navajo Lea Refinery, Lovington, New Mexico

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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 1, 2011

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

x Initial Report ☐ Final Report

Name of Company Navajo Lea Refining Co	Contact Darrell Moore
Address 7401 South Main Lovington NM 88260	Telephone No. 575-746-5281
Facility Name	Facility Type Petroleum 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

Latitude_____ **Longitude**_____

NATURE OF RELEASE

Type of Release Crude Bottoms (Asphalt, vacuum gas oil)	Volume of Release est. 350 bbls	Volume Recovered 280 bbls
Source of Release Tk 1215	Date and Hour of Occurrence 8/1/11 1 am	Date and Hour of Discovery 8/1/11 1 am
Was Immediate Notice Given? ☐ Yes ☐ No x Not Required	If YES, To Whom? Carl Chavez by email	
By Whom? Darrell Moore	Date and Hour 8/1/11 7:35 am	
Was a Watercourse Reached? ☐ Yes x No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
At 1 am on August 1, 2011, during routine rounds, an operator at the Lovington facility noticed a small pool of hydrocarbon on the south side of Tk 1215 estimated at 3 bbls.. He notified environmental and it was determined that the tank may have a hole in the floor. We then started emptying the tank into Tk 1214. The tank, which is a 20,000 bbl tank, was about ¾ full. By 7 am the leak had spread to almost all the way around the tank. We think that the heat of the day was making the product, which is an asphalt and vacuum gas oil mixture, more mobile. We did not immediately report the spill because we thought at the time it was a small 3 bbl leak from a pinhole in the floor of the tank.

Describe Area Affected and Cleanup Action Taken.*
The area affected is inside the dike that contains Tk 1214 and Tk 1215. The spill has almost entirely encircled Tk 1215 and then run southeast inside the dike and pooled up southeast of Tk 1215. Two vacuum trucks were called and began vacuuming up the spilled material. In addition we immediately started emptying Tk 1215 into Tk 1214. We also built small dikes to contain the spilled material into smaller areas. Tk 1215 should be empty by noon on August 2, 2011. We will then finish the vacuuming operation and begin picking up contaminated soil and placing into roll-off bins. Once we have picked up contaminated soil we will do drilling and sampling to insure cleanup.

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: Darrell Moore	OIL CONSERVATION DIVISION
Printed Name: Darrell Moore	Approved by District Supervisor:
Title: Environmental Manager for Water and Waste	Approval Date: / Expiration Date:
E-mail Address: Darrell.moore@hollyfrontier.com	Conditions of Approval: / Attached ☐
Date: 8/2/11 Phone: 575-746-5281	

Safety & Environmental Solutions, Inc.

LOG OF BORING BH-1

(Page 1 of 1)

Tank 1215 Gas Oil Release Investigation
Navajo Refining Company, Lea Refinery
NE/4 Section 36, T16S, R36E
Lea County, New Mexico
N32.879681°, W103.301773°

Date, Time Started	: 10/25/11, 1015	Drilled By	: Eco/Enviro Drilling
Date, Time Complete	: 10/25/11, 1105	Sampling Method	: 5 ft. core barrel
Hole Diameter	: 8 1/4 in.	Logged By	: David Boyer, P.G.
Drilling Method	: Hollow Stem Auger	Company Rep.	:
Drilling Equipment	: Foremost-Mobile B-57		

Sample Type
SS Split Spoon (18" or 24")
CB Core Barrel (2.5' or 5')
CT Auger Cuttings
NR No recovery

Depth in Feet	Sample Type	Recovery (ft.)	USCS	GRAPHIC	DESCRIPTION	PID (ppm)	Lab No.	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	Total Naphthalene 8270 (mg/Kg)	TPH 8015 (mg/Kg)
0-5	CB	~1	CA		0-4 ft. CALICHE,								
			SP		4-5 ft. SAND, very light brown, very fine grained, little or no H/C odor. Sample at 5 ft., no PID not enough sample.	--	1110902-01	<0.0050	<0.0050	<0.0050	<0.015	0.0092	345
5-10	CB	1.0	SP/CA		5-10 ft. SAND and CALICHE/SANDSTONE fragments, very light brown, very fine grained, PID only, no sample taken								
			SS		10-10.7 ft. SANDSTONE, soft, poorly cemented	15.1	--	--	--	--	--	--	--
10-15	CB	1.4			10.7-11.4 ft. SAND with SANDSTONE fragments light brown, very fine grained, dry, no H/C staining or odor								
			SP/SS		15-16.3 ft. SAND with SANDSTONE fragments 0.5-1 in., generally soft, sand light brown, very fine grained, dry, no H/C staining or odor	33.2	1110902-02	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	<3.4
15-20	CB	1.3				33.8	1110902-03	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	<3.4

Notes:
Boring backfilled with 10 bags bentonite, hydrated.
Other semi-volatiles detected; see report table
H/C - Petroleum hydrocarbons

Z:\Company Files\Navajo\2011 Cleanups\NAV-11-012 Tank 1215 Release Delineation\Boring Logs\BH-1 Tank 1215.bor

Safety & Environmental Solutions, Inc.

LOG OF BORING BH-2

Tank 1215 Gas Oil Release Investigation
Navajo Refining Company, Lea Refinery
NE/4 Section 36, T16S, R36E
Lea County, New Mexico
N32.879684°, W103.301577°

Date, Time Started	: 10/25/11, 1130	Drilled By	: Eco/Enviro Drilling
Date, Time Complete	: 10/25/11, 1230	Sampling Method	: 5 ft. core barrel
Hole Diameter	: 8 1/4 in.	Logged By	: David Boyer, P.G.
Drilling Method	: Hollow Stem Auger	Company Rep.	:
Drilling Equipment	: Foremost-Mobile B-57		

Sample Type
SS Split Spoon (18" or 24")
CB Core Barrel (2.5' or 5')
CT Auger Cuttings
NR No recovery

Depth in Feet	Sample Type	Recovery (ft.)	USCS	GRAPHIC	DESCRIPTION	PID (ppm)	Lab No.	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	Total Naphthalene 8270 (mg/Kg)	TPH 8015 (mg/Kg)
0-5	CB	1.0	CA		0-4 ft. CALICHE,								
4-5			CA/SP		4-5 ft. CALICHE and SAND, sand very light brown. Possible slight odor includes stained caliche.	30.9	1110902-04	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	340
5-10	CB	1.2	SP/CA		5-10 ft. SAND and CALICHE/SANDSTONE fragments, very light brown, very fine grained	43.1	1110902-05	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	<3.4
10-15	CB	1.5	SP		10-15 ft. SAND, light brown, very fine grained, slightly damp,	30.6	1110902-06	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	<3.4
15-20	CB	0.5	SP/SS		15-20 ft. SAND and soft SANDSTONE, very light brown, very fine grained, dry, no H/C staining or odor, no PID - not enough sample	--	1110902-07	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	<3.4

Notes:
Boring backfilled with 10 bags bentonite, hydrated.
Other semi-volatiles detected; see report table
H/C - Petroleum hydrocarbons

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Safety & Environmental Solutions, Inc.

LOG OF BORING BH-3

(Page 1 of 1)

Tank 1215 Gas Oil Release Investigation
Navajo Refining Company, Lea Refinery
NE/4 Section 36, T16S, R36E
Lea County, New Mexico
N32.879829°, W103.301597°

Date, Time Started	: 10/25/11, 1240	Drilled By	: Eco/Enviro Drilling
Date, Time Complete	: 10/25/11, 1315	Sampling Method	: 5 ft. core barrel
Hole Diameter	: 8 1/4 in.	Logged By	: David Boyer, P.G.
Drilling Method	: Hollow Stem Auger	Company Rep.	:
Drilling Equipment	: Foremost-Mobile B-57		

Sample Type
SS Split Spoon (18" or 24")
CB Core Barrel (2.5' or 5')
CT Auger Cuttings
NR No recovery

Depth in Feet	Sample Type	Recovery (ft.)	USCS	GRAPHIC	DESCRIPTION	PID (ppm)	Lab No.	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	Total Naphthalene 8270 (mg/Kg)	TPH 8015 (mg/Kg)
0-5	CB	0	CA		0-5 ft. CALICHE, no returns in core barrel	--	--	--	--	--	--	--	--
5-10	CB	5.0	SP/SS		5-10 ft. SAND with CALICHE/SANDSTONE fragments at top grading to sand and soft sandstone at base, no H/C staining or odor	26.7	1110902-08	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	<3.4
10-15	CB	3.4	SP/SS		10-15 ft. SAND and SANDSTONE, sand light brown, very fine grained, dry, sandstone soft to well cemented, sandstone "cookies", no H/C staining or odor	35.6	1110902-09	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	<3.4
15-20	CB	2.4			SAND, as above and SANDSTONE, soft to hard	43.4	1110902-10	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	2.4

Notes:
Boring backfilled with 10 bags bentonite, hydrated.
Other semi-volatiles detected; see report table
H/C - Petroleum hydrocarbons

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Safety & Environmental Solutions, Inc.

LOG OF BORING BH-4

Tank 1215 Gas Oil Release Investigation
Navajo Refining Company, Lea Refinery
NE/4 Section 36, T16S, R36E
Lea County, New Mexico
N32.879831°, W103.301144°

Date, Time Started	: 10/25/11, 1320	Drilled By	: Eco/Enviro Drilling
Date, Time Complete	: 10/25/11, 1430	Sampling Method	: 5 ft. core barrel
Hole Diameter	: 8 1/4 in.	Logged By	: David Boyer, P.G.
Drilling Method	: Hollow Stem Auger	Company Rep.	:
Drilling Equipment	: Foremost-Mobile B-57		

Sample Type
SS Split Spoon (18" or 24")
CB Core Barrel (2.5' or 5')
CT Auger Cuttings
NR No recovery

Depth in Feet	Sample Type	Recovery (ft.)	USCS	GRAPHIC	DESCRIPTION	PID (ppm)	Lab No.	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	Total Naphthalene 8270 (mg/Kg)	TPH 8015 (mg/Kg)
0-5	CT	--	CA		0-5 ft. No recovery, sample from cuttings, SAND, SILT, and ground CALICHE. Sand light brown, very fine grained, H/C odor, no staining	126	1110902-11	<0.0050	0.0079	0.58	1.0	0.0312	448.5
5-7	CB	5.0	SS/CA		5-7 ft. SANDSTONE and CALICHE, hard, with fragments								
7-10			SP/SS		7-10 ft. SAND and SANDSTONE, sand light brown, very fine grained, dry. Sandstone soft with some frag.5ments, no H/C staining or odor								
10-11.4					10-11.4 ft. SAND and SANDSTONE, as above	44.9	1110902-12	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	<3.4
11.4-12.9	CB	3.1	SP		11.4-12.9 ft. SAND, brown, very fine grained, uniform, dry, no H/C staining or odor								
15-15.9			SP/SS		15-15.9 ft. SAND and SANDSTONE, as above	39.0	1110902-13	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	<3.4
15.9-18.6	CB	3.6	SS		15.9-18.6 ft. SANDSTONE, medium to well consolidated, soft to medium cemented, sample from crushed fragments.	42.3	1110902-14	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	<3.4
20-21			SP/SS		20-21 ft. SAND and SANDSTONE								
21-22.3	CB	2.3	SP		21-22.3 ft. SAND, brown, fine grained, uniform, occasional small sandstone fragments, no H/C staining or odor	44.0	1110902-15	<0.0050	<0.0050	<0.0050	<0.015	<0.0066	<3.4

Notes:
BH-4 dug out approximately 1.5 ft below land surface, values are from bottom of hole
Boring backfilled with 12 bags bentonite, hydrated.
Other semi-volatiles detected; see report table
H/C - Petroleum hydrocarbons

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T-1215 Interior Investigation Docs

Final Report for Lovington T-1215

August 1, 2011

P.O. Box 1613
703 E. Clinton
Hobbs, New Mexico 88240
575/397-0510
FAX 575/393-4388
www.sesi-nm.com

Safety & Environmental Solutions, Inc.

March 13, 2012

Mr. Robert Combs, Ph.D
Environmental Specialist
Navajo Refining Company
PO Box 159
Artesia, New Mexico 88211

RE: Report of Interior Investigation, Tank 1215 Release, Navajo Lea Refinery, Lovington, NM

Dear Robert:

This letter report presents the results of a follow-up subsurface investigation conducted to ascertain impacts to soil and possible groundwater effects from a release of tank bottoms (asphalt, vacuum gas oil) from Tank 1215 at the Navajo Lea Refinery. The refinery location and site plan are shown in Figures 1 and 2. The initial investigation (results presented in a letter report to Mr. Darrell Moore dated January 10, 2012) involved drilling four boreholes in the vicinity of the subject tank, sampling the soil for volatile and semi volatile organic constituents, and comparing analytical results with soil screening guidance from the New Mexico Environment Department.

This subsequent report presents results of interior investigation of the release, specifically drilling and sampling of two boreholes drilled beneath the tank floor.

Background

On August 1, 2011, during routine rounds an operator at the Lovington facility noticed a small pool of hydrocarbon on the south side of Tank 1215 estimated to be a volume of three barrels. The material was a mixture of asphalt and vacuum gas oil. Because the source of the leak was suspected to be a leak in the floor, the tank was emptied by pumping to the adjacent 1214 tank. Before emptying was completed, an estimated 280 barrels of material, made more mobile by the heat of the day, had been released to the ground surface and almost completely encircled the tank.

The New Mexico Oil Conservation Division was notified of the release by email to Mr. Carl Chavez on August 1 at 7:35 a.m. A form C-141 was prepared and submitted to the OCD on August 2, 2011.

Cleanup involved use of two vacuum trucks to remove the spilled material. In addition two small dikes were constructed to contain the material into smaller areas. The final action involved picking up contaminated soil and placing into roll-off bins. In addition to the released material surrounding Tank 1215 and the northwest side of Tank 1214, some liquid flowed in a small stream to the east about 140 feet and ponded in a shallow depression inside the bermed area. This material was also vacuumed and underlying soil removed.

On October 25, 2011 SESI drilled three boreholes 20 feet in accessible areas surrounding the tank and one borehole to 25 feet in an area to the east where ponding of liquid had occurred. The results of that investigation were presented in the report referenced above.

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

Work Performed

Safety and Environmental Solutions (SESI) was requested to advance soil borings and collect samples inside Tank 1215. Because the earth material immediately beneath the surface soil is hard, consolidated caliche a hollow-stem auger drilling rig was employed to drill the soil borings.

On February 24, 2012 after receiving approval from Navajo and after performing safety checks of the tank interior, SESI drilled two (2) test borings in the interior of Tank 1215.. The holes were drilled on the west and east sides of the tank, each approximately 15 feet from the center of the tank.. Borehole locations are shown on Figure 3.

Drilling was performed using a Foremost-Mobile B-57 hollow-stem auger with a bit diameter of 8 ¼ inches. Drilling was performed by Eco-Enviro Drilling of Lovington, NM which is a licensed New Mexico drilling company. The boreholes were drilled to a depth of 20 feet and soil samples collected for analysis. Samples were collected every 5 feet for PID screening and submitted to the analytical laboratory (Cardinal Laboratories, Hobbs, NM) for analysis. Laboratory analyses were performed for total petroleum hydrocarbons (GRO, DRO and MORO TPH), and volatile and low-level semi-volatile hydrocarbons. The boreholes were plugged back to surface with bentonite and hydrated. Borehole logs with lithologic information, drilling details and chemical testing results are included as an attachment.

Results

The results of the PID screening are shown in Table 1. No PID samples were taken from the 0-5 foot interval in either borehole as the artificial fill exhibited severe H/C staining and/or strong odor. The maximum PID reading for the lower intervals was 12 ppm.

The analytical results are shown in Table 2 together with reporting limits, EPA methods used and the February 2012 NMED soil screening levels*. In general, analyses of the soil samples did not detect elevated levels of volatile or semi-volatile hydrocarbons except in the top 4 to 5 feet of the two boreholes.

No gasoline range TPH organics were detected in the TB-1 samples (located on the interior east side of tank 1215) though diesel and motor oil range TPH organics were detected. Total TPH organics in the lower intervals were below the industrial soil screening level for fuel oils, which is most representative of the material released. The highest TPH levels were found in the sample at 4 to 5 feet and the total TPH level for this sample exceeds the NMED Soil Screening Level.

The soil sample from the 4 to 5 feet interval in TB-1 detected numerous low-level volatiles and semi-volatiles all of which were below NMED industrial soil screening levels. The highest concentrations, exceeding 1.0 mg/Kg, were of total xylenes, methylene chloride, 1,2,4-trimethylbenzene, and naphthalene, 2-methylnaphalene, 1-methylnaphthalede and phenanthrene. The levels of 1.0 mg/Kg were only found in the first sample taken at a depth of 4 to 5 feet. At 19 to 20 feet, only methylene chloride, and 1,4 dichlorobenzene were detected at low levels. Methylene chloride is a common laboratory chemical and considered a laboratory artifact when detected in low-level analyses.

* The 2012 NMED screening levels do not include listings for all volatiles or semi-volatiles detected in the sampling. Table 2 shows which constituents do not have screening level values.

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I,4 dichlorobenzene, a deodorant/disinfectant commonly used in restrooms and in mothballs, may also be a laboratory artifact but needs further consideration as discussed below.

TB-2 was located on the interior west side of tank 1215. The soil sample at 4 to 5 feet detected low levels of gasoline range TPH organics, and moderate to high levels of diesel and motor oil range TPH organics. The total TPH level for this sample exceeds the NMED Soil Screening Level for fuel oil.

Detections of low-level volatiles and semi-volatiles were also found in this sample; however, none of the detections were above the soil screening limits for industrial soil. The remaining samples from TB-2 detected only minor levels of diesel and motor oil range TPH and all were below the soil screening limits for industrial soils. No detections of volatiles or semi-volatiles were seen in this borehole below the 5 foot depth except for a methylene chloride and 1,4 dichlorobenzene.

With one exception, all results below the 5 foot depth in both boreholes were below associated soil screening levels for groundwater DAF 20 protection. The exception was 1,4-dicholrobenzene. Additional discussion of this constituent is provided below.

Discussion:

The New Mexico Environment Department has developed a methodology for evaluating releases of hydrocarbons into the environment. Below is their rationale for its use:

> *Soil Screening Guidance provides site managers with a framework for developing and applying the SSLs, and is likely to be most useful for determining whether areas or entire sites are contaminated to an extent that warrants further investigation. It is intended to assist and streamline the site investigation and corrective action process by focusing resources on those sites or areas that pose the greatest risk to human health and the environment. Implementation of the methodologies outlined within this SSG may significantly reduce the time necessary to complete site investigations and cleanup actions at certain sites, as well as improve the consistency of these investigations.*
>
> *Between various sites there can exist a wide spectrum of contaminant types and concentrations. The level of concern associated with those concentrations depends on several factors, including the likelihood of exposure to levels of potential concern to human health or to ecological receptors. At one end of the spectrum are levels that clearly warrant a response action; at the other end are levels that are below regulatory concern. Appropriate cleanup goals for a site may fall anywhere within this range depending on site-specific conditions. It is important to note that SSLs do not in themselves represent cleanup standards, and the SSLs alone do not trigger the need for a response action or define "unacceptable" levels of contamination in soil. Screening levels such as SSLs identify the lower end of this spectrum – levels below which there is generally no need for further concern—provided the conditions associated with the development of the SSLs are consistent.*

The borehole soil samples showed volatile and semi-volatile hydrocarbons to be generally present only in the upper 4 to 5 feet interval in boreholes TB-1 and TB-2. Lower intervals showed only isolated impacts and all were well below soil screening levels for soil at industrial locations.

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As mentioned above, one volatile detection (1,4 Dichlorobenzene) was slightly above the soil screening level for groundwater protection This constituent was detected in both interior borehole samples below the 5 foot interval. It was not seen in the four exterior boreholes drilled in October of 2011. To eliminate the possibility that it was present in a cleaning solution used to remove hydrocarbon residue prior to checking for leaks, a copy of the MSDS for the cleaning media was obtained from the refinery. The product, Baker Petrolite BPR44231 cleaner, contains D-limonene, alkylarylsulfonate amine salt, propylene glycol and glycol ethers. Consultation with a laboratory chemist does not indicate these ingredients contain dichlorobenzene or could result in misidentification by laboratory analytical. Therefore, it is concluded that the detections are a laboratory artifact from an unknown source at the facility.

The groundwater protection levels shown in Table 2 are very conservative and site conditions at the Lea Refinery do not approach the assumptions provided for use. In the guidance, the screening levels assume a continuous leak to groundwater with no dilution or attenuation in the vadose zone and only dilution in the saturated zone. The leak at the refinery was a one time event, depth to groundwater is in excess of 100 feet, and drilling investigation showed no or only minor impacts at depths from 20 to 25 feet. Therefore the detection of elevated hydrocarbon volatiles and semi-volatiles in the 4 to 5 feet interval in the borehole will have no impact in groundwater given that detection is limited to that interval.

Conclusion:

1. There are two laboratory artifacts in most of the sample analyses, namely methylene chloride and 1,4-dichlorobenzene; there are no chlorinated solvents in the material that was in the tank or in the cleaning media used to remove hydrocarbon residue from the tank.

2. There are DRO and MORO hits in TB-1 at 20 ft. with total TPH of 130 mg/Kg. The Industrial Direct Expose soil screening level for #3 and #6 Fuel Oil is 1,600 mg/Kg which is over 10 times the level found. The lab chemist at Cardinal says it appears to be weathered material.

3. The only PAH found at depth was Phenanthrene in TB-1 at 20 ft. The value was 0.054 mg/Kg. The 2012 soil screening level for Industrial/occupational soil is 20,500 mg/Kg. The level found in the sample is 300,000 times less than the soil screening value.

4. In the area of tank 1215 there have been several releases during the past ten years. These were investigated and reports made to OCD. There may be minor traces of hydrocarbon as a result in the shallow subsurface (such as in TB-1 at 20 ft.).

5. Sample intervals TB-1 at 15 ft. and TB-2 at 20 ft. show no evidence of any contamination (except by the lab artifacts listed above). So with this exception there is at least one 5 ft. zone in both samples with no contamination that demonstrates the leak did not migrate past these zones to depth. Investigation showed that impacts of the release were limited in vertical extent and that removal of liquid mitigated downward migration of hydrocarbons. The remaining hydrocarbons, mostly present at a depth of 4 to 5 feet interval are below soil screening guidance levels for industrial soil use.

Therefore, based on the comparison and evaluation of the analytical results with the associated soil screening levels, no further subsurface investigation is necessary or cleanup required for soils surrounding the tank from which the release occurred. However it is suggested that clean fill material

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be used to fill in exterior areas excavated to prevent ponding of rainwater and downward movement of any remaining hydrocarbon constituents.

If you have any questions regarding this report, please contact me at (575) 397-0510.

Sincerely yours,

David G. Boyer, P.G.

Encl. (tables, figures analytical results, form C-141, soil boring logs)

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Table 1. Soil PID Measurements, Tank 1215 Interior Boreholes, February 24, 2012, Navajo Lea Refinery, Lovington, NM

TB-1			
Time	**Depth (feet)**	**PID (ppm)**	**Selected for Analysis?**
1:55	4-5	None	Yes
2:08	9-10	12	Yes
2:15	14-15	6	Yes
2:30	19-20	3	Yes
TB-2			
Time	**Depth (feet)**	**PID (ppm)**	**Selected for Analysis?**
3:05	4-5	None	Yes
3:20	9-10	4.1	Yes
3:40	14-15	2.6	Yes
4:00	19-20	1.9	Yes
Note:			
Sampling date February 24, 2012			
PID measurements made using a MiniRae 2000 calibrated with			
100 ppm of isobutylene.			

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Table 2. Summary of Soil Constituent Concentrations in Boreholes, Tank 1215 Release Investigation, February 2012, Navajo Lea Refinery

Borehole	TB-1				NMED Soil Screening Levels 02-27-12	
Depth	4-5 feet	9-10 feet	14-15 feet	19-20 feet	Industrial Soil	Groundwater DAF 20
Cardinal laboratory ID	H200499-01	H200499-02	H200499-03	H200499-04	(mg/Kg)	(mg/Kg)
Total Petroleum Hydrocarbons						
TPH-GRO (mg/Kg)	<100	<10.0	<10.0	<10.0	- -	- -
TPH-DRO (mg/Kg)	**4,250**	**15.8**	<10.0	**90.2**	- -	- -
TPH-MORO (mg/Kg)	**1,900**	**12.7**	<10.0	**40.3**	- -	- -
Total TPH	**6,150**	**28.5**	<10.0	**130.5**	890 (fuel oil)	- -
Volatiles						
Benzene (mg/Kg)	<0.500	<0.050	<0.050	<0.050	84.7	0.0324
Ethylbenzene (mg/Kg)	**1.99**	<0.050	<0.050	<0.050	378	26.0
Toluene (mg/Kg)	**1.66**	<0.050	<0.050	<0.050	57,700	25.3
Total Xylenes (mg/Kg)	**2.64**	<0.150	<0.150	<0.150	3,980	3.13
Isopropylbenzene (mg/Kg)	<0.500	<0.050	<0.050	<0.050	N/A	NA
Methylene Chloride (mg/Kg)	**5.42**	**0.0581**	**0.483**	**0.539**	4,700	82.4
n-Propylbenzene (mg/Kg)	**0.894**	<0.050	<0.050	<0.050	N/A	N/A
1,2,4-Trimethylbenzene (mg/Kg)	**2.18**	<0.050	<0.050	<0.050	N/A	N/A
1,3,5-Trimethylbenzene (mg/Kg)	**0.566**	<0.050	<0.050	<0.050	N/A	N/A
1,4 Dichlorobenzene	<0.500	**0.233**	**0.238**	**0.136**	177.0	0.064
p-Isopropyltoluene (mg/Kg)	**0.731**	<0.050	<0.050	<0.050	N/A	N/A
Naphthalene (8260, mg/Kg)	**2.55**	<0.050	<0.050	<0.050	241	0.071
n-Butylbenzene (mg/Kg)	**0.946**	<0.050	<0.050	<0.050	N/A	N/A
sec-Butylbenzene (mg/Kg)	**0.529**	<0.050	<0.050	<0.050	N/A	N/A
Notes:						
	1. N/A - constituent value not shown in SSG.					
	2. Sampling date: February 24, 2012					
	3. Only constituents detected shown; complete list of organic constituents analyzed and reporting limits included with analytical results					
	4. Methods: TPH SW8015, Volatiles SW8260, Low-level semi-volatiles SW8270					
	5. Analyses performed by Cardinal Laboratories, Hobbs, New Mexico					

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Table 2. Summary of Soil Constituent Concentrations in Boreholes, Tank 1215 Release Investigation, February 2012, Navajo Lea Refinery

Borehole	TB-1				NMED Soil Screening Levels 02-27-12	
Depth	4-5 feet	9-10 feet	14-15 feet	19-20 feet	Industrial Soil	Groundwater DAF 20
Cardinal laboratory ID	H200499-01	H200499-02	H200499-03	H200499-04	(mg/Kg)	(mg/Kg)
Semivolatiles						
2-Methylnaphthalene (mg/Kg)	**1.90**	<0.040	<0.040	<0.040	N/A	N/A
1-Methylnaphthalene (mg/Kg)	**2.09**	<0.040	<0.040	<0.040	N/A	N/A
Chrysene (mg/Kg)	**0.658**	<0.040	<0.040	<0.040	2,340	160
Phenanthrene (mg/Kg)	**2.18**	<0.040	<0.040	**0.054**	20,500	571
Fluorene (mg/Kg)	**0.479**	<0.040	<0.040	<0.040	24,400	406
Naphthalene (8270, mg/Kg)	**0.394**	<0.040	<0.040	<0.040	241	0.071
Pyrene (mg/Kg)	**0.211**	<0.040	<0.040	<0.040	18,300	1,790
Notes:						
	1. N/A - constituent value not shown in SSG.					
	2. Sampling date: February 24, 2012					
	3. Only constituents detected shown; complete list of organic constituents analyzed					
	and reporting limits included with analytical results					
	4. Methods: TPH SW8015, Volatiles SW8260, Low-level semi-volatiles SW8270					
	5. Analyses performed by Cardinal Laboratories, Hobbs, New Mexico					

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Table 2. Summary of Soil Constituent Concentrations in Boreholes, Tank 1215 Release Investigation, February 2012, Navajo Lea Refinery

Borehole	TB-2				NMED Soil Screening Levels 02-27-12	
Depth	4-5 feet	9-10 feet	14-15 feet	19-20 feet	Industrial Soil	Groundwater DAF 20
Cardinal laboratory ID	H200499-05	H200499-06	H200499-07	H200499-08	(mg/Kg)	(mg/Kg)
Total Petroleum Hydrocarbons						
TPH-GRO (mg/Kg)	**239**	<10.0	<10.0	<10.0	- -	- -
TPH-DRO (mg/Kg)	**7,030**	**27.5**	**104**	<10.0	- -	- -
TPH-MORO (mg/Kg)	**3,380**	**26.7**	**50.9**	<10.0	- -	- -
Total TPH	**10,649**	**54.2**	**154.9**	<10.0	890 (fuel oil)	- -
Volatiles						
Benzene (mg/Kg)	**0.504**	<0.050	<0.050	<0.050	84.7	0.0324
Ethylbenzene (mg/Kg)	**4.61**	<0.050	<0.050	<0.050	378	26.0
Toluene (mg/Kg)	**4.00**	<0.050	<0.050	<0.050	57,700	25.3
Total Xylenes (mg/Kg)	**5.70**	<0.150	<0.150	<0.150	3,980	3.13
Isopropylbenzene (mg/Kg)	**0.929**	<0.050	<0.050	<0.050	N/A	NA
Methylene Chloride (mg/Kg)	**4.99**	**0.607**	**0.493**	**0.505**	4700	82.4
n-Propylbenzene (mg/Kg)	**1.79**	<0.050	<0.050	<0.050	N/A	N/A
1,2,4-Trimethylbenzene (mg/Kg)	**3.63**	<0.050	<0.050	<0.050	N/A	N/A
1,3,5-Trimethylbenzene (mg/Kg)	**0.918**	<0.050	<0.050	<0.050	N/A	N/A
1,4 Dichlorobenzene	**0.572**	**0.243**	**0.181**	**0.182**	177.0	0.064
p-Isopropyltoluene (mg/Kg)	<0.500	<0.050	<0.050	<0.050	N/A	N/A
Naphthalene (8260, mg/Kg)	**4.03**	<0.050	<0.050	<0.050	241	0.071
n-Butylbenzene (mg/Kg)	**1.60**	<0.050	<0.050	<0.050	N/A	N/A
sec-Butylbenzene (mg/Kg)	**0.818**	<0.050	<0.050	<0.050	N/A	N/A
Notes:						
	1. N/A - constituent value not shown in SSG.					
	2. Sampling date: February 24, 2012					
	3. Only constituents detected shown; complete list of organic constituents analyzed					
	and reporting limits included with analytical results					
	4. Methods: TPH SW8015, Volatiles SW8260, Low-level semi-volatiles SW8270					
	5. Analyses performed by Cardinal Laboratories, Hobbs, New Mexico					

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Table 2. Summary of Soil Constituent Concentrations in Boreholes, Tank 1215 Release Investigation, February 2012, Navajo Lea Refinery

Borehole	TB-2				NMED Soil Screening Levels 02-27-12	
Depth	4-5 feet	9-10 feet	14-15 feet	19-20 feet	Industrial Soil	Groundwater DAF 20
Cardinal laboratory ID	H200499-05	H200499-06	H200499-07	H200499-08	(mg/Kg)	(mg/Kg)
Semivolatiles						
2-Methylnaphthalene (mg/Kg)	**4.87**	<0.040	<0.040	<0.040	N/A	N/A
1-Methylnaphthalene (mg/Kg)	**4.88**	<0.040	<0.040	<0.040	N/A	N/A
Chrysene (mg/Kg)	**1.04**	<0.040	<0.040	<0.040	2,340	160
Phenanthrene (mg/Kg)	**3.45**	<0.040	<0.040	<0.040	20,500	571
Fluorene (mg/Kg)	**1.06**	<0.040	<0.040	<0.040	24,400	406.0
Naphthalene (8270, mg/Kg)	**1.48**	<0.040	<0.040	<0.040	241	0.071
Pyrene (mg/Kg)	<0.200	<0.040	<0.040	<0.040	18,300	1,790
Notes:						
	1. N/A - constituent value not shown in SSG.					
	2. Sampling date: February 24, 2012					
	3. Only constituents detected shown; complete list of organic constituents analyzed					
	and reporting limits included with analytical results					
	4. Methods: TPH SW8015, Volatiles SW8260, Low-level semi-volatiles SW8270					
	5. Analyses performed by Cardinal Laboratories, Hobbs, New Mexico					

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Safety & Environmental Solutions, Inc.

LOG OF BORING TB-1

Tank 1215 Gas Oil Release Investigation
Navajo Refining Company, Lea Refinery
NE/4 Section 36, T16S, R36E
Lea County, New Mexico
Interior Tank Boring

Date, Time Started	: 02/24/11, 1130	Drilled By	: Eco/Enviro Drilling
Date, Time Complete	: 02/24/11, 1445	Sampling Method	: 5 ft. core barrel
Hole Diameter	: 8 1/4 in.	Logged By	: Bob Allen, SESI
Drilling Method	: Hollow Stem Auger	Company Rep.	: Steve Terry
Drilling Equipment	: Foremost-Mobile B-57		

Sample Type
SS Split Spoon (18" or 24")
CB Core Barrel (2.5' or 5')
CT Auger Cuttings
NR No recovery

Depth in Feet	Sample Type	Recovery (in.)	USCS	GRAPHIC	DESCRIPTION	PID (ppm)	Lab No.	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	Total Naphthalene 8270 (mg/Kg)	TPH 8015 (mg/Kg)
0-5	CB	24	AR		0-5 ft. Loose 1/2 to 3/4 in. gravel fill for base of tank, severe H/C staining and strong odor	--	H200499-01	<0.500	1.66	1.99	2.64	4.38	6,150
5-10	CB	25	SP/CA		5-10 ft. SAND, tan, very fine grained, with frequent CALICHE fragments to 3/4", no H/C staining or odor	12	H200499-02	<0.050	<0.050	<0.050	<0.150	<0.040	28.5
10-15	CB	12	SP/SS		10-15 ft. SAND, tan, very fine grained, with frequent soft SANDSTONE fragments, no H/C staining or odor	6	H200499-02	<0.050	<0.050	<0.050	<0.150	<0.040	<10.0
15-20	CB	9			15-20 ft. SAND, tan, very fine grained, with frequent soft SANDSTONE fragments, no H/C staining or odor	3	H200499-04	<0.050	<0.050	<0.050	<0.150	<0.040	130

Notes:
Samples collected with 5 ft. core barrel. Boring backfilled with 9 bags bentonite, hydrated.
Other semi-volatiles detected; see report table
H/C - Petroleum hydrocarbons

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Safety & Environmental Solutions, Inc.

LOG OF BORING TB-2

Tank 1215 Gas Oil Release Investigation
Navajo Refining Company, Lea Refinery
NE/4 Section 36, T16S, R36E
Lea County, New Mexico
Interior Tank Boring

Date, Time Started	: 02/24/11, 1450	Drilled By	: Eco/Enviro Drilling
Date, Time Complete	: 02/24/11, 1615	Sampling Method	: 5 ft. core barrel
Hole Diameter	: 8 1/4 in.	Logged By	: Bob Allen, SESI
Drilling Method	: Hollow Stem Auger	Company Rep.	: Steve Terry
Drilling Equipment	: Foremost-Mobile B-57		

Sample Type
SS Split Spoon (18" or 24")
CB Core Barrel (2.5' or 5')
CT Auger Cuttings
NR No recovery

Depth in Feet	Sample Type	Recovery (in.)	USCS	GRAPHIC	DESCRIPTION	PID (ppm)	Lab No.	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	Total Naphthalene 8270 (mg/Kg)	TPH 8015 (mg/Kg)
0-5	CB	6	AR		0-5 ft. Loose gravel fill for base of tank, gravels to 1", severe H/C staining and strong odor	--	H200499-05	0.504	4.00	4.61	5.70	11.23	10,649
5-10	CB	32	SP/CA		5-10 ft. SAND, tan, very fine grained, with occasional CALICHE fragments to 1/2", no H/C staining or odor	4.1	H200499-06	<0.050	<0.050	<0.050	<0.150	<0.040	54.2
10-15	CB	23	SP/SS		10-15 ft. SAND, tan, very fine grained, with occasional soft SANDSTONE fragments, no H/C staining or odor	2.6	H200499-07	<0.050	<0.050	<0.050	<0.150	<0.040	154.9
15-20	CB	17			15-20 ft. SAND, tan, very fine grained, with occasional soft SANDSTONE fragments, no H/C staining or odor	1.9	H200499-08	<0.050	<0.050	<0.050	<0.150	<0.040	<10.0

Notes:
Samples collected with 5 ft. core barrel. Boring backfilled with 10 bags bentonite, hydrated.
Other semi-volatiles detected; see report table
H/C - Petroleum hydrocarbons

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Material Safety Data Sheet

1. Product and company identification

Product name : BPR 44231 CLEANER

Supplier : Baker Petrolite
A Baker Hughes Company
12645 W. Airport Blvd.
Sugar Land, TX 77478
For Product Information/MSDSs Call: 800-231-3606
(8:00 a.m. - 5:00 p.m. cst, Monday - Friday) 281-276-5400

Material Uses : Special: Cleaner.

Code : BPR44231

Validation date : 1/27/2010.

Print date : 1/27/2010.

Version : 10

Responsible name : Global Regulatory Affairs - Telephone 281-276-5400 or 800-231-3606

In case of emergency : CHEMTREC: 800-424-9300 (U.S. 24 hour)
Baker Petrolite: 800-231-3606
(001)281-276-5400
CANUTEC: 613-996-6666 (Canada 24 hours)
CHEMTREC Int'l 01-703-527-3887 (International 24 hour)

2. Hazards identification

Physical state : Liquid. [Clear to hazy.]

Odor : Sweet.

Color : Yellow to dark brown. [Light]

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview : WARNING!

COMBUSTIBLE LIQUID AND VAPOR. HARMFUL IF INHALED. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

At elevated temperatures, vapors can form an ignitable or explosive mixture with air. Can form explosive mixtures at temperatures at or above the flash point. Static discharges can cause ignition or explosion when container is not bonded. Keep away from heat, sparks and flame. Do not breathe vapor or mist. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Vapors can travel to a source of ignition and flashback. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Routes of entry : Dermal contact. Eye contact. Inhalation.

Potential acute health effects

Inhalation : Toxic by inhalation. Can cause central nervous system (CNS) depression. Irritating to respiratory system.

Ingestion : Can cause central nervous system (CNS) depression.

Skin : Irritating to skin. May cause sensitization by skin contact.

Eyes : Severely irritating to eyes. Risk of serious damage to eyes.

Potential chronic health effects

2. Hazards identification

Chronic effects : Contains material that may cause target organ damage, based on animal data. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Target organs : Contains material which may cause damage to the following organs: upper respiratory tract, central nervous system (CNS), eye, lens or cornea.

Over-exposure signs/symptoms

Inhalation : respiratory tract irritation, nausea or vomiting, coughing, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness

Ingestion : None known.

Skin : irritation, redness

Eyes : pain or irritation, watering, redness

Medical conditions aggravated by over-exposure : Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3. Composition/information on ingredients

Name	CAS number	%
D-limonene	5989-27-5	30 - 60
Alkylarylsulfonate amine salt	Trade secret.	10 - 30
Propylene glycol ether	34590-94-8	5 - 10
Glycol ether	57018-52-7	1 - 5

4. First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wear suitable protective clothing and gloves. Remove contaminated clothing and shoes.

Additional information

If breathing has stopped or the heart has stopped, trained personnel should immediately administer artificial respiration or cardiopulmonary resuscitation, as required.

5 . Fire-fighting measures

Flammability of the product : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : carbon dioxide,carbon monoxide,nitrogen oxides,sulfur oxides

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Water polluting material. May be harmful to the environment if released in large quantities.

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Absorb with an inert material. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Dike spill area and do not allow product to reach sewage system or surface or ground water. Notify any reportable spill to authorities. (See section 12 for environmental risks and 13 for disposal information.) Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during

7 . Handling and storage

transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see section 10). Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredients:	List name	ppm	mg/m³	Other	ppm	mg/m³	Other	ppm	mg/m³	Other	Notations
Propylene glycol ether	US ACGIH	100	606	-	150	909	-	-	-	-	[1]
	OSHA PEL	100	600	-	-	-	-	-	-	-	[1]
	OSHA PEL 1989	100	600	-	150	900	-	-	-	-	[1]

[1]Absorbed through skin.

Consult local authorities for acceptable exposure limits.

Only components of this product with established exposure limits appear in the box above.

If OSHA permissible exposure levels are shown above they are the OSHA 1989 levels or are from subsequent OSHA regulatory actions. Although the 1989 levels have been vacated the 11th Circuit Court of Appeals, Baker Hughes recommends that these lower exposure levels be observed as reasonable worker protection.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use explosion-proof ventilation equipment.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location. Take off contaminated clothing and wash before re-use.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : Chemical-resistant gloves: Nitrile or Neoprene gloves.

Eyes : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles.

Skin : Wear long sleeves and other protective clothing to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

Physical state : Liquid. [Clear to hazy.]

Flash point : Closed cup: 47°C (116.6°F)

Auto-ignition temperature : Not available.

Flammable limits : Lower: 1.8%
Upper: 6.8%

Color : Yellow to dark brown. [Light]

9 . Physical and chemical properties

Odor	:	Sweet.
pH	:	6 to 9 [Conc. (% w/w): 5%]
	:	5% of product in 75% water / 25% isopropanol solution
Boiling/condensation point	:	38 to 151°C (100.4 to 303.8°F)
Initial Boiling Point	:	Not available.
Melting/freezing point	:	Not available.
Relative density	:	0.9422 (15.6°C)
Density	:	7.8485 (lbs/gal)
Vapor density	:	>1 [Air = 1]
Odor threshold	:	Not available.
Evaporation rate	:	Not available.
VOC	:	Not available.
Viscosity	:	Dynamic (15.6°C): 17 cP
Solubility (Water)	:	Dispersible
Vapor pressure	:	2 kPa (15.2 mm Hg) at 21.1°C (Calculated Value for all Components.)
Pour Point	:	-34.4°C (-29.9°F)
Partition coefficient (LogKow)	:	Not available.

10 . Stability and Reactivity

Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous polymerization	:	Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	:	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Materials to avoid	:	Reactive or incompatible with the following materials: oxidizing materials and acids.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Conditions of reactivity	:	Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
D-limonene	LD50 Dermal	Rabbit	>5 g/kg	-
	LD50 Oral	Rat	4400 mg/kg	-
Propylene glycol ether	LD50 Dermal	Rabbit	10 mL/kg	-
	LD50 Oral	Rat	5.5 ml/kg	-
	LD50 Oral	Rat	5400 uL/kg	-
Glycol ether	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	3770 mg/kg	-
	LC50 Inhalation Vapor	Rat	>496 ppm	4 hours

Carcinogenicity Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
D-limonene	-	3	-	-	-	-
Glycol ether	-	3	-	-	-	-

11 . Toxicological information

Chronic toxicity Remarks

1) D-limonene

D-Limonene is a component of this product. In experimental animal studies, limonene produced nausea, lower weight gain, lowered blood sugar and cholesterol, and some kidney damage in dogs exposed for 6 months (Tsuji et al, 1975b).

Limonene has been found in human breast milk (HSDB; Von Burg, 1995). In rats, a high dose of limonene delayed ossification and produced lower fetal weights, results interpreted as signs of fetotoxicity, but it was not teratogenic (Tsuji et al, 1975). In mice, limonen caused abnormal bone formation at a similarly high dose (Kodama et al, 1977).

2) Alkylarylsulfonate amine salt

Not available.

3) Propylene glycol ether

Propylene glycol ether is a component of this product. In rats, a relatively high dose of 1 gm/kg for 35 days had no apparent effect, while 10 mL/kg for 90 days produced no hematological changes, but did cause some kidney effects (Clayton & Clayton, 1982).

Inhalation of an airborne concentration of 200 ppm for 13 weeks had no effect in rats (Landry & Yano, 1984), while inhalation exposure to 300 ppm for 6 to 8 months caused liver changes in rabbits, guinea pigs, and monkeys (Clayton & Clayton, 1982).

4) Glycol ether

The National Toxicology Program (NTP) has conducted a two year inhalation study in mice and rats on propylene glycol mono-t-butyl ether. There was equivocal evidence of carcinogenic activity in male F344/N rats based on marginally increased incidences of renal tubule and liver neoplasms. There was no evidence of carcinogenic activity in female F344/N rats exposed to 75, 300 or 1200 ppm. There was clear evidence of carcinogenic activity in male and female B6C3F1 mice based on increases of liver neoplasms.

The International Agency for Research on Cancer (IARC) concluded that propylene glycol mono-t-butyl ether was not classifiable as to carcinogenic activity to humans (Group 3) on the basis of limited evidence in experimental animals and inadequate evidence in animals.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
BPR 44231 CLEANER	Acute LC50 18.8 mg/L	Daphnia - Daphnia pulex	48 hours
	Acute LC50 10.6 mg/L	Fish - Fathead minnow	96 hours

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

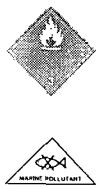
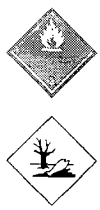
13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: D-limonene, Propylene glycol ether)	3	III		Marine pollutant **Remarks** DOT Marine Pollutant if shipped in bulk or by vessel.
TDG Classification	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: D-limonene, Propylene glycol ether)	3	III		Marine pollutant **Remarks** TDG Marine Pollutant if transported on a ship in Canadian waters.
IMDG Class	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: D-limonene,)	3	III		**Emergency schedules (EmS)** F-E S-E Marine pollutant

PG* : Packing group

DOT Reportable Quantity Not applicable.

Marine pollutant Alkylarylsulfonate amine salt.



North-America NAERG : 128

15 . Regulatory information

HCS Classification : Combustible liquid
Toxic material
Irritating material
Sensitizing material
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.
TSCA 12(b) one-time export: (2-methoxymethylethoxy)propanol

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: D-limonene; (2-methoxymethylethoxy)propanol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: BPR 44231 CLEANER: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

CERCLA: Hazardous substances.: No products were found.
Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Not listed

United States inventory (TSCA 8b) : All components are listed or exempted.

Canada

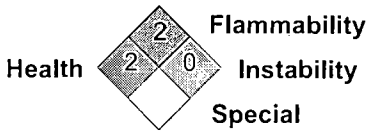
WHMIS (Canada) : Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canada (CEPA DSL): : All components are listed or exempted.

16 . Other information

Label requirements : COMBUSTIBLE LIQUID AND VAPOR. HARMFUL IF INHALED. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

National Fire Protection Association (U.S.A.) :



Date of printing : **1/27/2010.**

Indicates information that has changed from previously issued version.

Notice to reader

16 . Other information

NOTE: The information on this MSDS is based on data which is considered to be accurate. Baker Hughes, however, makes no guarantees or warranty, either expressed or implied of the accuracy or completeness of this information.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

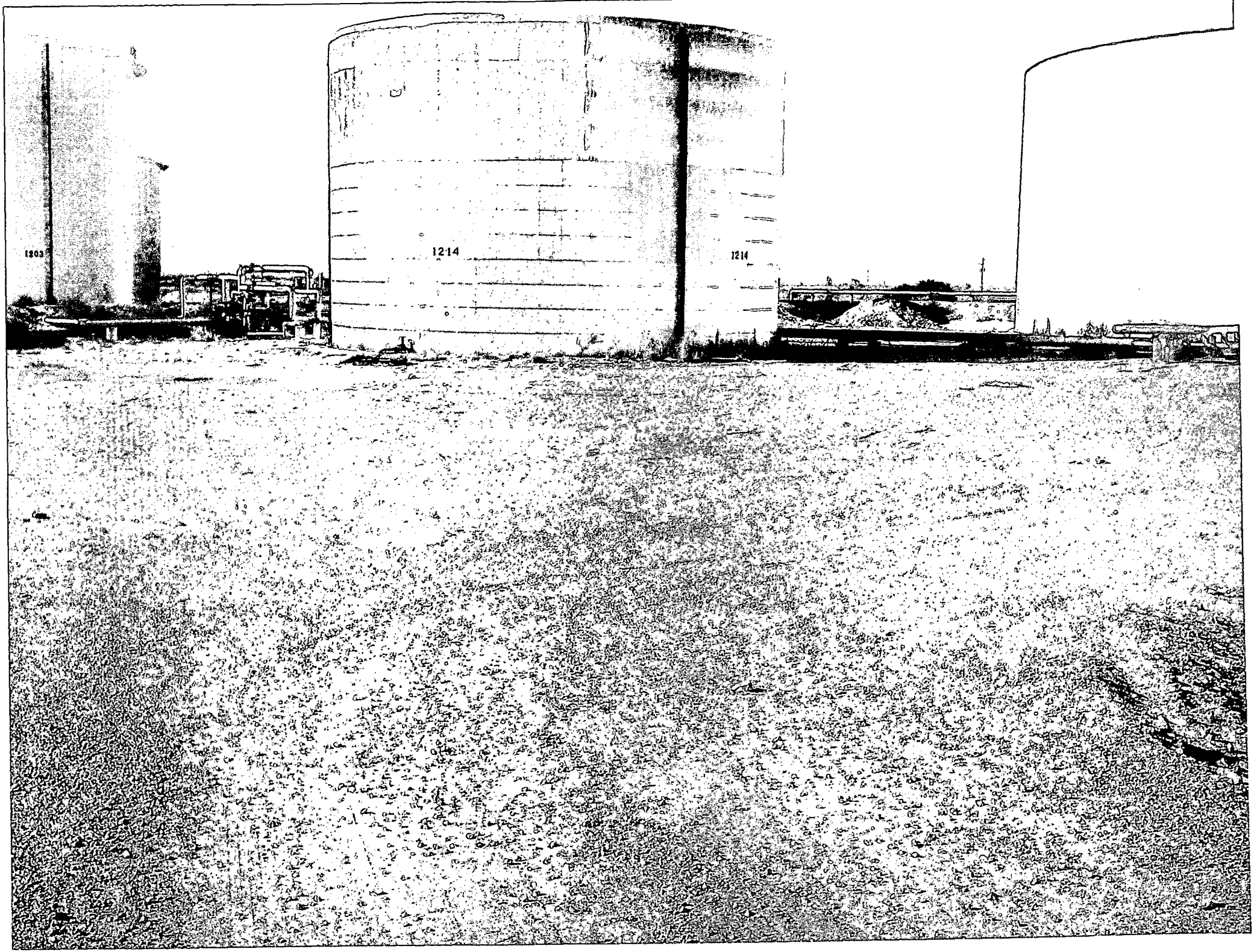
This MSDS was prepared and is to be used for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

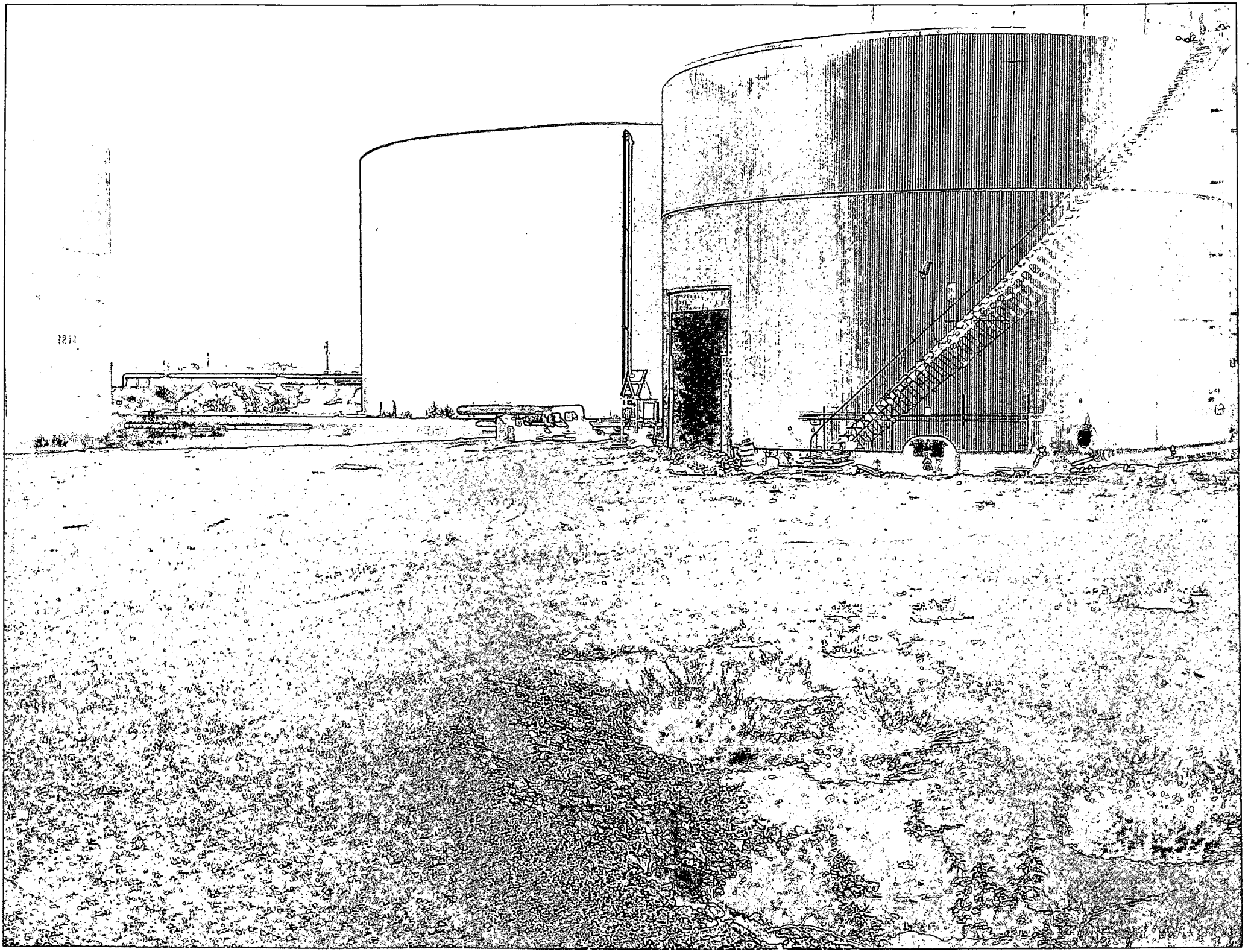
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Final Report for Lovington T-1215

August 1, 2011




1203
1214
1214



HollyFrontier- Tulsa 60x40 Proposal 17645rev1 FINAL_1

Final Report for Lovington T-1215

August 1, 2011

CONSOLIDATED, INC.
Fabrication & Constructors 7963 South Regency Drive. Tulsa, OK 74146 (918) 224-3500 Fax (918) 224-3591

August 7, 2012

HollyFrontier Refining
501 E. Main St.
Artesia, NM 88210

Attention: Leta Scott

SUBJECT: Your Inquiry to repair Tank 1215- 60'x40' CRT located in the HollyFrontier Facility, Lovington, NM.
C.F.C., Inc. Proposal No. 17645 rev.1

We wish to thank you for the above mentioned inquiry and are pleased to submit our proposal per your "SCOPE OF WORK FOR FIELD REPAIR OF API 650 TANK NO. 1215 Located in HollyFrontier facility, Lovington NM.

SCHEDULE

After receipt of written purchase order, please allow Two (1) weeks for engineering, and Two (2) weeks for shop fabrication. Field construction may begin as soon as August 20th , 2012. Field duration to be Four (4) weeks based on working Six (6) days per week, ten (10) hours per day.

SCOPE OF WORK

1. Mobilize
2. Install new secondary containment tank bottom- 5/16" A36Mod plate.
3. Install (1) new 36"x24" flat bottom sump- secondary containment for primary sump.
4. Jack center column, shorten and place on new secondary bottom.
5. Slot shell up 4"
6. Raise Flush-type Cleanout manway 4" to accommodate a double bottom.
7. Install new primary tank bottom- 5/16" A36Mod plate.
8. Jack center colum and place on new primary bottom.
9. Install new 24"x24" primary sump inside secondary sump.
10. Supply and install new door sheet material- Pricing based on first shell course thickness less than or equal to ½".
11. Supply and install up to (80) eighty, 6" x 6" repads with rounded corners on tank floor for steam coil supports.
12. Install (4) Four, HFC supplied 2" 150# nozzles for steam and condensate connections.

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PRICING

Labor-	**$113,929.74**
Equipment-	**$ 5,653.70**
Materials	**$ 64,494.38**
Total	**$188,077.82**

CLARIFICATIONS

1. All bottom fillet welds to be vacuum box tested.
2. Corner weld shall be diesel tested internally prior to external corner weld being made.
3. One (1) set of "as built" drawings and job documentation is included.
4. Radiograph examination of welding per API 653 is included.
5. Preparation of tank for Hydrostatic testing to be by Consolidated. Water to be provided by HollyFrontier.
6. Pricing is PLUS any applicable taxes.
7. Our prices are based on costs in effect as of this date. Any increases in material or taxes will be submitted with supporting documentation and will be in addition to this proposal.
8. Our price is based on a first shell course thickness of less than or equal to .500".
9. Our price is based on lapping secondary bottom onto existing annulus space, no external shell projection provided.

SPECIFIC CONDITIONS

1. We plan on using our current welding procedures, qualifications and welder's work history per API 650 and A.S.M.E. Section IX Requirements.
2. This proposal is firm for acceptance thirty (30) days from the above date.
3. Our price DOES include a non-working confined space attendant/fire watch attendant for the duration of the project.
4. Costs for one move in and one move out have been included in our prices. If our crew is required to move-out due to actions by the Purchaser, his sub contractors or agents, the costs for additional mobilization will be computed according to our standard Time and Material Charges and will be in addition to this proposal.
5. All fabricated materials are F.O.B. jobsite.
6. Before fieldwork begins, we must be furnished with all applicable Material Safety Data Sheets (MSDS), per the Toxic Substance Disclosure Act.
7. Our pricing does not include such items as fresh air gear, air movers, lifelines, warning horns, explosion proof lights, etc.
8. Disposal of any hazardous material to be by others.

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9. We assume semi-trailer access to the tank site and a suitable work area around the tank to be provided.
10. Our price does not include any piping work, valve attachment, etc. past the first exterior shell flange.

TERMS OF PAYMENT

Our terms are bi-monthly progressive payments for the percentage of work completed and mutually agreed upon. All invoicing net thirty (30) days.

We wish to thank you for the opportunity of submitting this proposal and trust that you will award this valued order to Consolidated Fabrication & Constructors, Inc. You have our assurance that the work will be completed to our mutual satisfaction and in a timely manner.

Chris Mckenzie
Project Manager
918-224-3500 Ext 104

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70' AST Map-Probe Radius 20'

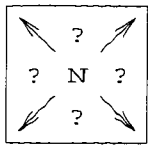
Final Report for Lovington T-1215

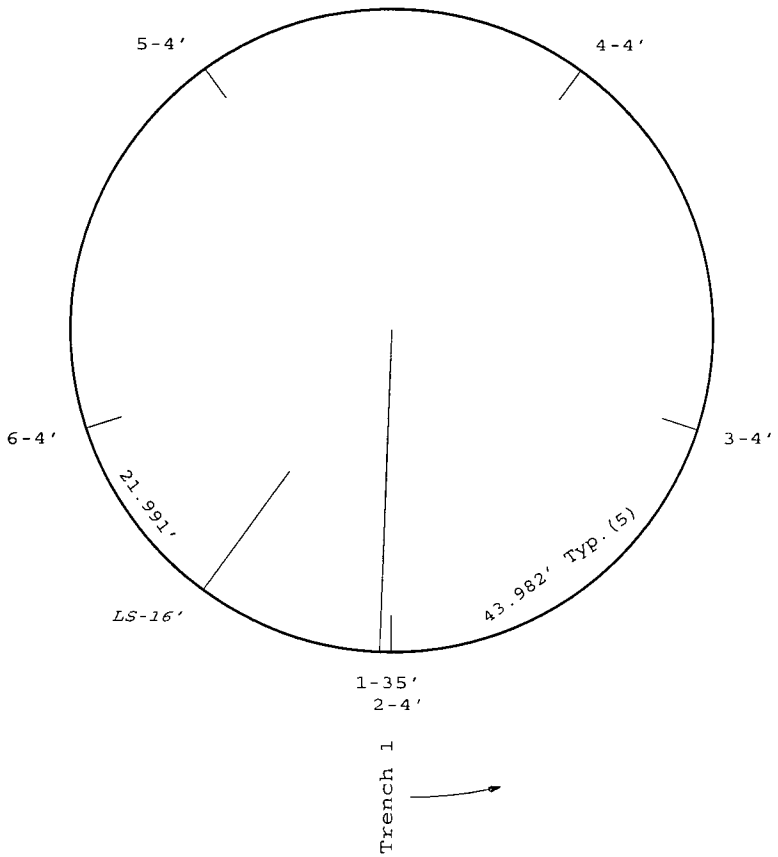
August 1, 2011

PRAXAIR

Praxair Services, Inc.

☐ Air Blank
(Up Wind)





E X P L A N A T I O N

1-35'	Probe Number and Depth
———	Probe Location
LS-16'	Leak Simulation Probe

Probe Dimension Chart
1 Probe at 35.0 ft.
5 Probes at 4.0 ft.
6 Total Probes
55.00 Total Length
219.91 ft. Circumference
5 Trenches
Note: All Trench Distances Measured On The Arc !

0 10 20
f e e t

TRC Job# _____

☐ Air Blank
(Down Wind)

File:AST-070 Size:A
Arc:AST-PR20 Date:07-21-08

70' Dia.
20' P.R.

70 ft. Diameter AST
Circumference: 219.9 feet
Probe Radius: 20.0 feet
Standard Radial Probe Placement

S A M P L I N G L O C A T I O N S

F i g u r e 1

AST method statement

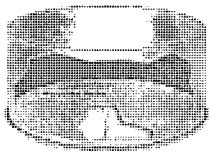
Final Report for Lovington T-1215

August 1, 2011

PRAXAIR

Praxair Services, Inc.

TRACERTIGHT® INSTALL & TESTING
Above Ground Storage Tanks
(ASTs)



METHOD STATEMENT & RISK ASSESMENT

Prepared by:

PRAXAIR SERVICES, Inc.
3755 N Business Center Dr
Tucson, AZ 85705

Telephone: **(520) 888-8400**
Facsimile: **(520) 293-1306**

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APPENDICES

APPENDIX A: Diagram illustrating AST Probe Array.

APPENDIX B: Example Test Report

APPENDIX C: Sample Tailgate Safety Meeting Form

1.0 METHOD STATEMENT

1.1 Praxair Services, Inc.

Praxair Services, Inc. is a wholly owned subsidiary of Praxair providing services to the chemical, refinery and transportation industries. The Asset Integrity Management Services (AIMS) group provides leak detection, corrosion control and pipe inspection services.

1.2 Personnel

Praxair Services uses licensed and certified personnel whenever required. Test technicians are trained and certified in the Tracer Tight method. All field personnel have completed Occupational Safety and Health Administration 40-hour Hazardous Materials Training.

1.3 Test Concept

Tracer Tight® leak testing is performed by mixing a volatile chemical concentrate, a tracer, with the product inside a tank or piping system. The tracer is selected for its compatibility with the product in the tank and piping system and its performance characteristics in each specific test environment. The tracer chemical is added to the product in very low concentrations, typically less than 1 part per million (ppm). The tracer has no impact on the physical properties of the product and works with all types of liquids. The tracers are non-corrosive, inert compounds.

The tracer chemical is distributed throughout the tank and piping system by the motion of the product and vapors. The tracer is partitioned between the vapor space and the liquid product. If the product from the tank or pipeline escapes into the soil, the tracer then evaporates out of the product and disperses into the surrounding soil by molecular diffusion.

After the tracer has had time to diffuse and migrate through the soil away from the leak, soil gas samples are collected from a leak detection probe system that is installed under the tank floor and along piping runs. The system is tested by analyzing these samples with a gas chromatograph for the presence of tracer. The detection of tracer in the soil vapor samples is then used as the sole criteria for determining if there is an active leak.

1.4 Probe System Design & Installation

The *TracerTight®* Test utilizes a probe system designed for each tank based on the area of the tank floor. Each probe is effective over a pre-established area. The design determines optimal placement of each probe so that each area of the tank floor is effectively tested by at least one probe

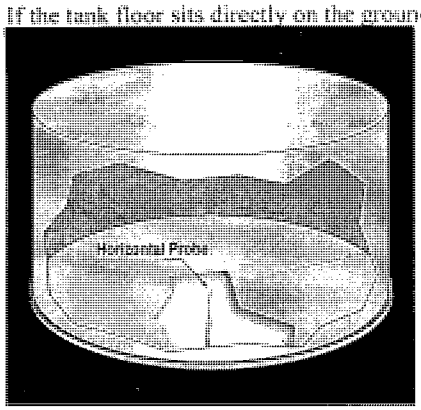
Installation procedures are outlined below:

Tank area is inspected and all utilities and tank design features are taken into account. The leak detection system design is reviewed to ensure that all tank features are considered.

Piping is prepared by cutting, threading and drilling holes in each end section.

Each probe location is checked and cleared to allow access to the soil below the tank floor and proper space allowing probe steel to slide beneath the tank floor without damaging tank floors or liners. In some cases,

where a deep ring-wall exists, a rock drill is used to create neat holes in the concrete for probes to pass through. If the tank floor sits directly on the ground, very shallow trenches need to be dug.



Probes are constructed to meet design specification for length and screening.

Sections of pipe are assembled and inspected for faults.

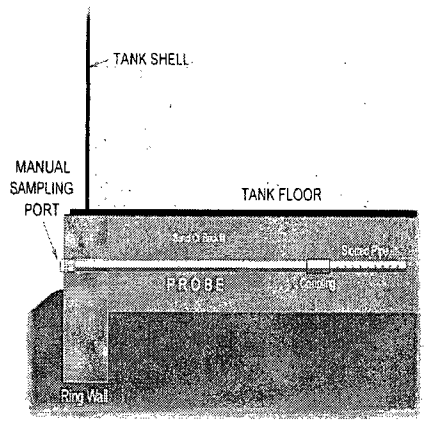
Probe assemblies and equipment are set up for installation and measurements are taken to ensure proper alignment under the tank.

Probes are installed by pounding them horizontally to the desired position beneath the tank floor. Hand pounding equipment designed by Praxair and/or a pneumatic Pierce Airrow is used to hammer probes into the soil beneath the tank floor.

Once installed, each probe is tested for any obstruction interfering with the flow of air required for testing. Vacuum measurements are taken to determine soil permeability and to help identify the need for any system design modifications.

Once each probe has been inspected and approved, a 90 degree elbow (or other attachment as needed) is attached to the outside end followed by a vertical extension to ground level where a termination cap is fixed. This cap will be later replaced by a TracerTight® Termination cap that is designed for easy access sampling and can be resealed for future testing.

All probes are finished flush with the surrounding grade. All excavations are back-filled and area is returned to pre-installation condition.



Once properly installed, the Tracer Tight® Leak Detection System can be used for repeated future testing with minimal service and repair.

1.5 Leak Simulation Procedures

A leak of known size, typically a few gallons, is simulated at the start of each test. A small amount of a tracer is injected below the tank at a midpoint between sampling probes. The leak simulation tracer is a chemical that is similar to but distinguishable from the tracer added to the tank. Detection of this tracer verifies that the transport of tracers throught the soil below the tank is adequate for the detection of a leak.

1.6 Inoculation Procedures

Inoculation is the introduction of the *TracerTight*® compound into the product of the Tank to be tested. This compound (Tracer) is added to the product to achieve the target concentration (typically less than one part per million). This small concentration is enough o allow proper testing of the system. Tracer is injected into the system using the following procedures.

Each tank is inspected for areas of concern. Leakage from valves and connections that may transport tracer to the ground are repaired or isolated before inoculation can proceed.

The tank volume and product level are used to determine the amount otracer needed. The tracer compound is placed in a pressurized container and is then released into the product.

Tracer may be injected into the receipt line while product is being added to the tank, through a gauging hatch or through some other access point such as a low point drain or sampling port.

1.7 Sampling Procedures

For a tightness test with on-site analysis of the tracer the following samples will be collected.

Background Samples – soil gas samples are collected from the monitoring probe system before inoculation to ascertain the background level of the chemical.

Confirmation Sample – collected to ensure adequate mixing of the Tracer – Product inside the tank.

24-Hour Samples - soil gas samples will be collected from the monitoring probe system 24hrs after confirmation of product / Tracer mixing.

48-Hour Samples - soil gas samples will be collected from the monitoring probe system 48hrs after confirmation of product / Tracer mixing.

For periodic leak detection monitoring, background samples may not be collected. Testing samples may be collected up to 30 days after the inoculation of the system.

Sampling Process - The aboveground end of the probe will be fitted with a probe adaptor and a length of polyethylene tubing leading to a vacuum pump. To ensure adequate flow of gas into the probe, the flow of gas will be monitored by a vacuum gauge.



The volume of air within the probe will be purged by evacuating 2 to 5 liters of gas. The evacuation time in minutes versus the vacuum in inches of mercury (Hg) will be used to calculate the necessary evacuation time. If soil gas does not flow into the sampling probe, an attemplt will be made to clear it. If the probe cannot be cleared it may be retracted and another probe installed. The vacuum will be monitored and recorded for each sample collected.

During the soil gas evacuation, samples will be collected from the evacuation line with a syringe and transferred to designated sample canisters. Subsamples of the soil gas sample will be injected into the GC in volumes ranging from 1 microliter (μL) to 2 mL, depending on the concentration at that particular location.

1.8 Analytical Procedures

The samples are analyzed using a gas chromatograph, equipped with an electron capture detector (ECD) and flame ionization detector (FID). Compounds will be separated in the GC on packed analytical columns in a temperature controlled oven. Nitrogen will be used as the carrier gas. The mobile analytical laboratory also is equipped with Hydrogen and Air cylinders to supply the FID to detect hydrocarbon in the soil gas samples.

1.9 Quality Control

Praxair has incorporated stringent quality assurance and quality control into its Tracer Tight® Leak Detection Method. Trained personnel, equipment calibration checks, background system checks and the leak simulation are designed to eliminate any false detection and ensure a valid test each time.

1.10 Criteria For Determination of Leakage

Determination of leakage is based on the presence or absence of tracer. In principal, any tracer detected indicates a leak. In practice, the act of bringing Tracer to the site creates the potential for the detection of extremely low background levels. Samples are collected from the ambient air around the tanks and from the probes under the tanks before and during the testing. Therefore, the indication of leakage is based on two criteria: the detection of tracer higher than levels present in background samples, and an increase in tracer concentration over time.

APPENDIX A: Diagram Illustrating AST Probe Array

APPENDIX B: Example Test Report

APPENDIX C: Tailgate Safety Form (example)

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, August 23, 2012 7:02 AM
To: 'Combs, Robert'
Cc: Holder, Mike; VonGonten, Glenn, EMNRD; Gonzales, Elidio L, EMNRD
Subject: RE: Lovington T-1215 repairs

Robert:

Please submit the final C-141 with attached documentation to confirm the release was adequately addressed. This should occur before approves the tank repair. I don't see any mention of "leak detection system" in the new tank design. Perhaps you could include the diagram as requested with the final C-141 for OCD approval.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
Office: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
Website: http://www.emnrd.state.nm.us/ocd/
"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental

---

From: Combs, Robert [mailto:Robert.Combs@hollyfrontier.com]
Sent: Wednesday, August 22, 2012 3:24 PM
To: Chavez, Carl J, EMNRD
Cc: Holder, Mike
Subject: FW: Lovington T-1215 repairs

Carl,

As I mentioned in our phone conversation, the Praxair installation has not yet been scheduled. In fact, Navajo has not yet requested a quotation for the retrofit at this time; it will be done within a period so that valid estimates are provided. At this point, we know that the installations will occur in 2013. The list of tanks (see below) provides all of the tanks to be retrofitted, and these are to be done during the same dispatch. Navajo does not have storage tanks in the Lovington facility that store fuels or high VOC components. The only tanks containing VOCs are those in crude and naphtha service, all of which are included. Navajo will follow up with OCD once the bids are received and the work is scheduled. As-built drawings will demonstrate the probe locations, and documentation of the probe construction.

In regards to T-1215, Navajo will complete a final C-141 to close out this event. However, we need to have approval by OCD of our path forward so that repairs may be pursued ASAP. I have attached our previous communications (see email file: RE: Navajo Lovington Refinery (AP-110) Ground Water Monitoring & Unfilled Excavated Areas) and would like to mention that Navajo has completed backfilling the excavated areas outside of the tank, photos of the area will be attached to the final C-141. The second attachment is the proposal for the floor repairs (HollyFrontier- Tulsa 60x40 Proposal 17645rev1 Final 2.pdf), which provides the construction/repair details and their accordance with API 650 and 653.

Please let us know ASAP if we can proceed with the floor repairs.

Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

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From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, August 22, 2012 12:16 PM
To: Combs, Robert
Cc: Holder, Mike; VonGonten, Glenn, EMNRD; Gonzales, Elidio L, EMNRD; Leking, Geoffrey R, EMNRD
Subject: RE: Lovington T-1215 repairs

Robert:

Good afternoon.

Praxair Monitoring System (MS):

The Oil Conservation Division (OCD) acknowledges that this is a separate issue from the release; however, OCD notices that the table may not include tanks with VOCs, i.e., fuel; however, the OCD recalls instructing Navajo Refining Company (NRC) to prioritize tanks for monitoring based on the threat to the environment and human health. Therefore, please evaluate all tanks the facility to ensure that the referenced Praxair Probe monitoring system (MS) will include the above and provide an updated tank table (if necessary) with work schedule (i.e, Month in 2013) that the MS will be installed with first monitoring results and monitoring schedule afterward. A site map to scale of the probe monitoring locations with basic probe construction description (consistent with Praxair SOPs) should also be provided or a request to provide pertinent details in advance of installation shall be requested.

Tank 1215 Release:

Regarding the Tank 1215 release, corrective action(s), and proposed tank repair: Please submit the final C-141 with attachments documenting the corrective actions, i.e., photos, lab analyses, etc. taken to confirm that final corrective actions have adequately addressed the release.

Please reference in the corrective action section of the final C-141 an attached basic engineering design diagram(s) of the proposed tank double bottom construction with leak detection with specifications. NRC must confirm that it is conducting the repairs in accordance with ASTM 653 Tank Repair Standards.

Thank you.

the time required for hydrotest (time to fill and drain) and preparing for service. The Praxair probes (leak detection) will be installed in 2013, along with the other tanks listed below.

LOVINGTON	
Tank Number	**Typical Liquid Stored**
T-103A	Raw Diesel
T-103B	Raw Diesel
T-104A	Raw Kerosene
T-104B	Atmos Gas Oil
T-1204	Raw Diesel
T-1205	Heavy Vacuum Gas Oil
T-1206	Atmos Gas Oil
T-1208	Wastewater
T-1214	Heavy Slop
T-1215	Heavy Slop
T-1207	Light Slop Oil
T-101B	Raw Naphtha
T-102A	Raw Kerosene
T-102B	Straight Run Gasoline
T-1201A	Crude Oil
T-1201B	Crude Oil
1201C	Waste Water
1201D	Waste Water
T-1202	Crude Oil
T-1203	Atmos Gas Oil
T-1209	Light Slop Oil

If you could, please let me know via email if this is an acceptable path forward so that we can proceed with the repairs.

Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

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CONSOLIDATED, INC.
Fabrication & Constructors 7963 South Regency Drive. Tulsa, OK 74146 (918) 224-3500 Fax (918) 224-3591

August 7, 2012

HollyFrontier Refining
501 E. Main St.
Artesia, NM 88210

Attention: Leta Scott

SUBJECT: Your Inquiry to repair Tank 1215- 60'x40' CRT located in the HollyFrontier Facility, Lovington, NM.
C.F.C., Inc. Proposal No. 17645 rev.1

We wish to thank you for the above mentioned inquiry and are pleased to submit our proposal per your "SCOPE OF WORK FOR FIELD REPAIR OF API 650 TANK NO. 1215 Located in HollyFrontier facility, Lovington NM.

SCHEDULE

After receipt of written purchase order, please allow Two (1) weeks for engineering, and Two (2) weeks for shop fabrication. Field construction may begin as soon as August 20th , 2012. Field duration to be Four (4) weeks based on working Six (6) days per week, ten (10) hours per day.

SCOPE OF WORK

1. Mobilize
2. Install new secondary containment tank bottom- 5/16" A36Mod plate.
3. Install (1) new 36"x24" flat bottom sump- secondary containment for primary sump.
4. Jack center column, shorten and place on new secondary bottom.
5. Slot shell up 4"
6. Raise Flush-type Cleanout manway 4" to accommodate a double bottom.
7. Install new primary tank bottom- 5/16" A36Mod plate.
8. Jack center colum and place on new primary bottom.
9. Install new 24"x24" primary sump inside secondary sump.
10. Supply and install new door sheet material- Pricing based on first shell course thickness less than or equal to ½".
11. Supply and install up to (80) eighty, 6" x 6" repads with rounded corners on tank floor for steam coil supports.
12. Install (4) Four, HFC supplied 2" 150# nozzles for steam and condensate connections.

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PRICING

Labor-	**$113,929.74**
Equipment-	**$ 5,653.70**
Materials	**$ 64,494.38**
Total	**$188,077.82**

CLARIFICATIONS

1. All bottom fillet welds to be vacuum box tested.
2. Corner weld shall be diesel tested internally prior to external corner weld being made.
3. One (1) set of "as built" drawings and job documentation is included.
4. Radiograph examination of welding per API 653 is included.
5. Preparation of tank for Hydrostatic testing to be by Consolidated. Water to be provided by HollyFrontier.
6. Pricing is PLUS any applicable taxes.
7. Our prices are based on costs in effect as of this date. Any increases in material or taxes will be submitted with supporting documentation and will be in addition to this proposal.
8. Our price is based on a first shell course thickness of less than or equal to .500".
9. Our price is based on lapping secondary bottom onto existing annulus space, no external shell projection provided.

SPECIFIC CONDITIONS

1. We plan on using our current welding procedures, qualifications and welder's work history per API 650 and A.S.M.E. Section IX Requirements.
2. This proposal is firm for acceptance thirty (30) days from the above date.
3. Our price DOES include a non-working confined space attendant/fire watch attendant for the duration of the project.
4. Costs for one move in and one move out have been included in our prices. If our crew is required to move-out due to actions by the Purchaser, his sub contractors or agents, the costs for additional mobilization will be computed according to our standard Time and Material Charges and will be in addition to this proposal.
5. All fabricated materials are F.O.B. jobsite.
6. Before fieldwork begins, we must be furnished with all applicable Material Safety Data Sheets (MSDS), per the Toxic Substance Disclosure Act.
7. Our pricing does not include such items as fresh air gear, air movers, lifelines, warning horns, explosion proof lights, etc.
8. Disposal of any hazardous material to be by others.

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9. We assume semi-trailer access to the tank site and a suitable work area around the tank to be provided.
10. Our price does not include any piping work, valve attachment, etc. past the first exterior shell flange.

TERMS OF PAYMENT

Our terms are bi-monthly progressive payments for the percentage of work completed and mutually agreed upon. All invoicing net thirty (30) days.

We wish to thank you for the opportunity of submitting this proposal and trust that you will award this valued order to Consolidated Fabrication & Constructors, Inc. You have our assurance that the work will be completed to our mutual satisfaction and in a timely manner.

Chris Mckenzie
Project Manager
918-224-3500 Ext 104

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Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, August 22, 2012 12:16 PM
To: 'Combs, Robert'
Cc: Holder, Mike; VonGonten, Glenn, EMNRD; Gonzales, Elidio L, EMNRD; Leking, Geoffrey R, EMNRD
Subject: RE: Lovington T-1215 repairs

Robert:

Good afternoon.

Praxair Monitoring System (MS):

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Please reference in the corrective action section of the final C-141 an attached basic engineering design diagram(s) of the proposed tank double bottom construction with leak detection with specifications. NRC must confirm that it is conducting the repairs in accordance with ASTM 653 Tank Repair Standards.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
Office: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
Website: http://www.emnrd.state.nm.us/ocd/
"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental

From: Combs, Robert [mailto:Robert.Combs@hollyfrontier.com]
Sent: Monday, August 20, 2012 4:10 PM
To: Chavez, Carl J, EMNRD
Cc: Holder, Mike
Subject: Lovington T-1215 repairs
Importance: High

Carl,

I have been preparing the documentation for a Final C-141 for the T-1215 spill in Lovington that occurred in August of 2011. Before I finalize and submit, I would like to discuss our chosen path forward for T-1215 repairs. We would like to have approval from OCD prior to undertaking the repairs, which need to be done ASAP, as the tank will be needed for service during the maintenance turnaround beginning in January of 2013. Navajo plans to install a double steel floor, as recommended by OCD (see attached email file). The estimated duration for these repairs will be 6-8 weeks, in addition to the time required for hydrotest (time to fill and drain) and preparing for service. The Praxair probes (leak detection) will be installed in 2013, along with the other tanks listed below.

LOVINGTON	
Tank Number	**Typical Liquid Stored**
T-103A	Raw Diesel
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T-104A	Raw Kerosene
T-104B	Atmos Gas Oil
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T-1206	Atmos Gas Oil
T-1208	Wastewater
T-1214	Heavy Slop
T-1215	Heavy Slop
T-1207	Light Slop Oil
T-101B	Raw Naphtha
T-102A	Raw Kerosene
T-102B	Straight Run Gasoline
T-1201A	Crude Oil
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1201C	Waste Water
1201D	Waste Water
T-1202	Crude Oil
T-1203	Atmos Gas Oil
T-1209	Light Slop Oil

If you could, please let me know via email if this is an acceptable path forward so that we can proceed with the repairs.

Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
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Chavez, Carl J, EMNRD

From: Combs, Robert <Robert.Combs@hollyfrontier.com>
Sent: Monday, August 20, 2012 4:10 PM
To: Chavez, Carl J, EMNRD
Cc: Holder, Mike
Subject: Lovington T-1215 repairs
Attachments: FW: TK 1215 Spill (Crude Bottoms (Asphalt/Vacuum Gas Oil)

Importance: High

Carl,

I have been preparing the documentation for a Final C-141 for the T-1215 spill in Lovington that occurred in August of 2011. Before I finalize and submit, I would like to discuss our chosen path forward for T-1215 repairs. We would like to have approval from OCD prior to undertaking the repairs, which need to be done ASAP, as the tank will be needed for service during the maintenance turnaround beginning in January of 2013. Navajo plans to install a double steel floor, as recommended by OCD (see attached email file). The estimated duration for these repairs will be 6-8 weeks, in addition to the time required for hydrotest (time to fill and drain) and preparing for service. The Praxair probes (leak detection) will be installed in 2013, along with the other tanks listed below.

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T-1214	Heavy Slop
T-1215	Heavy Slop
T-1207	Light Slop Oil
T-101B	Raw Naphtha
T-102A	Raw Kerosene
T-102B	Straight Run Gasoline
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If you could, please let me know via email if this is an acceptable path forward so that we can proceed with the repairs.

Thanks,
Robert

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Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Sent: Wednesday, February 08, 2012 9:25 AM
To: Combs, Robert
Subject: FW: TK 1215 Spill (Crude Bottoms (Asphalt/Vacuum Gas Oil)

FYI.

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) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/
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http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

From: Chavez, Carl J, EMNRD
Sent: Wednesday, January 04, 2012 7:48 AM
To: 'Moore, Darrell'
Cc: Lackey, Johnny; Welch, Bill; Crockett, Kevin; Lunsford, Chuck; VonGonten, Glenn, EMNRD; Gonzales, Elidio L, EMNRD
Subject: RE: TK 1215 Spill (Crude Bottoms (Asphalt/Vacuum Gas Oil)

Darrell:

Good morning. So, there is no second floor. I've copied EL Gonzales in case they have a staff person in the area today that can stop by.

I think we need to bore down as deep as possible. Also, the tank should be retrofitted with a double bottom w/ leak detection in accordance with the OCD permit. Or, the tank can be lifted and an acceptable liner material may be placed underneath and keyed into the berm w/ tank set on top. Thanks.

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) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
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http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

From: Moore, Darrell [mailto:Darrell.Moore@hollyfrontier.com]
Sent: Tuesday, January 03, 2012 10:37 AM
To: Chavez, Carl J, EMNRD
Cc: Lackey, Johnny; Welch, Bill; Crockett, Kevin; Lunsford, Chuck
Subject: RE: TK 1215 Spill

Carl

After getting inside Tk 1215 at Lovington, it has been determined that the tank DOES NOT have a second floor. We have water cut coupons into the floor in the areas where holing was discovered. We plan to go inside the tank and dig in the area these coupons have been removed to sample the ground beneath the tank. We propose to do this sampling beneath the tank tomorrow January 4, 2012. If OCD would like to witness this sampling and/or split samples, we would like to start about 9 am.

From: Moore, Darrell
Sent: Monday, December 05, 2011 1:36 PM
To: 'Chavez, Carl J, EMNRD'
Subject: RE: TK 1215 Spill

Carl

We have finished our cleanup of this spill and have done borings in the spill area to insure cleanup. That report with boring detail and analysis along with a final C-141, pictures, waste disposal records, etc. should be to you early next week. The tank leaked as a result of a hole in the floor. On the plus side, the tank DOES have a second floor beneath the first floor and the leak was detected thru weep holes. We are in the process of scanning the floor to detect any other weak spots. Those areas along with the leaking area will be/have been repaired per API-653 standards. We feel confident that there is very little, if any, contamination under the tank due to the secondary floor.

Therefore, once the floor is completely repaired, the tank will be buttoned back up....hydrotested to ensure mechanical integrity and put back in service.

If there are any questions, please contact me at the email address above or at 575-746-5281.

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Tuesday, August 02, 2011 4:44 PM
To: Moore, Darrell; mleighton@lovington.org
Cc: Lackey, Johnny; Combs, Robert; Strange, Aaron; Crockett, Kevin; Welch, Bill; Hutchings, Charles
Subject: RE: TK 1215 Spill

Ok. 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) 476-3490
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Website: http://www.emnrd.state.nm.us/ocd/index.htm
"Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at:
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

From: Moore, Darrell [mailto:Darrell.Moore@hollyfrontier.com]
Sent: Tuesday, August 02, 2011 3:10 PM
To: Chavez, Carl J, EMNRD; mleighton@lovington.org
Cc: Lackey, Johnny; Combs, Robert; Strange, Aaron; Crockett, Kevin; Welch, Bill; Hutchings, Charles
Subject: TK 1215 Spill

Carl and Michael

Attached, please find the C-141 for the spill from TK 1215 that occurred yesterday at Lovington. The tank is essentially empty as of noon today. We are continuing clean up of contaminated soils and investigating what happened to the tank. We will be sending a final C-141 once cleanup is finished. That final C-141 will include sample analysis, photos, and borehole data to determine the horizontal and vertical extent that the spill reached.

If there are any questions concerning this submission, please call me at 575-746-5281.

Darrell Moore
Environmental Manager for Water and Waste
The HollyFrontier Companies
Phone Number 575-746-5281
Cell Number 575-703-5058
Fax Number 575-746-5451

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Chavez, Carl J, EMNRD

From: Leking, Geoffrey R, EMNRD
Sent: Friday, June 22, 2012 11:25 AM
To: Chavez, Carl J, EMNRD
Cc: Gonzales, Elidio L, EMNRD
Subject: NAVAJO LEA REFINERY TANK 104B RELEASE FIELD VISIT 6-21-12

Carl

Site visit took place at 11:00 AM. Met Robert Combs, Navajo and was joined by Bob Allen, SESI. Great deal of HC residue on surface in diked area surrounding Tank 104B. Spray area to the northwest still inside diked area. SESI will take surface hand samples plus install borings at two pooling areas. Hopefully the vertical extent of the release will be limited due to the fluid's viscosity. In addition, bioremediation will probably be attempted beneath the areas where piping prohibits excavation. 45 loads in 12 yard bins of contaminated material has been removed and disposed of to this point. Caliche is near surface. Do not want to excavate test trenches in order to prohibit the formation of a preferential pathway through caliche. An MSDS was provided for the fluid. Photos available at L:HOBBS\NAVAJO LEA TANK 104B RELEASE. Please contact me if you have any questions. Thank you.

Geoff

Chavez, Carl J, EMNRD

From: Strange, Aaron <Aaron.Strange@hollyfrontier.com>
Sent: Monday, June 11, 2012 1:29 PM
To: Tsinnajinnie, Leona, NMENV; Chavez, Carl J, EMNRD; Dade, Randy, EMNRD
Cc: Envir
Subject: 2012-6-11 Fire P-454 Gas Oil Booster Pump

Leona, Carl, and Randy,

The Environmental Dept. was notified that there was a small fire today at ~12:20 on the P-454 Gas Oil Booster Pump south of Tank T-433. A bearing or mechanical seal failed, which caused the pump to catch on fire. The fire was put out quickly with a hand held fire extinguisher. There were no injuries and other than the pump there were no equipment was damaged. The pump is on a concrete containment and nothing spilled onto the ground. A C-141 will be submitted with further details.

Please let us know if you have any questions,

Thanks,
Aaron

Aaron Strange
Environmental Technician, Senior
Environmental Department
Navajo Refining Co, LLC
Artesia NM
Off: (575) 746-5468
Cell: (575) 703-5057

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Chavez, Carl J, EMNRD

From: Combs, Robert <Robert.Combs@hollyfrontier.com>
Sent: Monday, June 11, 2012 4:16 PM
To: Chavez, Carl J, EMNRD; VonGonten, Glenn, EMNRD; Gonzales, Elidio L, EMNRD; mleighton@lovington.org; Lvelasquez@leacounty.net
Cc: Holder, Mike; Lackey, Johnny; Strange, Aaron; Schultz, Michele; Hodges, James; Welch, Bill; Hernandez, Eloy
Subject: Initial C-141 2012-06-07 Spill--Gasoil from T-104B in Lovington
Attachments: C-141 2012-06-07 Spill--Gasoil from T-104B in Lovington.pdf

Carl, Glenn, E.L., Mike, and Lorenzo,

Please see the attached C-141 for the gasoil spill that occurred in Lovington on 6/7/12.

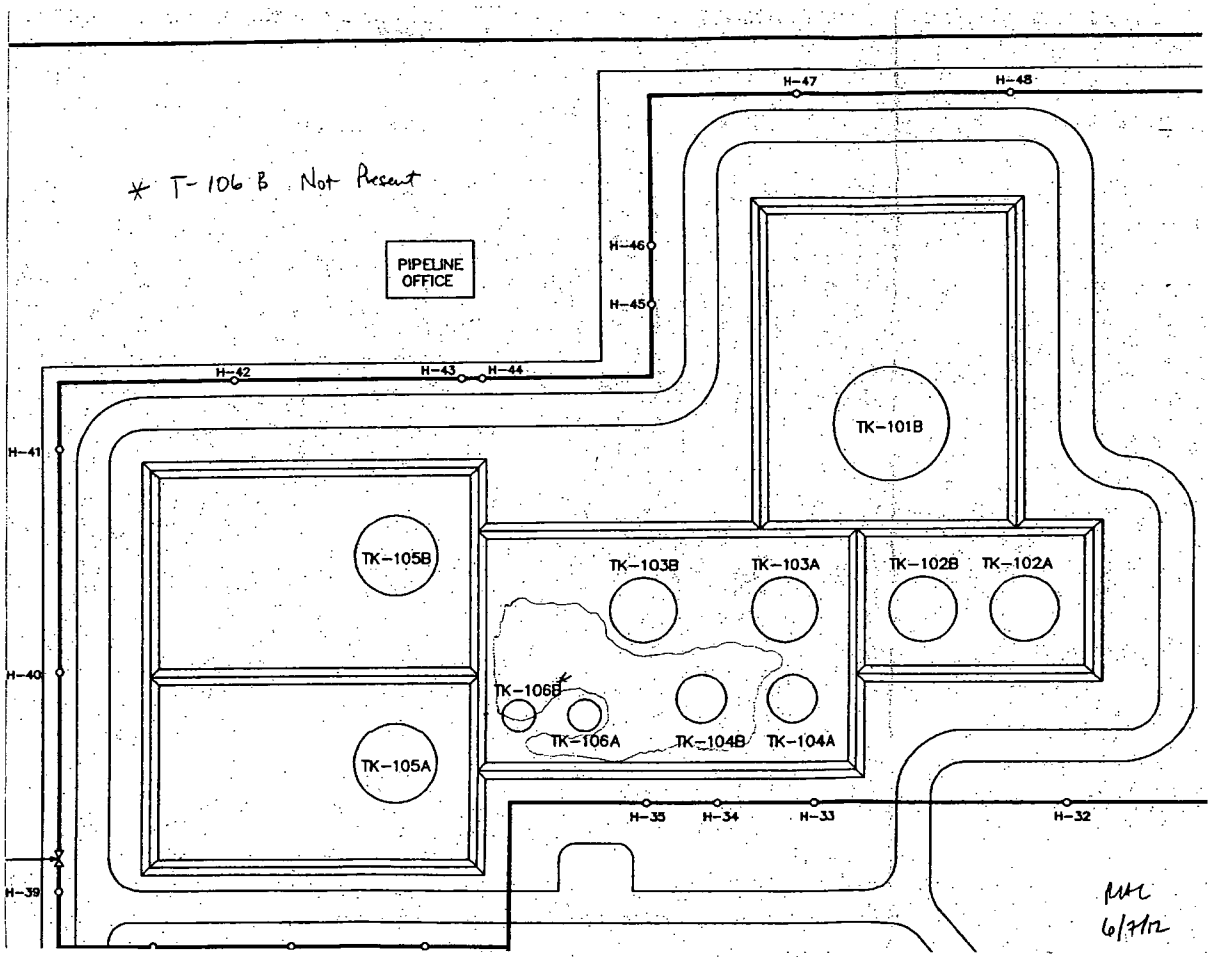
If you have any questions, please call me at 575-308-2718.

Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

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* T-106 B Not Present
PIPELINE OFFICE
H-47
H-48
H-46
H-45
H-42
H-43
H-44
H-41
H-40
H-39
H-35
H-34
H-33
H-32
TK-101B
TK-105B
TK-105A
TK-103B
TK-103A
TK-102B
TK-102A
TK-106B
TK-106A
TK-104B
TK-104A
MC
6/7/12

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: Navajo Refining Co. LLC	Contact: Robert Combs
Address: 7406 South Main Lovington, N.M.	Telephone No. 575-746-5382
Facility Name: Lovington Plant	Facility Type: Petroleum 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

Latitude _____ **Longitude** _____

NATURE OF RELEASE

Type of Release: Gasoil	Volume of Release: ~3000 bbls	Volume Recovered: 2956 barrels
Source of Release: T-104A Gasoil tank	Date and Hour of Occurrence: Unknown time on 6/7/12	Date and Hour of Discovery: 6/7/12 ~ 06:00
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Carl Chavez, OCD Santa Fe (505-476-3490), left a message. Lovington LEPC, left message, spoke with Lorenzo Velasquez	
By Whom? Robert Combs and Micki Schultz	Date and Hour: 6/7/12 at ~07:50 to OCD Santa Fe office. 6/7/12 at ~08:30 to Lovington LEPC	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. NA	

If a Watercourse was Impacted, Describe Fully.* NA

Describe Cause of Problem and Remedial Action Taken.*
At ~23:00 on 6/6/12, satellite communications were interrupted with HEP's (Holly Energy Partners) controls and monitoring systems, whic was unknown to the Lovington facility. The interruption shut down the pump that was transferring gasoil from T-104B to the Artesia facility, causing the tank level to increase rapidly since the tank outflow was stopped, but he gasoil rundown to the tank continued for several hours. At ~06:00 on 6/7/12, operators at the Lovington refinery discovered that T-104B had overflowed and released approximately 3000 bbls of gasoil. The gasoil rundown to T-104B was stopped and flow was diverted to T-1206, in addition, the Crude Unit process rate was reduced.

Describe Area Affected and Cleanup Action Taken.*
The tank is contained inside a bermed area shared by four other tanks (T-106A, 104A, 103A, 103B, see attachment). This is a very low vapor pressure, viscous liquid. As the liquid level exceeded the tank capacity, the liquid began to run down the outside of the tank and pool at the base. Some of the liquid was carried as mist and contaminated soil downwind of the tank, but did not migrate outside of the bermed area. At this point, 2956 barrels of gasoil were recovered and contractors have begun removal of contaminated soil. The waste is being disposed at R360 in Hobbs and eighteen bins (12 cy capacity) have been disposed under a preexisting profile for gasoil contaminated soil.

A Final C-141 will be submitted and will include soil sample analyses, photos, and disposal records.

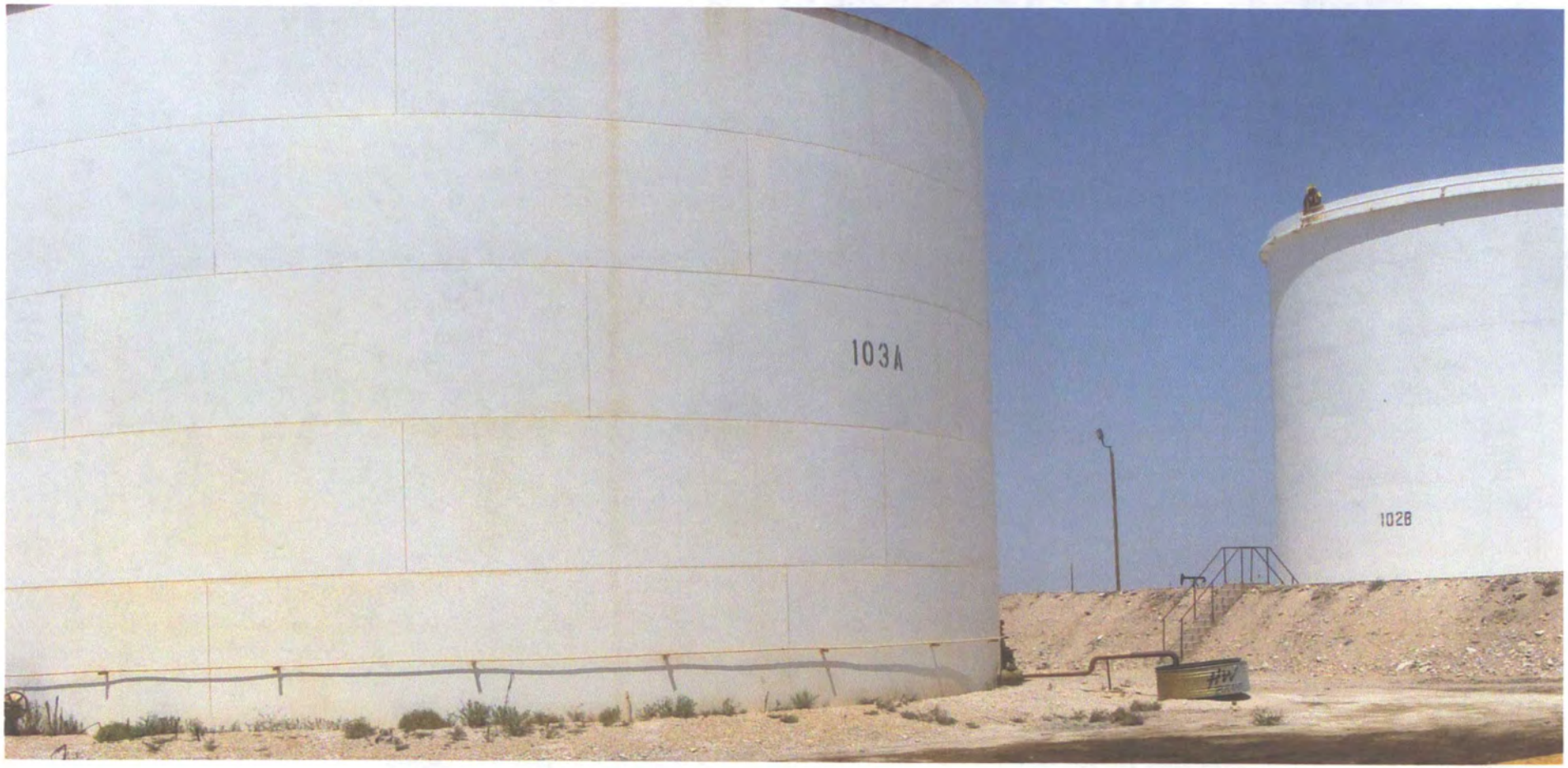
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger 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:	OIL CONSERVATION DIVISION	
Printed Name: Robert Combs	Approved by District Supervisor:	
Title: Environmental Specialist	Approval Date:	Expiration Date:
E-mail Address: Robert.Combs@hollyfrontier.com	Conditions of Approval:	Attached ☐
Date: 6/11/12 Phone: 575-746-5382		








103A
102B

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, May 24, 2012 12:06 PM
To: Combs, Robert (Robert.Combs@hollyfrontier.com); Strange, Aaron (Aaron.Strange@hollyfrontier.com)
Cc: VonGonten, Glenn, EMNRD
Subject: Navajo Artesia Refinery (GW-028) Final C-141 Spill/Release Reports & Lovington Refinery (AP-110)

Gentlemen:

FYI, the OCD is now logging spills/releases at refineries into its OCD Online system "Spills" (click here).

Also, the OCD notices that final C-141s should be forthcoming soon for the following spills:

1) Holly Energy Partners Artesia Receiving Manifold (Fire) 3/24/2012
2) Sulfur Guard Catalyst from Vacuum Bin (Fire) 4/3/2012
3) Tank 1227 (Fire) 4/29/2012

Please contact me if you have questions. Thank you.

xc: OCD Online "C-141s" thumbnail

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
Office: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
Website: http://www.emnrd.state.nm.us/ocd/
"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental

Chavez, Carl J, EMNRD

From: Combs, Robert <Robert.Combs@hollyfrontier.com>
Sent: Friday, May 04, 2012 9:18 AM
To: Chavez, Carl J, EMNRD; mleighton@lovington.org
Cc: Schultz, Michele; Strange, Aaron; Lackey, Johnny; Holder, Mike
Subject: 20121-04-30 Lovington Refinery cooling water spill
Attachments: C-141 2012-04-30--Spill--cooling water spill at cooling tower.pdf

Carl and Michael,
Please see the attached C-141 regarding a spill of cooling water that occurred on 4/30/12. A final C-141 will follow when the investigation is complete.
Please feel free to contact me for any questions.
Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

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State of New Mexico
Energy Minerals and Natural Resources

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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: Navajo Refining Co. LLC	Contact: Aaron Strange
Address: 7406 South Main Lovington, N.M.	Telephone No. 575-748-3311
Facility Name: Lovington Plant	Facility Type: Petroleum 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

Latitude _____ **Longitude** _____

NATURE OF RELEASE

Type of Release: Cooling water	Volume of Release: ~ 10 barrels	Volume Recovered: ~ 0 barrels
Source of Release: Cooling tower basin	Date and Hour of Occurrence: 4/30/12 ~04:30	Date and Hour of Discovery: 4/30/12 ~04:30
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. NA	

If a Watercourse was Impacted, Describe Fully.* NA

Describe Cause of Problem and Remedial Action Taken.*
At ~ 04:30 on 4/30/12, operators were adding water to the basin of the Lovington cooling tower. The level increased more quickly than anticipated, and spilled approximately 10 barrels of cooling water to the ground. The operators closed the feed water valve and began to drain the cooling water return at the sources in order to reduce the level to normal operating conditions.

Describe Area Affected and Cleanup Action Taken.*
The area affected was at the ground surface in the area of the cooling tower.
The cooling water will be sampled and tested for hazardous constituents and the wet soil will be removed if contamination is found.
A final C-141 will be submitted when this investigation is complete and will include sample analyses and any applicable waste disposal information.

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:	OIL CONSERVATION DIVISION	
Printed Name: Robert Combs	Approved by District Supervisor:	
Title: Environmental Specialist	Approval Date:	Expiration Date:
E-mail Address: robert.combs@hollyfrontier.com	Conditions of Approval:	Attached ☐
Date: 5/4/12 Phone: 575-746-5382		