Larson & Associates, Inc.
Environmental Consultants

July 6, 2011

VIA EMAIL: glennvon.gonton@state.nm.us

Mr. Glenn von Gonton, Acting Chief
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Sulfuric Acid Spill Investigation and Remediation Report, Targa Midstream Services, L.P., Monument Gas Plant (GW-025), Lea County, New Mexico, June 28, 2011

Dear Mr. von Gonton:
On behalf of Targa Midstream Services, L.P. (Targa), Larson & Associates, Inc. (LAI) submits this report to the New Mexico Oil Conservation Division, which documents the investigation and remediation of a sulfuric acid spill at the Monument Gas Plant located in Lea County, New Mexico. Please contact Cal Wrangham with Targa at (432) 688-0542 or myself at (432) 687-0901, if you have questions.

Sincerely,

Larson & Associates, Inc.

Mark J. Larson
Sr. Project Manager/President
mark@laenvironmental.com

cc: Geoffrey Leking – OCD District 1
Cal Wrangham - Targa
Todd Young - Targa

Encl.

SULFURIC ACID SPILL INVESTIGATION AND REMEDIATION REPORT

Monument Gas Plant
(GW-025)
Lea County, New Mexico

LAI Project No. 11-0114

June 28, 2011

Prepared for:

Targa Midstream Services, L.P.
Monument Gas Plant
8201 South Hwy 322
Monument, New Mexico 88265

Prepared by:

Larson & Associates, Inc.
507 North Marienfeld, Suite 200
Midland, Texas 79701

Mark J. Larson
Certified Professional Geologist No. 10490

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1.0 EXECUTIVE SUMMARY

This document is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of Targa Midstream Services, L.P. (Targa) by Larson & Associates, Inc. (LAI), its consultant, to report the investigation and remediation of a sulfuric acid spill that occurred at the Monument Gas Plant (Facility) on April 6, 2011. The spill occurred after strong winds blew over the chemical pump allowing acid to siphon from the bulk storage tank through the return line. Targa personnel responded to the spill by shutting off the air supply to the chemical pump, neutralizing the spill with soda ash and scraping soil from the affected area. The contaminated soil was moved to an open area located west of the Facility for blending and neutralization. The spill volume was estimated to be less than 125 gallons. Targa notified the OCD, New Mexico Environment Department (NMED) and EPA National Response Center. The geodetic position is north 32° 36' 37.79" and west 103° 18' 37.98".

On May 24, 2011, LAI personnel used a Terraprobe® direct push sampling rig to collect soil samples from the affected area. Soil samples were collected at 11 locations (SP-1 through SP-11) from 0 to about 2 feet below ground surface (bgs). Caliche prevented vertical advancement of the direct push core barrel. The soil samples were collected in clean 4-ounce glass sample jars that were labeled, chilled in an ice filled chest and delivered under chain of custody control to Xenco Laboratories (Xenco) located in Odessa, Texas. The laboratory analyzed the samples for total petroleum hydrocarbons (TPH) by method SW-8015, including gasoline, diesel and oil range hydrocarbons, pH and chloride.

On May 24, 2011 and June 10, 2011, LAI personnel collected 5-spot composite samples from the blended soil pile. The samples were collected using a stainless steel trowel that was decontaminated prior to and after sample collection. The samples were collected in 4-ounce glass sample jars that were preserved after filling and delivered under chain of custody control to Xenco which analyzed the samples for TPH, pH and chloride.

The in-situ pH concentrations ranged from 7.27 standard units (S.U.) at SP-2 to 9.43 S.U. at SP-1. The in-situ TPH concentrations ranged from 17.8 milligrams per kilogram (mg/Kg) at SP-11 to 723 mg/Kg at SP-2. The in-situ chloride concentrations ranged from 27.7 mg/Kg at SP-9 to 854 mg/Kg in SP-2. The final pH and TPH concentrations in the blended soil (June 10, 2011) were 7.38 S.U. and 817.1 mg/Kg, respectively.

Targa will dispose the blended soil at Lea Land Landfill or Sundance Disposal, Inc. A letter will be submitted to the OCD, including the waste manifest, following disposal of the contaminated soil.

2.0 INTRODUCTON

This report has been prepared on behalf of Targa Midstream Services, L.P. (Targa) by Larson & Associates, Inc. (LAI), its consultant, for submittal to the New Mexico Oil Conservation Division (OCD) in Santa Fe, New Mexico. The report presents the investigation and remediation of a sulfuric acid spill that occurred at the Monument Gas Plant (Facility) on April 6, 2011. The spill occurred at the bulk acid storage tank located near the cooling tower. Strong winds blew the chemical pump off its stand which allowed acid to siphon from the tank through the return line. Targa personnel shut off air to the chemical pump and neutralized the spill with soda ash. Contaminated soil was scraped and moved to an open area west of the Facility for blending and neutralizing. The spill volume was estimated to be less than 125 gallons. Targa personnel notified the OCD, New Mexico Environment Department (NMED) and EPA National Response Center. Form C-131 was submitted to the OCD on April 7, 2011. The Facility operates under OCD discharge permit GW-025 and is located in Unit N (SE/4, SW/4), Section 36, Township 19 South, Range 36 East in Lea County, New Mexico. The geodetic position is north 32° 36' 37.79" and west 103° 18' 37.98". Figure 1 presents a location and topographic map. Figure 2 presents an aerial photograph. Figure 3 presents a Site drawing. Appendix A presents the C-131.

2.1 Setting

The Facility is located about 5 miles southwest of Monument, in Lea County, New Mexico. The surface elevation is approximately 3,580 feet above mean sea level (MSL) and slopes gently to the southeast. The surface at the Facility is covered with caliche except for roadways and walkways, which are surfaced with asphalt or concrete. No surface water feature (stream, lake, river, pond, etc.) is located within 1-mile of the Facility.

The surface geology is comprised of Holocene to mid-Pleistocene age deposits of unconsolidated blow sand which overly the Ogallala formation (Tertiary). The Ogallala formation consists of poorly sorted unconsolidated quartz sand interbedded with carbonate-indurated sand (caliche) commonly referred to as "Caprock". The Ogallala formation is underlain by the Chinle formation (Triassic) or "redbed".

Groundwater occurs in the Ogallala formation between approximately 25 and 30 feet below ground surface (bgs). No fresh water wells are present at or within 1-mile of the Facility.

3.0 SPILL CLEANUP

Facility personnel discovered the spill shortly after a shift change at about 7:45pm on April 4, 2011. Facility personnel shut off the air supply to the chemical pump and began neutralizing the spill with soda ash. Soil was scraped from the affected area and moved to an open area located west of the Facility for blending and neutralizing. The chemical pump was reattached to the support structure and reinforced to prevent reoccurrence.

4.0 SPILL INVESTIGATION

On May 24, 2011, LAI personnel used a Terraprobe® direct push sampling rig to collect soil samples to approximately 2 feet bgs. Caliche prevented further vertical advancement of the direct push core barrel. The Terraprobe® core barrel was equipped with polyethylene liners to minimize sample contamination. LAI personnel also collected a 5-spot composite sample from the blended soil pile located west of the Facility. The composite sample was collected using a stainless steel trowel that was decontaminated prior to and after sample collection by thoroughly washing with a solution of distilled

water and laboratory grade detergent (Alkanox®) and rinsed with distilled water. The samples were placed in clean 4 ounce glass sample jars that were labeled, chilled in an ice filled chest and delivered under chain of custody control to Xenco Laboratories located in Odessa, Texas. The laboratory analyzed the samples for total petroleum hydrocarbons (TPH) by method SW-8015, including gasoline, diesel and oil range organics, chloride and pH. On June 10, 2011, LAI personnel collected another composite sample of the blended soil. Table 1 presents a summary of the laboratory analysis. Appendix B presents the laboratory report. Appendix C presents photographs.

5.0 LABORATORY RESULTS

Referring to Table 1, the pH concentrations in the in-situ soil samples ranged from 7.27 standard units (S.U.) at SP-2 to 9.43 S.U. at SP-1. The TPH concentrations in the in-situ soil samples ranged from 17.8 milligrams per kilogram (mg/Kg) at SP-11 to 723 mg/Kg at SP-2. The chloride concentrations in the in-situ soil samples ranged from 27.7 mg/Kg at SP-9 to 854 mg/Kg at SP-2. The laboratory results of in-situ soil samples confirm that the spill was successfully remediated.

The laboratory analysis of the blended soil composite samples collected on May 24, 2011, reported pH, TPH and chloride at 1.75 S.U., 3,410 mg/Kg and less than 870 mg/Kg, respectively. On June 10, 2011, following additional treatment and blending, the pH and TPH were 7.38 S.U. and TPH, respectively.

6.0 RECOMMENDATION

The blended soil, estimated to be about 10 to 20 cubic yards, will be disposed at Lea Land Landfill or Sundance Disposal, Inc. Targa will submit a letter to the OCD along with the waste manifest following disposal of the contaminated soil.

Tables

Table 1
Summary of Sulfuric Acid Spill Soil Laboratory Analysis
Targa Midstream Services, L.P.
Monument Gas Plant (BG-025)

Sample ID	Depth	Date	Status	GRO C6-C12	DRO C12-C28	ORH C28-C35	TPH C6-C35	pH	Chloride
Investigation Soil Samples									
SP-1	0-2'	5/24/2011	In-Situ	**57.6**	**88.1**	**22.5**	**168.2**	**9.43**	**104**
SP-2	0-2'	5/24/2011	In-Situ	<80.9	**440**	**283**	**723**	**7.27**	**854**
SP-3	0-2'	5/24/2011	In-Situ	<82.2	**418**	<82.2	**418**	**8.28**	**67.9**
SP-4	0-2'	5/24/2011	In-Situ	**36.7**	**108**	**22.2**	**166.9**	**8.18**	**59.8**
SP-5	0-2'	5/24/2011	In-Situ	**74.4**	**87.6**	<17.0	**162**	**8.38**	**118**
SP-6	0-1'	5/24/2011	In-Situ	<17.5	**71.3**	<17.5	**71.3**	**8.36**	**35.7**
SP-7	0-2'	5/24/2011	In-Situ	<17.2	**105**	<17.2	**105**	**7.88**	**33.5**
SP-8	0-1 1/2'	5/24/2011	In-Situ	<16.1	**221**	**45.9**	**266.9**	**8.34**	**77.0**
SP-9	0-2'	5/24/2011	In-Situ	<16.5	**63.2**	<16.5	**63.2**	**7.86**	**27.7**
SP-10	0-2'	5/24/2011	In-Situ	<16.3	**83.1**	<16.3	**83.1**	**8.38**	**47.6**
SP-11	0-2'	5/24/2011	In-Situ	<17.3	**17.8**	<17.3	**17.8**	**7.63**	**101.0**
Blended Soil Samples									
Soil Pile	Composite	5/24/2011	Excavated	**194**	**2,170**	**1,050**	**3,410**	**1.75**	<870
(SP-1)	Composite	6/10/2011	Excavated	**30.8**	**746**	**40.3**	**817.1**	**7.38**	--

Notes

Total Petroleum Hydrocarbons analyzed via method SW8015 Mod.

All values reported in Milligrams per Kilogram - (mg/Kg, parts per million), except pH.

Bold indicates the analyte was detected.

Bold and blue indicates acidic pH

Figures

JWW

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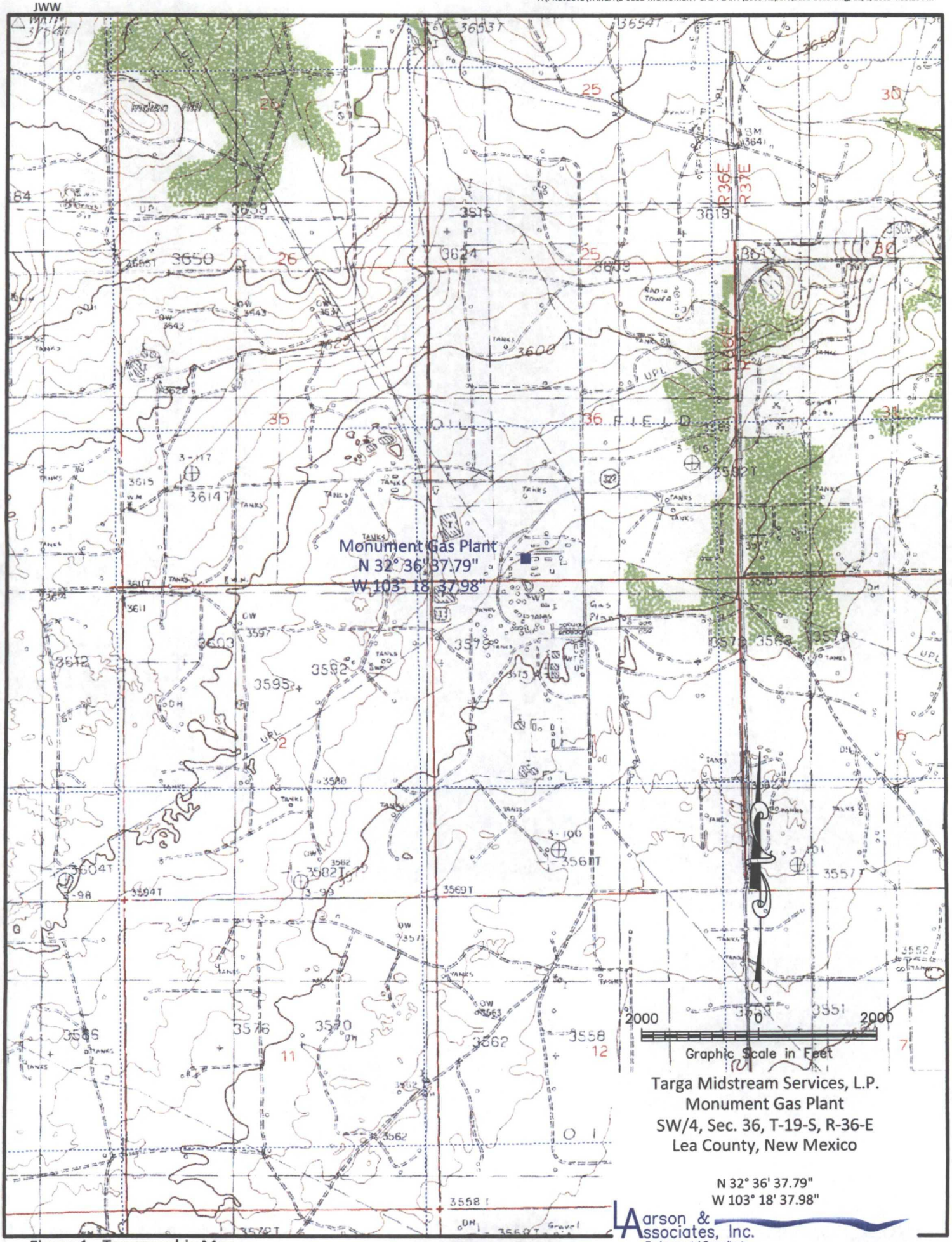

Figure 1 - Topographic Map

JWW

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Targa Midstream Services, L.P.
Monument Gas Plant
SW/4, Sec. 36, T-19-S, R-36-E
Lea County, New Mexico

N 32° 36' 37.79"
W 103° 18' 37.98"

Larson & Associates, Inc.
Environmental Consultants

Figure 2 - Aerial Photograph

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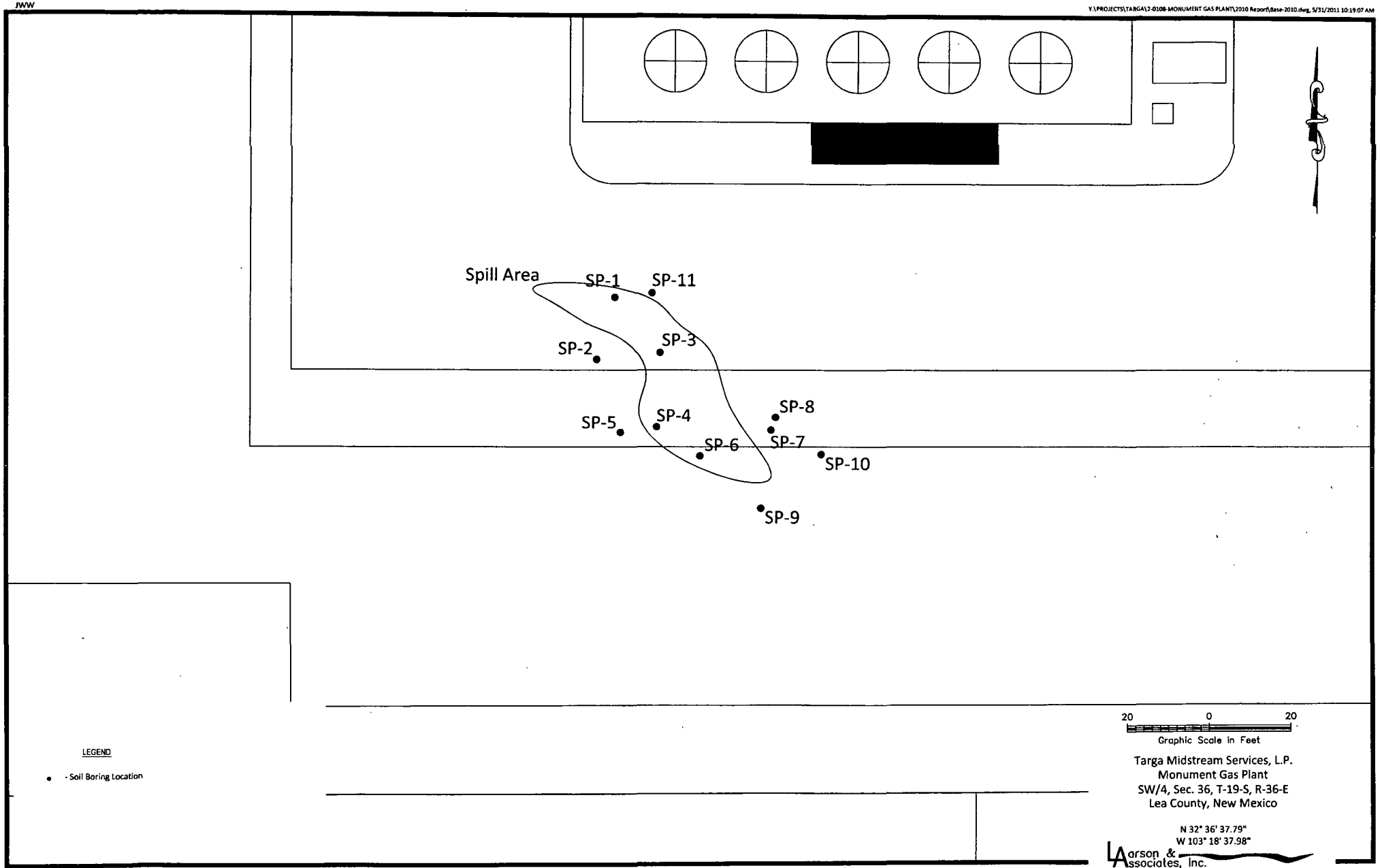


Figure 3a - Site Drawing

Appendix A

Form C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Form C-141
Revised March 17, 1999

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 Targa Midstream Services	Contact☐ Todd Young
Address 8201 South on Hwy 322, Monument, NM 88265	Telephone No.☐ 575-393-2823 ext 234
Facility Name Monument Plant	Facility Type☐ Natural Gas Processing

Surface Owner Versado operated by Targa	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☐

NATURE OF RELEASE

Type of Release Sulfuric Acid	Volume of Release <125 gallons	Volume Recovered☐unknown
Source of Release Sulfuric Acid tank return line	Date and Hour of Occurrence 4/6/11 after 5 pm (unknown)	Date and Hour of Discovery 4/6/11 – 7:45pm mst
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? NRC/NMED 24 hour number	
By Whom? ☐ Todd Young	Date and Hour☐ 4/6/11 @ 8:23 pm NRC and 8:29 pm NMED	
Was a Watercourse Reached? ☐ Yes ☐ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

No impact. Spill contained on plant property.

Describe Cause of Problem and Remedial Action Taken.*

Sulfuric acid pump and return tubing line used to bleed/siphon the pump that is tied in through the top cover of the tank were blown over during high winds. As a result the open end tubing line was discharging sulfuric acid onto the ground. Upon discovery, operations shut off the air to the acid pump which shut down the pump and eliminated the source of the spill.

Describe Area Affected and Cleanup Action Taken.*

The sulfuric acid ran south under the cooling tower piping approximately 75 feet. The free liquid was contained with chemical absorbent socks and the sulfuric acid neutralized with soda ash. The contaminated soil was removed from the area for disposal at an approved landfill.

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: Todd C Young	OIL CONSERVATION DIVISION
Printed Name: Todd Young	Approved by☐District Supervisor:
Title: Monument Area Manager	Approval Date: / Expiration Date:
Date: 4/7/11 Phone: 575-393-2823 234	Conditions of Approval: / Attached ☐

* Attach Additional Sheets If Necessary

Appendix B

Laboratory Reports

Analytical Report 417673

for

Larson & Associates

Project Manager: Alexis Johnson

Midland Odessa Standard List of prices

11-0114

01-JUN-11

Celebrating 20 Years of commitment to excellence in Environmental Testing Services

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)
Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)
Xenco-Boca Raton (EPA Lab Code: FL01273):
Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)
North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):
Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

XENCO Laboratories

01-JUN-11

Project Manager: **Alexis Johnson**
Larson & Associates
P.O. Box 50685
Midland, TX 79710

Reference: XENCO Report No: **417673**
Midland Odessa Standard List of prices
Project Address:

Alexis Johnson:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 417673. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 417673 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II
Odessa Laboratory Manager

XENCO Laboratories

Sample Cross Reference 417673

Larson & Associates, Midland, TX

Midland Odessa Standard List of prices

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SP-2 (0-2')	S	May-24-11 11:00	0 - 2 ft	417673-001
SP-1 (0-2')	S	May-24-11 12:55	0 - 2	417673-002
SP-3 (0-2')	S	May-24-11 13:15	0 - 2 ft	417673-003
SP-4 (0-2')	S	May-24-11 13:25	0 - 2	417673-004
SP-5 (0-2')	S	May-24-11 13:40	0 - 2 ft	417673-005
SP-6 (0-1')	S	May-24-11 13:50	0 - 1 ft	417673-006
SP-7 (0-2')	S	May-24-11 14:05	0 - 2 ft	417673-007
SP-8 (0-1 1/2')	S	May-24-11 14:15	0 - 1 1/2 ft	417673-008
SP-9 (0-2')	S	May-24-11 14:25	0 - 2 ft	417673-009
SP-10 (0-2')	S	May-24-11 14:37	0 - 2 ft	417673-010
SP-11 (0-2')	S	May-24-11 14:50	0 - 2 ft	417673-011

CASE NARRATIVE

XENCO Laboratories

Client Name: Larson & Associates
Project Name: Midland Odessa Standard List of prices

Project ID:	*11-0114*	*Report Date:*	*01-JUN-11*
Work Order Number:	*417673*	*Date Received:*	*05/25/2011*

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Certificate of Analysis Summary 417673

Larson & Associates, Midland, TX

Project Name: Midland Odessa Standard List of prices

Project Id: 11-0114
Contact: Alexis Johnson
Project Location:

Date Received in Lab: Wed May-25-11 09:25 am
Report Date: 01-JUN-11
Project Manager: Brent Barron, II

Analysis Requested													
	Lab Id:	417673-001		417673-002		417673-003		417673-004		417673-005		417673-006	
	Field Id:	SP-2 (0-2')		SP-1 (0-2')		SP-3 (0-2')		SP-4 (0-2')		SP-5 (0-2')		SP-6 (0-1')	
	Depth:	0-2 ft		0-2		0-2 ft		0-2		0-2 ft		0-1 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	May-24-11 11:00		May-24-11 12:55		May-24-11 13:15		May-24-11 13:25		May-24-11 13:40		May-24-11 13:50	
Anions by E300	*Extracted:*												
	Analyzed:	May-25-11 19:24		May-25-11 19:24		May-25-11 19:24		May-25-11 19:24		May-25-11 19:24		May-25-11 19:24	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		854	45.3	104	23.2	67.9	9.20	59.8	9.22	118	9.51	35.7	9.79
Percent Moisture	*Extracted:*												
	Analyzed:	May-25-11 17:00		May-25-11 17:00		May-25-11 17:00		May-25-11 17:00		May-25-11 17:00		May-25-11 17:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		7.34	1.00	9.50	1.00	8.65	1.00	8.88	1.00	11.7	1.00	14.2	1.00
Soil pH by EPA 9045C	*Extracted:*												
	Analyzed:	May-25-11 11:15		May-25-11 11:15		May-25-11 11:15		May-25-11 11:15		May-25-11 11:15		May-25-11 11:15	
	Units/RL:	SU	RL	SU	RL	SU	RL	SU	RL	SU	RL	SU	RL
pH		7.27		9.43		8.28		8.18		8.38		8.36	
TPH By SW8015 Mod	*Extracted:*	May-27-11 11:30		May-27-11 11:30		May-27-11 11:30		May-27-11 11:30		May-27-11 11:30		May-27-11 11:30	
	Analyzed:	May-27-11 20:22		May-27-11 21:20		May-27-11 21:48		May-27-11 22:16		May-27-11 22:44		May-27-11 23:14	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C12 Gasoline Range Hydrocarbons		ND	80.9	57.6	16.7	ND	82.2	36.7	16.4	74.4	17.0	ND	17.5
C12-C28 Diesel Range Hydrocarbons		440	80.9	88.1	16.7	418	82.2	108	16.4	87.6	17.0	71.3	17.5
C28-C35 Oil Range Hydrocarbons		283	80.9	22.5	16.7	ND	82.2	22.2	16.4	ND	17.0	ND	17.5
Total TPH		723	80.9	168	16.7	418	82.2	167	16.4	162	17.0	71.3	17.5

Brent Barron, II
Odessa Laboratory Manager

Certificate of Analysis Summary 417673

Larson & Associates, Midland, TX

Project Name: Midland Odessa Standard List of prices

Project Id: 11-0114
Contact: Alexis Johnson
Project Location:

Date Received in Lab: Wed May-25-11 09:25 am
Report Date: 01-JUN-11
Project Manager: Brent Barron, II

Analysis Requested											
	Lab Id:	417673-007		417673-008		417673-009		417673-010		417673-011	
	Field Id:	SP-7 (0-2')		SP-8 (0-1 1/2')		SP-9 (0-2')		SP-10 (0-2')		SP-11 (0-2')	
	Depth:	0-2 ft		0-1 1/2 ft		0-2 ft		0-2 ft		0-2 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	May-24-11 14:05		May-24-11 14:15		May-24-11 14:25		May-24-11 14:37		May-24-11 14:50	
Anions by E300	*Extracted:*										
	Analyzed:	May-25-11 19:24		May-25-11 19:24		May-25-11 19:24		May-25-11 19:24		May-25-11 19:24	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		33.5	24.0	77.0	9.02	27.7	18.5	47.6	9.15	101	9.67
Percent Moisture	*Extracted:*										
	Analyzed:	May-25-11 17:00		May-25-11 17:00		May-25-11 17:00		May-25-11 17:00		May-25-11 17:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		12.6	1.00	6.90	1.00	8.95	1.00	8.15	1.00	13.1	1.00
Soil pH by EPA 9045C	*Extracted:*										
	Analyzed:	May-25-11 11:15		May-25-11 11:15		May-25-11 11:15		May-25-11 11:15		May-25-11 11:15	
	Units/RL:	SU	RL	SU	RL	SU	RL	SU	RL	SU	RL
pH		7.88		8.34		7.86		8.38		7.63	
TPH By SW8015 Mod	*Extracted:*	May-27-11 11:30		May-27-11 11:30		May-27-11 11:30		May-27-11 11:30		May-27-11 11:30	
	Analyzed:	May-27-11 23:43		May-28-11 00:12		May-28-11 00:40		May-28-11 01:10		May-28-11 01:39	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C12 Gasoline Range Hydrocarbons		ND	17.2	ND	16.1	ND	16.5	ND	16.3	ND	17.3
C12-C28 Diesel Range Hydrocarbons		105	17.2	221	16.1	63.2	16.5	83.1	16.3	17.8	17.3
C28-C35 Oil Range Hydrocarbons		ND	17.2	45.9	16.1	ND	16.5	ND	16.3	ND	17.3
Total TPH		105	17.2	267	16.1	63.2	16.5	83.1	16.3	17.8	17.3

Brent Barron, II
Odessa Laboratory Manager

XENCO Laboratories

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the MQL and above the SQL.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

PQL Practical Quantitation Limit

LOD Limit of Detection

LOQ Limit of Quantitation

DL Method Detection Limit

*** Outside XENCO's scope of NELAC Accreditation.**

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Midland Odessa Standard List of prices

Work Orders : 417673, **Project ID:** 11-0114

Lab Batch #: 857963 **Sample:** 603887-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/27/11 14:31

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	82.9	100	83	70-135	
o-Terphenyl	39.3	50.1	78	70-135	

Lab Batch #: 857963 **Sample:** 603887-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/27/11 15:00

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.9	101	87	70-135	
o-Terphenyl	41.5	50.3	83	70-135	

Lab Batch #: 857963 **Sample:** 603887-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/27/11 15:31

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	75.0	99.6	75	70-135	
o-Terphenyl	39.9	49.8	80	70-135	

Lab Batch #: 857963 **Sample:** 417673-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/27/11 20:22

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.7	100	78	70-135	
o-Terphenyl	39.7	50.0	79	70-135	

Lab Batch #: 857963 **Sample:** 417673-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/27/11 21:20

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.2	101	76	70-135	
o-Terphenyl	40.1	50.3	80	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Midland Odessa Standard List of prices

Work Orders : 417673, **Project ID:** 11-0114

Lab Batch #: 857963 **Sample:** 417673-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/27/11 21:48

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	76.7	100	77	70-135	
o-Terphenyl	38.9	50.1	78	70-135	

Lab Batch #: 857963 **Sample:** 417673-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/27/11 22:16

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.8	99.9	78	70-135	
o-Terphenyl	41.1	50.0	82	70-135	

Lab Batch #: 857963 **Sample:** 417673-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/27/11 22:44

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.2	100	77	70-135	
o-Terphenyl	40.2	50.1	80	70-135	

Lab Batch #: 857963 **Sample:** 417673-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/27/11 23:14

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	75.7	100	76	70-135	
o-Terphenyl	39.5	50.1	79	70-135	

Lab Batch #: 857963 **Sample:** 417673-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/27/11 23:43

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.9	101	95	70-135	
o-Terphenyl	50.1	50.3	100	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Midland Odessa Standard List of prices

Work Orders : 417673,

Project ID: 11-0114

Lab Batch #: 857963 **Sample:** 417673-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/28/11 00:12

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	76.5	100	77	70-135	
o-Terphenyl	38.6	50.1	77	70-135	

Lab Batch #: 857963 **Sample:** 417673-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/28/11 00:40

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	71.0	100	71	70-135	
o-Terphenyl	35.5	50.1	71	70-135	

Lab Batch #: 857963 **Sample:** 417673-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/28/11 01:10

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	78.3	100	78	70-135	
o-Terphenyl	39.9	50.0	80	70-135	

Lab Batch #: 857963 **Sample:** 417673-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/28/11 01:39

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	78.9	100	79	70-135	
o-Terphenyl	43.0	50.0	86	70-135	

Lab Batch #: 857963 **Sample:** 417987-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/28/11 02:07

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.5	99.5	78	70-135	
o-Terphenyl	36.9	49.8	74	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Midland Odessa Standard List of prices

Work Orders : 417673,

Project ID: 11-0114

Lab Batch #: 857963 **Sample:** 417987-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/28/11 02:35

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.6	99.8	78	70-135	
o-Terphenyl	35.9	49.9	72	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Midland Odessa Standard List of prices

Work Order #: 417673 **Project ID:** 11-0114

Analyst: LATCOR **Date Prepared:** 05/25/2011 **Date Analyzed:** 05/25/2011

Lab Batch ID: 857555 **Sample:** 857555-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Anions by E300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.420	10.0	8.58	86	10.0	8.59	86	0	75-125	20	

Analyst: BEV **Date Prepared:** 05/27/2011 **Date Analyzed:** 05/27/2011

Lab Batch ID: 857963 **Sample:** 603887-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	765	77	1010	769	76	1	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	762	76	1010	775	77	2	70-135	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

XENCO Laboratories

Form 3 - MS Recoveries

Project Name: Midland Odessa Standard List of prices

Work Order #: 417673
Lab Batch #: 857555
Project ID: 11-0114
Date Analyzed: 05/25/2011
Date Prepared: 05/25/2011
Analyst: LATCOR
QC- Sample ID: 417671-001 S
Batch #: 1
Matrix: Soil
Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	<870	20700	19100	92	75-125	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

XENCO Laboratories

Form 3 - MS / MSD Recoveries

Project Name: Midland Odessa Standard List of prices

Work Order # : 417673 **Project ID:** 11-0114

Lab Batch ID: 857963 **QC- Sample ID:** 417987-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 05/28/2011 **Date Prepared:** 05/27/2011 **Analyst:** BEV

Reporting Units: mg/kg

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
TPH By SW8015 Mod **Analytes**	**Parent Sample Result [A]**	**Spike Added [B]**	**Spiked Sample Result [C]**	**Spiked Sample %R [D]**	**Spike Added [E]**	**Duplicate Spiked Sample Result [F]**	**Spiked Dup. %R [G]**	**RPD %**	**Control Limits %R**	**Control Limits %RPD**	**Flag**
C6-C12 Gasoline Range Hydrocarbons	<14.9	995	750	75	998	778	78	4	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<14.9	995	771	77	998	759	76	2	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

XENCO Laboratories

Sample Duplicate Recovery

Project Name: Midland Odessa Standard List of prices

Work Order #: 417673

Lab Batch #: 857555 **Project ID:** 11-0114

Date Analyzed: 05/25/2011 19:24 **Date Prepared:** 05/25/2011 **Analyst:** LATCOR

QC- Sample ID: 417671-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Anions by E300	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	<870	<870	0	20	

Lab Batch #: 857544

Date Analyzed: 05/25/2011 17:00 **Date Prepared:** 05/25/2011 **Analyst:** LATCOR

QC- Sample ID: 417656-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	1.45	1.45	0	20	

Lab Batch #: 857547

Date Analyzed: 05/25/2011 17:00 **Date Prepared:** 05/25/2011 **Analyst:** LATCOR

QC- Sample ID: 417673-008 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	6.90	6.58	5	20	

Lab Batch #: 857558

Date Analyzed: 05/25/2011 11:15 **Date Prepared:** 05/25/2011 **Analyst:** LATCOR

QC- Sample ID: 417671-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: SU

Soil pH by EPA 9045C	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
pH	1.75	1.74	1	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.
BRL - Below Reporting Limit

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to: ALEXIS JOHNSON

DATE: 5-24-11 PAGE 1 OF 1
PO #: LAB WORK ORDER #: 417673
PROJECT LOCATION OR NAME:
LAI PROJECT #: 11-0114 COLLECTOR:

TRRP report? ☐ Yes ☐ No
TIME ZONE: Time zone/State: MST/N.M.
S=SOIL P=PAINT W=WATER SL=SLUDGE A=AIR OT=OTHER

	Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
001	SP-2 (0-2')		5-24	1100	S	1				✓		PH (EPA methods SW-9040B 9045C) (SM 4500)	
002	SP-1 (0-2')			1255									
003	SP-3 (0-2')			1315									
004	SP-4 (0-2')			1325									
005	SP-5 (0-2')			1340									
006	SP-6 (0-1')			1350									
007	SP-7 (0-2')			1405									
008	SP-8 (0-1½')			1415									
009	SP-9 (0-2')			1425									
010	SP-10 (0-2')			1437									
011	SP-11 (0-2')		↓	1450									

TOTAL

RELINQUISHED BY:(Signature) DATE/TIME 5-25-11/0925 RECEIVED BY: (Signature) Lisa Murdock
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 6 THERM #:
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL #
☒ HAND DELIVERED

XENCO Laboratories

XENCO Laboratories
Atlanta, Boca Raton, Corpus Christi, Dallas
Houston, Miami, Odessa, Philadelphia
Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist
Document No.: SYS-SRC
Revision/Date: No. 01, 5/27/2010
Effective Date: 6/1/2010 Page 1 of 1

Prelogin / Nonconformance Report - Sample Log-In

Client: Larson & Associates
Date/Time: 5-25-11 9:25
Lab ID # : 417673
Initials: LM

Sample Receipt Checklist

1. Samples on ice?	Blue	(Water)	No	
2. Shipping container in good condition?	(Yes)	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	(N/A)	
4. Chain of Custody present?	(Yes)	No		
5. Sample instructions complete on chain of custody?	(Yes)	No		
6. Any missing / extra samples?	Yes	(No)		
7. Chain of custody signed when relinquished / received?	(Yes)	No		
8. Chain of custody agrees with sample label(s)?	(Yes)	No		
9. Container labels legible and intact?	(Yes)	No		
10. Sample matrix / properties agree with chain of custody?	(Yes)	No		
11. Samples in proper container / bottle?	(Yes)	No		
12. Samples properly preserved?	(Yes)	No	N/A	
13. Sample container intact?	(Yes)	No		
14. Sufficient sample amount for indicated test(s)?	(Yes)	No		
15. All samples received within sufficient hold time?	(Yes)	No		
16. Subcontract of sample(s)?	Yes	(No)	N/A	
17. VOC sample have zero head space?	Yes	No	(N/A)	

18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs (6) °C	lbs °C	lbs °C	lbs °C	lbs °C

Nonconformance Documentation

Contact:_____ Contacted by:_____ Date/Time:_____

Regarding: _____

Corrective Action Taken: _____

Check all that apply:
- ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.
- ☐ Initial and Backup Temperature confirm out of temperature conditions
- ☐ Client understands and would like to proceed with analysis

Analytical Report 419569

for

Larson & Associates

Project Manager: Alexis Johnson

Monument Acid Spill

11-0114-01

15-JUN-11

Collected By: Client

Celebrating 20 Years of commitment to excellence in Environmental Testing Services

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)
Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)
Xenco-Boca Raton (EPA Lab Code: FL01273):
Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)
North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):
Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

XENCO Laboratories

15-JUN-11

Project Manager: **Alexis Johnson**
Larson & Associates
P.O. Box 50685
Midland, TX 79710

Reference: XENCO Report No: **419569**
Monument Acid Spill
Project Address:

Alexis Johnson:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 419569. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 419569 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II
Odessa Laboratory Manager

XENCO Laboratories

Sample Cross Reference 419569

Larson & Associates, Midland, TX

Monument Acid Spill

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SP-1	S	Jun-10-11 12:45		419569-001

CASE NARRATIVE

Client Name: Larson & Associates
Project Name: Monument Acid Spill

Project ID:	*11-0114-01*	*Report Date:*	*15-JUN-11*
Work Order Number:	*419569*	*Date Received:*	*06/10/2011*

Sample receipt non conformances and comments:
None

Sample receipt non conformances and comments per sample:

None

Analytical non nonformances and comments:

Batch: LBA-860077 TPH By SW8015 Mod
SW8015MOD_NM

Batch 860077, o-Terphenyl recovered above QC limits . Matrix interferences is suspected; data not confirmed by re-analysis
Samples affected are: 419574-001 D.

Certificate of Analysis Summary 419569

Larson & Associates, Midland, TX

Project Name: Monument Acid Spill

Project Id: 11-0114-01
Contact: Alexis Johnson
Project Location:

Date Received in Lab: Fri Jun-10-11 04:25 pm
Report Date: 15-JUN-11
Project Manager: Brent Barron, II

Analysis Requested								
	Lab Id:	419569-001						
	Field Id:	SP-1						
	Depth:							
	Matrix:	SOIL						
	Sampled:	Jun-10-11 12:45						
Percent Moisture	*Extracted:*							
	Analyzed:	Jun-11-11 11:00						
	Units/RL:	%	RL					
Percent Moisture		2.93	1.00					
Soil pH by EPA 9045C	*Extracted:*							
	Analyzed:	Jun-13-11 09:00						
	Units/RL:	SU	RL					
pH		7.38						
TPH By SW8015 Mod	*Extracted:*	Jun-13-11 11:45						
	Analyzed:	Jun-13-11 15:25						
	Units/RL:	mg/kg	RL					
C6-C12 Gasoline Range Hydrocarbons		30.8	15.5					
C12-C28 Diesel Range Hydrocarbons		746	15.5					
C28-C35 Oil Range Hydrocarbons		40.3	15.5					
Total TPH		817	15.5					

Brent Barron, II
Odessa Laboratory Manager

Final 1.000

XENCO Laboratories

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the MQL and above the SQL.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

PQL Practical Quantitation Limit

LOD Limit of Detection

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ Outside XENCO's scope of NELAC Accreditation.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Monument Acid Spill

Work Orders : 419569,

Project ID: 11-0114-01

Lab Batch #: 860077 **Sample:** 605101-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/13/11 13:59

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	121	100	121	70-135	
o-Terphenyl	61.8	50.0	124	70-135	

Lab Batch #: 860077 **Sample:** 605101-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/13/11 14:28

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	112	100	112	70-135	
o-Terphenyl	61.0	50.0	122	70-135	

Lab Batch #: 860077 **Sample:** 605101-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/13/11 14:56

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.7	100	99	70-135	
o-Terphenyl	54.7	50.0	109	70-135	

Lab Batch #: 860077 **Sample:** 419569-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/13/11 15:25

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	100	115	70-135	
o-Terphenyl	60.7	50.1	121	70-135	

Lab Batch #: 860077 **Sample:** 419574-001 D / MD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/14/11 01:23

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.2	100	99	70-135	
o-Terphenyl	171	50.0	342	70-135	*

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

BS / BSD Recoveries

Project Name: Monument Acid Spill

Work Order #: 419569 **Project ID:** 11-0114-01

Analyst: BEV **Date Prepared:** 06/13/2011 **Date Analyzed:** 06/13/2011

Lab Batch ID: 860077 **Sample:** 605101-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	876	88	1000	875	88	0	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	810	81	1000	809	81	0	70-135	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Final 1.000

XENCO Laboratories

Sample Duplicate Recovery

Project Name: Monument Acid Spill

Work Order #: 419569

Lab Batch #: 859677 **Project ID:** 11-0114-01

Date Analyzed: 06/11/2011 11:00 **Date Prepared:** 06/11/2011 **Analyst:** BEV

QC- Sample ID: 419568-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	6.16	6.29	2	20	

Lab Batch #: 859705

Date Analyzed: 06/13/2011 09:00 **Date Prepared:** 06/13/2011 **Analyst:** LATCOR

QC- Sample ID: 419517-008 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: SU

Soil pH by EPA 9045C Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
pH	8.90	8.89	0	20	

Lab Batch #: 860077

Date Analyzed: 06/14/2011 01:23 **Date Prepared:** 06/13/2011 **Analyst:** BEV

QC- Sample ID: 419574-001 D **Batch #:** 1 **Matrix:** Solid

Reporting Units: mg/kg

TPH By SW8015 Mod Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<150	152	NC	35	
C12-C28 Diesel Range Hydrocarbons	44900	50700	12	35	
C28-C35 Oil Range Hydrocarbons	<150	<150	0	35	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.
BRL - Below Reporting Limit

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

DATE: 6-10-11 PAGE 1 OF 1
PO #: _____ LAB WORK ORDER #: _____
PROJECT LOCATION OR NAME: Monument Acid Spill
LAI PROJECT #: 11-0114-01 COLLECTOR: R. Brooks
Data Reported to: Alexis Johnson

TRRP report? ☐ Yes ☐ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

TIME ZONE: Time zone/State: MST / NM

419569

Field Sample I.D.	Lab #	Date (2011)	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐	TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐	PAH 8270 ☐	HOLDPAH ☐	8081 PESTICIDES ☐	8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐	TCLP VOC ☐	TCLP - PEST ☐	HERB ☐	TOTAL METALS (RCRA) ☐	Semi-VOC ☐	LEAD - TOTAL ☐	D.W. 200.8 ☐	OTHER LIST ☐	RCI ☐	TOX ☐	TCLP ☐	TDS ☐	FLASHPOINT ☐	pH	TSS ☐	% MOISTURE ☐	EXPLOSIVES ☐	HEXAVALENT CHROMIUM ☐	CHLORIDE ☐	CYANIDE ☐	PECHLORATE ☐	ANIONS ☐	ALKALINITY ☐	FIELD NOTES
SP-1	01	06-11	12:45	S	2				X		X			X																						X										
TOTAL					2				2		2																									2										

RELINQUISHED BY:(Signature) R.W. Brooks DATE/TIME 6-10-11 4:25pm RECEIVED BY: (Signature) Andrea Elkins 6.10.11 16:25
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 2.6 THERM #: ____
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☒ HAND DELIVERED

XENCO Laboratories

XENCO Laboratories
Atlanta, Boca Raton, Corpus Christi, Dallas
Houston, Miami, Odessa, Philadelphia
Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist
Document No.: SYS-SRC
Revision/Date: No. 01, 5/27/2010
Effective Date: 6/1/2010 Page 1 of 1

Prelogin / Nonconformance Report - Sample Log-In

Client: Larson & Assoc
Date/Time: 6.10.11 16:25
Lab ID # : 411369
Initials: AE

Sample Receipt Checklist

1. Samples on ice?	Blue	(Water)	No	
2. Shipping container in good condition?	(Yes)	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	(Yes)	No	N/A	
4. Chain of Custody present?	(Yes)	No		
5. Sample instructions complete on chain of custody?	(Yes)	No		
6. Any missing / extra samples?	Yes	(No)		
7. Chain of custody signed when relinquished / received?	(Yes)	No		
8. Chain of custody agrees with sample label(s)?	(Yes)	No		
9. Container labels legible and intact?	(Yes)	No		
10. Sample matrix / properties agree with chain of custody?	(Yes)	No		
11. Samples in proper container / bottle?	(Yes)	No		
12. Samples properly preserved?	(Yes)	No	N/A	
13. Sample container intact?	(Yes)	No		
14. Sufficient sample amount for indicated test(s)?	(Yes)	No		
15. All samples received within sufficient hold time?	(Yes)	No		
16. Subcontract of sample(s)?	Yes	No	(N/A)	
17. VOC sample have zero head space?	(Yes)	No	N/A	

18. Cooler 1 No.		Cooler 2 No.		Cooler 3 No.		Cooler 4 No.		Cooler 5 No.	
lbs	2.6 °C	lbs	°C	lbs	°C	lbs	°C	lbs	°C

Nonconformance Documentation

Contact:_____ Contacted by:_____ Date/Time:_____

Regarding: _____

Corrective Action Taken: _____

Check all that apply:
- ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.
- ☐ Initial and Backup Temperature confirm out of temperature conditions
- ☐ Client understands and would like to proceed with analysis

Analytical Report 417671

for

Larson & Associates

Project Manager: Alexis Johnson

Midland Odessa Standard List of prices

11-0114

26-MAY-11

Celebrating 20 Years of commitment to excellence in Environmental Testing Services

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)
Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)
Xenco-Boca Raton (EPA Lab Code: FL01273):
Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)
North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):
Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

XENCO Laboratories

26-MAY-11

Project Manager: **Alexis Johnson**
Larson & Associates
P.O. Box 50685
Midland, TX 79710

Reference: XENCO Report No: **417671**
Midland Odessa Standard List of prices
Project Address:

Alexis Johnson:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 417671. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 417671 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II
Odessa Laboratory Manager

XENCO Laboratories

Sample Cross Reference 417671

Larson & Associates, Midland, TX

Midland Odessa Standard List of prices

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Soil Pile	S	May-24-11 00:00		417671-001

CASE NARRATIVE

Client Name: Larson & Associates
Project Name: Midland Odessa Standard List of prices

Project ID:	*11-0114*	*Report Date:*	*26-MAY-11*
Work Order Number:	*417671*	*Date Received:*	*05/25/2011*

Sample receipt non conformances and Comments:

Chloride RL of 870 mg/kg due to dilution because of high Sulfate content from Sulfuric Acid.

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-857557 TPH By SW8015 Mod

Certificate of Analysis Summary 417671

Larson & Associates, Midland, TX

Project Name: Midland Odessa Standard List of prices

Project Id: 11-0114
Contact: Alexis Johnson
Project Location:

Date Received in Lab: Wed May-25-11 09:25 am
Report Date: 26-MAY-11
Project Manager: Brent Barron, II

Analysis Requested							
	Lab Id:	417671-001					
	Field Id:	Soil Pile					
	Depth:						
	Matrix:	SOIL					
	Sampled:	May-24-11 00:00					
Anions by E300	*Extracted:*						
	Analyzed:	May-25-11 19:24					
	Units/RL:	mg/kg	RL				
Chloride		ND	870				
Percent Moisture	*Extracted:*						
	Analyzed:	May-25-11 17:00					
	Units/RL:	%	RL				
Percent Moisture		3.48	1.00				
Soil pH by EPA 9045C	*Extracted:*						
	Analyzed:	May-25-11 11:15					
	Units/RL:	SU	RL				
pH		1.75					
TPH By SW8015 Mod	*Extracted:*	May-25-11 14:13					
	Analyzed:	May-25-11 18:54					
	Units/RL:	mg/kg	RL				
C6-C12 Gasoline Range Hydrocarbons		194	77.5				
C12-C28 Diesel Range Hydrocarbons		2170	77.5				
C28-C35 Oil Range Hydrocarbons		1050	77.5				
Total TPH		3410	77.5				

Brent Barron, II
Odessa Laboratory Manager

Final 1.000

XENCO Laboratories

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the MQL and above the SQL.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

PQL Practical Quantitation Limit

LOD Limit of Detection

LOQ Limit of Quantitation

DL Method Detection Limit

*** Outside XENCO's scope of NELAC Accreditation.**

Form 2 - Surrogate Recoveries

Project Name: Midland Odessa Standard List of prices

Work Orders : 417671, **Project ID:** 11-0114

Lab Batch #: 857557 **Sample:** 603652-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/25/11 11:18

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	80.8	99.7	81	70-135	
o-Terphenyl	46.8	49.9	94	70-135	

Lab Batch #: 857557 **Sample:** 603652-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/25/11 11:44

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	80.7	100	81	70-135	
o-Terphenyl	46.1	50.2	92	70-135	

Lab Batch #: 857557 **Sample:** 603652-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/25/11 12:10

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	81.4	100	81	70-135	
o-Terphenyl	50.0	50.2	100	70-135	

Lab Batch #: 857557 **Sample:** 417671-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/25/11 18:54

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	82.5	99.8	83	70-135	
o-Terphenyl	54.4	49.9	109	70-135	

Lab Batch #: 857557 **Sample:** 417656-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/25/11 19:47

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.3	99.6	92	70-135	
o-Terphenyl	54.4	49.8	109	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Midland Odessa Standard List of prices

Work Orders : 417671,

Project ID: 11-0114

Lab Batch #: 857557 **Sample:** 417656-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/25/11 20:14

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	81.1	100	81	70-135	
o-Terphenyl	46.9	50.1	94	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

BS / BSD Recoveries

Project Name: Midland Odessa Standard List of prices

Work Order #: 417671 **Project ID:** 11-0114

Analyst: LATCOR **Date Prepared:** 05/25/2011 **Date Analyzed:** 05/25/2011

Lab Batch ID: 857555 **Sample:** 857555-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Anions by E300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.420	10.0	8.58	86	10.0	8.59	86	0	75-125	20	

Analyst: BEV **Date Prepared:** 05/25/2011 **Date Analyzed:** 05/25/2011

Lab Batch ID: 857557 **Sample:** 603652-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.0	997	759	76	1000	755	76	1	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	997	804	81	1000	802	80	0	70-135	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

XENCO Laboratories

Form 3 - MS Recoveries

Project Name: Midland Odessa Standard List of prices

Work Order #: 417671

Lab Batch #: 857555 **Project ID:** 11-0114

Date Analyzed: 05/25/2011 **Date Prepared:** 05/25/2011 **Analyst:** LATCOR

QC- Sample ID: 417671-001 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	<870	20700	19100	92	75-125	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

XENCO Laboratories

Form 3 - MS / MSD Recoveries

Project Name: Midland Odessa Standard List of prices

Work Order # : 417671 **Project ID:** 11-0114

Lab Batch ID: 857557 **QC- Sample ID:** 417656-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 05/25/2011 **Date Prepared:** 05/25/2011 **Analyst:** BEV

Reporting Units: mg/kg

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
TPH By SW8015 Mod **Analytes**	**Parent Sample Result [A]**	**Spike Added [B]**	**Spiked Sample Result [C]**	**Spiked Sample %R [D]**	**Spike Added [E]**	**Duplicate Spiked Sample Result [F]**	**Spiked Dup. %R [G]**	**RPD %**	**Control Limits %R**	**Control Limits %RPD**	**Flag**
C6-C12 Gasoline Range Hydrocarbons	<15.2	1010	839	83	1020	840	82	0	70-135	35	
C12-C28 Diesel Range Hydrocarbons	39.6	1010	896	85	1020	816	76	9	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Final 1.000

XENCO Laboratories

Sample Duplicate Recovery

Project Name: Midland Odessa Standard List of prices

Work Order #: 417671

Lab Batch #: 857555 **Project ID:** 11-0114

Date Analyzed: 05/25/2011 19:24 **Date Prepared:** 05/25/2011 **Analyst:** LATCOR

QC- Sample ID: 417671-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Anions by E300	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	<870	<870	0	20	

Lab Batch #: 857544

Date Analyzed: 05/25/2011 17:00 **Date Prepared:** 05/25/2011 **Analyst:** LATCOR

QC- Sample ID: 417656-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	1.45	1.45	0	20	

Lab Batch #: 857558

Date Analyzed: 05/25/2011 11:15 **Date Prepared:** 05/25/2011 **Analyst:** LATCOR

QC- Sample ID: 417671-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: SU

Soil pH by EPA 9045C	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
pH	1.75	1.74	1	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.
BRL - Below Reporting Limit

Final 1.000

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to: A Johnson

DATE: 5-24-11 PAGE 1 OF 1
PO #: _____ LAB WORK ORDER #: 417671
PROJECT LOCATION OR NAME: _____
LAI PROJECT #: 11-0114 COLLECTOR: Dan McGinnis

TRRP report? ☐ Yes ☐ No

TIME ZONE: Time zone/State: NM/MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ | TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ | PAH 8270 ☐ | HOLDPAH ☐ | 8081 PESTICIDES ☐ | 8082 PCBS ☐ | 8151 HERBICIDES ☐ | TCLP - METALS (RCRA) ☐ | TCLP VOC ☐ | TCLP - PEST ☐ | HERB ☐ | Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ | OTHER LIST ☐ | LEAD - TOTAL ☐ | D.W. 200.8 ☐ | TCLP ☐ | RCI ☐ | TOX ☐ | FLASHPOINT ☐ | TDS ☐ | TSS ☐ | % MOISTURE ☐ | pH ☐ | HEXAVALENT CHROMIUM ☐ | CYANIDE ☐ | EXPLOSIVES ☐ | PECHLORATE ☐ | CHLORIDE ☑ | ANIONS ☐ | ALKALINITY ☐ | AIR

	Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
001	Soil Pile		5-24		S	1				✓		BTEX ✓ TRPH 418.1 ✓ GASOLINE MOD 8015 ✓ CHLORIDE ✓ AIR ✓	

TOTAL

RELINQUISHED BY:(Signature)	DATE/TIME 5-25-11 / 0925	RECEIVED BY: (Signature) Lisa Murdock
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)

TURN AROUND TIME
NORMAL ☑
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 6 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL # _____
☒ HAND DELIVERED

XENCO Laboratories

XENCO Laboratories
Atlanta, Boca Raton, Corpus Christi, Dallas
Houston, Miami, Odessa, Philadelphia
Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist
Document No.: SYS-SRC
Revision/Date: No. 01, 5/27/2010
Effective Date: 6/1/2010 Page 1 of 1

Prelogin / Nonconformance Report - Sample Log-In

Client: Larson & Associates
Date/Time: 5-25-11 9:25
Lab ID # : 417671
Initials: AM

Sample Receipt Checklist

1. Samples on ice?	Blue	(Water)	No	
2. Shipping container in good condition?	(Yes)	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	(N/A)	
4. Chain of Custody present?	(Yes)	No		
5. Sample instructions complete on chain of custody?	(Yes)	No		
6. Any missing / extra samples?	Yes	(No)		
7. Chain of custody signed when relinquished / received?	(Yes)	No		
8. Chain of custody agrees with sample label(s)?	(Yes)	No		
9. Container labels legible and intact?	(Yes)	No		
10. Sample matrix / properties agree with chain of custody?	(Yes)	No		
11. Samples in proper container / bottle?	(Yes)	No		
12. Samples properly preserved?	(Yes)	No	N/A	
13. Sample container intact?	(Yes)	No		
14. Sufficient sample amount for indicated test(s)?	(Yes)	No		
15. All samples received within sufficient hold time?	(Yes)	No		
16. Subcontract of sample(s)?	Yes	(No)	N/A	
17. VOC sample have zero head space?	Yes	No	(N/A)	

18. Cooler 1 No.		Cooler 2 No.		Cooler 3 No.		Cooler 4 No.		Cooler 5 No.	
lbs	6 °C	lbs	°C	lbs	°C	lbs	°C	lbs	°C

Nonconformance Documentation

Contact:_____ Contacted by:_____ Date/Time:_____

Regarding: _____

Corrective Action Taken: _____

Check all that apply:
- ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.
- ☐ Initial and Backup Temperature confirm out of temperature conditions
- ☐ Client understands and would like to proceed with analysis

Analytical Report 419569

for

Larson & Associates

Project Manager: Alexis Johnson

Monument Acid Spill

11-0114-01

15-JUN-11

Collected By: Client

Celebrating 20 Years of commitment to excellence in Environmental Testing Services

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)
Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)
Xenco-Boca Raton (EPA Lab Code: FL01273):
Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)
North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):
Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

XENCO Laboratories

15-JUN-11

Project Manager: **Alexis Johnson**
Larson & Associates
P.O. Box 50685
Midland, TX 79710

Reference: XENCO Report No: **419569**
Monument Acid Spill
Project Address:

Alexis Johnson:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 419569. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 419569 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II
Odessa Laboratory Manager

XENCO Laboratories

Sample Cross Reference 419569

Larson & Associates, Midland, TX

Monument Acid Spill

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SP-1	S	Jun-10-11 12:45		419569-001

CASE NARRATIVE

XENCO Laboratories

Client Name: Larson & Associates
Project Name: Monument Acid Spill

Project ID: 11-0114-01
Work Order Number: 419569

Report Date: 15-JUN-11
Date Received: 06/10/2011

Sample receipt non conformances and comments:
None

Sample receipt non conformances and comments per sample:

None

Analytical non nonformances and comments:

Batch: LBA-860077 TPH By SW8015 Mod
SW8015MOD_NM

Batch 860077, o-Terphenyl recovered above QC limits . Matrix interferences is suspected; data not confirmed by re-analysis
Samples affected are: 419574-001 D.

Certificate of Analysis Summary 419569

Larson & Associates, Midland, TX

Project Name: Monument Acid Spill

Project Id: 11-0114-01
Contact: Alexis Johnson
Project Location:

Date Received in Lab: Fri Jun-10-11 04:25 pm
Report Date: 15-JUN-11
Project Manager: Brent Barron, II

Analysis Requested								
	Lab Id:	419569-001						
	Field Id:	SP-1						
	Depth:							
	Matrix:	SOIL						
	Sampled:	Jun-10-11 12:45						
Percent Moisture	*Extracted:*							
	Analyzed:	Jun-11-11 11:00						
	Units/RL:	%	RL					
Percent Moisture		2.93	1.00					
Soil pH by EPA 9045C	*Extracted:*							
	Analyzed:	Jun-13-11 09:00						
	Units/RL:	SU	RL					
pH		7.38						
TPH By SW8015 Mod	*Extracted:*	Jun-13-11 11:45						
	Analyzed:	Jun-13-11 15:25						
	Units/RL:	mg/kg	RL					
C6-C12 Gasoline Range Hydrocarbons		30.8	15.5					
C12-C28 Diesel Range Hydrocarbons		746	15.5					
C28-C35 Oil Range Hydrocarbons		40.3	15.5					
Total TPH		817	15.5					

Brent Barron, II
Odessa Laboratory Manager

Final 1.000

XENCO Laboratories

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the MQL and above the SQL.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

PQL Practical Quantitation Limit

LOD Limit of Detection

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ Outside XENCO's scope of NELAC Accreditation.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Monument Acid Spill

Work Orders : 419569,

Project ID: 11-0114-01

Lab Batch #: 860077 **Sample:** 605101-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/13/11 13:59

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	121	100	121	70-135	
o-Terphenyl	61.8	50.0	124	70-135	

Lab Batch #: 860077 **Sample:** 605101-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/13/11 14:28

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	112	100	112	70-135	
o-Terphenyl	61.0	50.0	122	70-135	

Lab Batch #: 860077 **Sample:** 605101-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/13/11 14:56

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.7	100	99	70-135	
o-Terphenyl	54.7	50.0	109	70-135	

Lab Batch #: 860077 **Sample:** 419569-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/13/11 15:25

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	100	115	70-135	
o-Terphenyl	60.7	50.1	121	70-135	

Lab Batch #: 860077 **Sample:** 419574-001 D / MD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/14/11 01:23

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.2	100	99	70-135	
o-Terphenyl	171	50.0	342	70-135	*

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

BS / BSD Recoveries

Project Name: Monument Acid Spill

Work Order #: 419569 **Project ID:** 11-0114-01

Analyst: BEV **Date Prepared:** 06/13/2011 **Date Analyzed:** 06/13/2011

Lab Batch ID: 860077 **Sample:** 605101-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	876	88	1000	875	88	0	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	810	81	1000	809	81	0	70-135	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Final 1.000

XENCO Laboratories

Sample Duplicate Recovery

Project Name: Monument Acid Spill

Work Order #: 419569

Lab Batch #: 859677 **Project ID:** 11-0114-01

Date Analyzed: 06/11/2011 11:00 **Date Prepared:** 06/11/2011 **Analyst:** BEV

QC- Sample ID: 419568-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	6.16	6.29	2	20	

Lab Batch #: 859705

Date Analyzed: 06/13/2011 09:00 **Date Prepared:** 06/13/2011 **Analyst:** LATCOR

QC- Sample ID: 419517-008 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: SU

Soil pH by EPA 9045C Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
pH	8.90	8.89	0	20	

Lab Batch #: 860077

Date Analyzed: 06/14/2011 01:23 **Date Prepared:** 06/13/2011 **Analyst:** BEV

QC- Sample ID: 419574-001 D **Batch #:** 1 **Matrix:** Solid

Reporting Units: mg/kg

TPH By SW8015 Mod Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<150	152	NC	35	
C12-C28 Diesel Range Hydrocarbons	44900	50700	12	35	
C28-C35 Oil Range Hydrocarbons	<150	<150	0	35	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.
BRL - Below Reporting Limit

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

DATE: 6-10-11 PAGE 1 OF 1
PO #: _____ LAB WORK ORDER #: _____
PROJECT LOCATION OR NAME: MONUMENT ACID SPILL
LAI PROJECT #: 11-0114-01 COLLECTOR: R. BROOKS
Data Reported to: ALEXIS JOHNSON

TRRP report? ☐ Yes ☐ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

TIME ZONE: Time zone/State: MST / NM

419569

Field Sample I.D.	Lab #	Date (2011)	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐	TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐	PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐	8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐	TCLP VOC ☐	TCLP - PEST ☐	HERB ☐	Semi-VOC ☐	TOTAL METALS (RCRA) ☐	OTHER LIST ☐	LEAD - TOTAL ☐	D.W. 200.8 ☐	RCI ☐	TOX ☐	TCLP ☐	TDS ☐	TSS ☐	FLASHPOINT ☐	pH	% MOISTURE ☐	HEXAVALENT CHROMIUM ☐	CYANIDE ☐	EXPLOSIVES ☐	PECHLORATE ☐	CHLORIDE ☐	ANIONS ☐	ALKALINITY ☐	FIELD NOTES
SP-1	01	06-11	12:45	S	2				X		X																																	
TOTAL					2				2		2																																			

RELINQUISHED BY:(Signature) K.W. Brooks DATE/TIME 6-10-11 4:25pm RECEIVED BY: (Signature) Andrea Elkins 6.10.11 16:25
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

TURN AROUND TIME
NORMAL X
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 2.6 THERM #: ____
CUSTODY SEALS - ☐ BROKEN ☑ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☑ HAND DELIVERED

XENCO Laboratories

XENCO Laboratories
Atlanta, Boca Raton, Corpus Christi, Dallas
Houston, Miami, Odessa, Philadelphia
Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist
Document No.: SYS-SRC
Revision/Date: No. 01, 5/27/2010
Effective Date: 6/1/2010 Page 1 of 1

Prelogin / Nonconformance Report - Sample Log-In

Client: Larson & Assoc
Date/Time: 6.10.11 16:25
Lab ID # : 419069
Initials: AE

Sample Receipt Checklist

1. Samples on ice?	Blue	(Water)	No	
2. Shipping container in good condition?	(Yes)	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	(Yes)	No	N/A	
4. Chain of Custody present?	(Yes)	No		
5. Sample instructions complete on chain of custody?	(Yes)	No		
6. Any missing / extra samples?	Yes	(No)		
7. Chain of custody signed when relinquished / received?	(Yes)	No		
8. Chain of custody agrees with sample label(s)?	(Yes)	No		
9. Container labels legible and intact?	(Yes)	No		
10. Sample matrix / properties agree with chain of custody?	(Yes)	No		
11. Samples in proper container / bottle?	(Yes)	No		
12. Samples properly preserved?	(Yes)	No	N/A	
13. Sample container intact?	(Yes)	No		
14. Sufficient sample amount for indicated test(s)?	(Yes)	No		
15. All samples received within sufficient hold time?	(Yes)	No		
16. Subcontract of sample(s)?	Yes	No	(N/A)	
17. VOC sample have zero head space?	(Yes)	No	N/A	

18. Cooler 1 No.		Cooler 2 No.		Cooler 3 No.		Cooler 4 No.		Cooler 5 No.	
lbs	2.6 °C	lbs	°C	lbs	°C	lbs	°C	lbs	°C

Nonconformance Documentation

Contact:_____ Contacted by:_____ Date/Time:_____

Regarding: _____

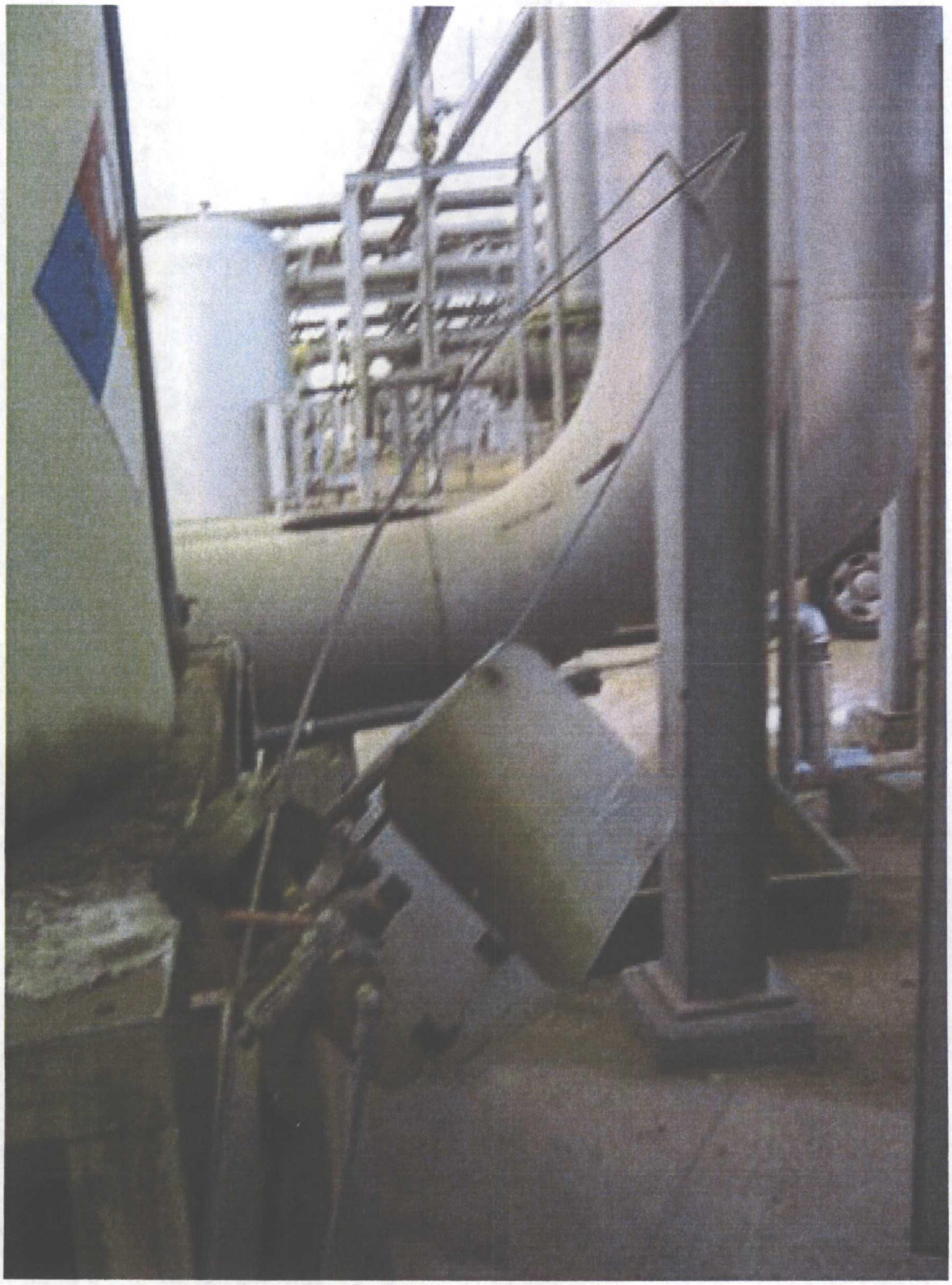
Corrective Action Taken: _____

Check all that apply:
- ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.
- ☐ Initial and Backup Temperature confirm out of temperature conditions
- ☐ Client understands and would like to proceed with analysis

Appendix C

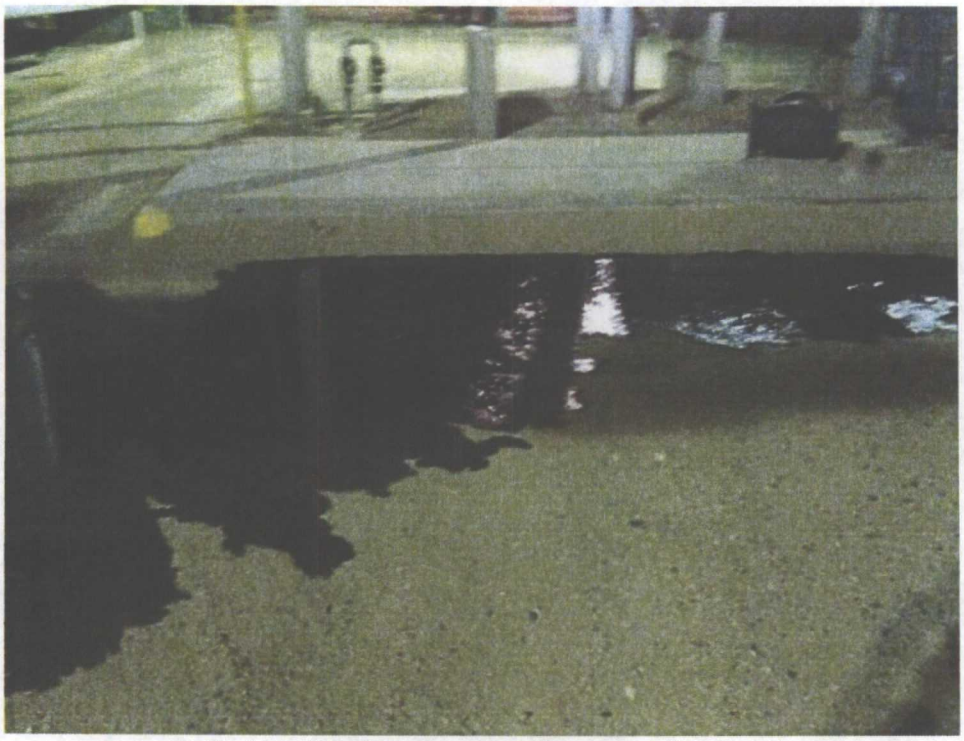
Photographs

Photo Documentation



Blown Over Chemical Pump (Targa, April 6, 2011)

Photo Documentation



Sulfuric Acid Spill near Source (Targa, April 6, 2011)

Sulfuric Acid Spill East of Tank (Targa, April 6, 2011)

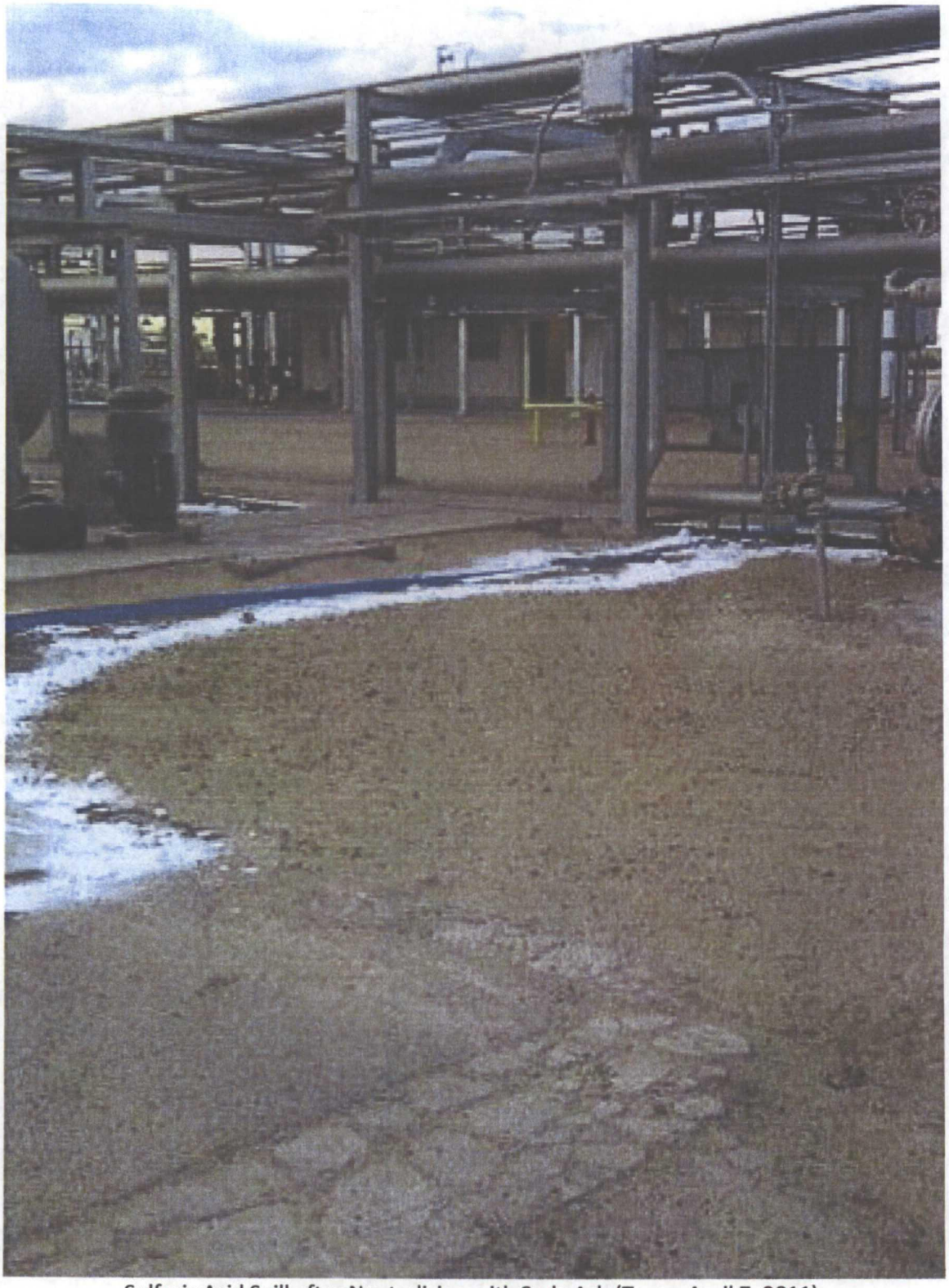
Photo Documentation

Sulfuric Acid Spill East of Tank (Targa, April 6, 2011)

Photo Documentation

Sulfuric Acid Spill after Neutralizing with Soda Ash (Targa, April 7, 2011)

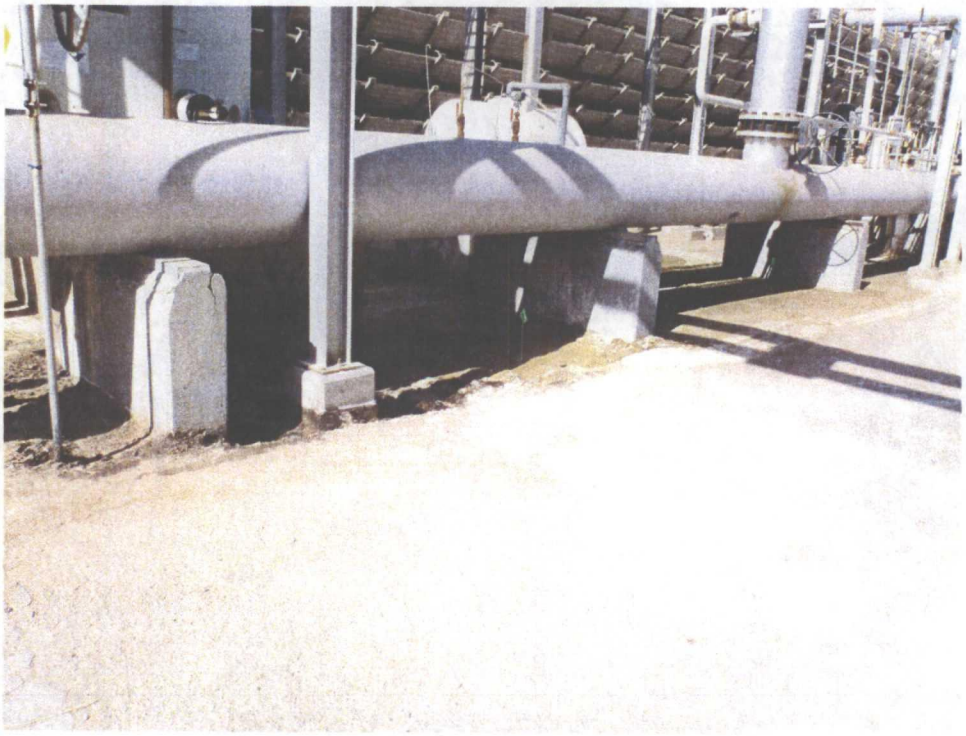
Photo Documentation



Sulfuric Acid Spill after Neutralizing with Soda Ash (Targa, April 7, 2011)

Photo Documentation

Sulfuric Acid Spill after Cleanup, April 19, 2011



Sulfuric Acid Spill after Cleanup, April 19, 2011

Photo Documentation

Sulfuric Acid Spill after Cleanup, April 19, 2011

Contaminated Soil Pile, April 19, 2011