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By JKeyes at 8:44 am, Apr 06, 2016

Larson & Associates, Inc.
Environmental Consultants

Stipulation:
Installation of a 20 mil or > liner in the bottom of EX-1.

1RP-4155
Investigation Summary and Remediation Plan
South Monument Pipeline Spill
March 21, 2016

Introduction

This investigation summary and remediation plan is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of Holloman Corporation (Holloman) for a produced water spill at the XTO Energy, Inc. (XTO) Eunice Monument South Unit (EMSU) located in Lea County, New Mexico. The spill occurred on January 24, 2016, when Holloman struck buried fiberglass flow lines about 250 feet north of EMSU Well #621 (API 30-025-33186) causing produced water to spill over an area measuring about 75 x 170 feet. The fiberglass flow lines are owned by XTO whom estimated the volume of the release at approximately 65 barrels (bbl). Approximately 6 bbl of fluid (water and oil) was recovered. XTO excavated and exposed the fiberglass lines at 2 locations (EX-1 and EX-2) and made repairs. The west excavation (EX-1) contains 3 fiberglass flow lines. An 8-inch steel pipeline is located adjacent to the west side of the west (EX-1) excavations. The east excavation (EXT-2) contains 1 fiberglass flow line. All lines run from north to south. On February 3, 2016, Holloman submitted the initial C-141. The OCD issued remediation project number 1RP-4155. The legal description is Unit P (SE/4, SE/4), Section 6, Township 21 South and Range 36 East. The geodetic position is north 32° 30' 31.76876" and west 103° 17' 48.29119". Figure 1 presents a location and topographic map. Figure 2 presents an aerial map. Figure 3 presents the site drawing. Attachment A presents the initial C-141.

Setting

The setting is as follows:

- The Site is located about 250 feet north of the XTO EMSU Well #621 (API number 30-025-33186);
- The surface elevation is approximately 3,585feet above mean sea level (AMSL);
- Topography slopes toward the south-southeast;
- No surface water features are located within 1 mile of the Site;
- Surface geology is comprised of unconsolidated Holocene to mid- Pleistocene-age eolian deposits that overlie the Triassic-age Chinle formation of the Dockum group which is comprised of interbedded sand, clay, and mudstone;
- Depth to groundwater is approximately 160 feet bgs;

- The nearest fresh water well is located about 0.8 miles south of the Site according to the State of New Mexico Office of the State Engineer (OSE);
- The surface is owned by the State of New Mexico.

Remediation Action Levels

Remediation action levels (RRAL) were calculated for benzene, BTEX and TPH based on the following criteria established by the OCD (*Guidelines for Remediation of Leaks, Spills and Releases, August 13,* 1993):

Criteria	*Result*	*Score*
Depth-to-Groundwater	>100 feet	0
Wellhead Protection Area	No	0
Distance to Surface Water Body	> 1000 Horizontal Feet	0

The following RRAL apply to the release for ranking score: 0

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 5,000 mg/Kg

Initial Samples and Analysis

On February 19, 2016, personnel from Larson & Associates, Inc. (LAI) collected initial soil samples from the bottom and sidewall of two (2) excavations (EX-1 and EX-2). The samples were collected with a stainless steel hand auger at about 5 feet bgs (bottom) and about 3 feet bgs (sidewall). Trace Analysis, Inc. (Trace) located in Midland and Lubbock, Texas, analyzed the samples for total petroleum hydrocarbons (TPH) by SW-846 method 8015 modified, including gasoline (GRO) and diesel (DRO) range organics and chloride by method 300. Table 1 presents the analytical data summary. Figure 3 presents a Site drawing and sample locations. Attachment B presents the laboratory report. Attachment D presents photographs.

Referring to Table 1, TPH was 2,019.49 milligrams per kilogram (mg/Kg) in the bottom sample from the west excavation (EX-1) sample and below the RRAL of 5,000 mg/Kg. TPH was below the method reporting limit (<54.00) in the sidewall sample from the west (EX-1) excavation and the bottom and sidewall samples from the east (EX-2) excavation. Chloride was 4,400 mg/Kg and 2,580 mg/Kg in the bottom and sidewall samples, respectively, from the west (EX-1)

excavation and exceeds the OCD delineation level of 250 mg/Kg. Chloride was 125 mg/Kg in the bottom and 541 mg/Kg in the sidewall samples from the east (EX-2) excavation.

Additional Investigation

On March 3, 2016, LAI personnel collected surface samples (0 to 4 feet) at 3 locations (DP-1, DP-2 and DP-3) to assess the spill area. The surface samples were collected with a direct push (Terraprobe®) rig and stainless steel core barrel. The samples from 0 to 1 foot bgs were analyzed for TPH by EPA SW-846 method 8015. All samples were analyzed for chloride by method 300. Analysis was performed by Permian Basin Environmental Laboratory (PBELab) in Midland, Texas. Table 1 presents the analytical data summary. Attachment B presents the laboratory report.

Referring to Table 1, TPH concentrations in samples DP-1, DP-2 and DP-3 were below the RRAL of 5,000 mg/Kg and ranged between less than the reporting limit (DP-2) to 574.5 mg/Kg in DP-3. Chloride was below 250 mg/Kg in samples from DP-1 0 to 3 feet bgs and DP-2, 0 to 2 feet bgs. The chloride results from DP-1 and DP-2 do not indicate a surface impact from the spill. The chloride concentration at DP-1, 0 to 1 foot bgs (1,070 mg/Kg) indicates surface impact with decreasing concentrations to 268 mg/Kg and 295 mg/kg between 2 and 4 feet bgs.

On March 8, 2016, Scarborough Drilling, Inc. (Scarborough) used an air rotary rig and jam tube sampler to collect soil samples near the west (EX-1) excavation to delineate chloride between ground surface and about 35 feet bgs. Soil samples were collected every 5 feet (0, 5, 10, 15, 20, etc.) and analyzed for chloride by method 300. Chloride was below 250 mg/Kg in all samples except 15 feet bgs (303 mg/Kg) concluding the impact in EX-1 is limited to the approximate limits of the excavation. Groundwater was not observed and the boring was plugged with bentonite. Asoil boring log was prepared according to the Unified Soil Classification System (USCS). Figure 3 presents the boring location. Table 1 presents the laboratory analytical data summary. Attachment B presents the laboratory report. Attachment C presents the soil boring log. Attachment D presents photodocumentation.

Conclusions

- TPH in soil samples is below the RRAL (5,000 mg/Kg) and requires no further action;
- Chloride in samples from boring SB-1 located west of the west (EX-1) excavation were below 250 mh/Kg, except 15 feet (303 mg/Kg) confirming that chloride in the bottom and sidewall appears limited to the excavation;

- Chloride in the bottom sample (125 mg/Kg) from the east excavation (EX-2) is below 250 mg/Kg and requires no further action;
- Chloride in soil samples from DP-1 and DP-2 from ground surface to 2 and 3 feet bgs, respectively, is below 250 mg/Kg and does indicate a surface impact;
- Chloride in soil samples from DP-1 and DP-2 below 2 and 3 feet bgs is above 250 mg/Kg and suggests possible historic impacts;
- Chloride in sample DP-3, 0 to 1 foot (1,070 mg/Kg) suggests surface impact from the produced water spill however the chloride decreases with depth to 268 mg/Kg at 3 feet bgs.

Remediation Plan

Holloman proposes the following activities:

- Remove soil to approximately 2 feet in the vicinity of DP-3 and backfill with clean soil;
- Presently there is little or no vegetation on the ROW therefore no seeding is planned;
- No soil removal is planned for the east (EX-1) excavation due to the sensitivity of the fiberglass flow lines and risk of causing additional environmental damage;
- Dispose contaminated soil at OCD approved landfill; and
- Prepare final report for submission to OCD.

Mark J. Larson, P.G.
President/Sr. Project Manager

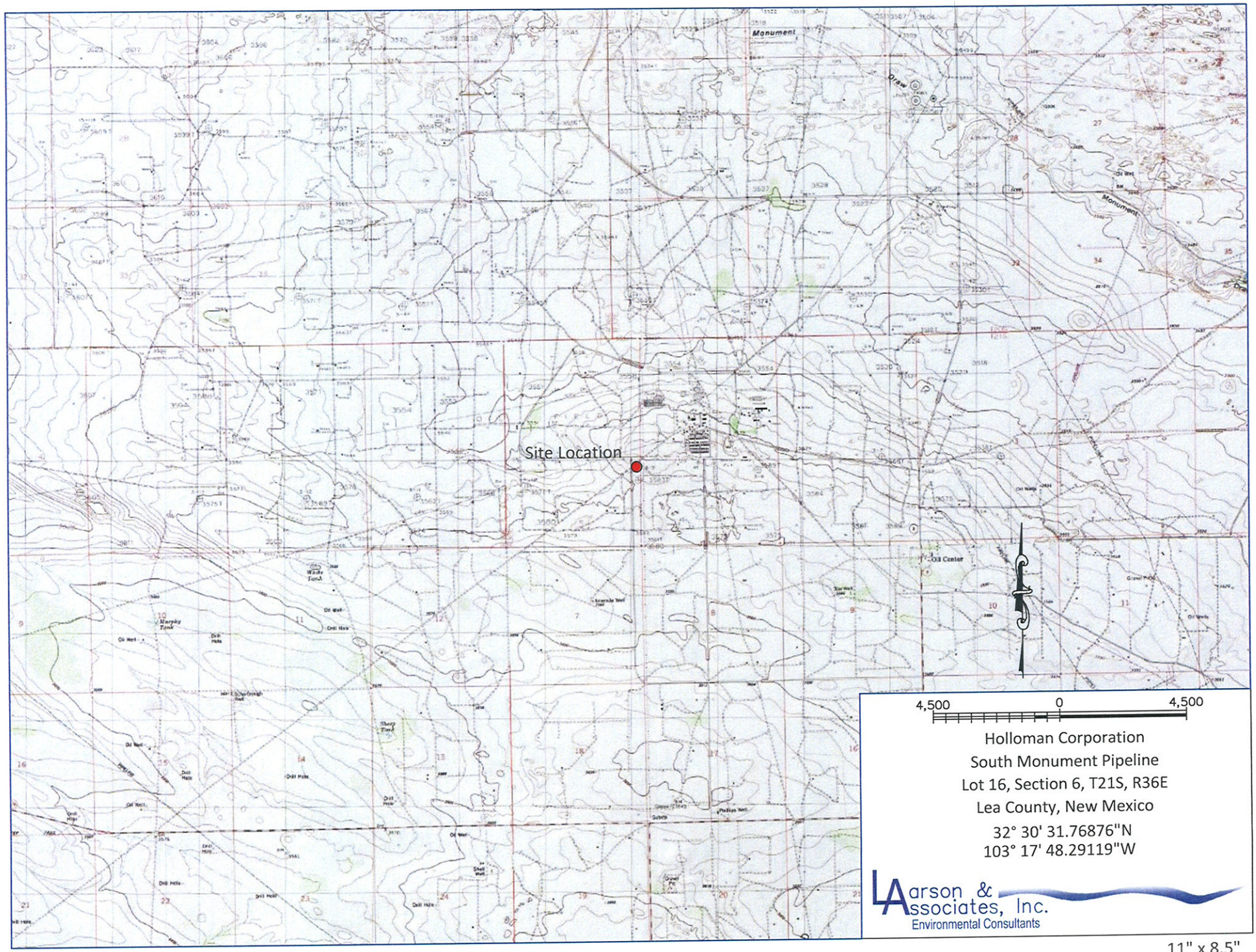
TABLES

Table 1
Soil Sample Analytical Data Summary
Holloman Corporation South Monument Pipeline Spill
Lea County, New Mexico
1RP-4155

Sample	Date	Location	Depth Feet BGS	C6 - C12 (mg/Kg)	>C12 - C28 (mg/Kg)	>C28 - C35 (mg/Kg)	C6 - C35 (mg/Kg)	Chloride (mg/Kg)
RRAL:							**5,000**	***250**
EX-1	02/19/2016	Bottom	5 - 6	2,010	9.49	--	**2,019.49**	4,400
		Sidewall	3 - 4	<50.0	<4.00	--	<54.0	2,580
EX-2	02/19/2016	Bottom	5 - 6	<50.0	<4.00	--	<54.0	125
		Sidewall	3 - 4	254	<4.00	--	**254**	541
DP-1	3/3/2016	West of EX-2	0-1	<27.2	46.2	<27.2	**46.2**	106
			1-2	---	---	---	---	127
			2-3	---	---	---	---	73.6
			3-4	---	---	---	---	391
DP-2	3/3/2016	Southwest of EX-2	0-1	<27.2	<27.2	<27.2	<27.2	15.9
			1-2	---	---	---	---	24.5
			2-3	---	---	---	---	1,520
			3-4	---	---	---	---	1,780
DP-3	3/3/2016	Southwest of EX-1	0-1	<28.1	501	74.5	**574.5**	1,070
			1-2	---	---	---	---	788
			2-3	---	---	---	---	268
			3-4	---	---	---	---	295
SB-1	3/8/2016	West of EX-1	0	--	--	--	--	162
			5	--	--	--	--	136
			10	--	--	--	--	36.8
			15	--	--	--	--	303
			20	--	--	--	--	170
			25	--	--	--	--	148
			30	--	--	--	--	157
			35	--	--	--	--	145

Notes: analysis performed by Trace Analysis, Inc. (EX-1 and EX-2) and Permian Basin Environmental Lab in Midland, Texas by EPA SW-846 method 8015 (TPH) and 300.0 (chloride)
mg/Kg: milligrams per kilogram equivelent to parts per million (ppm)
Sample depth reported in fett below ground surface (bgs)

FIGURES



11" x 8.5"

Figure 1 - Topographic Map

Figure 2 - Aerial Map

11" x 8.5"

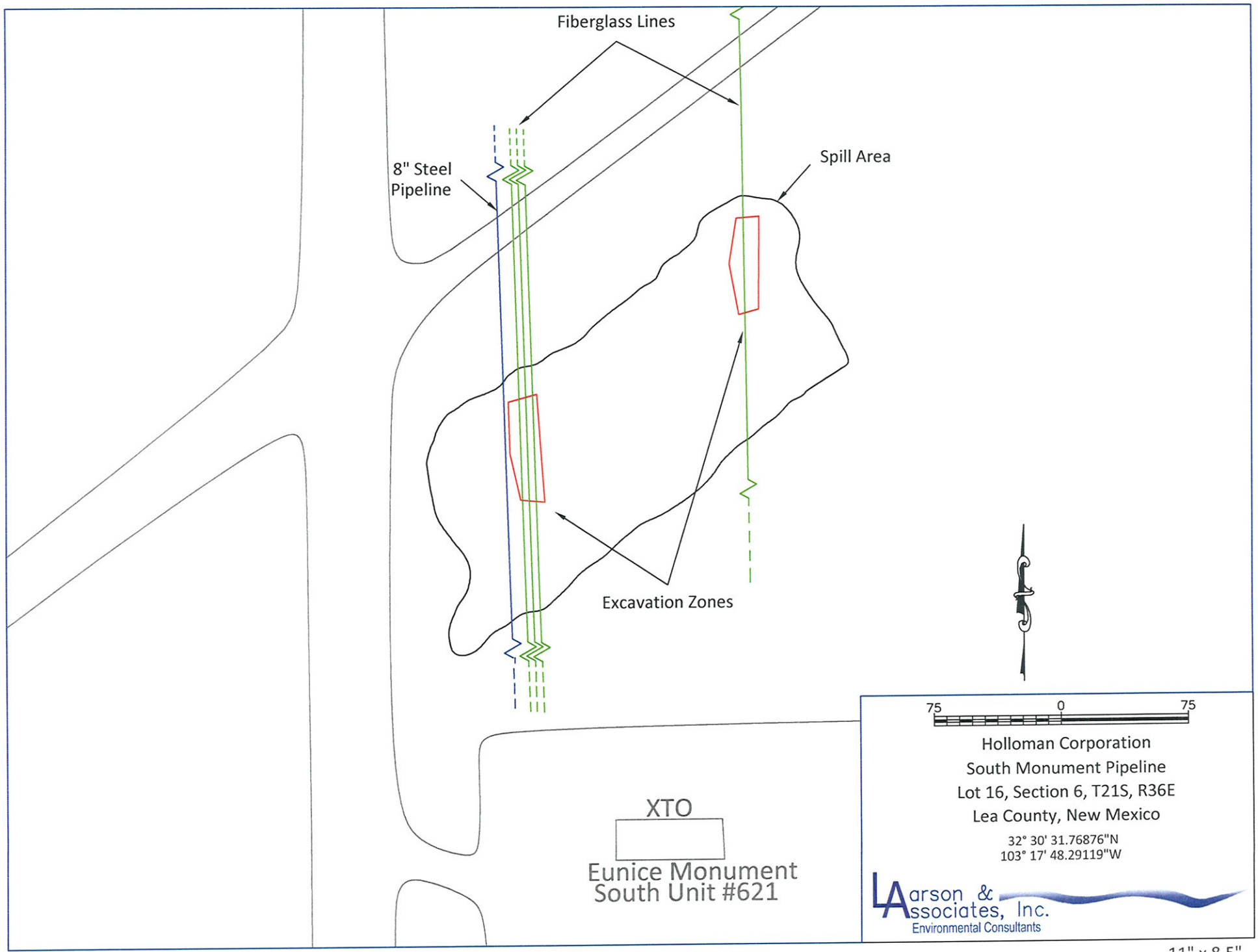


Figure 3 - Site Map

11" x 8.5"

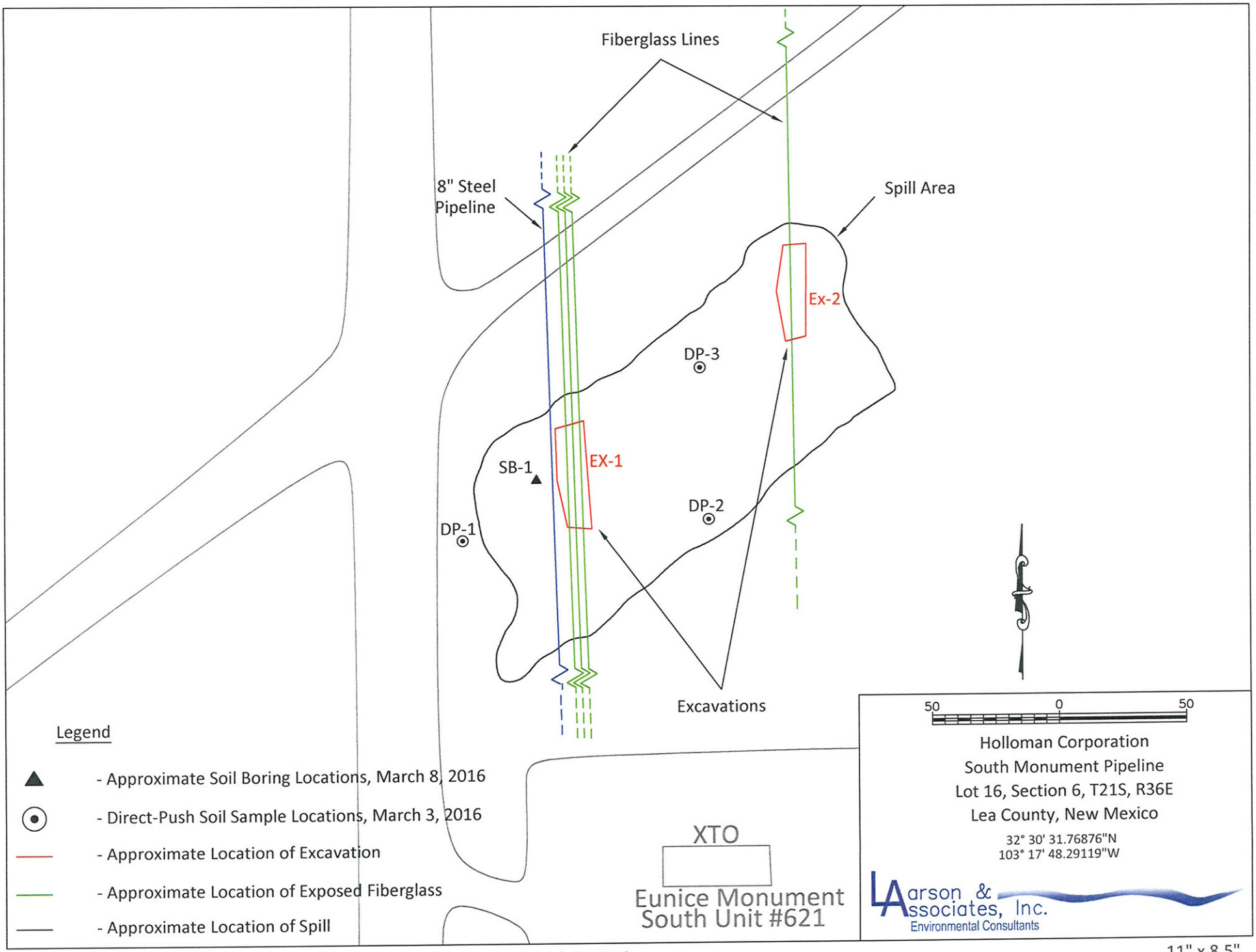


Figure 4 - Site Map Showing Soil Sample and Soil Boring Locations, March 8, 2016

11" x 8.5"

Attachment A

Initial C-141

RECEIVED
By JKeyes at 7:17 am, Feb 08, 2016

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

X Initial Report ☐ Final Report

Name of Company Holloman Corp.	Contact Dennis Hedger
Address 16410 US-380 Krum, TX 76249	Telephone No. 817-825-8867
Facility Name EMSU 621 (XTO)	Facility Type

Surface Owner State	Mineral Owner	API No. 30-025-33186

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	6	21S	36E	2810	South	185	East	Lea

Latitude _____ Longitude _____

NATURE OF RELEASE

Type of Release Oil and Produced water	Volume of Release 65 bbls of oil and water	Volume Recovered 61bbls of oil and water
Source of Release Flow Line	Date and Hour of Occurrence 1-24-16 7:00am	Date and Hour of Discovery 1-24-16 7:30 am
Was Immediate Notice Given? Yes x No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes X No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* Holloman employee was notified by XTO of a leaking line. The area of the leak had been previously backfilled on 01/22/16 by Holloman. An XTO crew was onsite and contained and isolated the lines. XTO crews exposed and repaired 2 fiberglass lines and one line was found to be cracked. Another line leak was found approximately 50 feet from this location on 1/23/16 and a hydravac truck had been parked in the location of this leak. Prior to these incidents, Holloman had struck 2 unmarked/unlocated fiberglass lines in the area belonging to XTO

Describe Area Affected and Cleanup Action Taken.*
The incident occurred on pipeline right-of-way and was contained to that right-of-way. Leaked product was removed by hydravac and contaminated soil was properly removed.

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: Jackie D. Harrell	OIL CONSERVATION DIVISION
Printed Name: Jackie Harrell	Approved by Environmental Specialist:
Title: Division Safety Manager	Approval Date: 02/08/2016 Expiration Date: 04/08/2016
E-mail Address: jackieharrell@hollomancorp.com	Conditions of Approval: Discrete site samples only. Delineate and remediate per NMOCD guidelines. Attached ☐ IRP 4155
Date: 02/03/16 Phone: 940-482-3442	

* Attach Additional Sheets If Necessary

nJXK1603925859
pJXK1603926101

Attachment B

Laboratory Reports

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972•242•7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Sarah Shissler
Larson and Associates, Inc.

P. O. Box 50685
Midland, TX, 79710

Report Date: February 25, 2016

Work Order: 16021925

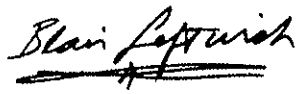
Project Name: South Monument Pipeline Spill
Project Number: South Monument Pipeline Spill

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
414744	EX-1 Bottom	soil	2016-02-19	10:20	2016-02-19
414745	EX-1 Sidewall	soil	2016-02-19	10:25	2016-02-19
414746	EX-2 Bottom	soil	2016-02-19	10:30	2016-02-19
414747	EX-2 Sidewall	soil	2016-02-19	10:35	2016-02-19

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.



Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Brian Pellam, Operations Manager

Report Contents

Case Narrative

Samples for project South Monument Pipeline Spill were received by TraceAnalysis, Inc. on 2016-02-19 and assigned to work order 16021925. Samples for work order 16021925 were received intact at a temperature of 5.4 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (IC)	E 300.0	108741	2016-02-23 at 10:00	128417	2016-02-23 at 10:08
TPH DRO	S 8015 D	108768	2016-02-25 at 08:41	128449	2016-02-25 at 09:37
TPH GRO	S 8015 D	108704	2016-02-22 at 14:35	128397	2016-02-23 at 13:49

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 16021925 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 414744 - EX-1 Bottom

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	128417	Date Analyzed:	2016-02-23	Analyzed By:	RL
Prep Batch:	108741	Sample Preparation:		Prepared By:	RL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride		1,2,4	**4400**	mg/Kg	10	25.0

Sample: 414744 - EX-1 Bottom

Laboratory:	Midland				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	128449	Date Analyzed:	2016-02-25	Analyzed By:	JL
Prep Batch:	108768	Sample Preparation:	2016-02-25	Prepared By:	JL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	B	3	**2010**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qst	Qst	121	mg/Kg	1	50.0	242	70 - 130

Sample: 414744 - EX-1 Bottom

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	128397	Date Analyzed:	2016-02-23	Analyzed By:	AK
Prep Batch:	108704	Sample Preparation:	2016-02-22	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO		3	**9.49**	mg/Kg	2	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			3.44	mg/Kg	2	4.00	86	70 - 130

continued ...

sample continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			4.09	mg/Kg	2	4.00	102	70 - 130

Sample: 414745 - EX-1 Sidewall

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	128417	Date Analyzed:	2016-02-23	Analyzed By:	RL
Prep Batch:	108741	Sample Preparation:		Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	**2580**	mg/Kg	5	25.0

Sample: 414745 - EX-1 Sidewall

Laboratory:	Midland				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	128449	Date Analyzed:	2016-02-25	Analyzed By:	JL
Prep Batch:	108768	Sample Preparation:	2016-02-25	Prepared By:	JL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	B,Jb	3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			46.2	mg/Kg	1	50.0	92	70 - 130

Sample: 414745 - EX-1 Sidewall

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	128397	Date Analyzed:	2016-02-23	Analyzed By:	AK
Prep Batch:	108704	Sample Preparation:	2016-02-22	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	3	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.95	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.52	mg/Kg	1	2.00	76	70 - 130

Sample: 414746 - EX-2 Bottom

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	128417	Date Analyzed:	2016-02-23	Analyzed By:	RL
Prep Batch:	108741	Sample Preparation:		Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	**125**	mg/Kg	1	25.0

Sample: 414746 - EX-2 Bottom

Laboratory:	Midland				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	128449	Date Analyzed:	2016-02-25	Analyzed By:	JL
Prep Batch:	108768	Sample Preparation:	2016-02-25	Prepared By:	JL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	B,Jb	3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			42.4	mg/Kg	1	50.0	85	70 - 130

Sample: 414746 - EX-2 Bottom

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	128397	Date Analyzed:	2016-02-23	Analyzed By:	AK
Prep Batch:	108704	Sample Preparation:	2016-02-22	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	3	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1	2.00	101	70 - 130
4-Bromofluorobenzene (4-BFB)			1.84	mg/Kg	1	2.00	92	70 - 130

Sample: 414747 - EX-2 Sidewall

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	128417	Date Analyzed:	2016-02-23	Analyzed By:	RL
Prep Batch:	108741	Sample Preparation:		Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	**541**	mg/Kg	2	25.0

Sample: 414747 - EX-2 Sidewall

Laboratory:	Midland				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	128449	Date Analyzed:	2016-02-25	Analyzed By:	JL
Prep Batch:	108768	Sample Preparation:	2016-02-25	Prepared By:	JL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	B	3	**254**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			55.5	mg/Kg	1	50.0	111	70 - 130

Sample: 414747 - EX-2 Sidewall

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	128397	Date Analyzed:	2016-02-23	Analyzed By:	AK
Prep Batch:	108704	Sample Preparation:	2016-02-22	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	3	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.99	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.74	mg/Kg	1	2.00	87	70 - 130

Method Blanks

Method Blank (1) QC Batch: 128397

QC Batch: 128397 Date Analyzed: 2016-02-23 Analyzed By: AK
Prep Batch: 108704 QC Preparation: 2016-02-22 Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		3	<1.76	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.93	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.71	mg/Kg	1	2.00	86	70 - 130

Method Blank (1) QC Batch: 128417

QC Batch: 128417 Date Analyzed: 2016-02-23 Analyzed By: RL
Prep Batch: 108741 QC Preparation: 2016-02-23 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1,2,4	<8.34	mg/Kg	25

Method Blank (1) QC Batch: 128449

QC Batch: 128449 Date Analyzed: 2016-02-25 Analyzed By: JL
Prep Batch: 108768 QC Preparation: 2016-02-25 Prepared By: JL

Parameter		Flag	Cert	MDL Result	Units	RL
DRO	B	B	3	10.2	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			52.0	mg/Kg	1	50.0	104	70 - 130

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 128397
Prep Batch: 108704

Date Analyzed: 2016-02-23
QC Preparation: 2016-02-22

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		3	17.7	mg/Kg	1	20.0	<1.76	88	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		3	20.4	mg/Kg	1	20.0	<1.76	102	70 - 130	14	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.97	2.07	mg/Kg	1	2.00	98	104	70 - 130
4-Bromofluorobenzene (4-BFB)	1.74	1.93	mg/Kg	1	2.00	87	96	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 128417
Prep Batch: 108741

Date Analyzed: 2016-02-23
QC Preparation: 2016-02-23

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1,2,4	257	mg/Kg	1	250	<8.34	103	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1,2,4	257	mg/Kg	1	250	<8.34	103	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 128449
Prep Batch: 108768

Date Analyzed: 2016-02-25
QC Preparation: 2016-02-25

Analyzed By: JL
Prepared By: JL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		3	203	mg/Kg	1	250	10.2	77	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		3	201	mg/Kg	1	250	10.2	76	70 - 130	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	47.2	46.6	mg/Kg	1	50.0	94	93	70 - 130

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 414630

QC Batch: 128397
Prep Batch: 108704

Date Analyzed: 2016-02-23
QC Preparation: 2016-02-22

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		3	19.3	mg/Kg	1	20.0	<1.76	96	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		3	15.8	mg/Kg	1	20.0	<1.76	79	70 - 130	20	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.99	1.97	mg/Kg	1	2	100	98	70 - 130
4-Bromofluorobenzene (4-BFB)	1.95	1.67	mg/Kg	1	2	98	84	70 - 130

Matrix Spike (MS-1) Spiked Sample: 414767

QC Batch: 128417
Prep Batch: 108741

Date Analyzed: 2016-02-23
QC Preparation: 2016-02-23

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Qs	Qs	1,2,4	8190	mg/Kg	50	250	7510	272	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	Qs	Qs	1,2,4	8670	mg/Kg	50	250	7510	464	80 - 120	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (xMS-1) Spiked Sample: 414655

QC Batch: 128449
Prep Batch: 108768

Date Analyzed: 2016-02-25
QC Preparation: 2016-02-25

Analyzed By: JL
Prepared By: JL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		3	206	mg/Kg	1	250	<7.41	82	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		3	201	mg/Kg	1	250	<7.41	80	70 - 130	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	40.3	44.5	mg/Kg	1	50	81	89	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 128397 Date Analyzed: 2016-02-23 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		3	mg/Kg	1.00	1.03	103	80 - 120	2016-02-23

Standard (CCV-2)

QC Batch: 128397 Date Analyzed: 2016-02-23 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		3	mg/Kg	1.00	0.803	80	80 - 120	2016-02-23

Standard (CCV-1)

QC Batch: 128417 Date Analyzed: 2016-02-23 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1,2,4	mg/Kg	25.0	25.4	102	90 - 110	2016-02-23

Standard (CCV-2)

QC Batch: 128417 Date Analyzed: 2016-02-23 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1,2,4	mg/Kg	25.0	25.7	103	90 - 110	2016-02-23

Standard (CCV-1)

QC Batch: 128449 Date Analyzed: 2016-02-25 Analyzed By: JL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		3	mg/Kg	250	200	80	80 - 120	2016-02-25

Standard (CCV-2)

QC Batch: 128449 Date Analyzed: 2016-02-25 Analyzed By: JL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		3	mg/Kg	250	200	80	80 - 120	2016-02-25

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	LELAP	LELAP-02003	Lubbock
2	NELAP	T104704219-15-11	Lubbock
3	NELAP	T104704392-14-8	Midland
4		2015-066	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

WO#: 16021925

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 2/19/2016 PAGE 1 OF 1

PO #: _____ LAB WORK ORDER #: 16021925

PROJECT LOCATION OR NAME: South Monument Pipeline Spill

LAI PROJECT #: N/A COLLECTOR: Sarah Grissler

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: NM

(S=SOIL) W=WATER A=AIR P=PAINT SL=SLUDGE 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 ☐ 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 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | PH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	BTEX	TRPH	GASOLINE MOD 8015	DIESEL - MOD 8015	CHLORIDE	FIELD NOTES
EX-1 Bottom		2-19-16	10:20	S	1				X			X	X		X	414744
EX-1 Sidewall		↓	10:25	↓	↓				↓			↓	↓		↓	414745
EX-2 Bottom			10:30													414746
EX-2 Sidewall		↓	10:35	↓	↓				↓			↓	↓		↓	414747

TOTAL

RELINQUISHED BY: (Signature) DATE/TIME 2/19/16 4:32 RECEIVED BY: (Signature) 2/19/16 4:32

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: 5.4 THERM #: IR
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☑ HAND DELIVERED

WO#: 16021925

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 2/19/2016 PAGE 1 OF 1

PO #: _____ LAB WORK ORDER #: 16021925

PROJECT LOCATION OR NAME: South Monument Pipeline Spill

LAI PROJECT #: N/A COLLECTOR: Sarah Swisher

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: NM

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

Field Sample I.D.	Lab #	Date	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 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐	FIELD NOTES
EX-1 Bottom		2-19-16	10:20	S	1				X				X	X													X	414744
EX-1 Sidewall		↓	10:25	↓	↓				↓				↓	↓													↓	414745
EX-2 Bottom			10:30																									414746
EX-2 Sidewall			10:35																									414747

TOTAL

RELINQUISHED BY:(Signature) Sarah Swisher DATE/TIME 2/19/16 4:32 RECEIVED BY: (Signature) Nancy 2/19/16 4:32

RELINQUISHED BY:(Signature) Nancy DATE/TIME 2/19/16 16:38 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 2/23/16 RECEIVED BY: (Signature) Brenda Ward

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

LABORATORY USE ONLY:
RECEIVING TEMP: 5.4 THERM #: IR
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # LS ZT45083
☑ HAND DELIVERED

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706

PBELAB

Analytical Report

Prepared for:

Mark Larson

Larson & Associates, Inc.

P.O. Box 50685

Midland, TX 79710

Project: South Monument Pipeline (holleman)

Project Number: 16-0111-01

Location: South Monument Pipeline (holleman)

Lab Order Number: 6C03006

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704156-13-3

Report Date: 03/11/16

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: South Monument Pipeline (holleman)
Project Number: 16-0111-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP-1 (0-1)	6C03006-01	Soil	03/03/16 10:20	03-03-2016 16:42
DP-1 (1-2)	6C03006-02	Soil	03/03/16 10:20	03-03-2016 16:42
DP-1 (2-3)	6C03006-03	Soil	03/03/16 10:20	03-03-2016 16:42
DP-1 (3-4)	6C03006-04	Soil	03/03/16 10:20	03-03-2016 16:42
DP-2 (0-1)	6C03006-05	Soil	03/03/16 10:35	03-03-2016 16:42
DP-2 (1-2)	6C03006-06	Soil	03/03/16 10:35	03-03-2016 16:42
DP-2 (2-3)	6C03006-07	Soil	03/03/16 10:35	03-03-2016 16:42
DP-2 (3-4)	6C03006-08	Soil	03/03/16 10:35	03-03-2016 16:42
DP-3 (0-1)	6C03006-09	Soil	03/03/16 10:45	03-03-2016 16:42
DP-3 (1-2)	6C03006-10	Soil	03/03/16 10:45	03-03-2016 16:42
DP-3 (2-3)	6C03006-11	Soil	03/03/16 10:45	03-03-2016 16:42
DP-3 (3-4)	6C03006-12	Soil	03/03/16 10:45	03-03-2016 16:42

DP-1 (0-1)

6C03006-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**106**	1.09	mg/kg dry	1	P6C1005	03/10/16	03/10/16	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P6C0504	03/05/16	03/05/16	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P6C0705	03/04/16	03/04/16	TPH 8015M	
>C12-C28	**46.2**	27.2	mg/kg dry	1	P6C0705	03/04/16	03/04/16	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P6C0705	03/04/16	03/04/16	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.4 %*	*70-130*		*P6C0705*	*03/04/16*	*03/04/16*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P6C0705*	*03/04/16*	*03/04/16*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**46.2**	27.2	mg/kg dry	1	[CALC]	03/04/16	03/04/16	calc	

DP-1 (1-2)

6C03006-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	127	1.09	mg/kg dry	1	P6C1005	03/10/16	03/10/16	EPA 300.0	
% Moisture	8.0	0.1	%	1	P6C0504	03/05/16	03/05/16	% calculation	

Larson & Associates, Inc.	Project: South Monument Pipeline (holleman)	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 16-0111-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP-1 (2-3)

6C03006-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	73.6	1.08	mg/kg dry	1	P6C1005	03/10/16	03/10/16	EPA 300.0	
% Moisture	7.0	0.1	%	1	P6C0504	03/05/16	03/05/16	% calculation	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: South Monument Pipeline (holleman)
Project Number: 16-0111-01
Project Manager: Mark Larson

Fax: (432) 687-0456

DP-1 (3-4)

6C03006-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**391**	1.08	mg/kg dry	1	P6C1101	03/11/16	03/11/16	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P6C0504	03/05/16	03/05/16	% calculation	

DP-2 (0-1)

6C03006-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**15.9**	1.09	mg/kg dry	1	P6C1101	03/11/16	03/11/16	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P6C0504	03/05/16	03/05/16	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P6C0705	03/04/16	03/04/16	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P6C0705	03/04/16	03/04/16	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P6C0705	03/04/16	03/04/16	TPH 8015M	
Surrogate: 1-Chlorooctane		*89.9 %*	*70-130*		*P6C0705*	*03/04/16*	*03/04/16*	*TPH 8015M*	
Surrogate: o-Terphenyl		*98.6 %*	*70-130*		*P6C0705*	*03/04/16*	*03/04/16*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	03/04/16	03/04/16	calc	

Larson & Associates, Inc.	Project: South Monument Pipeline (holleman)	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 16-0111-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP-2 (1-2)

6C03006-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**24.5**	1.08	mg/kg dry	1	P6C1101	03/11/16	03/11/16	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P6C0504	03/05/16	03/05/16	% calculation	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: South Monument Pipeline (holleman) Project Number: 16-0111-01 Project Manager: Mark Larson	Fax: (432) 687-0456

DP-2 (2-3)

6C03006-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1520**	5.43	mg/kg dry	5	P6C1101	03/11/16	03/11/16	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P6C0504	03/05/16	03/05/16	% calculation	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: South Monument Pipeline (holleman) Project Number: 16-0111-01 Project Manager: Mark Larson	Fax: (432) 687-0456

DP-2 (3-4)

6C03006-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	1780	5.68	mg/kg dry	5	P6C1101	03/11/16	03/11/16	EPA 300.0	
% Moisture	12.0	0.1	%	1	P6C0504	03/05/16	03/05/16	% calculation	

DP-3 (0-1)

6C03006-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1070**	1.12	mg/kg dry	1	P6C1101	03/11/16	03/11/16	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P6C0504	03/05/16	03/05/16	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.1	mg/kg dry	1	P6C0705	03/04/16	03/04/16	TPH 8015M	
>C12-C28	**501**	28.1	mg/kg dry	1	P6C0705	03/04/16	03/04/16	TPH 8015M	
>C28-C35	**74.5**	28.1	mg/kg dry	1	P6C0705	03/04/16	03/04/16	TPH 8015M	
Surrogate: 1-Chlorooctane		*81.5 %*	*70-130*		*P6C0705*	*03/04/16*	*03/04/16*	*TPH 8015M*	
Surrogate: o-Terphenyl		*91.3 %*	*70-130*		*P6C0705*	*03/04/16*	*03/04/16*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**575**	28.1	mg/kg dry	1	[CALC]	03/04/16	03/04/16	calc	

Larson & Associates, Inc.	Project: South Monument Pipeline (holleman)	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 16-0111-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP-3 (1-2)

6C03006-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**788**	1.12	mg/kg dry	1	P6C1101	03/11/16	03/11/16	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P6C0504	03/05/16	03/05/16	% calculation	

Larson & Associates, Inc.	Project: South Monument Pipeline (holleman)	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 16-0111-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP-3 (2-3)

6C03006-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**268**	1.12	mg/kg dry	1	P6C1101	03/11/16	03/11/16	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P6C0504	03/05/16	03/05/16	% calculation	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: South Monument Pipeline (holleman)
Project Number: 16-0111-01
Project Manager: Mark Larson

Fax: (432) 687-0456

DP-3 (3-4)

6C03006-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**295**	1.12	mg/kg dry	1	P6C1101	03/11/16	03/11/16	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P6C0504	03/05/16	03/05/16	% calculation	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P6C0504 - * DEFAULT PREP *** **										
Blank (P6C0504-BLK1)				Prepared & Analyzed: 03/05/16						
% Moisture	ND	0.1	%							
Duplicate (P6C0504-DUP1)		Source: 6C03002-04		Prepared & Analyzed: 03/05/16						
% Moisture	9.0	0.1	%		10.0			10.5	20	
Duplicate (P6C0504-DUP2)		Source: 6C03002-18		Prepared & Analyzed: 03/05/16						
% Moisture	8.0	0.1	%		12.0			40.0	20	
Duplicate (P6C0504-DUP3)		Source: 6C03008-01		Prepared & Analyzed: 03/05/16						
% Moisture	4.0	0.1	%		4.0			0.00	20	
Batch P6C1005 - * DEFAULT PREP *** **										
Blank (P6C1005-BLK1)				Prepared & Analyzed: 03/10/16						
Chloride	ND	1.00	mg/kg wet							
LCS (P6C1005-BS1)				Prepared & Analyzed: 03/10/16						
Chloride	421	1.00	mg/kg wet	400		105	80-120			
LCS Dup (P6C1005-BSD1)				Prepared & Analyzed: 03/10/16						
Chloride	415	1.00	mg/kg wet	400		104	80-120	1.53	20	
Duplicate (P6C1005-DUP1)		Source: 6C08001-01		Prepared & Analyzed: 03/10/16						
Chloride	2570	10.9	mg/kg dry		2600			1.26	20	
Duplicate (P6C1005-DUP2)		Source: 6C08001-11		Prepared & Analyzed: 03/10/16						
Chloride	769	1.15	mg/kg dry		763			0.857	20	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P6C1101 - * DEFAULT PREP *****										
Blank (P6C1101-BLK1)				Prepared & Analyzed: 03/11/16						
Chloride	ND	1.00	mg/kg wet							
LCS (P6C1101-BS1)				Prepared & Analyzed: 03/11/16						
Chloride	421	1.00	mg/kg wet	400		105	80-120			
LCS Dup (P6C1101-BSD1)				Prepared & Analyzed: 03/11/16						
Chloride	406	1.00	mg/kg wet	400		102	80-120	3.51	20	
Duplicate (P6C1101-DUP1)		**Source: 6C03006-04**		Prepared & Analyzed: 03/11/16						
Chloride	389	1.08	mg/kg dry		391			0.508	20	
Duplicate (P6C1101-DUP2)		**Source: 6C07012-01**		Prepared & Analyzed: 03/11/16						
Chloride	18600	51.5	mg/kg dry		18700			0.625	20	
Matrix Spike (P6C1101-MS1)		**Source: 6C03006-04**		Prepared & Analyzed: 03/11/16						
Chloride	644	1.08	mg/kg dry	215	391	118	80-120			

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Midland TX, 79710

Project: South Monument Pipeline (holleman)
Project Number: 16-0111-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P6C0705 - TX 1005										
Blank (P6C0705-BLK1)				Prepared & Analyzed: 03/04/16						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*101*		"	*100*		*101*	*70-130*			
Surrogate: o-Terphenyl	*54.2*		"	*50.0*		*108*	*70-130*			
LCS (P6C0705-BS1)				Prepared & Analyzed: 03/04/16						
C6-C12	828	25.0	mg/kg wet	1000		82.8	75-125			
>C12-C28	807	25.0	"	1000		80.7	75-125			
Surrogate: 1-Chlorooctane	*102*		"	*100*		*102*	*70-130*			
Surrogate: o-Terphenyl	*51.8*		"	*50.0*		*104*	*70-130*			
LCS Dup (P6C0705-BSD1)				Prepared & Analyzed: 03/04/16						
C6-C12	844	25.0	mg/kg wet	1000		84.4	75-125	1.97	20	
>C12-C28	825	25.0	"	1000		82.5	75-125	2.23	20	
Surrogate: 1-Chlorooctane	*108*		"	*100*		*108*	*70-130*			
Surrogate: o-Terphenyl	*54.3*		"	*50.0*		*109*	*70-130*			
Matrix Spike (P6C0705-MS1)	**Source: 6C03006-01**			Prepared & Analyzed: 03/04/16						
C6-C12	797	27.2	mg/kg dry	1090	ND	73.3	75-125			QM-05
>C12-C28	890	27.2	"	1090	46.2	77.6	75-125			
Surrogate: 1-Chlorooctane	*127*		"	*109*		*117*	*70-130*			
Surrogate: o-Terphenyl	*57.5*		"	*54.3*		*106*	*70-130*			
Matrix Spike Dup (P6C0705-MSD1)	**Source: 6C03006-01**			Prepared & Analyzed: 03/04/16						
C6-C12	740	27.2	mg/kg dry	1090	ND	68.1	75-125	7.37	20	QM-05
>C12-C28	855	27.2	"	1090	46.2	74.4	75-125	4.30	20	QM-05
Surrogate: 1-Chlorooctane	*122*		"	*109*		*112*	*70-130*			
Surrogate: o-Terphenyl	*54.2*		"	*54.3*		*99.7*	*70-130*			

Notes and Definitions

QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: _____ Date: 3/11/2016

Brent Barron, Laboratory Director/Technical Director

Permian

CHAIN-OF-CUSTOD

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

Data Reported to:

DATE: 3-3-2016 PAGE 1 OF 1

PO #: _____ LAB WORK ORDER #: 16C03006

PROJECT LOCATION OR NAME: South Monument Pipeline (H&P)

LAI PROJECT #: 16-0111-01 COLLECTOR: Sarah Swiatek

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: NM

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE 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
DP-1 (0-1)	01	3-3-16	10:20	S	1				✓			
(1-2)	02											
(2-3)	03											
(3-4)	04											
DP-2 (0-1)	05		10:35									
(1-2)	06											
(2-3)	07											
(3-4)	08											
DP-3 (0-1)	09		10:45									
(1-2)	10											
(2-3)	11											
(3-4)	12											
TOTAL												

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 ☐ TCLP ☐ RCI ☐ TOX ☐ FLASHPOINT ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ pH ☐ HEXAVALENT CHROMIUM ☐ EXPLOSIVES ☐ PECHLORATE ☐ CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐

RELINQUISHED BY:(Signature) Sarah Swiatek DATE/TIME 3-3-16 4:42 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 3-3-16 16:42 RECEIVED BY: (Signature) Marissa Martin

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

LABORATORY USE ONLY
RECEIVING TEMP: 4.0 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☐ HAND DELIVERED

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706

PBELAB

Analytical Report

Prepared for:

Mark Larson

Larson & Associates, Inc.

P.O. Box 50685

Midland, TX 79710

Project: Holloman South Monument Pipe

Project Number: 16-0111-01

Location:

Lab Order Number: 6C09001

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704156-13-3

Report Date: 03/15/16

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Holloman South Monument Pipe
Project Number: 16-0111-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-1-0'	6C09001-01	Soil	03/08/16 10:30	03-09-2016 09:20
SB-1-5'	6C09001-02	Soil	03/08/16 10:32	03-09-2016 09:20
SB-1-10'	6C09001-03	Soil	03/08/16 10:38	03-09-2016 09:20
SB-1-15'	6C09001-04	Soil	03/08/16 10:42	03-09-2016 09:20
SB-1-20'	6C09001-05	Soil	03/08/16 10:45	03-09-2016 09:20
SB-1-25'	6C09001-06	Soil	03/08/16 10:52	03-09-2016 09:20
SB-1-30'	6C09001-07	Soil	03/08/16 11:02	03-09-2016 09:20
SB-1-35'	6C09001-08	Soil	03/08/16 11:08	03-09-2016 09:20

SB-1-0'

6C09001-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**162**	1.22	mg/kg dry	1	P6C1501	03/11/16	03/14/16	EPA 300.0	
% Moisture	**18.0**	0.1	%	1	P6C1102	03/11/16	03/11/16	% calculation	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Holloman South Monument Pipe Project Number: 16-0111-01 Project Manager: Mark Larson	Fax: (432) 687-0456

SB-1-5'

6C09001-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**136**	1.12	mg/kg dry	1	P6C1501	03/11/16	03/14/16	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P6C1102	03/11/16	03/11/16	% calculation	

Larson & Associates, Inc.	Project: Holloman South Monument Pipe	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 16-0111-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1-10'

6C09001-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**36.8**	1.18	mg/kg dry	1	P6C1501	03/11/16	03/14/16	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P6C1102	03/11/16	03/11/16	% calculation	

SB-1-15'

6C09001-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**303**	1.03	mg/kg dry	1	P6C1501	03/11/16	03/14/16	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P6C1102	03/11/16	03/11/16	% calculation	

Larson & Associates, Inc.	Project: Holloman South Monument Pipe	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 16-0111-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1-20'

6C09001-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**170**	1.05	mg/kg dry	1	P6C1501	03/11/16	03/14/16	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P6C1102	03/11/16	03/11/16	% calculation	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Holloman South Monument Pipe
Project Number: 16-0111-01
Project Manager: Mark Larson

Fax: (432) 687-0456

SB-1-25'

6C09001-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**148**	1.12	mg/kg dry	1	P6C1501	03/11/16	03/14/16	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P6C1102	03/11/16	03/11/16	% calculation	

Larson & Associates, Inc.	Project: Holloman South Monument Pipe	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 16-0111-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1-30'

6C09001-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	**157**	1.18	mg/kg dry	1	P6C1501	03/11/16	03/14/16	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P6C1102	03/11/16	03/11/16	% calculation	

Larson & Associates, Inc.	Project: Holloman South Monument Pipe	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 16-0111-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1-35'

6C09001-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**145**	1.15	mg/kg dry	1	P6C1501	03/11/16	03/14/16	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P6C1102	03/11/16	03/11/16	% calculation	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Holloman South Monument Pipe
Project Number: 16-0111-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P6C1102 - * DEFAULT PREP *** **										
Blank (P6C1102-BLK1)				Prepared & Analyzed: 03/11/16						
% Moisture	ND	0.1	%							
Duplicate (P6C1102-DUP1)		Source: 6C10001-04		Prepared & Analyzed: 03/11/16						
% Moisture	16.0	0.1	%		17.0			6.06	20	
Duplicate (P6C1102-DUP2)		Source: 6C10004-02		Prepared & Analyzed: 03/11/16						
% Moisture	6.0	0.1	%		7.0			15.4	20	
Batch P6C1501 - * DEFAULT PREP *** **										
Blank (P6C1501-BLK1)				Prepared: 03/11/16 Analyzed: 03/14/16						
Chloride	ND	1.00	mg/kg wet							
LCS (P6C1501-BS1)				Prepared: 03/11/16 Analyzed: 03/14/16						
Chloride	456	1.00	mg/kg wet	500		91.2	80-120			
LCS Dup (P6C1501-BSD1)				Prepared: 03/11/16 Analyzed: 03/14/16						
Chloride	428	1.00	mg/kg wet	500		85.6	80-120	6.33	20	
Duplicate (P6C1501-DUP1)		Source: 6C07013-03		Prepared: 03/11/16 Analyzed: 03/14/16						
Chloride	2280	26.0	mg/kg dry		2010			12.4	20	
Duplicate (P6C1501-DUP2)		Source: 6C09001-07		Prepared: 03/11/16 Analyzed: 03/14/16						
Chloride	155	1.18	mg/kg dry		157			1.55	20	
Matrix Spike (P6C1501-MS1)		Source: 6C07013-03		Prepared: 03/11/16 Analyzed: 03/14/16						
Chloride	5950	26.0	mg/kg dry	5210	2010	75.6	80-120			QM-07

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: _____ Date: 3/15/2016

Brent Barron, Laboratory Director/Technical Director

6C09001

CHAIN-OF-CUSTODY

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

DATE: ~~3/9/2016~~ 3/9/2016 PAGE 1 OF 1

PO #: _____ LAB WORK ORDER #: _____

PROJECT LOCATION OR NAME: Holloman South Monument Pit

LAI PROJECT #: 16-0111-01 COLLECTOR: Michael Gant

Data Reported to:

TRRP report? ☐ Yes ☐ No

TIME ZONE: Time zone/State:

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: 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 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☐ ANIONS ☐ ALKALINITY ☐ 300.0	FIELD NOTES
SB-1-0'	01	3/8	10:30	S	1				X																			X
SB-1-5'	02	3/8	10:32	S	1				X																			X
SB-1-10'	03	3/8	10:38	S	1				X																			X
SB-1-15'	04	3/8	10:42	S	1				X																			X
SB-1-20'	05	3/8	10:45	S	1				X																			X
SB-1-25'	06	3/8	10:52	S	1				X																			X
SB-1-30'	07	3/8	11:02	S	1				X																			X
SB-1-35'	08	3/8	11:08	S	1				X																			X
TOTAL																												

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 3/9/16 9:20 RECEIVED BY: (Signature)

TURN AROUND TIME
NORMAL ☑
1 DAY ☐
2 DAY ☐
OTHER ☐
5.2

LABORATORY USE ONLY: NCF
RECEIVING TEMP: 5.2 THERM #: 21
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☐ HAND DELIVERED

Attachment C

Boring Log

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING (PPM X NA; 2 4 6 8 10 12 14 16 18)	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING
	0	Sandy topsoil, 7.5 YR 5/6, brown, poorly sorted, some Caliche gravels							0	10:30
									4	
	5	Sand, poorly sorted, with Caliche, light brown, 7.5 YR 6/4							5	10:32
									9	
	10	very fine Sand and Silt, poorly sorted, some Mudstone, 5 YR 6/6, reddish pink							10	10:38
									14	
	15	very fine Sand and Silt with Sandy Limestone, poorly sorted, 5 YR 8/1, whitish pink							15	10:42
									19	
	20	very fine Sand with Sandy Limestone, poorly sorted, 7.5 YR 8/3, whitish pink							20	10:45
									24	
	25	very fine Sand and Silt with Sandy Limestone, poorly sorted, 7.5 YR 8/4, pink							25	10:52
									29	
	30	very fine Sand and Silt with Sandy Limestone, friable, poorly sorted, 7.5 YR 8/3, pink white, some Quartz Sandstone							30	11:02
									34	
	35	very fine Sand and Silt with Sandy Limestone, friable, poorly sorted, 7.5 yR 8/3, pink							35	11:08
		TD : 35' No Groundwater Observed								

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : 16-0111-01 South Monument Pipeline
HOLE DIAMETER : 5"
LOCATION : Lea County, New Mexico
LA GEOLOGIST : MG
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

Larson & Associates, Inc.
Environmental Consultants

DRILL DATE: 03/08/2016

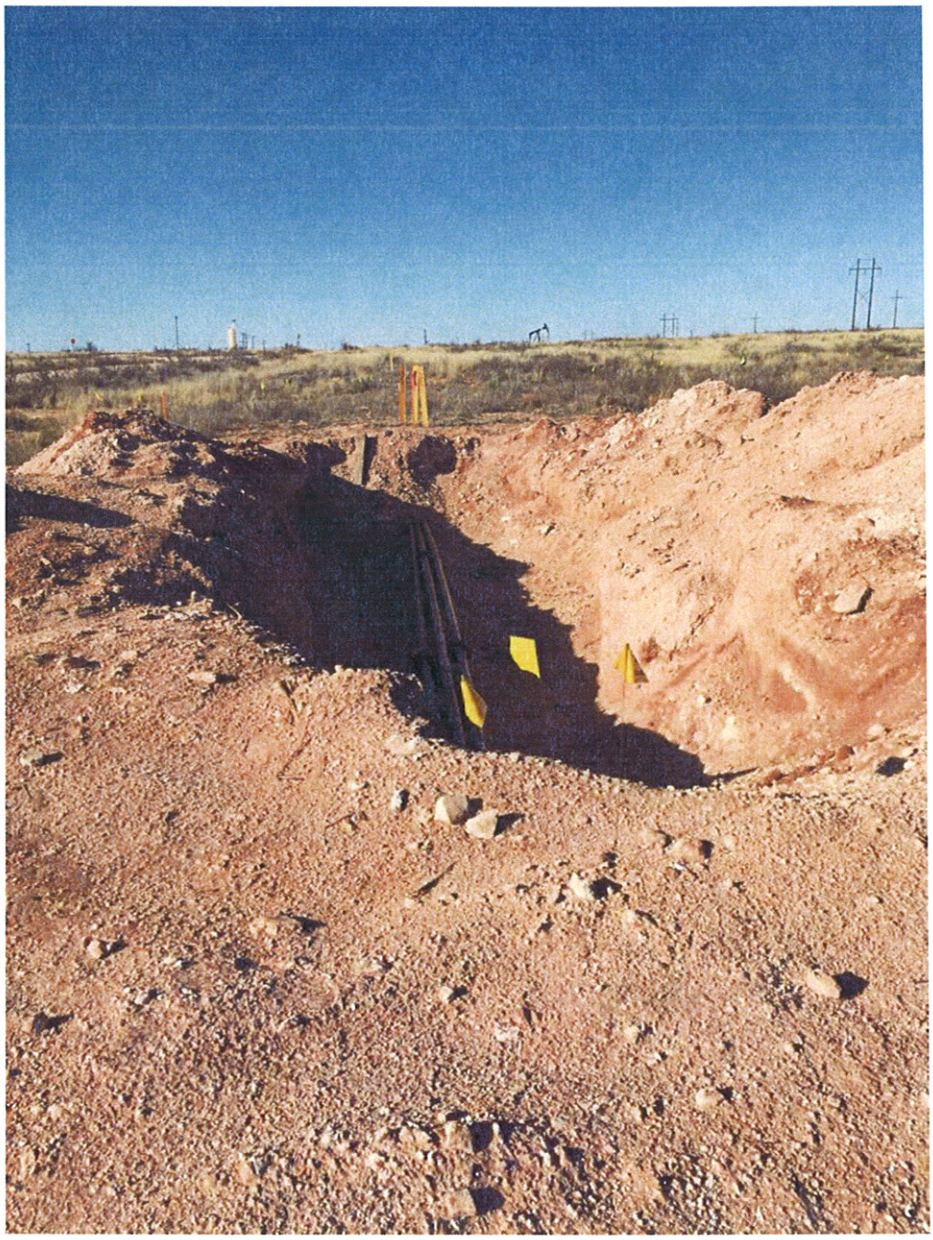
BORING NUMBER: SB - 1

Attachment D

Photo Documentation


FED UNIT # NM70948A
XTO ENERGY INC.
EMSU WELL #621
UNIT T/Q, SEC. 6-T21S-R36E
LEA COUNTY, NEW MEXICO

Well Sign



West Excavation (EX-1) Viewing North

West Excavation (EX-1) Viewing East

East Excavation (EX-2) Viewing North

West and East Excavations Viewing Northeast

1RP-4155
South Monument Pipeline Spill
XTO EMSU Well No. 621
Lea County, New Mexico

Oil Staining South of Excavations Viewing Northeast