APPROVED

By Olivia Yu at 1:19 pm, Mar 08, 2018

NMOCD approves of the proposed delineation plan for 1RP-4191. See email correspondence for additional delineation sample locations.

1RP-4191 DELINEATION PLAN State GA #1 Produced Water Spill Lea County, New Mexico

Latitude: N33° 01' 12.09" Longitude: W-103° 18' 39.25"

LAI Project No. 17-0175-20

February 2, 2018

Prepared for: Legacy Reserves Operating, LP 303 West Wall Street, Suite 1300 Midland, Texas 79701

Prepared by: Larson & Associates, Inc. 507 North Marienfeld Street, Suite 205 Midland, Texas 79701

rah R. Johnson Staff Geologist

Mark J. Larson, P.G. Certified Professional Geologist #10490

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1RP-4191 Delineation Plan State GA #1 February 2, 2018

1.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this delineation plan on behalf of Legacy Reserves Operating, LP (Legacy) for submittal to the New Mexico Oil Conservation (OCD) District 1 and the State Land Office (SLO) for a produced water spill at the State GA #1 (Site) located in Unit F (SE/4, NW/4), Section 16, Township 15 South, Range 36 East in Lea County New Mexico. The geodetic position is North 33° 01' 12.09" and West -103° 18' 39.25". Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The spill occurred on July 17, 2012, due to a corroded fitting on the gun barrel tan that ruptures and released approximately 90 barrels (bbl) of produced water. No liquids were recovered. The fluids breached the firewall and migrated northwest on the lease road and pooled onto the State GA #6 location. A small amount of fluids affected the nearby pasture to the east of the Site. The lease road and location were scraped of contaminated soil and hauled to an approved landfill. The initial C-141 was submitted on July 18, 2012 and assigned remediation permit number 1RP-4191. Appendix A presents the initial C-141.

On July 24 and August 30, 2012, personnel from Talon LPE (Talon) visited the Site for the purpose of documenting the spill and collecting soil samples. Talon focused around the area of the tank battery and omitted the lease road and area south of the tank battery where liquid pool. On July 24, 2012, Talon collected soil samples at three (3) locations (S-1, S-2 and S-3) from ground surface and 0.5 feet below ground surface (bgs). A sample was collected from 1 foot bgs at location S-1. On August 30, 2012, Talon used a drilling rig to collect soil samples at 2, 4, 6, 8 and 10 feet bgs, at three (3) locations (B-1, B-2, and B-3). Cardinal Laboratories (Cardinal), Hobbs, New Mexico, analyzed the samples for benzene, toluene, ethylbenzene and xylenes (BTEX) and total petroleum hydrocarbons (TPH), including gasoline range organics (GRO) and diesel range organics (DRO) by EPA SW-846 Methods 8021B and 8015M, respectively, and chloride by titration method SM4500CL-B. Appendix B presents the Talon investigation summary and analysis.

BTEX and TPH exceeded the OCD recommended remediation action levels of 50 milligrams per kilogram (mg/Kg) and 1,000 mg/Kg, respectively, in samples S-1 from ground surface. Chloride was highest in the shallow samples (S-1, S-2 and S-3) and decreased below 600 mg/Kg in sample B-1, 6 feet (258 mg/Kg) and B-3, 4 feet (256 mg/Kg). No records were found to demonstrate horizontal delineation or remediation was performed.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,915 feet above mean sea level (msl);
- The topography slopes gradually towards the southeast;
- There are no surface water features within 1,000 feet of the Site;
- The soils are designated as "Kimbrough-Lea complex, 0 to 3 percent slopes", consisting of 0 to 3 inches of gravelly loam underlain by 3 to 10 inched of loam;
- The surface geology is the Ogallala Formation (lower Pliocene to middle Miocene)- alluvial and eolian deposits, and petrocalcic soils of the southern High Plains;

- Groundwater occurs in the Ogallala formation at approximately 75 feet below ground surface (bgs) (1981);
- The nearest freshwater well is located in Unit F (SE/4, NW/4), Section 16, Township 15 South, Range 36 East, approximately 0.20 miles southwest of the Site.

1.3 Recommended Remediation Action Levels

The recommended remediation action levels (RRAL) were calculated for benzene, BTEX and TPH based on the following criteria established by the OCD in *"Guidelines for Remediation of Leaks, Spills and Releases, pp. 6-7, August 13, 1993"*:

Criteria	Result	Score
Depth-to-Groundwater	50 – 99 Feet	10
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1,000 Horizontal Feet	0

The following RRAL apply to the release ranking score: 10

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 1,000 mg/Kg

Depth to groundwater between 50 and 100 feet bgs require vertical delineation for chloride to 600 milligrams per kilogram (mg/Kg) and maintained a minimum 5 feet farther in depth.

2.0 DELINEATION PLAN

LAI proposes to collect soil samples at three (3) locations within the contaminated area at State GA #1. The samples will be collected at 1 foot intervals to approximately 4 feet bgs and 2 foot intervals to approximately 12 feet bgs using direct push technology (DPT) depending on subsurface conditions. Additional samples will be collected in each cardinal direction (north, south, east and west) of the spill, as well as one (1) sample on the lease road, at the same depth intervals for horizontal delineation. The soil samples will be delivered under chain of custody and preservation to Permian Basin Environmental Lab (PBEL) in Midland, Texas, and analyzed for BTEX, total petroleum hydrocarbons (TPH), including gasoline range organics (GRO), diesel range organics (DRO) and oil range organics (ORO) and chloride by EPA SW-846 Method 8021B, 8015M and 300 respectively. Pending laboratory results, further delineation will be determined to reach cleanup level standards. Figure 2 presents an aerial map showing proposed soil sample locations. Appendix C presents photographs.

3.0 REMEDIATION PLAN

Legacy will include a remediation plan in the delineation report to be submitted to the OCD upon receipt of the laboratory report.

Figures



Figure 1 - Topographic Map



Figure 2 - Aerial Map Showing Proposed Sample Locations

Appendix A

Initial C-141

State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe. NM 87505 Form C-141 Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

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Appendix B Talon Investigation Summary & Analysis



AE Order Number Banner

Report Description

This report shows an AE Order Number in Barcode format for purposes of scanning. The Barcode format is Code 39.



App Number: pKJ1605632985

1RP - 4191

LEGACY RESERVES OPERATING, LP

2/25/2016

State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe. NM 87505 Form C-141 Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

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AMARILLO 921 North Bivins Amarillo. Texas 79107 Phone 806.467.0607 Fax 806.467.0622

ARTESIA 408 West Texas Ave. Artesia, New Mexico 88210 Phone 575.746.8768 Fax 575.746.8905

> AUSTIN 911 West Anderson Lane Suite 202 Austin, Texas 78757 Phone 512.989.3428 Fax 512.989.3487

HOBBS 3I8 East Taylor Street Hobbs, New Mexico 88240 Phone 575.393.426I Fax 575.393.4658

> MIDLAND 2901 State Hwy 349 Midland, Texas 79706 Phone 432.522.2133 Fax 432.522.2180

SAN ANTONIO II Commercial Place Schertz, Texas 78154 Phone 210.265.8025 Fax 210.568.2191

TULSA 525 South Main Street Suite 535 Tulsa, Oklahoma 74103 Phone 918.742.0871 Fax 918.382.0232

ENVIRONMENTAL CONSULTING ENGINEERING DRILLING CONSTRUCTION SPILL MANAGEMENT GENERAL CONTRACTING

Toll Free: 866.742.0742 www.talonlpe.com October 30, 2012

Mr. Geoffrey Leking

NMOCD District I

1625 N. French Dr.

Hobbs, NM 88240

Subject:

HOBBS OCD

OCT 31 2012

RECEIVED

Soil Assessment and Remediation Work Plan Legacy Reserves Operating, LP State GA No. 1 Tank Battery Release API # 30-025-03682

Dear Mr. Leking,

Legacy Reserves Operating, LP has contracted Talon/LPE (Talon) to perform soil assessment and remediation services for the State GA No. 6 referenced Tank Battery Release. Talon's site assessment, soil sampling results and proposed work plan to perform remediation activities consist of the following:

Incident Date

July 17, 2012

Background Information

The State GA No. 1 is located approximately seven (7) miles northeast of Lovington, New Mexico. The legal location for the site is Section 16, Township 15 South and Range 36 East in Lea County, New Mexico. More specifically, the latitude and longitude for the release are 33.019359 North and -103.3111749 West.

According to the soil survey provided by the United States Department of Agriculture National Resources Conservation Services, the soil in this area is made up of Kimbrough-Lea land complex. The local surface and shallow geology, Quaternary and Tertiary Age sedimentary deposits, is comprised of calcareous-loamy alluvium and calcareous-loamy eolian sands which includes silty soils under lain by sedimentary rock and hard caliche. Drainage courses in this area are normally dry. The New Mexico State Engineer web site indicates the nearest ground water data to be in S16-T15S-R36E. The ground water in Section 8 is reported to be at depth of 68' below ground surface (bgs). The referenced groundwater data is presented in Appendix I.

The ranking for this site is 10 based on the as following:

Depth to ground water	50-100'
Wellhead Protection Area	>1000'
Distance to surface water body	>1000'

Incident Description

On July 17, 2011, the nipple on the gun barrel eroded causing a release of 90 barrels of produced fluids. The gun barrel was taken out of service. No fluids were recovered. The impacted area was inside the bermed battery and flowed south along the lease road. The release then pooled onto the State GA #1 location. A small amount of fluids measuring approximately 25-feet long by 25-wide also flowed off the lease road into the pasture. The impacted areas on the lease road and location were immediately scraped and placed on plastic on the location. A site plan is attached.

Sampling Activities

On July 17, 2012 Talon mobilized personnel to begin soil sampling for the construction of a work plan. Grab soil samples were collected utilizing a hand auger from the surface of the impacted areas.

On August 21, 2011 Talon returned to the release site to collect additional soil samples utilizing a drill rig to obtain vertical delineation samples. Grab samples were collected to a depth of 10 feet below land surface.

The soil samples were collected by Talon personnel wearing clean nitrile gloves. The samples were placed into a laboratory provided sample containers, iced and transported to Cardinal Laboratories in Hobbs, New Mexico for analysis. The samples were tested for TPH (Total Petroleum Hydrocarbons) using EPA Method 8015M, and volatile organics (BTEX) using EPA Method 8021B. The chlorides were analyzed per SM4500CLB. The complete laboratory reports are attached as Appendix II.

Analytical Results

Analytical results received from Cardinal Laboratories are summarized below:

July 24, 2012

Sample	Depth	BTEX	Chlorides	<u>TPH</u> (mg/kg)
S-1	0'	100.62	3200	6850
	1'	104.675	3000	2890
S-2	0'	1.246	11600	609.9
	0.5'	<0.150	4960	24.8
S-3	0'	0.293	21600	<10
	0.5'	<0.150	3040	<10

August 30, 2012

Sample	Depth	BTEX	Chlorides	<u>TPH</u> (mg/kg)
B-1	2'	< 0.150	1070	<10
	4'	< 0.150	1960	<10
	6'	< 0.150	528	<10
	8'	< 0.150	160	<10
	10'	< 0.150	64	<10
D 2	22	<0.150	416	10.0
B-2	2'	< 0.150	416	10.9
	4'	< 0.150	128	<10
	6'	< 0.150	160	<10
	8'	< 0.150	96	<10
	10'	< 0.150	32	<10
B-3	2'	< 0.150	1890	30.3
	4'	< 0.150	256	<10
	6'	< 0.150	336	<10
	8'	< 0.150	160	<10
	10'	< 0.150	272	<10

Summary

- Ground water in the project vicinity is 68-feet below land surface according to the New Mexico State Engineers Database.
- Based on the depth to groundwater, it is unlikely that the impacts identified from this release will pose a threat to groundwater after proposed remediation activities are complete.

Proposed Remedial Actions

- The impacted soil at sample location B-1 along the lease road will be excavated to a depth of approximately 4-feet deep. The impacted soil in the vicinity of sample point B-3 will be excavated to a depth of approximately 3-feet deep. The impacted soil will be transported to an NMOCD approved solid waste disposal facility.
- The excavation depths will be continuously monitored by testing for chlorides using the field titration method.
- Confirmation samples will be collected from the bottom and sidewalls of the excavated areas and presented to the OCD for permission to complete excavation activities.

- The excavated area will be backfilled to grade using new material transported from a local borrow pit. The lease road will be repaired and the area will be contoured to match the surrounding location.
- A final report documenting all field activities and lab reports will be provided to the NMOCD Artesia Office including Form C-141.

If we can provide additional information or be of further assistance please contact our office at 575.746.8768.

Respectfully submitted,

TALON/LPE

mise Statefall

Mike Stubblefield Project Manager

David J. Adkins District Manager

SITE MAP



APPENDIX I

GROUNDWATER DATA

INITIAL C-141



New Mexico Office of the State Engineer Water Column/Average Depth to Water

(A CLW###### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)	(R=POD has been replaced, O=orphaned, C=the file is closed)							E 3=SW argest)		UTM in me	ters)	(In feet)	
POD Number	POD Code Subbasin	County	0.3	Q 16			Tws	Rng	x	Y	Distance		and the second se	Water Column
L 03275	L	LE	2	1	1	16	15S	36E	657429	3655188*	200	110	68	42
L 03126	L	LE	4	3	3	09	15S	36E	657423	3655390*	280	90	65	25
L 10983	L	LE	2	4	4	08	15S	36E	657019	3655584*	448	184		
										Averag	e Depth to	Water:	66	feet
											Minimum	Depth:	65	feet
											Maximum	Depth:	68	feet
Record Count: 3														

UTMNAD83 Radius Search (in meters):

Easting (X): 657229

Northing (Y): 3655188

Radius: 500

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

APPENDIX II

LABORATORY RESULTS



July 24, 2012

MIKE STUBBLEFIELD TALON LPE 408 W. TEXAS AVE. ARTESIA, NM 88210

RE: STATE GA NO. 6

Enclosed are the results of analyses for samples received by the laboratory on 07/18/12 12:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

07/18/2012	Sampling Date:	07/17/2012
07/24/2012	Sampling Type:	Soil
STATE GA NO. 6	Sampling Condition:	Cool & Intact
NONE GIVEN	Sample Received By:	Jodi Henson
SEC. 16 - T15S - R36 E		
	07/24/2012 STATE GA NO. 6 NONE GIVEN	07/24/2012Sampling Type:STATE GA NO. 6Sampling Condition:NONE GIVENSample Received By:

Sample ID: S - 1 0' (H201640-01)

BTEX 8021B	mg	/kg	Analyze	d By: AP					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	1.06	0.250	07/18/2012	ND	1.91	95.7	2.00	0.781	
Toluene*	12.4	0.250	07/18/2012	ND	1.94	97.1	2.00	2.18	
Ethylbenzene*	9.56	0.250	07/18/2012	ND	1.98	99.0	2.00	1.91	
Total Xylenes*	77.6	0.750	07/18/2012	ND	5.99	99.9	6.00	2.45	
Surrogate: 4-Bromofluorobenzene (PIL	163	89.4-12	6						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3200	16.0	07/19/2012	ND	416	104	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: AM	-				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	1790	10.0	07/18/2012	ND	166	83.1	200	7.23	
DRO >C10-C28	5060	10.0	07/18/2012	ND	171	85.7	200	6.06	
Surrogate: 1-Chlorooctane	118 9	65.2-14	0						
Surrogate: 1-Chlorooctadecane	103	63.6-15	4						

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

Received:	07/18/2012	Sampling Date:	07/17/2012
Reported:	07/24/2012	Sampling Type:	Soil
Project Name:	STATE GA NO. 6	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	SEC. 16 - T15S - R36 E		

Sample ID: S - 1 1' BGS (H201640-02)

BTEX 8021B	mg	/kg	Analyze	d By: AP	_				S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.705	0.250	07/18/2012	ND	1.91	95.7	2.00	0.781	
Toluene*	6.87	0.250	07/18/2012	ND	1.94	97.1	2.00	2.18	
Ethylbenzene*	10.5	0.250	07/18/2012	ND	1.98	99.0	2.00	1.91	
Total Xylenes*	86.6	0.750	07/18/2012	ND	5.99	99.9	6.00	2.45	
Surrogate: 4-Bromofluorobenzene (PIL	231	% 89.4-12	6						
Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					_
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3000	16.0	07/19/2012	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyzed By: AM					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	1170	10.0	07/18/2012	ND	166	83.1	200	7.23	
DRO >C10-C28	1720	10.0	07/18/2012	ND	171	85.7	200	6.06	

Surrogate: 1-Chlorooctadecane

141 % 65.2-140 116 % 63.6-154

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



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Received:	07/18/2012	Sampling Date:	07/17/2012
Reported:	07/24/2012	Sampling Type:	Soil
Project Name:	STATE GA NO. 6	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	SEC. 16 - T15S - R36 E		

Sample ID: S - 2 0' (H201640-03)

BTEX 8021B	mg/	kg	Analyze	d By: AP	_				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/18/2012	ND	1.91	95.7	2.00	0.781	
Toluene*	0.153	0.050	07/18/2012	ND	1.94	97.1	2.00	2.18	
Ethylbenzene*	0.127	0.050	07/18/2012	ND	1.98	99.0	2.00	1.91	
Total Xylenes*	0.966	0.150	07/18/2012	ND	5.99	99.9	6.00	2.45	
Surrogate: 4-Bromofluorobenzene (PIL	116 9	89.4-12	6						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	11600	16.0	07/19/2012	ND	416	104	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: AM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GR0 C6-C10	10.9	10.0	07/18/2012	ND	166	83.1	200	7.23	
DRO >C10-C28	599	10.0	07/18/2012	ND	171	85.7	200	6.06	
Surrogate: 1-Chlorooctane	74.9	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	103 9	63.6-15	4						

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Celey D. Keene, Lab Director/Quality Manager



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Received:	07/18/2012	Sampling Date:	07/17/2012
Reported:	07/24/2012	Sampling Type:	Soil
Project Name:	STATE GA NO. 6	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	SEC. 16 - T15S - R36 E		

Sample ID: S - 2 0.5' BGS (H201640-04)

BTEX 8021B mg/kg Analyzed By: AP Analyte Result Reporting Limit Analyzed Method Blank BS % Recovery True Value QC RPD Qualifier Benzene* < 0.050 0.050 07/18/2012 ND 1.91 95.7 2.00 0.781 Toluene* < 0.050 0.050 07/18/2012 ND 1.94 97.1 2.00 2.18 Ethylbenzene* < 0.050 0.050 07/18/2012 ND 1.98 99.0 2.00 1.91 Total Xylenes* <0.150 0.150 07/18/2012 99.9 ND 5.99 6.00 2.45

Surrogate: 4-Bromofluorobenzene (PIL 105 % 89.4-126

Chloride, SM4500CI-B	mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4960	16.0	07/19/2012	ND	416	104	400	0.00	
TPH 8015M	mg/kg		Analyze	d By: AM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/18/2012	ND	166	83.1	200	7.23	
DRO >C10-C28	24.8	10.0	07/18/2012	ND	171	85.7	200	6.06	
Surrogate: 1-Chlorooctane	81.1	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	111	% 63.6-15	4						

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Celey D. Keene, Lab Director/Quality Manager



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Received:	07/18/2012	Sampling Date:	07/17/2012
Reported:	07/24/2012	Sampling Type:	Soil
Project Name:	STATE GA NO. 6	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	SEC. 16 - T15S - R36 E		

Sample ID: S - 3 0' (H201640-05)

BTEX 8021B	mg,	kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/23/2012	ND	1.80	90.0	2.00	3.13	
Toluene*	<0.050	0.050	07/23/2012	ND	1.83	91.5	2.00	0.431	
Ethylbenzene*	0.055	0.050	07/23/2012	ND	1.91	95.6	2.00	0.110	
Total Xylenes*	0.238	0.150	07/23/2012	ND	5.74	95.7	6.00	0.699	

Surrogate: 4-Bromofluorobenzene (PIL 104 % 89.4-126

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: HM		-			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	21600	16.0	07/19/2012	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: AM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/18/2012	ND	166	83.1	200	7.23	
DRO >C10-C28	<10.0	10.0	07/18/2012	ND	171	85.7	200	6.06	
Surrogate: 1-Chlorooctane	77.0	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	104	% 63.6-15	4						

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Celey D. Keene, Lab Director/Quality Manager



TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

Received:	07/18/2012	Sampling Date:	07/17/2012
Reported:	07/24/2012	Sampling Type:	Soil
Project Name:	STATE GA NO. 6	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	SEC. 16 - T15S - R36 E		

Sample ID: S - 3 0.5' BGS (H201640-06)

BTEX 8021B	mg/kg		Analyze	Analyzed By: MS				_	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/23/2012	ND	1.80	90.0	2.00	3.13	
Toluene*	<0.050	0.050	07/23/2012	ND	1.83	91.5	2.00	0.431	
Ethylbenzene*	<0.050	0.050	07/23/2012	ND	1.91	95.6	2.00	0.110	
Total Xylenes*	<0.150	0.150	07/23/2012	ND	5.74	95.7	6.00	0.699	

Surrogate: 4-Bromofluorobenzene (PIL 103 % 89.4-126

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3040	16.0	07/19/2012	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: AM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/18/2012	ND	166	83.1	200	7.23	
DRO >C10-C28	<10.0	10.0	07/18/2012	ND	171	85.7	200	6.06	
Surrogate: 1-Chlorooctane	77.1	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	103	% 63.6-15	4						

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500CI-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

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Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Project Manager: Project Manager: Project Manager: Project Manager: Address: ver8 Address: ver8 Address: Address: Phone #: exp: ver1_2_5 vf Fax #: Phone #: exp: ver1_2_5 vf Fax #: Project Hamm: cry.ver1_2_5 vf Fax #: Project Hamm: cry.ver1_2_5 vf Fax #: Project Location: gr.v. Jack Project Location: gr.v. Jack <	ст. Малледен: <i>prive_St.oblicef.kl(</i> ===: <u>vo8. Met T(riel Mrc.</u> ==: <u>vo8. Met T(riel Mrc.</u> ==: <u>state: <i>N/r</i>). Zlp: <i>BP z10</i> Attr: ==: <u>street. <i>N/r</i>). Zlp: <i>BP z10</i> Attr: ==: <u>attr:</u> <u>Project Owner: L(s, n, y, RC, Oper.</u> Clp: ==: <u>2p: Ex: Zlp:</u> ==: <u>attr:</u> <u>Project Owner: L(s, n, y, RC, Oper.</u> Clp: ==: <u>attr:</u> <u>Project Owner: L(s, n, y, RC, Oper.</u> Clp: ==: <u>street. <i>N/r</i>). <i>Street. Zlp:</i> ==: <u>street.</u> <i>Zlp:</i> <u>Attriev.</u> <i>Attriv</i>. ==: <u>street.</u> <i>Zlp:</i> <u>Attriv</u>. ==: <u>street.</u> <i>Zlp:</i> <u>Slp:</u> <u>Attriv</u>. =: <u>street.</u> <i>Zlp:</i> <u>Slp:</u> </u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u>	compare fundamon	Talon / LPE		BILL TO	-	ANALYSIS REQUEST
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† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

Page 9 of 9

Delivered By: (Circle One) Sample Condition CHBCH50 BY: Sampler - UPS - Bus - Other 50 Ence Cool Intact Intact No No No No No	affiliates of successors when any of the performance of vertices hereader by Carman, regardeds of whether with claim is based upon any of the above suided reasons of otherwise. Relinquished By: Date: Received By: Date: Phone Result: TIPIA: Date: Date: Fax Result: Fax Result: Relinquished By: Date: Date: By: Fax Result: TIPIA: Date: By: Fax Result: Fax Result:	E: Liability and Damages. Cardinal's liability and clerifts exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid b fairm including those for negligence and any other cause whatsoever shall be deemed wrived unless made in writing and received by Cardinal within 30 days after o event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of potits incurred by cle	5 3 0 5' 4 4 4 1 1 1 1 1 2 30 F	5.2.0.5 695 6 / 2/17/12	S.11 bas 6 / ninliz	~	(G)RAB OR (C)OMP # CONTAINERS GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER : ACID/BASE: ICE / COOL OTHER : DATE TIME	MATRIX PRESERV SAMPLING	m'arcscopedall Fax #:	Project Location: crc. 16.7155 R 36E Phone #:	TO 1047. 255.01 Project Owner: Legacy KES. Oper. City:	5'75.441.7254 Fax#:	City: Artesia State: NM. Zip: 82210 Attn:	Address: 408 Ater Terry Aur. Company: Talon/LPE	Project Manager: mire Stubblefield P.O. #:	Company Name: Talon / LPE BILL TO	101 East Marland, Hobbs, NM 88240 (575) 393-2326 FAX (575) 393-2476	CHAIN-OF-	Laboratories	CARDINAL
	sult: Yes No Add' Phone #: t: Yes No Add' Fax #: S:	The splicable view.					BOISM TA BOZIB BT TOTAL Chilorn	E								ANALYSIS REQUEST		-OF-CUSTODY AND ANALYSIS REQUEST		

29



August 30, 2012

MIKE STUBBLEFIELD TALON LPE 408 W. TEXAS AVE. ARTESIA, NM 88210

RE: STATE GA #1

Enclosed are the results of analyses for samples received by the laboratory on 08/23/12 17:07.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager

Page 1 of 19



TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905 Received: 08/23/2012 Sampling Date: 08/21/2012 Reported: 08/30/2012 Sampling Type: Soil Project Name: STATE GA #1 Sampling Condition: Cool & Intact Project Number: 701047.055 Sample Received By: Jodi Henson Project Location: 16-15S-36E

Sample ID: B - 1 2' (H202027-01)

Result <0.050	Reporting Limit	Analyzed	Method Blank					
<0.050			Pietriou Dialik	BS	% Recovery	True Value QC	RPD	Qualifier
	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	
97.7 9	89.4-12	6						
mg/	kg	Analyze	d By: HM					
Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
1070	16.0	08/27/2012	ND	416	104	400	0.00	
mg/	kg	Analyze	d By: MS					_
Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
<10.0	10.0	08/28/2012	ND	198	98.8	200	1.52	
85.3	65.2-14	0						
100 9	63.6-15	4						
	<0.050 <0.150 97.7 : mg/ Result 1070 mg/ Result <10.0 <10.0	<0.050 0.050 <0.150 0.150 97.7% 89.4-12 mg/kg Result Reporting Limit 1070 16.0 mg/kg Result Reporting Limit <10.0 10.0 <10.0 10.0 85.3% 65.2-14	<0.050 0.050 08/29/2012 <0.150	<0.050 0.050 08/29/2012 ND <0.150	<0.050 0.050 08/29/2012 ND 1.74 <0.150	<0.050 0.050 08/29/2012 ND 1.74 87.2 <0.150	<0.050	<0.050

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*=Accredited Analyte

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager

Page 2 of 19



TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

Received:	08/23/2012	Compling Date:	00/21/2012
		Sampling Date:	08/21/2012
Reported:	08/30/2012	Sampling Type:	Soil
Project Name:	STATE GA #1	Sampling Condition:	Cool & Intact
Project Number:	701047.055	Sample Received By:	Jodi Henson
Project Location:	16-15S-36E		

Sample ID: B - 1 4' (H202027-02)

BTEX 8021B	mg	/kg	Analyze	d By: AP				_	_
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	
Surrogate: 4-Bromofluorobenzene (PIL	99.7	% 89.4-12	6						
Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: HM	_				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1960	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS			_	1	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	

ND

198

98.8

200

1.52

08/28/2012

Cardinal Laboratories

DRO >C10-C28

Surrogate: 1-Chlorooctane

Surrogate: 1-Chlorooctadecane

*=Accredited Analyte

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Celey D. Keine

<10.0

80.0 %

94.6%

10.0

65.2-140

63.6-154

Celey D. Keene, Lab Director/Quality Manager

Page 3 of 19



TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

Received:	08/23/2012	Sampling Date:	08/21/2012	
Reported:	08/30/2012	Sampling Type:	Soil	
Project Name:	STATE GA #1	Sampling Condition:	Cool & Intact	
Project Number:	701047.055	Sample Received By:	Jodi Henson	
Project Location:	16-15S-36E			

Sample ID: B - 1 6' (H202027-03)

BTEX 8021B	mg,	kg	Analyze	d By: AP		_			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	

Surrogate: 4-Bromofluorobenzene (PIL 97.2 % 89.4-126

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	528	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS	_				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	<10.0	10.0	08/28/2012	ND	198	98.8	200	1.52	
Surrogate: 1-Chlorooctane	89.2	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	105	% 63.6-15	4						

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager


TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

Received:	08/23/2012	Sampling Date:	08/21/2012
Reported:	08/30/2012	Sampling Type:	Soil
Project Name:	STATE GA #1	Sampling Condition:	Cool & Intact
Project Number:	701047.055	Sample Received By:	Jodi Henson
Project Location:	16-15S-36E		

Sample ID: B - 1 8' (H202027-04)

BTEX 8021B	mg	/kg	Analyze	d By: AP					_
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	
Surrogate: 4-Bromofluorobenzene (PIL	99.1	% 89.4-12	6						
Chloride, SM4500CI-B	mg/	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	<10.0	10.0	08/28/2012	ND	198	98.8	200	1.52	

Surrogate: 1-Chlorooctadecane

Surrogate: 1-Chlorooctane

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100 %

116%

65.2-140

63.6-154

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		TALON LP	E			
		MIKE STU	BBLEFIELD			
		408 W. TE	EXAS AVE.			
		ARTESIA	NM, 88210			
		Fax To:	(575) 745-8905			
Received:	08/23/2012			Sampling Date:	08/21/2012	
Reported:	08/30/2012			Sampling Type:	Soil	
Project Name:	STATE GA #1			Sampling Condition:	Cool & Intact	
Project Number:	701047.055			Sample Received By:	Jodi Henson	
Project Location:	16-15S-36E					

Sample ID: B - 1 10' (H202027-05)

Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value OC	RPD	Qualifiar
					nue ruise de	Nr D	Qualifier
0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	
	0.050 0.050	0.050 08/29/2012 0.050 08/29/2012	0.050 08/29/2012 ND 0.050 08/29/2012 ND	0.050 08/29/2012 ND 1.67 0.050 08/29/2012 ND 1.74	0.050 08/29/2012 ND 1.67 83.7 0.050 08/29/2012 ND 1.74 87.2	0.050 08/29/2012 ND 1.67 83.7 2.00 0.050 08/29/2012 ND 1.74 87.2 2.00	0.050 08/29/2012 ND 1.67 83.7 2.00 2.70 0.050 08/29/2012 ND 1.74 87.2 2.00 3.08

Surrogate: 4-Bromofluorobenzene (PIE 100 % 89.4-126

Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: HM	_				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS					_
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	<10.0	10.0	08/28/2012	ND	198	98.8	200	1.52	
Surrogate: 1-Chlorooctane	92.6	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	105 9	63.6-15	4						

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TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

Received:	08/23/2012	Sampling Date:	08/21/2012
Reported:	08/30/2012	Sampling Type:	Soil
Project Name:	STATE GA #1	Sampling Condition:	Cool & Intact
Project Number:	701047.055	Sample Received By:	Jodi Henson
Project Location:	16-15S-36E		

Sample ID: B - 2 2' (H202027-06)

BTEX 8021B	mg,	/kg	Analyze	Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	

Surrogate: 4-Bromofluorobenzene (PIL 98.1 % 89.4-126

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM				_	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	416	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					_
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	10.9	10.0	08/28/2012	ND	198	98.8	200	1.52	
Surrogate: 1-Chlorooctane	87.0	% 65.2-14	0						-
Surrogate: 1-Chlorooctadecane	102	% 63.6-15	4						

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TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905 Received: 08/23/2012 Sampling Date: 08/21/2012 Reported: 08/30/2012 Sampling Type: Soil Project Name: STATE GA #1 Sampling Condition: Cool & Intact Project Number: 701047.055 Sample Received By: Jodi Henson Project Location: 16-15S-36E

Sample ID: B - 2 4' (H202027-07)

BTEX 8021B	mg,	mg/kg		Analyzed By: AP				_	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	

Surrogate: 4-Bromofluorobenzene (PIL 96.6 % 89.4-126

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	<10.0	10.0	08/28/2012	ND	198	98.8	200	1.52	
Surrogate: 1-Chlorooctane	90.8	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	106	63.6-15	4						

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TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

Received:	08/23/2012	Sampling Date:	08/21/2012
Reported:	08/30/2012	Sampling Type:	Soil
Project Name:	STATE GA #1	Sampling Condition:	Cool & Intact
Project Number:	701047.055	Sample Received By:	Jodi Henson
Project Location:	16-15S-36E		

Sample ID: B - 2 6' (H202027-08)

BTEX 8021B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	
Surrogate: 4-Bromofluorobenzene (PIL	96.6 9	89.4-120	5						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: HM					
Arabas	Desidt	Parasting Limit	Analand	Mathe d Diral	DC.	01 D	T- Web- OC	0.00	0

Analyte	Result	Reporting Limit	Analyzeu	Method Blank	DO	70 Recovery	The value QC	RPD	Quaimer
Chloride	160	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg/kg		Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	<10.0	10.0	08/28/2012	ND	198	98.8	200	1.52	
Surrogate: 1-Chlorooctane	85.6	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	98.0	% 63.6-15	4						

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TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

Received:	08/23/2012	Sampling Date:	08/21/2012	
Reported:	08/30/2012	Sampling Type:	Soil	
Project Name:	STATE GA #1	Sampling Condition:	Cool & Intact	
Project Number:	701047.055	Sample Received By:	Jodi Henson	
Project Location:	16-15S-36E			

Sample ID: B - 2 8' (H202027-09)

BTEX 8021B	mg	/kg	Analyze	d By: AP	_				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	
Surrogate: 4-Bromofluorobenzene (PIL	96.9	% 89.4-12	6						
Chloride, SM4500Cl-B	mg	/kg	Analyzed By: HM		-				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS	_				_
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	<10.0	10.0	08/28/2012	ND	198	98.8	200	1.52	
Surrogate: 1-Chlorooctane	96.3	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	109	% 63.6-15	4						

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16-15S-36E

Analytical Results For:

TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905 Received: 08/23/2012 Sampling Date: 08/21/2012 Reported: 08/30/2012 Sampling Type: Soil Project Name: STATE GA #1 Sampling Condition: Cool & Intact Project Number: 701047.055 Sample Received By: Jodi Henson

Sample ID: B - 2 10' (H202027-10)

Project Location:

BTEX 8021B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/30/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/30/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/30/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/30/2012	ND	5.53	92.1	6.00	3.19	
Surrogate: 4-Bromofluorobenzene (PIL	98.1	% 89.4-12	6						
Chloride, SM4500CI-B	mg/	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	<10.0	10.0	08/28/2012	ND	198	98.8	200	1.52	
Surrogate: 1-Chlorooctane	91.5	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	105	63.6-15	4						

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TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

Received:	08/23/2012	Sampling Date:	08/21/2012
Reported:	08/30/2012	Sampling Type:	Soil
Project Name:	STATE GA #1	Sampling Condition:	Cool & Intact
Project Number:	701047.055	Sample Received By:	Jodi Henson
Project Location:	16-15S-36E		

Sample ID: B - 3 2' (H202027-11)

BTEX 8021B	mg/	'kg	Analyze	d By: AP					_
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Benzene*	<0.050	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	
Surrogate: 4-Bromofluorobenzene (PIL	95.3	% 89.4-12	6						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1890	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS				_	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	30.3	10.0	08/28/2012	ND	198	98.8	200	1.52	
Surrogate: 1-Chlorooctane	86.8	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	100 9	63.6-15	4						

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TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

Received:	08/23/2012	Sampling Date:	08/21/2012
Reported:	08/30/2012	Sampling Type:	Soil
Project Name:	STATE GA #1	Sampling Condition:	Cool & Intact
Project Number:	701047.055	Sample Received By:	Jodi Henson
Project Location:	16-15S-36E		

Sample ID: B - 3 4' (H202027-12)

BTEX 8021B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	
Surrogate: 4-Bromofluorobenzene (PIL	96.3	89.4-12	6						
Chloride, SM4500Cl-B	mg/	kg	Analyzed By: HM		_			_	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS	_				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	<10.0	10.0	08/28/2012	ND	198	98.8	200	1.52	
Surrogate: 1-Chlorooctane	96.7	65.2-14	0						
Surrogate: 1-Chlorooctadecane	117 9	63.6-15	4						

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Received:	08/23/2012	Sampling Date:	08/21/2012
Reported:	08/30/2012	Sampling Type:	Soil
Project Name:	STATE GA #1	Sampling Condition:	Cool & Intact
Project Number:	701047.055	Sample Received By:	Jodi Henson
Project Location:	16-15S-36E		

Sample ID: B - 3 6' (H202027-13)

BTEX 8021B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	< 0.050	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	
Surrogate: 4-Bromofluorobenzene (PIL	98.2	% 89.4-12	6						
Chloride, SM4500Cl-B	mg/	/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg/	/kg	Analyze	d By: MS				_	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	<10.0	10.0	08/28/2012	ND	198	98.8	200	1.52	
Surrogate: 1-Chlorooctane	89.3	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	98.1	% 63.6-15	4						

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TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

08/23/2012	Sampling Date:	08/21/2012
08/30/2012	Sampling Type:	Soil
STATE GA #1	Sampling Condition:	Cool & Intact
701047.055	Sample Received By:	Jodi Henson
16-15S-36E		
	08/30/2012 STATE GA #1 701047.055	08/30/2012Sampling Type:STATE GA #1Sampling Condition:701047.055Sample Received By:

Sample ID: B - 3 8' (H202027-14)

BTEX 8021B	mg/	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	
Surrogate: 4-Bromofluorobenzene (PIL	97.9	% 89.4-12	6						
Chloride, SM4500CI-B	ma	ka	Analyze	d By: HM					

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS	_				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	<10.0	10.0	08/28/2012	ND	198	98.8	200	1.52	
Surrogate: 1-Chlorooctane	83.1	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	97.6	% 63.6-15	4						

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

Analytical Results For:

TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 Fax To: (575) 745-8905

Received:	08/23/2012	Sampling Date:	08/21/2012
Reported:	08/30/2012	Sampling Type:	Soil
Project Name:	STATE GA #1	Sampling Condition:	Cool & Intact
Project Number:	701047.055	Sample Received By:	Jodi Henson
Project Location:	16-15S-36E		

Sample ID: B - 3 10' (H202027-15)

BTEX 8021B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/29/2012	ND	1.64	82.1	2.00	2.13	
Toluene*	<0.050	0.050	08/29/2012	ND	1.67	83.7	2.00	2.70	
Ethylbenzene*	<0.050	0.050	08/29/2012	ND	1.74	87.2	2.00	3.08	
Total Xylenes*	<0.150	0.150	08/29/2012	ND	5.53	92.1	6.00	3.19	

Surrogate: 4-Bromofluorobenzene (PIL 97.5 % 89.4-126

Chloride, SM4500CI-B mg/kg Analyzed By: HM

63.6-154

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	08/27/2012	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS	_				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2012	ND	197	98.3	200	2.52	
DRO >C10-C28	<10.0	10.0	08/28/2012	ND	198	98.8	200	1.52	

Surrogate: 1-Chlorooctadecane 96.7 %

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Celey D. Keene, Lab Director/Quality Manager

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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Appendix C

Photographs



Site Location



Site Prior to Remediation Viewing West, September 14, 2017



Site Prior to Remediation Viewing East, September 14, 2017



Site Prior to Remediation Viewing South, September 14, 2017



Site Prior to Remediation Viewing North, September 14, 2017



Site Location



Site Prior to Remediation Viewing West, September 14, 2017



Site Prior to Remediation Viewing South, September 14, 2017



Site Prior to Remediation Viewing North, September 14, 2017