

JAN 30 2014

1RP-12-13-3000
XTO Energy, Inc., Grimes Pit #2
January 30, 2014

RECEIVED

INTRODUCTION

This summary is submitted to the New Mexico Oil Conservation Division (OCD) District 1 in Hobbs, New Mexico, on behalf of XTO Energy, Inc. (XTO), a subsidiary of ExxonMobil, for the investigation and closure of an unlined pit (Grimes Pit #2) that was used in conjunction with shallow wells and separation equipment by another operator, Windmill Oil Company, to recover crude oil from shallow groundwater. The pit is located in Unit G (SW/4, NE/4), Section 30, Township 18 South, Range 38 East, in Lea County, New Mexico. The geodetic position is north 32° 43' 08.03" and west 103° 11' 6.89". Figure 1 presents a topographic map. Figure 2 presents an aerial photograph.

BACKGROUND

The U.S. Bureau of Land Management (BLM), as mineral owner, was unable to locate the former operator, believed to be Windmill Oil Company, to restore the area, including plugging wells, removing equipment (i.e., tanks, vessels and piping) and closing the pit. The site reverted back to ExxonMobil as a former oil and gas mineral lessee.

On October 15, 2013, XTO submitted a closure plan meeting the requirements of 19.15.17.13(C) NMAC to the OCD in Santa Fe, New Mexico. The closure plan was approved on October 22, 2013. On December 1, 2013, after providing notification to the landowner, Watson Construction, Inc., under supervision from Larson & Associates, Inc. (LAI) removed BS&W and hydrocarbon contaminated material from the pit. The materials were disposed at Sundance Services located east of Eunice, New Mexico.

On December 2, 2013, LAI personnel collected a 5 part composite sample from the bottom of the pit. The sample was submitted under preservation and chain of custody to Permian Basin Environmental Lab (PBELAB) located in Midland, Texas. The sample was analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX) by method SW-846-8021B, total petroleum hydrocarbons (TPH), including, diesel (DRO), gasoline (GRO) and oil (ORO) range organics, by method SW-846-8015M and chloride by method E300. Table 1 presents the analytical data summary.

On December 18, 2013, the laboratory data summary was transmitted to the OCD in Santa Fe, New Mexico which requested that XTO to notify the OCD District 1 due to TPH exceeding the standard under 19.15.17.13(C).

On December 23, 2013, LAI personnel met with Mr. Geoffrey Leking, OCD District 1, to discuss the sample results and path forward. Mr. Leking requested XTO to submit an initial C-141 (Release Notification and Corrective Action) and delineate the extent of the TPH. On December 31, 2013, XTO submitted the initial C-141. The OCD District 1 assigned the site remediation action project number 1RP-12-13-2999.

approved
Geoffrey Leking
Environmental Specialist

NMOCB-DIST 1
2110114

FEB 10 2014

INVESTIGATION

On January 7 and 8, 2013, Scarborough Drilling, Inc. (Scarborough) used an air rotary rig and jam tube sampler to collect soil samples at 5 locations (2-1 through 2-5) in the bottom and each direction (north, south, east and west) from the center of the pit. A sample was collected about every 5 feet to 30 feet and about every 10 feet to about 50 feet below ground surface (bgs). Groundwater was determined to occur at about 60 feet bgs. The samples were collected in 4 ounce glass jars that were preserved and delivered under chain of custody to Cardinal Laboratory located in Hobbs, New Mexico. The samples were analyzed for TPH, including DRO, GRO and ORO, by method SW-846-8015M. Duplicate samples were collected in 8 ounce glass jars for headspace analysis. The headspace samples were sealed with aluminum foil and warmed on the dashboard of the vehicle before measuring the organic vapor content with a calibrated photoionization detector (PID). The sample from each boring with the highest PID reading over 100 parts per million (ppm) was analyzed for BTEX by method SW-846-8021B. Table 2 presents the laboratory analytical data summary. Appendix B presents the laboratory reports.

Referring to Table 2, benzene and BTEX were below the OCD recommended remediation action level (RRAL) of 10 and 50 milligrams per kilogram (mg/Kg), respectively, in samples from borings 2-1 through 2-5. The TPH was delineated to the vertical and lateral limits of the borings.

REMEDIATION PLAN

XTO proposes to excavate soil to approximately 7 feet bgs. A liner of at least 20 mils will be placed in the bottom of the excavation. The liner will be covered with clean soil and the excavation closed according to the reclamation plan approved by OCD in Santa Fe, on October 22, 2013.

TABLES

Table 1
Initial Soil Sample Analytical Data Summary
XTO Energy, Inc., Grimes Pit #2
Lea County, New Mexico

1RP-12-13-3000

Composite Sample	Sampling Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	TPH (C6 - C12)	TPH (>C12 - C28)	TPH (>C28 - C35)	TPH (C6 - C35)	Chloride
19.15.17.13(3) Standard		10	0.75	0.75	0.62	50					600
Pit #2	12/10/2013	<0.00105	<0.00211	<0.00105	0.00316	0.00316	32.1	1,630	462	2,130	58.9

Table 2
Delineation Sample Analytical Data Summary
XTO Energy, Inc., Grimes Pit #2
Lea County, New Mexico

1RP-12-13-3000

Boring Number	Sample Depth	Sampling Date	Location	PID	Benzene	BTEX	TPH (C6 - C10)	TPH (>C10 - C28)	TPH (>C28 - C35)	TPH (C6 - C35)
MOCD RRAL:					10	50				1,000
2-1	10	01/07/2013	Center	347	0.253	6.931	32.1	1,150	245	1,427.1
	15	01/07/2014		345	--	--	79.5	1,040	228	1,347.5
	20	01/07/2014		344	--	--	94.7	1,360	261	1,715.7
	25	01/07/2014		345	--	--	740	4,030	689	5,459
	30	01/07/2014		84	--	--	248	1,740	322	2,020
	40	01/07/2014		62	--	--	111	1,890	386	2,387
	50	01/07/2014		15	--	--	78.8	690	116	884.8
2-2	5	01/08/2014	West	2.6	--	--	<10.0	56.7	<10.0	56.7
	10	01/08/2014		2.6	--	--	<10.0	<10.0	<10.0	<10.0
	15	01/08/2014		0.8	--	--	<10.0	<10.0	<10.0	<10.0
	20	01/08/2014		0.8	--	--	<10.0	<10.0	<10.0	<10.0
	25	01/08/2014		203.4	<0.200	2.312	160	1,720	239	2,119
	30	01/08/2014		103.8	--	--	130	2,080	334	2,544
	40	01/08/2014		134.6	--	--	<50.0	787	92.5	879.5
	50	01/08/2014		119.3	--	--	64.8	1,590	272	1,926.8
2-3	5	01/08/2014	North	4.4	--	--	<10.0	<10.0	<10.0	<10.0
	10	01/08/2014		2.6	--	--	<10.0	<10.0	<10.0	<10.0
	15	01/08/2014		2.6	--	--	<10.0	<10.0	<10.0	<10.0
	20	01/08/2014		0.8	--	--	<10.0	<10.0	<10.0	<10.0
	25	01/08/2014		184	<0.200	26.583	201	1,180	179	1,560
	30	01/08/2014		144	--	--	168	1,700	294	2,162
	40	01/08/2014		99	--	--	89.1	1,350	249	1,688.1
	50	01/08/2014		94.2	--	--	172	2,101	368	2,641
2-4	5	01/08/2014	East	3.4	--	--	<10.0	<10.0	<10.0	<10.0
	10	01/08/2014		0.9	--	--	<10.0	51.0	21.4	72.4

Table 2
Delineation Sample Analytical Data Summary
XTO Energy, Inc., Grimes Pit #2
Lea County, New Mexico

1RP-12-13-3000

Boring Number	Sample Depth	Sampling Date	Location	PID	Benzene	Total BTEX	TPH (C6 - C10)	TPH (>C10 - C28)	TPH (>C28 - C35)	TPH (C6 - C35)
MOCD RRAL:					10	50				1,000
2-4	15	01/08/2014		1	--	--	<10.0	<10.0	<10.0	<10.0
	20	01/08/2014		24	--	--	<10.0	<10.0	<10.0	<10.0
	25	01/08/2014		296	--	--	<50	700	115	815
	30	01/08/2014		252.9	--	--	68.5	1,210	204	1,482.5
	40	01/08/2014		289	--	--	62.8	1,270	247	1,579.8
	50	01/08/2014		347	<1.00	2.867	134	2,690	461	3,285
2-5	5	01/08/2014	South	2.6	--	--	<10.0	39.6	17.1	56.7
	10	01/08/2014		6.3	--	--	<10.0	<10.0	<10.0	<10.0
	15	01/08/2014		4.8	--	--	<10.0	<10.0	<10.0	<10.0
	20	01/08/2014		11.5	--	--	<10.0	<10.0	<10.0	<10.0
	25	01/08/2014		211.5	<0.500	20.45	370	1,590	242	2,202
	30	01/08/2014		138.5	--	--	108	1,520	264	1,892
	40	01/08/2014		112.6	--	--	65.3	992	188	1,245
	50	01/08/2014		107.4	--	--	105	1,990	374	2,469

Notes: Samples analyzed by Cardinal Laboratories, Inc., Hobbs, New Mexico

Samples analyzed via EPA method SW-8021B (BTEX) and SW-8015M (TPH)

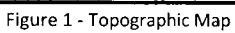
Depth is in feet below ground surface (bgs).

Photionization detector (PID) values are in parts per million (ppm)

Laboratory values are in milligrams per kilogram (mg/Kg) equivalent to parts per million (ppm).

-- No data available

FIGURES



BSK



Graphic Scale in Feet
XTO Energy
(Exxon Mobil)

Grimes Lease - Unlined Pit (Pit #3)
Closure Plan
Lea County, New Mexico

N 32° 43' 04.94"
W 103° 11' 08.95"



Larson &
Associates, Inc.
Environmental Consultants

Figure 2 - Aerial Map

BSK

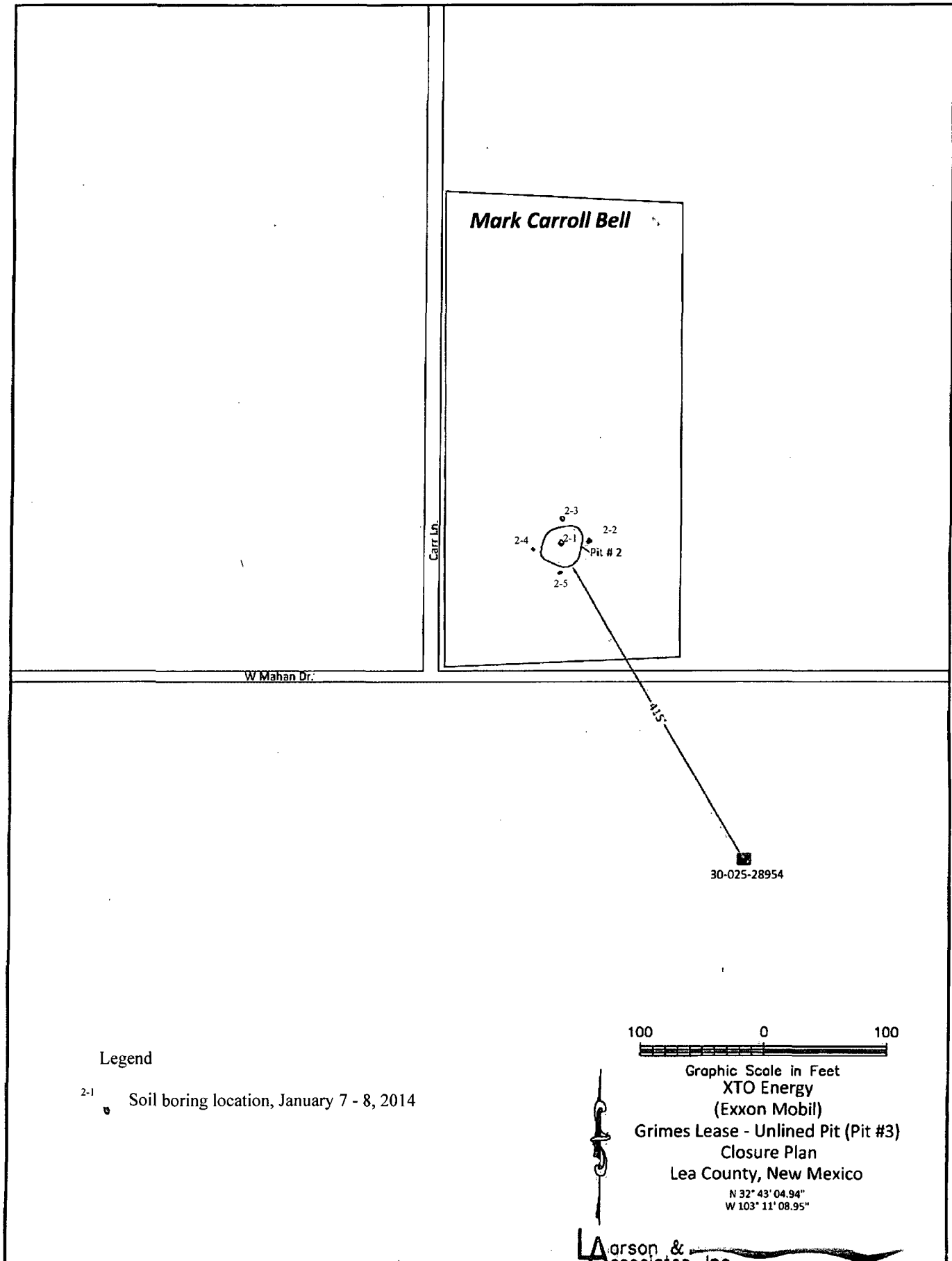


Figure 3 - Site Map

ATTACHMENT A

Photographs

Photo: Pit #2 before excavation
commenced

Direction: East

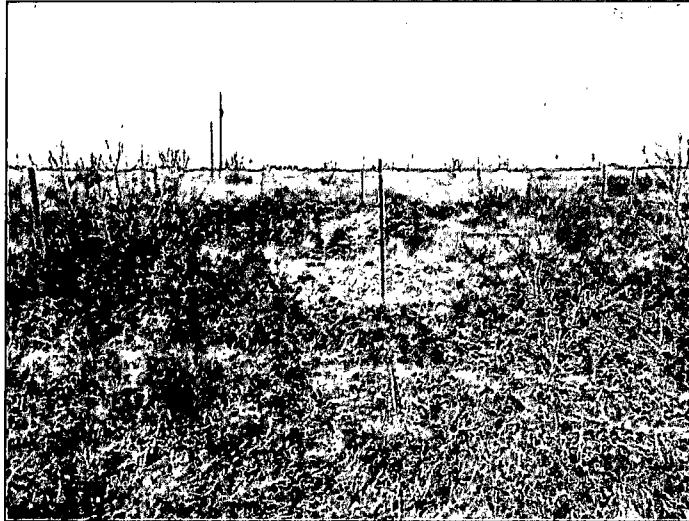


Photo: Pit during excavation

Direction: West



Photo: Excavation limits of pit

Direction: East

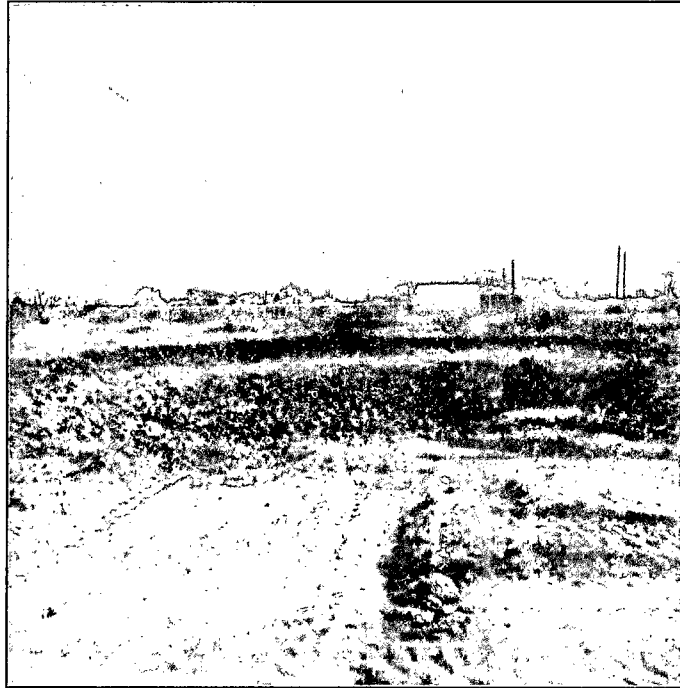


Photo: Sloped entrance and benched sides of the pit.

Direction: East



ATTACHMENT B

Laboratory Reports

January 14, 2014

MARK LARSON

LARSON & ASSOCIATES, INC.

507 N. MARIENFELD, SUITE 200

MIDLAND, TX 79701

RE: GRIMES PIT #2

Enclosed are the results of analyses for samples received by the laboratory on 01/07/14 15:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

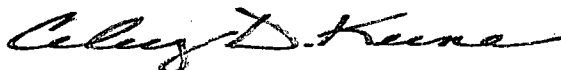
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

 Received: 01/07/2014
 Reported: 01/14/2014
 Project Name: GRIMES PIT #2
 Project Number: 12-0140-03
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/07/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 2-1-10' (H400046-01)

BTX 8021B		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.253	0.100	01/10/2014	ND	1.92	96.1	2.00	2.06	
Toluene*	0.678	0.100	01/10/2014	ND	1.89	94.6	2.00	2.20	
Ethylbenzene*	2.37	0.100	01/10/2014	ND	1.93	96.4	2.00	2.32	
Total Xylenes*	3.63	0.300	01/10/2014	ND	5.63	93.8	6.00	2.42	
Total BTX	6.93	0.600	01/10/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 93.5 % 89.4-126

TPH 8015M		mg/kg	Analyzed By: ms					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	161	10.0	01/09/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	1150	10.0	01/09/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	245	10.0	01/09/2014	ND					


Surrogate: 1-Chlorooctane 41.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 57.3 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

Received:	01/07/2014	Sampling Date:	01/07/2014
Reported:	01/14/2014	Sampling Type:	Soil
Project Name:	GRIMES PIT #2	Sampling Condition:	Cool & Intact
Project Number:	12-0140-03	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: 2-1-15' (H400046-02)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	79.5	50.0	01/08/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	1040	50.0	01/08/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	228	50.0	01/08/2014	ND					

Surrogate: 1-Chlorooctane 70.0 % 65.2-140

Surrogate: 1-Chlorooctadecane 122 % 63.6-154

Sample ID: 2-1-20' (H400046-03)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	94.7	50.0	01/08/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	1360	50.0	01/08/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	261	50.0	01/08/2014	ND					

Surrogate: 1-Chlorooctane 79.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 132 % 63.6-154

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* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

 Received: 01/07/2014
 Reported: 01/14/2014
 Project Name: GRIMES PIT #2
 Project Number: 12-0140-03
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/07/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 2-1-25' (H400046-04)

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	740	100	01/08/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	4030	100	01/08/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	689	100	01/08/2014	ND					

Surrogate: 1-Chlorooctane 103 % 65.2-140

Surrogate: 1-Chlorooctadecane 153 % 63.6-154

Sample ID: 2-1-30' (H400046-05)

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	248	50.0	01/08/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	1740	50.0	01/08/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	322	50.0	01/08/2014	ND					

Surrogate: 1-Chlorooctane 91.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 135 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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507 N. MARIENFELD, SUITE 200
MIDLAND TX, 79701
Fax To: ?

Received: 01/07/2014
Reported: 01/14/2014
Project Name: GRIMES PIT #2
Project Number: 12-0140-03
Project Location: LEA COUNTY, NM

Sampling Date: 01/07/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: 2-1-40' (H400046-06)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	111	50.0	01/08/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	1890	50.0	01/08/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	386	50.0	01/08/2014	ND					
Surrogate: 1-Chlorooctane	98.2 %	65.2-140							
Surrogate: 1-Chlorooctadecane	143 %	63.6-154							

Sample ID: 2-1-50' (H400046-07)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	78.8	10.0	01/08/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	690	10.0	01/08/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	116	10.0	01/08/2014	ND					
Surrogate: 1-Chlorooctane	93.8 %	65.2-140							
Surrogate: 1-Chlorooctadecane	88.2 %	63.6-154							

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*=Accredited Analyte

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Celestine D. Keene

Celestine D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

 Received: 01/07/2014
 Reported: 01/14/2014
 Project Name: GRIMES PIT #2
 Project Number: 12-0140-03
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/07/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 2-5-5' (H400046-08)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/08/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	39.6	10.0	01/08/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	17.1	10.0	01/08/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	71.6 %	65.2-140							
Surrogate: 1-Chlorooctadecane	74.4 %	63.6-154							

Sample ID: 2-5-10' (H400046-09)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/09/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	<10.0	10.0	01/09/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	<10.0	10.0	01/09/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	78.6 %	65.2-140							
Surrogate: 1-Chlorooctadecane	78.5 %	63.6-154							

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
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 MIDLAND TX, 79701
 Fax To: ?

 Received: 01/07/2014
 Reported: 01/14/2014
 Project Name: GRIMES PIT #2
 Project Number: 12-0140-03
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/07/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 2-5-15' (H400046-10)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/09/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	<10.0	10.0	01/09/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	<10.0	10.0	01/09/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	76.8 %	65.2-140							
Surrogate: 1-Chlorooctadecane	77.6 %	63.6-154							


Sample ID: 2-5-20' (H400046-11)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/09/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	<10.0	10.0	01/09/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	<10.0	10.0	01/09/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	92.8 %	65.2-140							
Surrogate: 1-Chlorooctadecane	89.7 %	63.6-154							

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

 Received: 01/07/2014
 Reported: 01/14/2014
 Project Name: GRIMES PIT #2
 Project Number: 12-0140-03
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/07/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 2-5-25' (H400046-12)

BTEX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.500	0.500	01/10/2014	ND	1.92	96.1	2.00	2.06	
Toluene*	<0.500	0.500	01/10/2014	ND	1.89	94.6	2.00	2.20	
Ethylbenzene*	3.45	0.500	01/10/2014	ND	1.93	96.4	2.00	2.32	
Total Xylenes*	17.0	1.50	01/10/2014	ND	5.63	93.8	6.00	2.42	
Total BTEX	20.4	3.00	01/10/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 135 % 89.4-126

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	370	50.0	01/09/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	1590	50.0	01/09/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	242	50.0	01/09/2014	ND					

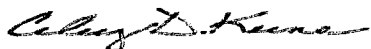
Surrogate: 1-Chlorooctane 114 % 65.2-140

Surrogate: 1-Chlorooctadecane 134 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

LARSON & ASSOCIATES, INC.
MARK LARSON
507 N. MARIENFELD, SUITE 200
MIDLAND TX, 79701
Fax To: ?

Received: 01/07/2014
Reported: 01/14/2014
Project Name: GRIMES PIT #2
Project Number: 12-0140-03
Project Location: LEA COUNTY, NM

Sampling Date: 01/07/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: 2-5-30' (H400046-13)

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	108	50.0	01/09/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	1520	50.0	01/09/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	264	50.0	01/09/2014	ND					
Surrogate: 1-Chlorooctane	92.3 %	65.2-140							
Surrogate: 1-Chlorooctadecane	137 %	63.6-154							

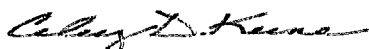
Sample ID: 2-5-40' (H400046-14)

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	65.3	50.0	01/09/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	992	50.0	01/09/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	188	50.0	01/09/2014	ND					
Surrogate: 1-Chlorooctane	84.4 %	65.2-140							
Surrogate: 1-Chlorooctadecane	115 %	63.6-154							

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

LARSON & ASSOCIATES, INC.
MARK LARSON
507 N. MARIENFELD, SUITE 200
MIDLAND TX, 79701
Fax To: ?

Received: 01/07/2014
Reported: 01/14/2014
Project Name: GRIMES PIT #2
Project Number: 12-0140-03
Project Location: LEA COUNTY, NM

Sampling Date: 01/07/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: 2-5-50' (H400046-15)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	105	100	01/09/2014	ND	176	88.0	200	2.61	
DRO >C10-C28	1990	100	01/09/2014	ND	178	89.2	200	1.68	
EXT DRO >C28-C35	374	100	01/09/2014	ND					
Surrogate: 1-Chlorooctane	96.8 %	65.2-140							
Surrogate: 1-Chlorooctadecane	154 %	63.6-154							

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

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Celey D. Keene, Lab Director/Quality Manager

Data Reported to:

DATE: 1/7/14 PAGE 1 OF 1
PO #: 12-0140-03 LAB WORK ORDER #: H400046
PROJECT LOCATION OR NAME: Grimmer Pit #2
LAI PROJECT #: 12-0140-03 COLLECTOR: ANJ

TRRP report? <input type="checkbox"/> Yes <input type="checkbox"/> No		S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER		PRESERVATION					ANALYSES															FIELD NOTES							
TIME ZONE: Time zone/State: <u>Mountain/NM</u>		Lab #	Date <u>1/7</u>	Time	Matrix	# of Containers	HCl	HNO ₃	H ₂ SO ₄ □ NaOH □	ICE	UNPRESERVED	BTX □ MTBE □	TPH 418.1 □	GASOLINE MOD 8015 □	DIESEL - MOD 8015 □	VOC 8260 □	SVOC 8270 □	8081 PESTICIDES □	PAH 8270 □	HOLPAH □	TCLP - METALS (RCRA) □	TCLP VOC □	Semi-VOC □	OTHER VOC □	TDS □ TOX □		D.W. 200.8 □	FLASHPOINT □	EXPLOSIVES □	HEXAVALENT CHROMIUM □	PECHLORATE □	ANIONS □	ALKALINITY □
1	2-1-10'																																
2	2-1-15'			1155																													
3	2-1-20'			1205																													
4	2-1-25'			1215																													
5	2-1-30'			1230																													
6	2-1-40'			1240																													
7	2-1-50'			105																													
8	2-5-5'			215																													
9	2-5-10'			220																													
10	2-5-15'			225																													
11	2-5-20'			230																													
12	2-5-25'			235							X																						
13	2-5-30'			245																													
14	2-5-40'																																
15	2-5-50'																																

TOTAL		RELINQUISHED BY: (Signature) <u>Aden</u>		DATE/TIME <u>1/7/14 350</u>		RECEIVED BY: (Signature) <u>John Benson</u>		TURN AROUND TIME NORMAL <input type="checkbox"/> 1 DAY <input type="checkbox"/> 2 DAY <input type="checkbox"/> OTHER <input type="checkbox"/>		LABORATORY USE ONLY: RECEIVING TEMP: <u>4.8</u> THERM #: <u>54</u> CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input checked="" type="checkbox"/> NOT USED <input type="checkbox"/> CARRIER BILL # _____ <input checked="" type="checkbox"/> HAND DELIVERED	
		RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)					
		RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)					



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

January 15, 2014

MARK LARSON

LARSON & ASSOCIATES, INC.

507 N. MARIENFELD, SUITE 200

MIDLAND, TX 79701

RE: GRIMES PIT #2

Enclosed are the results of analyses for samples received by the laboratory on 01/08/14 12:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To:

 Received: 01/08/2014
 Reported: 01/15/2014
 Project Name: GRIMES PIT #2
 Project Number: 12-0140-03
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/08/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 2-4-5' (H400052-01)

TPH 8015M	mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/09/2014	ND	176	88.2	200	7.91	
DRO >C10-C28	<10.0	10.0	01/09/2014	ND	178	89.2	200	7.01	
EXT DRO >C28-C35	<10.0	10.0	01/09/2014	ND					
Surrogate: 1-Chlorooctane	76.2 %	65.2-140							
Surrogate: 1-Chlorooctadecane	74.7 %	63.6-154							


Sample ID: 2-4-10' (H400052-02)

TPH 8015M	mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/09/2014	ND	176	88.2	200	7.91	
DRO >C10-C28	51.0	10.0	01/09/2014	ND	178	89.2	200	7.01	
EXT DRO >C28-C35	21.4	10.0	01/09/2014	ND					
Surrogate: 1-Chlorooctane	76.4 %	65.2-140							
Surrogate: 1-Chlorooctadecane	83.9 %	63.6-154							

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

 Received: 01/08/2014
 Reported: 01/15/2014
 Project Name: GRIMES PIT #2
 Project Number: 12-0140-03
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/08/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 2-4-15' (H400052-03)

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/10/2014	ND	176	88.2	200	7.91	
DRO >C10-C28	<10.0	10.0	01/10/2014	ND	178	89.2	200	7.01	
EXT DRO >C28-C35	<10.0	10.0	01/10/2014	ND					
Surrogate: 1-Chlorooctane	87.4 %	65.2-140							
Surrogate: 1-Chlorooctadecane	84.9 %	63.6-154							

Sample ID: 2-4-20' (H400052-04)

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/09/2014	ND	176	88.2	200	7.91	
DRO >C10-C28	<10.0	10.0	01/09/2014	ND	178	89.2	200	7.01	
EXT DRO >C28-C35	<10.0	10.0	01/09/2014	ND					
Surrogate: 1-Chlorooctane	79.1 %	65.2-140							
Surrogate: 1-Chlorooctadecane	77.9 %	63.6-154							

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

Received:	01/08/2014	Sampling Date:	01/08/2014
Reported:	01/15/2014	Sampling Type:	Soil
Project Name:	GRIMES PIT #2	Sampling Condition:	Cool & Intact
Project Number:	12-0140-03	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: 2-4-25' (H400052-05)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	01/09/2014	ND	176	88.2	200	7.91	
DRO >C10-C28	700	50.0	01/09/2014	ND	178	89.2	200	7.01	
EXT DRO >C28-C35	115	50.0	01/09/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	70.9 %	65.2-140							
Surrogate: 1-Chlorooctadecane	111 %	63.6-154							

Sample ID: 2-4-30' (H400052-06)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	68.5	50.0	01/09/2014	ND	176	88.2	200	7.91	
DRO >C10-C28	1210	50.0	01/09/2014	ND	178	89.2	200	7.01	
EXT DRO >C28-C35	204	50.0	01/09/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	96.8 %	65.2-140							
Surrogate: 1-Chlorooctadecane	134 %	63.6-154							

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

LARSON & ASSOCIATES, INC.
MARK LARSON
507 N. MARIENFELD, SUITE 200
MIDLAND TX, 79701
Fax To: ?

Received: 01/08/2014
Reported: 01/15/2014
Project Name: GRIMES PIT #2
Project Number: 12-0140-03
Project Location: LEA COUNTY, NM

Sampling Date: 01/08/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: 2-4-40' (H400052-07)

TPH 8015M		mg/kg	Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	62.8	50.0	01/09/2014	ND	176	88.2	200	7.91	
DRO >C10-C28	1270	50.0	01/09/2014	ND	178	89.2	200	7.01	
EXT DRO >C28-C35	247	50.0	01/09/2014	ND					
Surrogate: 1-Chlorooctane	95.8 %	65.2-140							
Surrogate: 1-Chlorooctadecane	137 %	63.6-154							

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

Received:	01/08/2014	Sampling Date:	01/08/2014
Reported:	01/15/2014	Sampling Type:	Soil
Project Name:	GRIMES PIT #2	Sampling Condition:	Cool & Intact
Project Number:	12-0140-03	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: 2-4-50' (H400052-08)

BTEx 8021B			mg/kg		Analyzed By: MS			S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.100	0.100	01/13/2014	ND	2.09	105	2.00	3.68		
Toluene*	0.154	0.100	01/13/2014	ND	2.06	103	2.00	3.76		
Ethylbenzene*	0.863	0.100	01/13/2014	ND	2.10	105	2.00	3.52		
Total Xylenes*	1.85	0.300	01/13/2014	ND	6.12	102	6.00	3.11		
Total BTEX	2.86	0.600	01/13/2014	ND						

Surrogate: 4-Bromofluorobenzene (PIL) 167 % 89.4-126

TPH 8015M		mg/kg		Analyzed By: ms				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	134	10.0	01/10/2014	ND	211	106	200	0.499	
DRO >C10-C28	2690	10.0	01/10/2014	ND	218	109	200	2.11	
EXT DRO >C28-C35	461	10.0	01/10/2014	ND					

Surrogate: 1-Chlorooctane 176 % 65.2-140

Surrogate: 1-Chlorooctadecane 209 % 63.6-154

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

 Received: 01/08/2014
 Reported: 01/15/2014
 Project Name: GRIMES PIT #2
 Project Number: 12-0140-03
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/08/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 2-3-5' (H400052-09)

TPH 8015M	mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/10/2014	ND	211	106	200	0.499	
DRO >C10-C28	<10.0	10.0	01/10/2014	ND	218	109	200	2.11	
EXT DRO >C28-C35	<10.0	10.0	01/10/2014	ND					
Surrogate: 1-Chlorooctane	87.0 %	65.2-140							
Surrogate: 1-Chlorooctadecane	86.4 %	63.6-154							

Sample ID: 2-3-10' (H400052-10)

TPH 8015M	mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/10/2014	ND	211	106	200	0.499	
DRO >C10-C28	<10.0	10.0	01/10/2014	ND	218	109	200	2.11	
EXT DRO >C28-C35	<10.0	10.0	01/10/2014	ND					
Surrogate: 1-Chlorooctane	96.2 %	65.2-140							
Surrogate: 1-Chlorooctadecane	92.7 %	63.6-154							

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

 Received: 01/08/2014
 Reported: 01/15/2014
 Project Name: GRIMES PIT #2
 Project Number: 12-0140-03
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/08/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 2-3-15' (H400052-11)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/10/2014	ND	211	106	200	0.499	
DRO >C10-C28	<10.0	10.0	01/10/2014	ND	218	109	200	2.11	
EXT DRO >C28-C35	<10.0	10.0	01/10/2014	ND					
Surrogate: 1-Chlorooctane	92.3 %	65.2-140							
Surrogate: 1-Chlorooctadecane	94.4 %	63.6-154							

Sample ID: 2-3-20' (H400052-12)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/10/2014	ND	211	106	200	0.499	
DRO >C10-C28	<10.0	10.0	01/10/2014	ND	218	109	200	2.11	
EXT DRO >C28-C35	<10.0	10.0	01/10/2014	ND					
Surrogate: 1-Chlorooctane	92.9 %	65.2-140							
Surrogate: 1-Chlorooctadecane	101 %	63.6-154							

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

 Received: 01/08/2014
 Reported: 01/15/2014
 Project Name: GRIMES PIT #2
 Project Number: 12-0140-03
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/08/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 2-3-25' (H400052-13)

BTEX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	01/13/2014	ND	2.09	105	2.00	3.68	
Toluene*	0.283	0.200	01/13/2014	ND	2.06	103	2.00	3.76	
Ethylbenzene*	2.20	0.200	01/13/2014	ND	2.10	105	2.00	3.52	
Total Xylenes*	10.8	0.600	01/13/2014	ND	6.12	102	6.00	3.11	
Total BTEX	13.3	1.20	01/13/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 166 % 89.4-126

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	201	10.0	01/10/2014	ND	211	106	200	0.499	
DRO >C10-C28	1180	10.0	01/10/2014	ND	218	109	200	2.11	
EXT DRO >C28-C35	179	10.0	01/10/2014	ND					

Surrogate: 1-Chlorooctane 123 % 65.2-140

Surrogate: 1-Chlorooctadecane 111 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

LARSON & ASSOCIATES, INC.
MARK LARSON
507 N. MARIENFELD, SUITE 200
MIDLAND TX, 79701
Fax To: ?

Received: 01/08/2014
Reported: 01/15/2014
Project Name: GRIMES PIT #2
Project Number: 12-0140-03
Project Location: LEA COUNTY, NM

Sampling Date: 01/08/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: 2-3-30' (H400052-14)

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	168	10.0	01/10/2014	ND	211	106	200	0.499	
DRO >C10-C28	1700	10.0	01/10/2014	ND	218	109	200	2.11	
EXT DRO >C28-C35	294	10.0	01/10/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	126 %	65.2-140							
Surrogate: 1-Chlorooctadecane	148 %	63.6-154							

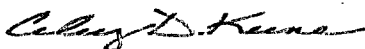
Sample ID: 2-3-40' (H400052-15)

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	89.1	10.0	01/10/2014	ND	211	106	200	0.499	
DRO >C10-C28	1350	10.0	01/10/2014	ND	218	109	200	2.11	
EXT DRO >C28-C35	249	10.0	01/10/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	114 %	65.2-140							
Surrogate: 1-Chlorooctadecane	114 %	63.6-154							

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

LARSON & ASSOCIATES, INC.
MARK LARSON
507 N. MARIENFELD, SUITE 200
MIDLAND TX, 79701
Fax To: ?

Received: 01/08/2014
Reported: 01/15/2014
Project Name: GRIMES PIT #2
Project Number: 12-0140-03
Project Location: LEA COUNTY, NM

Sampling Date: 01/08/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson


Sample ID: 2-3-50' (H400052-16)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	172	10.0	01/10/2014	ND	211	106	200	0.499	
DRO >C10-C28	2010	10.0	01/10/2014	ND	218	109	200	2.11	
EXT DRO >C28-C35	368	10.0	01/10/2014	ND					
Surrogate: 1-Chlorooctane	135 %	65.2-140							
Surrogate: 1-Chlorooctadecane	130 %	63.6-154							

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

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Celey D. Keene, Lab Director/Quality Manager

DATE: 1/8/14 PAGE 1 OF 1
PO #: 12-0148-03 LAB WORK ORDER #: H40005
PROJECT LOCATION OR NAME: Grimes Pit #2
LAI PROJECT #: 12-0148-03 COLLECTOR: AND

Data Reported to:

TRRP report? <input type="checkbox"/> Yes <input type="checkbox"/> No		S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER		PRESERVATION					ANALYSES															FIELD NOTES	
TIME ZONE: Time zone/State: <u>Mountain/MT</u>		Lab #	Date <u>1/8</u>	Time	Matrix	# of Containers	HCl	HNO ₃	H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/>	ICE	UNPRESERVED	BTX <input type="checkbox"/> MTBE <input type="checkbox"/>	TPH 418-1 <input type="checkbox"/> TPH 1005 <input type="checkbox"/> TPH 1006 <input type="checkbox"/>	GASOLINE MOD 8015 <input type="checkbox"/>	DIESEL - MOD 8015 <input type="checkbox"/>	VOC 8260 <input type="checkbox"/>	SVOC 8270 <input type="checkbox"/> PAH 8270 <input type="checkbox"/> HOLDPAH <input type="checkbox"/>	8082 PESTICIDES <input type="checkbox"/> 8151 HERBICIDES <input type="checkbox"/>	TCLP - METALS (RCRA) <input type="checkbox"/> TCLP VOC <input type="checkbox"/>	LEAD - TOTAL <input type="checkbox"/> HERB <input type="checkbox"/> Semi-VOC <input type="checkbox"/>	TDs <input type="checkbox"/> TOX <input type="checkbox"/> D.W. 200.8 <input type="checkbox"/> OTHER LIST <input type="checkbox"/>	RH <input type="checkbox"/> TSS <input type="checkbox"/> % MOISTURE <input type="checkbox"/> TOLP <input type="checkbox"/>	EXPLOSIVES <input type="checkbox"/> HEXAVALENT CHROMIUM <input type="checkbox"/>	CHLORIDE <input type="checkbox"/> ANIONS <input type="checkbox"/> ALKALINITY <input type="checkbox"/>			
1	2-4-5'		1/8	920	S	1				X		X															Straight from field
2	2-4-10'			935																							
3	2-4-15'			940																							
4	2-4-20'			942																							
5	2-4-25'			950																							
6	2-4-30'			1000																							
7	2-4-40'			1005																							
8	2-4-50'			1020							X																
9	2-3-5'			1040																							
10	2-3-10'			1045																							
11	2-3-15'			1050																							
12	2-3-20'			1052																							
13	2-3-25'			1100							X																
14	2-3-30'			1102																							
15	2-3-40'			1105																							

TOTAL: <u>12-30</u>		RELINQUISHED BY: (Signature) <u>[Signature]</u>		DATE/TIME: <u>1/8/14</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	TURN AROUND TIME NORMAL <input type="checkbox"/> 1 DAY <input type="checkbox"/> 2 DAY <input type="checkbox"/> OTHER <input type="checkbox"/>	LABORATORY USE ONLY:
		RELINQUISHED BY: (Signature)		DATE/TIME	RECEIVED BY: (Signature)		RECEIVING TEMP: <u>4.8°C</u> THERM #: <u>54</u>
		RELINQUISHED BY: (Signature)		DATE/TIME	RECEIVED BY: (Signature)		CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED <input type="checkbox"/> CARRIER BILL # _____ <input type="checkbox"/> HAND DELIVERED

Page 14 of 14

DATE: 1/6/14 PAGE 1 OF 2
PO #: _____ LAB WORK ORDER #: H400052
PROJECT LOCATION OR NAME: Pit #2
LAI PROJECT #: 12-0148-03 COLLECTOR: AWJ

ANALYSES
☐ MTR
☐ H

ANALYSES		FIELD NOTES
BTEX	<input type="checkbox"/> MTBE <input type="checkbox"/>	
TPH	418.1 <input type="checkbox"/> TPH 1005 <input type="checkbox"/> TPH 1006 <input type="checkbox"/>	
GASOLINE	MOD 8015 <input type="checkbox"/>	
DIESEL	- MOD 8015 <input type="checkbox"/>	
VOC	8260 <input type="checkbox"/>	
SVOC	8270 <input type="checkbox"/> PAH 8270 <input type="checkbox"/> H0LDBAH <input type="checkbox"/>	
8081	FESTICIDES <input type="checkbox"/> 8151 HERBICIDES <input type="checkbox"/>	
8082	PCBS <input type="checkbox"/>	
TCLP	METALS (RCRA) <input type="checkbox"/> TCLP VOC <input type="checkbox"/>	
TCLP	PEST <input type="checkbox"/> HERB <input type="checkbox"/> Semi-VOC <input type="checkbox"/>	
TOTAL METALS	(RCRA) <input type="checkbox"/> OTHER LIST <input type="checkbox"/>	
LEAD	TOTAL <input type="checkbox"/> D.W. 20.8 <input type="checkbox"/> TCLP <input type="checkbox"/>	
RC	TOX <input type="checkbox"/> FLASHPOINT <input type="checkbox"/>	
TDS	TSS <input type="checkbox"/> % MOISTURE <input type="checkbox"/> CYANIDE <input type="checkbox"/>	
pH	HEXAVALENT CHROMIUM <input type="checkbox"/>	
EXPLOSIVES	PECHLORATE <input type="checkbox"/>	
CHLORIDE	ANIONS <input type="checkbox"/> ALKALINITY <input type="checkbox"/>	

FIELD NOTES

☐ HAND DELIVERED



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

January 14, 2014

MARK LARSON

LARSON & ASSOCIATES, INC.

507 N. MARIENFELD, SUITE 200

MIDLAND, TX 79701

RE: GRIMES PIT #2

Enclosed are the results of analyses for samples received by the laboratory on 01/08/14 15:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab_accred_certif.html.

Cardinal Laboratories is accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is fluid and cursive, with the first name "Celey" and last name "Keene" clearly legible.

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

LARSON & ASSOCIATES, INC.
MARK LARSON
507 N. MARIENFELD, SUITE 200
MIDLAND TX, 79701
Fax To: ?

Received: 01/08/2014
Reported: 01/14/2014
Project Name: GRIMES PIT #2
Project Number: 12-0140-03
Project Location: LEA COUNTY, NM

Sampling Date: 01/08/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: 2-2-5' (H400059-01)

TPH 8015M	mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/10/2014	ND	211	106	200	0.499	
DRO >C10-C28	56.7	10.0	01/10/2014	ND	218	109	200	2.11	
EXT DRO >C28-C35	<10.0	10.0	01/10/2014	ND					
<i>Surrogate: 1-Chlorooctane</i>									
	120 %	65.2-140							
<i>Surrogate: 1-Chlorooctadecane</i>									
	136 %	63.6-154							


Sample ID: 2-2-10' (H400059-02)

TPH 8015M	mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/10/2014	ND	190	94.8	200	1.69	
DRO >C10-C28	<10.0	10.0	01/10/2014	ND	195	97.7	200	2.06	
EXT DRO >C28-C35	<10.0	10.0	01/10/2014	ND					
<i>Surrogate: 1-Chlorooctane</i>									
	82.5 %	65.2-140							
<i>Surrogate: 1-Chlorooctadecane</i>									
	89.3 %	63.6-154							

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

 Received: 01/08/2014
 Reported: 01/14/2014
 Project Name: GRIMES PIT #2
 Project Number: 12-0140-03
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/08/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 2-2-15' (H400059-03)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/11/2014	ND	190	94.8	200	1.69	
DRO >C10-C28	<10.0	10.0	01/11/2014	ND	195	97.7	200	2.06	
EXT DRO >C28-C35	<10.0	10.0	01/11/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	136 %	65.2-140							
Surrogate: 1-Chlorooctadecane	152 %	63.6-154							

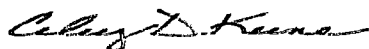
Sample ID: 2-2-20' (H400059-04)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/11/2014	ND	190	94.8	200	1.69	
DRO >C10-C28	<10.0	10.0	01/11/2014	ND	195	97.7	200	2.06	
EXT DRO >C28-C35	<10.0	10.0	01/11/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	85.6 %	65.2-140							
Surrogate: 1-Chlorooctadecane	95.1 %	63.6-154							

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 LARSON & ASSOCIATES, INC.
 MARK LARSON
 507 N. MARIENFELD, SUITE 200
 MIDLAND TX, 79701
 Fax To: ?

Received:	01/08/2014	Sampling Date:	01/08/2014
Reported:	01/14/2014	Sampling Type:	Soil
Project Name:	GRIMES PIT #2	Sampling Condition:	Cool & Intact
Project Number:	12-0140-03	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: 2-2-25' (H400059-05)

BTEX 8021B	mg/kg		Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	01/13/2014	ND	2.09	105	2.00	3.68	
Toluene*	<0.200	0.200	01/13/2014	ND	2.06	103	2.00	3.76	
Ethylbenzene*	0.352	0.200	01/13/2014	ND	2.10	105	2.00	3.52	
Total Xylenes*	1.96	0.600	01/13/2014	ND	6.12	102	6.00	3.11	
Total BTEX	2.31	1.20	01/13/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 133 % 89.4-126

TPH 8015M	mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	160	50.0	01/11/2014	ND	190	94.8	200	1.69	
DRO >C10-C28	1720	50.0	01/11/2014	ND	195	97.7	200	2.06	
EXT DRO >C28-C35	239	50.0	01/11/2014	ND					

Surrogate: 1-Chlorooctane 107 % 65.2-140

Surrogate: 1-Chlorooctadecane 146 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

LARSON & ASSOCIATES, INC.
MARK LARSON
507 N. MARIENFELD, SUITE 200
MIDLAND TX, 79701
Fax To: ?

Received: 01/08/2014
Reported: 01/14/2014
Project Name: GRIMES PIT #2
Project Number: 12-0140-03
Project Location: LEA COUNTY, NM

Sampling Date: 01/08/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: 2-2-30' (H400059-06)

TPH 8015M	mg/kg	Analyzed By: ms					S-06		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	130	50.0	01/11/2014	ND	190	94.8	200	1.69	
DRO >C10-C28	2080	50.0	01/11/2014	ND	195	97.7	200	2.06	
EXT DRO >C28-C35	334	50.0	01/11/2014	ND					
Surrogate: 1-Chlorooctane	117 %	65.2-140							
Surrogate: 1-Chlorooctadecane	169 %	63.6-154							

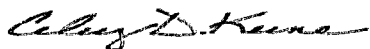
Sample ID: 2-2-40' (H400059-07)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	01/11/2014	ND	190	94.8	200	1.69	
DRO >C10-C28	787	50.0	01/11/2014	ND	195	97.7	200	2.06	
EXT DRO >C28-C35	92.5	50.0	01/11/2014	ND					
Surrogate: 1-Chlorooctane	88.5 %	65.2-140							
Surrogate: 1-Chlorooctadecane	124 %	63.6-154							

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

LARSON & ASSOCIATES, INC.
MARK LARSON
507 N. MARIENFELD, SUITE 200
MIDLAND TX, 79701
Fax To: ?

Received: 01/08/2014
Reported: 01/14/2014
Project Name: GRIMES PIT #2
Project Number: 12-0140-03
Project Location: LEA COUNTY, NM

Sampling Date: 01/08/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: 2-2-50' (H400059-08)

TPH 8015M	mg/kg	Analyzed By: ms					S-06		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	64.8	50.0	01/11/2014	ND	190	94.8	200	1.69	
DRO >C10-C28	1590	50.0	01/11/2014	ND	195	97.7	200	2.06	
EXT DRO >C28-C35	272	50.0	01/11/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	128 %	65.2-140							
Surrogate: 1-Chlorooctadecane	165 %	63.6-154							

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

DATE: 1/8/14 PAGE 1 OF 1
PO #: _____ LAB WORK ORDER #: H400050
PROJECT LOCATION OR NAME: Crime Pt # 2
LAI PROJECT #: 12-0148-03 COLLECTOR: AWJ

Data Reported to:

TRRP report?
☐ Yes ☐ No

S=SOIL
W=WATER
A=AIR

P=PAINT
SL=SLUDGE
OT=OTHER

PRESERVATION

HCl
HNO₃
H₂SO₄ ☐ NaOH ☐
ICE
UNPRESERVED

ANALYSES

BTX ☐ MTBE ☐
TPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐
GASOLINE MOD 8015 ☐
DIESEL MOD 8015 ☐
VOC 8260 ☐
SVOC 8270 ☐ PAH 8270 ☐ HCLPAH ☐
8081 PESTICIDES ☐ 8151 HERBICIDES ☐
TCIP METALS (RCRA) ☐ TOLP VOC ☐
TOTAL METALS (RCRA) ☐ SEMI-VOC ☐
LEAD TOTAL ☐ HCB ☐ OTHER LIST ☐
RO ☐ TOX ☐ FLASHPOINT ☐
PH ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐
EXPLOSIVES ☐ PENTACHLORATE ☐
CHLORIDE ☐ ANIONS ☐ ALKALINITY ☐

FIELD NOTES

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO ₃	H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/>	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
2-2-5'		1/8	1130	S	1				X		X	Straight from field
2-2-10'			1135									
2-2-15'			1140									
2-2-20'			1142									
2-2-25'			1145							X		
2-2-30'			1150									
2-2-40'			1152									
2-2-50'			1200									

TOTAL: 3:15

RELINQUISHED BY: (Signature)

RELINQUISHED BY: (Signature)

RELINQUISHED BY: (Signature)

DATE/TIME

1/8/14

DATE/TIME

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

TURN AROUND TIME

NORMAL ☐
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:

RECEIVING TEMP: 5.0 THERM #: 54
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL # _____
☐ HAND DELIVERED