

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 #3) 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 J (NW/4, SE/4), Section 30, Township 18 South, Range 38 East, in Lea County, New Mexico. The geodetic position is north 32° 43' 04.94" and west 103° 11' 08.95". 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
NMOC-DIST 1
2/10/14

FEB 10 2014

INVESTIGATION

On January 13 and 14, 2013, Scarborough Drilling, Inc. (Scarborough) used an air rotary rig and jam tube sampler to collect soil samples at 5 locations (3-1 through 3-5) 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 3-1 through 3-5. 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 #3
Lea County, New Mexico

1RP-12-13-3001

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 #1	12/10/2013	<0.00109	<0.00217	0.00109	0.00326	38.7	<136	3,850	1,380	5,240	38.7

Table 2
Delineation Sample Analytical Data Summary
XTO Energy, Inc., Grimes Pit #3
Lea County, New Mexico

1RP-12-13-3001

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
3-1	10	1/13/2014	Center	326	--	--	27.8	260	73.3	361.1
	15	1/13/2014		515	--	--	151	3,010	678	3,839
	20	1/13/2014		486	--	--	295	5,120	1,050	6,465
	25	1/13/2014		752	0.079	5.41	525	6,150	1,170	7,845
	30	1/13/2014		271	--	--	<50.0	1,220	278	1,498
	40	1/13/2014		645	--	--	208	4,530	861	5,599
	*50	1/13/2014		1035	--	--	4,550	11,600	2,080	18,230
	*60	1/13/2014		202			4,290	10,600	1,750	16,640
3-2	5	1/14/2014	North	248.2	--	--	23.3	383	75.1	481.4
	10	1/14/2014		303	--	--	36.2	476	93.5	605.7
	15	1/14/2014		27.4	--	--	<10.0	99	25.3	124.3
	20	1/14/2014		52.3	--	--	<10.0	103	23.4	126.4
	25	1/14/2014		400	<0.100	7.83	152	1,280	234	1,666
	30	1/14/2014		1038	--	--	68.6	976	196	1,240.6
	40	1/14/2014		296	--	--	<50.0	795	160	955
	50	1/14/2014		316	--	--	75.9	1,280	220	1,500
3-3	5	1/14/2014	East	0.8	--	--	<10.0	<10.0	<10.0	<10.0
	10	1/14/2014		4.3	--	--	<10.0	<10.0	<10.0	<10.0
	15	1/14/2014		9.7	--	--	<10.0	<10.0	<10.0	<10.0
	20	1/14/2014		36	--	--	<10.0	28.9	<10.0	28.9
	25	1/14/2014		515	<0.200	2.95	124	1,220	234	1,578
	30	1/14/2014		172	--	--	50.6	850	165	1,065.6
	40	1/14/2014		99	--	--	66.2	1,390	259	1,715.2
	50	1/14/2014		172	--	--	94.8	1,540	287	1,921.8
3-4	5	1/13/2014	South	9.7	--	--	<10.0	<10.0	<10.0	<10.0

Table 2
Delineation Sample Analytical Data Summary
XTO Energy, Inc., Grimes Pit #3
Lea County, New Mexico

1 RP-12-13-3001

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
	10	1/13/2014		2.6	--	--	<10.0	<10.0	<10.0	<10.0
	15	1/13/2014		2.6	--	--	<10.0	10.4	<10.0	10.4
	20	1/13/2014		11.5	--	--	<10.0	62.6	14.7	77.3
	25	1/13/2014		498	<0.050	2.46	107	2,230	412	2,749
	30	1/13/2014		172.5	--	--	<50.0	1,430	292	1,722
	40	1/13/2014		236	--	--	<50.0	1,560	315	1,875
	50	1/13/2014		223.6	--	--	56.9	888	144	1,088.9
3-5	5	1/13/2014	West	798	0.252	4.14	331	3,790	1,170	5,291
	10	1/13/2014		387	--	--	<100	1,860	441	2,301
	15	1/13/2014		23.3	--	--	<10	131	31.2	162.2
	20	1/13/2014		243.8	--	--	41.2	412	78.4	531.6
	25	1/13/2014		312	--	--	232	2,520	505	3,257
	30	1/13/2014		505	--	--	<100	1,510	341	1,850
	40	1/13/2014		188	--	--	<100	861	194	1,055
	50	1/13/2014		117	--	--	142	2,270	425	2,837

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).

* Sample collected at capillary frindge or groundwater

-- No data available

FIGURES

BSK

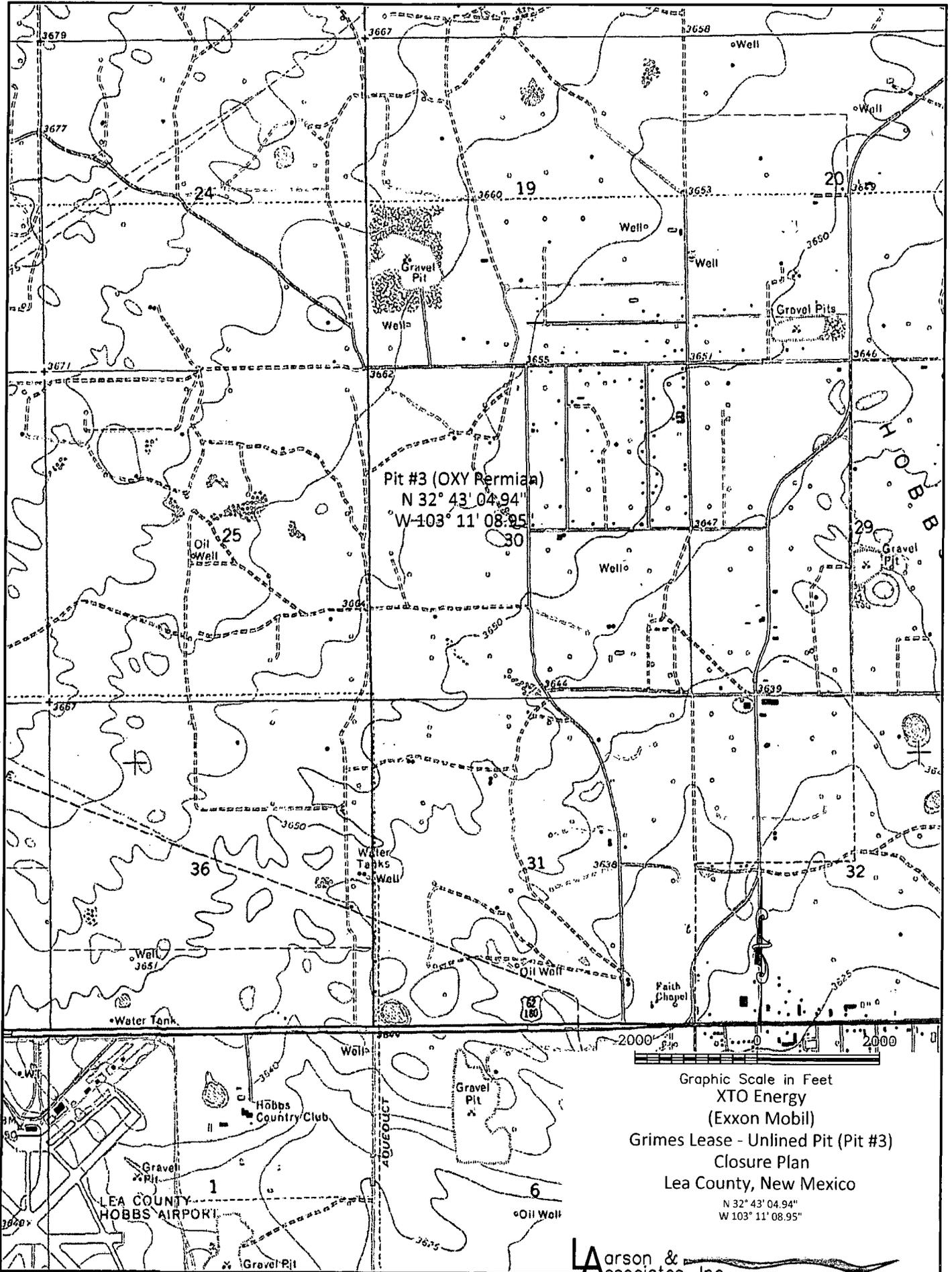


Figure 1 - Topographic Map

BSK

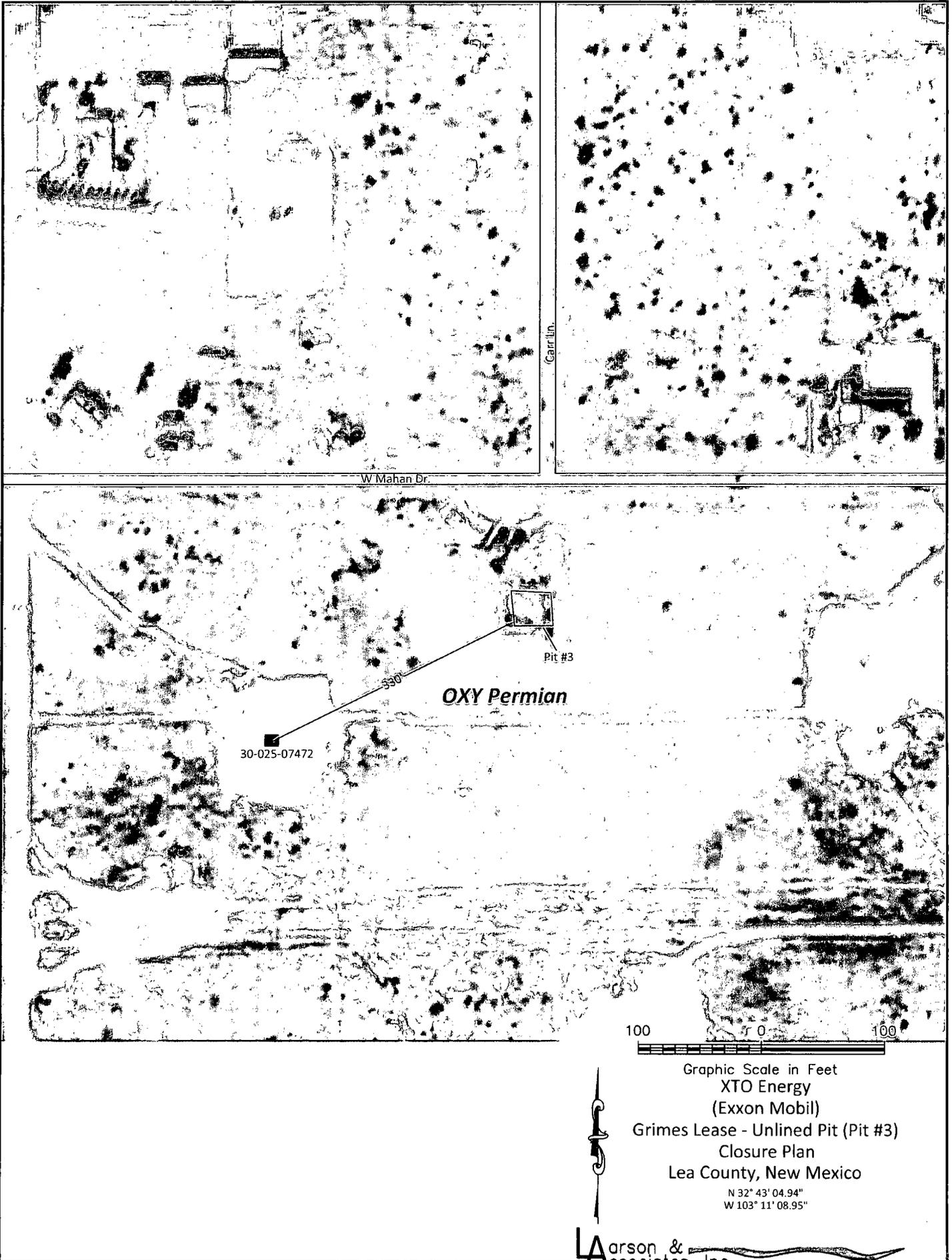
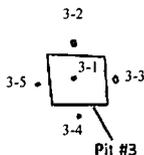


Figure 2 - Aerial Map

BSK

Carr Ln.

W Mahan Dr.



OXY Permian

Legend

- Soil boring location, January 13 - 14, 2014



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 3 - Site Map

ATTACHMENT A

Photographs

Photo: Pit #3 before excavation
commenced

Direction: South



Photo: Pit during excavation

Direction: West



Photo: Excavation limits of pit before fence was put into place

Direction: Southeast



ATTACHMENT B

Laboratory Reports



January 21, 2014

MARK LARSON

LARSON & ASSOCIATES, INC.

507 N. MARIENFELD, SUITE 200

MIDLAND, TX 79701

RE: GRIMES PIT #3

Enclosed are the results of analyses for samples received by the laboratory on 01/14/14 9:20.

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 written in a cursive, flowing style.

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: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-1-10' (H400111-01)

TPH 8015M	mg/kg	Analyzed By: ms								
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	27.8	10.0	01/14/2014	ND	209	105	200	6.89		
DRO >C10-C28	260	10.0	01/14/2014	ND	233	116	200	1.72		
EXT DRO >C28-C35	73.3	10.0	01/14/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	110 %	65.2-140								
Surrogate: 1-Chlorooctadecane	132 %	63.6-154								

Sample ID: 3-1-15' (H400111-02)

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	151	100	01/14/2014	ND	209	105	200	6.89		
DRO >C10-C28	3010	100	01/14/2014	ND	233	116	200	1.72		
EXT DRO >C28-C35	678	100	01/14/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	93.3 %	65.2-140								
Surrogate: 1-Chlorooctadecane	175 %	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: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-1-20' (H400111-03)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	295	100	01/14/2014	ND	209	105	200	6.89	
DRO >C10-C28	5120	100	01/14/2014	ND	233	116	200	1.72	
EXT DRO >C28-C35	1050	100	01/14/2014	ND					
Surrogate: 1-Chlorooctane	94.2 %	65.2-140							
Surrogate: 1-Chlorooctadecane	149 %	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: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-1-25' (H400111-04)

BTEX 8021B		mg/kg		Analyzed By: MS				S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	0.079	0.050	01/15/2014	ND	2.17	108	2.00	1.01		
Toluene*	0.355	0.050	01/15/2014	ND	2.13	106	2.00	0.607		
Ethylbenzene*	2.09	0.050	01/15/2014	ND	2.15	108	2.00	0.331		
Total Xylenes*	2.89	0.150	01/15/2014	ND	6.38	106	6.00	0.537		
Total BTEX	5.41	0.300	01/15/2014	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 376 % 89.4-126

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	525	100	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	6150	100	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	1170	100	01/15/2014	ND						

Surrogate: 1-Chlorooctane 121 % 65.2-140

Surrogate: 1-Chlorooctadecane 169 % 63.6-154

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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

 Received: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-1-30' (H400111-05)

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	<50.0	50.0	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	1220	50.0	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	278	50.0	01/15/2014	ND						

Surrogate: 1-Chlorooctane 94.1 % 65.2-140
 Surrogate: 1-Chlorooctadecane 157 % 63.6-154

Sample ID: 3-1-40' (H400111-06)

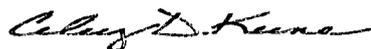
TPH 8015M	mg/kg	Analyzed By: ms					S-06			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	208	100	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	4530	100	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	861	100	01/15/2014	ND						

Surrogate: 1-Chlorooctane 95.6 % 65.2-140
 Surrogate: 1-Chlorooctadecane 149 % 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: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-1-50' (H400111-07)

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	4550	200	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	11600	200	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	2080	200	01/15/2014	ND						

Surrogate: 1-Chlorooctane 348 % 65.2-140
 Surrogate: 1-Chlorooctadecane 545 % 63.6-154

Sample ID: 3-1-60' (H400111-08)

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	4290	200	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	10600	200	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	1750	200	01/15/2014	ND						

Surrogate: 1-Chlorooctane 218 % 65.2-140
 Surrogate: 1-Chlorooctadecane 250 % 63.6-154

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

 Received: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-5-5' (H400111-09)

BTEX 8021B		mg/kg		Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	0.252	0.200	01/15/2014	ND	2.17	108	2.00	1.01		
Toluene*	0.520	0.200	01/15/2014	ND	2.13	106	2.00	0.607		
Ethylbenzene*	1.27	0.200	01/15/2014	ND	2.15	108	2.00	0.331		
Total Xylenes*	2.10	0.600	01/15/2014	ND	6.38	106	6.00	0.537		
Total BTEX	4.14	1.20	01/15/2014	ND						

Surrogate: 4-Bromofluorobenzene (PIC) 146 % 89.4-126

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	331	200	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	3790	200	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	1170	200	01/15/2014	ND						

Surrogate: 1-Chlorooctane 78.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 295 % 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: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-5-10' (H400111-10)

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	<100	100	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	1860	100	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	441	100	01/15/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	84.1 %	65.2-140								
Surrogate: 1-Chlorooctadecane	190 %	63.6-154								

Sample ID: 3-5-15' (H400111-11)

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	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	131	10.0	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	31.2	10.0	01/15/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	110 %	65.2-140								
Surrogate: 1-Chlorooctadecane	120 %	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: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-5-20' (H400111-12)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	41.2	10.0	01/15/2014	ND	199	99.6	200	3.64	
DRO >C10-C28	412	10.0	01/15/2014	ND	200	100	200	3.66	
EXT DRO >C28-C35	78.4	10.0	01/15/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	117 %	65.2-140							
Surrogate: 1-Chlorooctadecane	131 %	63.6-154							

Sample ID: 3-5-25' (H400111-13)

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	232	100	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	2520	100	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	505	100	01/15/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	127 %	65.2-140								
Surrogate: 1-Chlorooctadecane	203 %	63.6-154								

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Analytical Results For:

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

Received:	01/14/2014	Sampling Date:	01/13/2014
Reported:	01/21/2014	Sampling Type:	Soil
Project Name:	GRIMES PIT #3	Sampling Condition:	Cool & Intact
Project Number:	12-0148-04	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: 3-5-30' (H400111-14)

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	<100	100	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	1510	100	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	341	100	01/15/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	89.5 %	65.2-140								
Surrogate: 1-Chlorooctadecane	176 %	63.6-154								

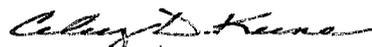
Sample ID: 3-5-40' (H400111-15)

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	<100	100	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	861	100	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	194	100	01/15/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	103 %	65.2-140								
Surrogate: 1-Chlorooctadecane	156 %	63.6-154								

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Analytical Results For:

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

Received:	01/14/2014	Sampling Date:	01/13/2014
Reported:	01/21/2014	Sampling Type:	Soil
Project Name:	GRIMES PIT #3	Sampling Condition:	Cool & Intact
Project Number:	12-0148-04	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: 3-5-50' (H400111-16)

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	142	100	01/15/2014	ND	199	99.6	200	3.64	
DRO >C10-C28	2270	100	01/15/2014	ND	200	100	200	3.66	
EXT DRO >C28-C35	425	100	01/15/2014	ND					
<i>Surrogate: 1-Chlorooctane</i>									
	110 %	65.2-140							
<i>Surrogate: 1-Chlorooctadecane</i>									
	193 %	63.6-154							

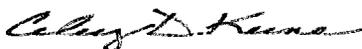
Sample ID: 3-4-5' (H400111-17)

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	01/15/2014	ND	199	99.6	200	3.64	
DRO >C10-C28	<10.0	10.0	01/15/2014	ND	200	100	200	3.66	
EXT DRO >C28-C35	<10.0	10.0	01/15/2014	ND					
<i>Surrogate: 1-Chlorooctane</i>									
	91.8 %	65.2-140							
<i>Surrogate: 1-Chlorooctadecane</i>									
	109 %	63.6-154							

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Analytical Results For:

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

 Received: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-4-10' (H400111-18)

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	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	<10.0	10.0	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	<10.0	10.0	01/15/2014	ND						
<i>Surrogate: 1-Chlorooctane</i>		92.0 %	65.2-140							
<i>Surrogate: 1-Chlorooctadecane</i>		109 %	63.6-154							

Sample ID: 3-4-15' (H400111-19)

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	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	10.4	10.0	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	<10.0	10.0	01/15/2014	ND						
<i>Surrogate: 1-Chlorooctane</i>		98.6 %	65.2-140							
<i>Surrogate: 1-Chlorooctadecane</i>		113 %	63.6-154							

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Analytical Results For:

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

 Received: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-4-20' (H400111-20)

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	01/15/2014	ND	199	99.6	200	3.64	
DRO >C10-C28	62.6	10.0	01/15/2014	ND	200	100	200	3.66	
EXT DRO >C28-C35	14.7	10.0	01/15/2014	ND					
<i>Surrogate: 1-Chlorooctane</i>	<i>97.8 %</i>	<i>65.2-140</i>							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>109 %</i>	<i>63.6-154</i>							

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Analytical Results For:

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

Received:	01/14/2014	Sampling Date:	01/13/2014
Reported:	01/21/2014	Sampling Type:	Soil
Project Name:	GRIMES PIT #3	Sampling Condition:	Cool & Intact
Project Number:	12-0148-04	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: 3-4-25' (H400111-21)

BTEX 8021B	mg/kg	Analyzed By: MS					S-04			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	01/15/2014	ND	2.17	108	2.00	1.01		
Toluene*	<0.050	0.050	01/15/2014	ND	2.13	106	2.00	0.607		
Ethylbenzene*	0.429	0.050	01/15/2014	ND	2.15	108	2.00	0.331		
Total Xylenes*	2.03	0.150	01/15/2014	ND	6.38	106	6.00	0.537		
Total BTEX	2.46	0.300	01/15/2014	ND						

Surrogate: 4-Bromofluorobenzene (PIC) 173 % 89.4-126

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	107	50.0	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	2230	50.0	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	412	50.0	01/15/2014	ND						

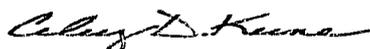
Surrogate: 1-Chlorooctane 136 % 65.2-140

Surrogate: 1-Chlorooctadecane 164 % 63.6-154

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Analytical Results For:

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

 Received: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-4-30' (H400111-22)

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	01/15/2014	ND	199	99.6	200	3.64		
DRO >C10-C28	1430	50.0	01/15/2014	ND	200	100	200	3.66		
EXT DRO >C28-C35	292	50.0	01/15/2014	ND						

Surrogate: 1-Chlorooctane 98.6 % 65.2-140
 Surrogate: 1-Chlorooctadecane 135 % 63.6-154

Sample ID: 3-4-40' (H400111-23)

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	<50.0	50.0	01/15/2014	ND	199	99.6	200	3.64			
DRO >C10-C28	1560	50.0	01/15/2014	ND	200	100	200	3.66			
EXT DRO >C28-C35	315	50.0	01/15/2014	ND							

Surrogate: 1-Chlorooctane 208 % 65.2-140
 Surrogate: 1-Chlorooctadecane 285 % 63.6-154

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Analytical Results For:

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

 Received: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

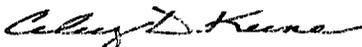
Sample ID: 3-4-50' (H400111-24)

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	56.9	50.0	01/15/2014	ND	173	86.4	200	4.86	
DRO >C10-C28	888	50.0	01/15/2014	ND	174	87.1	200	3.26	
EXT DRO >C28-C35	144	50.0	01/15/2014	ND					
<i>Surrogate: 1-Chlorooctane</i>	<i>73.7 %</i>	<i>65.2-140</i>							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>122 %</i>	<i>63.6-154</i>							

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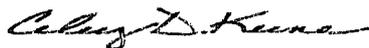
Notes and Definitions

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

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DATE: 1/14/14 PAGE 1 OF 1
PO #: _____ LAB WORK ORDER #: H400111
PROJECT LOCATION OR NAME: Grimes Pit #3
LAI PROJECT #: 12-0148-04 COLLECTOR: ANJ

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 BTEX <input type="checkbox"/> MTBE <input type="checkbox"/> TRPH 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 8280 <input type="checkbox"/> SVOC 8270 <input type="checkbox"/> 8081 PESTICIDES <input type="checkbox"/> PAH 8270 <input type="checkbox"/> HOLDPAH <input type="checkbox"/> 8082 PCBs <input type="checkbox"/> TCDF METALS (PCRA) <input type="checkbox"/> 8151 HERBICIDES <input type="checkbox"/> TCDF - PEST <input type="checkbox"/> TOTAL METALS (RCRA) <input type="checkbox"/> HERB <input type="checkbox"/> SEMI-VOC <input type="checkbox"/> LEAD - TOTAL <input type="checkbox"/> D.W. 200.8 <input type="checkbox"/> OTHER LIST <input type="checkbox"/> TCDF TOX <input type="checkbox"/> FLASHPOINT <input type="checkbox"/> TDS <input type="checkbox"/> TSS <input type="checkbox"/> % MOISTURE <input type="checkbox"/> TCDF <input type="checkbox"/> PH <input type="checkbox"/> HEXAVALENT CHROMIUM <input type="checkbox"/> CYANIDE <input type="checkbox"/> EXPLOSIVES <input type="checkbox"/> PECHLORATE <input type="checkbox"/> CHLORIDE <input type="checkbox"/> ANIONS <input type="checkbox"/> ALKALINITY <input type="checkbox"/>	FIELD NOTES					
	TIME ZONE: Time zone/State: <u>Mountain NM</u>	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO ₃	H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/>	ICE	UNPRESERVED							
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						FIELD NOTES		
3-1-10'		1/13	930	S	1				X		X							
3-1-15'			932															
3-1-20'			935															
3-1-25'			936								X							
3-1-30'			940															
3-1-40'			945															
3-1-50'			1000															
3-1-60'			1005															
3-5-5'			1020								X							
3-5-10'			1025															
3-5-15'			1028															
3-5-20'			1030															
3-5-25'			1035															
3-5-30'			1040															
3-5-40'			1045															

TOTAL:									
RELINQUISHED BY: (Signature) <u>Adrian</u>	DATE/TIME <u>1/14/14</u>	RECEIVED BY: (Signature) <u>Jodi Henson</u>	DATE/TIME <u>9:20</u>	TURN AROUND TIME		LABORATORY USE ONLY:			
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME	NORMAL <input type="checkbox"/>		RECEIVING TEMP: <u>2.6°C</u> THERM #: <u>54</u>			
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME	1 DAY <input type="checkbox"/>		CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input checked="" type="checkbox"/> NOT USED			
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME	2 DAY <input type="checkbox"/>		<input type="checkbox"/> CARRIER BILL # _____			
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME	OTHER <input type="checkbox"/>		<input checked="" type="checkbox"/> HAND DELIVERED			

January 21, 2014

MARK LARSON

LARSON & ASSOCIATES, INC.

507 N. MARIENFELD, SUITE 200

MIDLAND, TX 79701

RE: GRIMES PIT #3

Enclosed are the results of analyses for samples received by the laboratory on 01/14/14 12:35.

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.

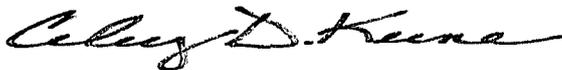
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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,



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: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/14/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-2-5' (H400114-01)

TPH 8015M	mg/kg	Analyzed By: ms								
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	23.3	10.0	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	383	10.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	75.1	10.0	01/15/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	92.4 %	65.2-140								
Surrogate: 1-Chlorooctadecane	115 %	63.6-154								

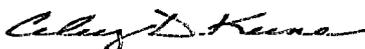
Sample ID: 3-2-10' (H400114-02)

TPH 8015M	mg/kg	Analyzed By: ms								
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	36.2	10.0	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	476	10.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	93.5	10.0	01/15/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	88.8 %	65.2-140								
Surrogate: 1-Chlorooctadecane	111 %	63.6-154								

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

 Received: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/14/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-2-15' (H400114-03)

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	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	99.0	10.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	25.3	10.0	01/15/2014	ND						
<hr/>										
<i>Surrogate: 1-Chlorooctane</i>	<i>112 %</i>	<i>65.2-140</i>								
<i>Surrogate: 1-Chlorooctadecane</i>	<i>132 %</i>	<i>63.6-154</i>								

Sample ID: 3-2-20' (H400114-04)

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	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	103	10.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	23.4	10.0	01/15/2014	ND						
<hr/>										
<i>Surrogate: 1-Chlorooctane</i>	<i>99.9 %</i>	<i>65.2-140</i>								
<i>Surrogate: 1-Chlorooctadecane</i>	<i>112 %</i>	<i>63.6-154</i>								

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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: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/14/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-2-25' (H400114-05)

BTEX 8021B		mg/kg		Analyzed By: MS				S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.100	0.100	01/15/2014	ND	2.17	108	2.00	1.01		
Toluene*	0.137	0.100	01/15/2014	ND	2.13	106	2.00	0.607		
Ethylbenzene*	1.34	0.100	01/15/2014	ND	2.15	108	2.00	0.331		
Total Xylenes*	6.36	0.300	01/15/2014	ND	6.38	106	6.00	0.537		
Total BTEX	7.83	0.600	01/15/2014	ND						

Surrogate: 4-Bromofluorobenzene (PIC) 175 % 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	152	50.0	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	1280	50.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	234	50.0	01/15/2014	ND						

Surrogate: 1-Chlorooctane 97.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 150 % 63.6-154

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Coley 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:	01/14/2014	Sampling Date:	01/14/2014
Reported:	01/21/2014	Sampling Type:	Soil
Project Name:	GRIMES PIT #3	Sampling Condition:	Cool & Intact
Project Number:	12-0148-04	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: 3-2-30' (H400114-06)

TPH 8015M	mg/kg	Analyzed By: ms								
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	68.6	50.0	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	976	50.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	196	50.0	01/15/2014	ND						
<hr/>										
<i>Surrogate: 1-Chlorooctane</i>	<i>116 %</i>	<i>65.2-140</i>								
<i>Surrogate: 1-Chlorooctadecane</i>	<i>146 %</i>	<i>63.6-154</i>								

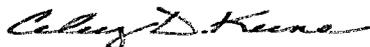
Sample ID: 3-2-40' (H400114-07)

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	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	795	50.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	160	50.0	01/15/2014	ND						
<hr/>										
<i>Surrogate: 1-Chlorooctane</i>	<i>81.7 %</i>	<i>65.2-140</i>								
<i>Surrogate: 1-Chlorooctadecane</i>	<i>138 %</i>	<i>63.6-154</i>								

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: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/14/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-2-50' (H400114-08)

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	75.9	50.0	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	1280	50.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	220	50.0	01/15/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	105 %	65.2-140								
Surrogate: 1-Chlorooctadecane	162 %	63.6-154								

Sample ID: 3-3-5' (H400114-09)

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	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	<10.0	10.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	<10.0	10.0	01/15/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	101 %	65.2-140								
Surrogate: 1-Chlorooctadecane	122 %	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: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/14/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-3-10' (H400114-10)

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	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	<10.0	10.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	<10.0	10.0	01/15/2014	ND						
<hr/>										
<i>Surrogate: 1-Chlorooctane</i>	73.2 %	65.2-140								
<i>Surrogate: 1-Chlorooctadecane</i>	91.1 %	63.6-154								

Sample ID: 3-3-15' (H400114-11)

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	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	<10.0	10.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	<10.0	10.0	01/15/2014	ND						
<hr/>										
<i>Surrogate: 1-Chlorooctane</i>	85.9 %	65.2-140								
<i>Surrogate: 1-Chlorooctadecane</i>	107 %	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: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/14/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-3-20' (H400114-12)

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	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	28.9	10.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	<10.0	10.0	01/15/2014	ND						

Surrogate: 1-Chlorooctane 99.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 108 % 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:	01/14/2014	Sampling Date:	01/14/2014
Reported:	01/21/2014	Sampling Type:	Soil
Project Name:	GRIMES PIT #3	Sampling Condition:	Cool & Intact
Project Number:	12-0148-04	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: 3-3-25' (H400114-13)

BTEX 80218		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	01/15/2014	ND	2.17	108	2.00	1.01		
Toluene*	<0.200	0.200	01/15/2014	ND	2.13	106	2.00	0.607		
Ethylbenzene*	1.20	0.200	01/15/2014	ND	2.15	108	2.00	0.331		
Total Xylenes*	1.75	0.600	01/15/2014	ND	6.38	106	6.00	0.537		
Total BTEX	2.95	1.20	01/15/2014	ND						

Surrogate: 4-Bromofluorobenzene (PIC) 173 % 89.4-126

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	124	50.0	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	1220	50.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	234	50.0	01/15/2014	ND						

Surrogate: 1-Chlorooctane 105 % 65.2-140
Surrogate: 1-Chlorooctadecane 162 % 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: 01/14/2014
 Reported: 01/21/2014
 Project Name: GRIMES PIT #3
 Project Number: 12-0148-04
 Project Location: LEA COUNTY, NM

 Sampling Date: 01/14/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: 3-3-30' (H400114-14)

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	50.6	50.0	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	850	50.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	165	50.0	01/15/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	101 %	65.2-140								
Surrogate: 1-Chlorooctadecane	159 %	63.6-154								

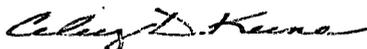
Sample ID: 3-3-40' (H400114-15)

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	66.2	50.0	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	1390	50.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	259	50.0	01/15/2014	ND						
<hr/>										
Surrogate: 1-Chlorooctane	97.9 %	65.2-140								
Surrogate: 1-Chlorooctadecane	158 %	63.6-154								

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Analytical Results For:

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

Received:	01/14/2014	Sampling Date:	01/14/2014
Reported:	01/21/2014	Sampling Type:	Soil
Project Name:	GRIMES PIT #3	Sampling Condition:	Cool & Intact
Project Number:	12-0148-04	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: 3-3-50' (H400114-16)

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	94.8	50.0	01/15/2014	ND	173	86.4	200	4.86		
DRO >C10-C28	1540	50.0	01/15/2014	ND	174	87.1	200	3.26		
EXT DRO >C28-C35	287	50.0	01/15/2014	ND						
<hr/>										
<i>Surrogate: 1-Chlorooctane</i>	93.5 %	65.2-140								
<i>Surrogate: 1-Chlorooctadecane</i>	155 %	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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