2057 Commerce Drive
Midland, TX 79703

432.520.7720 PHONE
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APPROVED
By Olivia Yu at 12:08 pm, Feb 20, 2018

NMOCD approves of the proposed additional delineation and remediation for 1RP-4882 & 1RP-4897. See email correspondence for stipulations.

January 22, 2018

Olivia Yu
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division, District 1
1625 French Drive
Hobbs, NM 88240

Shelly Tucker
Carlsbad Field Office
United States Department of the Interior
Bureau of Land Management
620 E. Greene Street
Carlsbad, New Mexico 88220

Re: Soil Investigation Summary and Proposed Remediation Workplan
Lusk Deep Unit A #029H (1RP-4882 & 1RP-4897)
GPS: N 32.66675° W 103.79485°
Unit Letter "D", Section 17, Township 19 South, Range 32 East
Lea County, New Mexico

Dear Ms. Yu and Ms. Tucker,

TRC Environmental Corporation (TRC), on behalf of COG Operating, LLC (COG) has prepared this Soil Investigation Summary and Proposed Remediation Workplan (Workplan) for the Lusk Deep Unit A #029H Release Site (Release Site). The purpose of this Workplan is to propose remediation activities designed to advance the Release Site toward an NMOCD approved Site Closure Status. The legal description of the Release Site is Unit Letter "D", Section 17, Township 19 South, Range 32 East, in Lea County, New Mexico. The GPS coordinates for the site are N 32.66675° W 103.79485°. The subject property is owned by the United States Department of the Interior and administered by the Bureau of Land Management (BLM). A "Site Location Map" and "Site & Sample Location Map" are provided as Figure 1 and Figure 2, respectively.

BACKGROUND

On November 24, 2017, COG discovered a release had occurred at the Lusk Deep Unit A #029H. The release was attributed to the failure of a four (4)-inch (in.) suction line, resulting in the release of approximately twenty (20) barrels (bbls) of produced water and ten (10) bbls of crude oil. During initial response activities, vacuum trucks were utilized to recover approximately ten (10) bbls of produced water

and eight (8) bbls of crude oil. Upon discovering the release, the NMOCD and BLM were notified. The release affected an area measuring approximately eleven thousand (11,000) square feet (sq. ft.) on the caliche well pad along with approximately two thousand (2,000) sq. ft. of pasture on the southeast side of the well pad. Please reference the attached Release Notification and Corrective Action (Form C-141), dated November 28, 2017, for additional details.

On December 16, 2017, a second release had occurred at the Lusk Deep Unit A #029H. The release was attributed to the failure of the H-pump, resulting in the release of approximately fifteen (15) bbls of produced water. During initial response activities, vacuum trucks were utilized to recover approximately ten (10) bbls of produced water. Upon discovering the release, the NMOCD and BLM were notified. The release affected an area indistinguishable from the previous release. Please reference the attached Form C-141, dated December 18, 2017, for additional details.

A groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) did not identify any registered water wells in Section 17, Township 19 South, Range 32 East. A reference map utilized by the New Mexico Oil Conservation Division (NMOCD) Carlsbad District Office indicates groundwater should be encountered at approximately four hundred and fifty (450) feet (ft.) below ground surface (bgs). Based on the NMOCD site classification system, zero (0) points will be assigned to the subject area ranking as a result of this criterion.

No water wells were observed within one-thousand (1,000) ft. of the Release Site. Based on the NMOCD site classification system, zero (0) points will be assigned to the subject area ranking as a result of this criterion.

No surface water was observed within one-thousand (1,000) ft. of the Release Site. Based on the NMOCD site classification system, zero (0) points will be assigned to the subject area ranking as a result of this criterion.

Based on the NMOCD Site Classification criteria, the Release Site soil remediation levels are 10 milligrams per kilogram (mg/kg) for benzene, 50 mg/kg for benzene, toluene, ethylbenzene and xylenes (BTEX), and five thousand (5,000) mg/kg for total petroleum hydrocarbons (TPH). Per NMOCD request, chloride remediation levels for the Release Site will be 600 mg/kg. Remediation of the November 28 and December 16, 2017, releases will be investigated and remediated simultaneously and closed under one cover.

SUMMARY OF FIELD ACTIVITIES

On December 21, 2017, TRC conducted an initial investigation at the site. During the initial investigation, a series of hand-augered soil bores (SP #1 through SP #5) were advanced within the release margins in an effort to determine the vertical extent of soil impact. During the advancement of the soil bores, sixteen (16) soil samples (SP #1 @ Surf., SP #1 @ 1', SP #1 @ 2', SP #2 @ Surf., SP #2 @ 1', SP #2 @ 4', SP #3 @ Surf., SP #3 @ 1', SP #3 @ 2', SP #4 @ Surf., SP #4 @1', SP #4 @ 2', SP #5 @ Surf., SP #5 @ 1', SP #5 @ 2' and SP #5 @ 3') were collected and submitted to Xenco Laboratories in Midland, Texas for determination of chloride using Method 300/300.1. (See attached Figure 2 and Table 1 for sample locations and a summary of laboratory analytical results). Laboratory analytical results indicated chloride concentrations ranged from 13,300 mg/kg for soil sample SP #3 @ Surf. to 22.3 mg/kg in soil sample SP #3 @ 2'. Laboratory analytical results indicated soil was not

affected above the NMOCD RRAL for chloride in the area represented by sample point SP #4, beyond one (1) ft. bgs in the area represented by sample points SP #1 and SP #3, and beyond two (2) ft. in the area represented by sample point SP #5. Collection of additional soil samples from deeper intervals in the area characterized by sample point SP #2 was precluded due to the presence of an impenetrable rock layer.

Soil samples SP #1 @ Surf., SP #1 @ 1', SP #1 @ 2', SP #2 @ Surf., SP #2 @ 1', SP #3 @ Surf., SP #3 @ 1', SP #4 @ Surf., SP #4 @ 1', SP #4 @ 2', SP #5 @ Surf., SP #5 @ 1', SP #5 @ 2' and SP #5 @ 3' were also analyzed for concentrations of TPH using Method SW 846-8015M. Laboratory analytical results indicated TPH concentrations ranged from 36,580 mg/kg in soil sample SP #4 @ Surf. to less than the applicable laboratory RL in soil samples SP #1 @ 1', SP #2 @1', and SP #3 @ 1'. Laboratory analytical results indicated soil was not affected above the NMOCD RRAL for TPH in the area represented by sample point SP # 3, beyond one (1) ft. bgs in the area represented by sample points SP #1 and SP #2, beyond two (2) ft. bgs in the area represented by sample point SP #4, and beyond three (3) ft. bgs in the area characterized by sample point SP #5. It should be noted that soil samples SP #4 @ 2' and SP #5 @ 3' were analyzed outside of recommended hold time for TPH.

Soil samples SP #1 @ Surf., SP #1 @ 1' SP #2 @ Surf., SP #2 @1', SP #3 @ Surf., SP #4 @ Surf., SP #4 @ 1'. SP #4 @ 2', SP #5 @ Surf., SP #5 @ 1', SP #5 @ 2', and SP # 5 @ 3' were also analyzed for concentrations of BTEX using Method SW 846-8021B. Laboratory analytical results indicated benzene concentrations ranged from 32.5 mg/kg in soil sample SP #5 @ Surf. to less than the applicable laboratory RL in soil samples SP #1 @ 1', SP #2 @ 1', SP #4 @ 1', SP #4 @ 2' and SP #5 @ 3'. Total BTEX concentrations ranged from 1,002.50 mg/kg in soil sample SP #5 @ Surf. to less than the applicable laboratory RL in soil samples SP #1 @ 1', SP #2 @ 1' and SP #4 @ 2'. Laboratory analytical results indicated soil was not affected above the NMOCD RRAL for BTEX in the area represented by sample point SP #3, beyond one (1) ft. bgs in the area represented by sample points SP #1 and SP #2, beyond two (2) ft. in the area represented by sample point SP #4, and beyond three (3) ft. bgs in the area represented by SP #5.

In addition, TRC collected eight (8) soil samples (North #1, North #2, East #1, East #2. East #3, West #1, South #1, and South #2) from the edges of the inferred release margins in an effort to determine the horizontal extent of soil impacts. The collected soil samples were submitted to the laboratory for analysis of BTEX, TPH and chloride. Laboratory analytical results indicated benzene, BTEX, TPH, and chloride concentrations were less than the NMOCD RRAL in each of the submitted soil samples with the exception of soil sample South #1, which exhibited a chloride concentration of 743 mg/kg, respectively. Based on laboratory analytical results, additional delineation is required in the area characterize by soil sample South #1.

PROPOSED REMEDIATION STRATEGY

Based on the analytical results from soil samples collected during the initial release assessment on December 21, 2017, COG proposes the following field activities designed to advance the Lusk Deep Unit A #029H Release Site toward an NMOCD- and BLM-approved closure:

- Utilizing a backhoe, excavate impacted soil within the release margins in the areas represented by sample points SP #1 and SP #3 to a depth of approximately one (1) ft. bgs, SP #4 to a depth of

approximately two (2) ft. bgs, SP #5 to a depth of approximately three (3) ft. bgs, SP #2 to a depth of approximately five (5) ft. bgs or until field test results indicated impacted soil affected above the NMOCD RRAL has been removed.

- In the event soil is affected above the NMOCD RRAL for chloride at considerable depth, the affected area will be delineated and a risk-based soil closure strategy may be proposed for NMOCD and BLM consideration.
- Advance the sidewall of the excavation in the area characterized by soil sample South #1 until field test results indicate impacted soil affected above the NMOCD RRAL for chloride has been removed.
- Affected soil adjacent to and/or beneath active oil and gas equipment impacted above the NMOCD RRAL will be excavated to the maximum extent practicable, as necessary, in an effort to mitigate risks to human health and property.
- Upon excavating impacted soil from within the release margins, confirmation soil samples will be collected from the floor and sidewalls of the excavated areas at approximate fifty (50) ft. increments and submitted to the laboratory for analysis of chloride and/or TPH where applicable.
- Temporarily stockpile excavated soil on-site, atop an impermeable liner, pending final disposition at an NMOCD-approved disposal facility.
- Upon receiving laboratory analytical results from confirmation soil samples, transport the impacted soil to an NMOCD-approved disposal facility and backfill the excavated area with locally-sourced, non-impacted "like" material.
- Upon completion of remediation activities and receipt of laboratory analytical results from confirmation soil samples, TRC will prepare and submit a "Remediation Summary and Site Closure Request" to the NMOCD and BLM detailing remediation activities and laboratory analytical results from confirmation soil samples.
- Upon completion of remediation activities, areas within the affected pasture disturbed by remediation activities will be reseeded with a BLM-approved seed mixture appropriate for the site. Seed may be spread utilizing a broadcaster and/or seed drill dependent on conditions at the site. In the event broadcasting is chosen as the seeding method, the affected area will be raked and/or dragged to inhibit the redisposition of seed.

COG is prepared to begin the activities outlined in this Proposed Remediation Workplan on NMOCD and BLM approval. If you have any questions or need any additional information, please feel free to contact Beck Haskell or myself by phone or email.

Joel Lowry
Senior Project Manager
TRC Environmental Corporation

Jeff Kindley
Senior Project Manager
TRC Environmental Corporation

Attachments:

Figure 1 - Site Location Map
Figure 2 - Site & Sample Location Map
Table 1 - Concentrations of Benzene, BTEX, TPH and Chloride in Soil

Laboratory Analytical Results
Release Notification and Corrective Actions (Form C-141s)

cc: File

Figure 1

Site Location Map

COG Operating, LLC

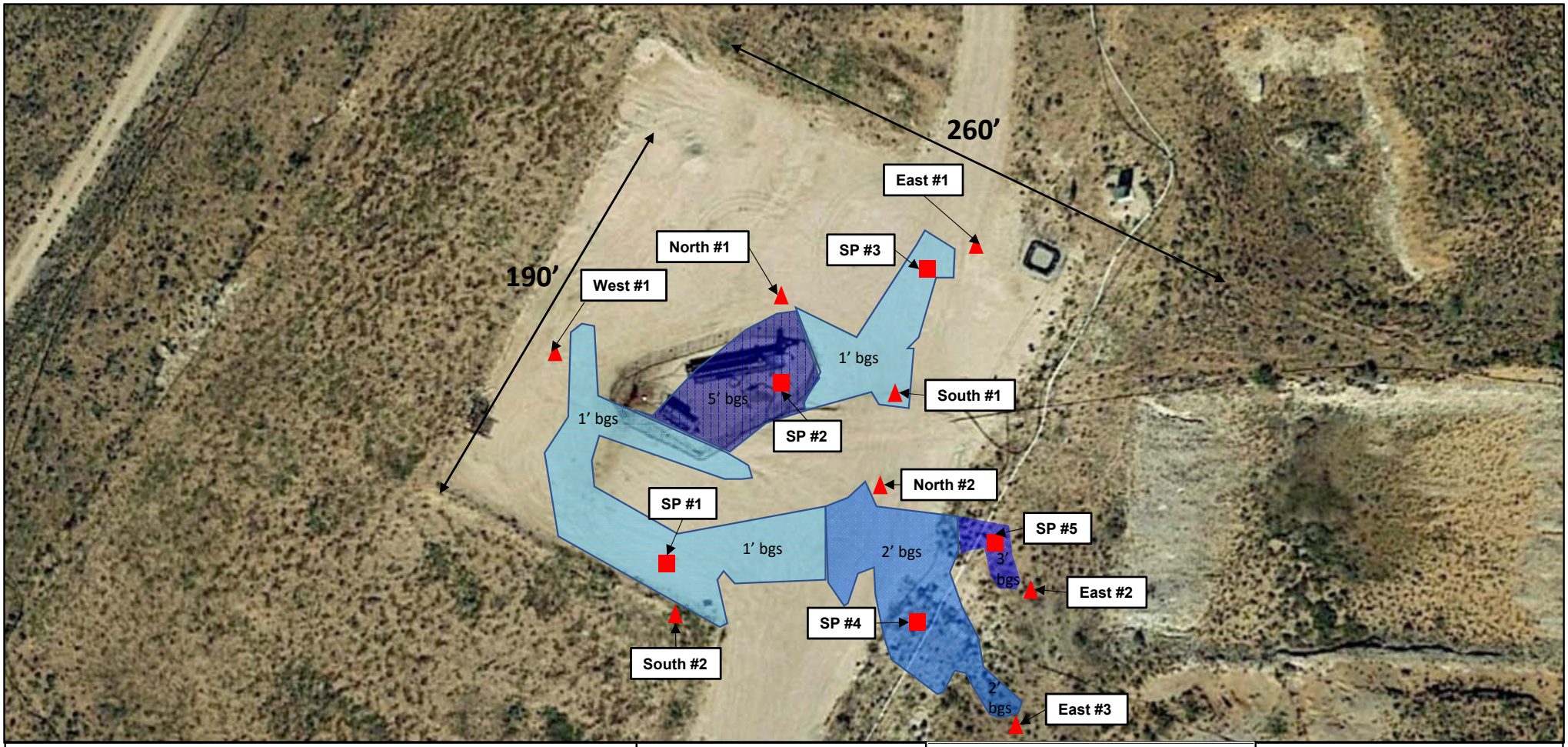
Lusk Deep Unit A #029H

Lea County, New Mexico

Scale 1" = ~50'	
Drafted by: ZC	Checked by: JL
Draft: January 12, 2018	
Lat. N 32.6667595 Long. W 103.7948532	
UL "D", Sec. 17, T19S, R32E	
TRC Proj. No.: 293103	

TRC
Results you can rely on

2057 Commerce Drive
Midland, Texas 79703
432.520.7720



LEGEND:

- Vertical Delineation Sample Location
- Horizontal Delineation Sample Location

1' bgs	Excavate to 1' bgs
2' bgs	Excavate to 2' bgs
3' bgs	Excavate to 3' bgs
5' bgs	Excavate to 5' bgs

Figure 2

Site & Sample Location Map

COG Operating, LLC

Lusk Deep Unit A #029H

Lea County, New Mexico

Scale 1" = ~50'	
Drafted by: ZC	Checked by: JL
Draft: January 12, 2018	
Lat. N 32.6667595 Long. W 103.7948532	
UL "D", Sec. 17, T19S, R32E	
TRC Proj. No.: 293103	

TRC
Results you can rely on
2057 Commerce Drive
Midland, Texas 79703
432.520.7720

TABLE 1

CONCENTRATIONS OF BENZENE, BTEX, TPH, AND CHLORIDE IN SOIL
LUSK DEEP UNIT A #029H
COG OPERATING, LLC
LEA COUNTY, NM
NMOCD REF. No. 1RP-4882

SAMPLE LOCATION	SAMPLE DATE	SAMPLE DEPTH	STATUS	Methods: EPA SW 846-8021B, 5030					Methods:				Method:
									EPA SW 846-8015M				E300
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL-BENZENE (mg/Kg)	XYLENES, TOTAL (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	ORO (mg/Kg)	TOTAL TPH (mg/Kg)	CHLORIDE (mg/Kg)
SP #1 @ SURF	12/21/2017	Surf.	In-Situ	0.565	14.5	15.1	27.49	**57.655**	541	7,800	799	**9,140**	**11,900**
SP #1 @ 1'	12/21/2017	1'	In-Situ	<0.000998	<0.000998	<0.000998	<0.000998	<0.000998	<14.9	<14.9	<14.9	<14.9	57.2
SP #1 @ 2'	12/21/2017	2'	In-Situ	-	-	-	-	-	<14.9	15.0	<14.9	15.0	-
SP #2 @ SURF	12/21/2017	Surf.	In-Situ	1.70	36.8	26.8	46.1	**111.4**	846	8,590	1,460	**10,896**	**12,600**
SP #2 @ 1'	12/21/2017	1'	In-Situ	<0.00100	<0.00100	<0.00100	<0.001	<0.001	<14.9	<14.9	<14.9	<14.9	**3,230**
SP #2 @ 4'	12/21/2017	4'	In-Situ	-	-	-	-	-	-	-	-	-	**7,510**
SP #3 @ SURF	12/21/2017	Surf.	In-Situ	0.00249	0.0392	0.0105	0.01537	0.06756	38.1	1,330	181	1,549	**13,300**
SP #3 @ 1'	12/21/2017	1'	In-Situ	-	-	-	-	-	<14.9	<14.9	<14.9	<14.9	326
SP #3 @ 2'	12/21/2017	2'	In-Situ	-	-	-	-	-	-	-	-	-	22.3
SP #4 @ SURF	12/21/2017	Surf.	In-Situ	**17.0**	301	188	318.3	**824.3**	8,210	24,700	3,670	**36,580**	36.6
SP #4 @ 1'	12/21/2017	1'	In-Situ	<0.0248	58.1	73.9	134.7	**266.7**	2,230	5,060	511	**7,801**	48.2
SP #4 @ 2'	12/21/2017	2'	In-Situ	<0.000990	<0.000990	<0.000990	<0.00099	<0.00099	<14.9[K]	<14.9[K]	<14.9[K]	<14.9[K]	-
SP #5 @ SURF	12/21/2017	Surf.	In-Situ	**32.5**	334	229	407	**1,002.50**	8,780	17,100	2,710	**28,590**	**3,800**
SP #5 @ 1'	12/21/2017	1'	In-Situ	**25.9**	291	158	265	**740.3**	7,030	9,150	921	**17,101**	**5,320**
SP #5 @ 2'	12/21/2017	2'	In-Situ	0.406	36.5	54.3	78.7	**169.906**	2,160	4,680	565	**7,405**	51.8
SP #5 @ 3'	12/21/2017	3'	In-Situ	<0.0250	0.0472	0.399	2.21	2.6562	96.6[K]	750[K]	108[K]	954.6[K]	-
North #1	12/21/2017	1'	In-Situ	<0.000990	0.00144	<0.000990	<0.00099	0.00144	<15.0	<15.0	<15.0	<15.0	251
North #2	12/21/2017	1'	In-Situ	<0.00101	<0.00101	<0.00101	<0.00101	<0.00101	<15.0	<15.0	<15.0	<15.0	249
		1											
East #1	12/21/2017	1'	In-Situ	<0.00101	<0.00101	<0.00101	<0.00101	<0.00101	<15.0	<15.0	<15.0	<15.0	119
East #2	12/21/2017	1'	In-Situ	<0.000996	<0.000996	<0.000996	<0.000996	<0.000996	<15.0	17.0	<15.0	17.0	<9.71
East #3	12/21/2017	1'	In-Situ	<0.000994	<0.000994	<0.000994	<0.000994	<0.000994	<15.0	<15.0	<15.0	<15.0	<9.78
West #1	12/21/2017	1'	In-Situ	<0.000994	0.00147	<0.000994	<0.000994	0.00147	<15.0	<15.0	<15.0	<15.0	270
South #1	12/21/2017	1'	In-Situ	<0.000998	<0.000998	<0.000998	<0.000998	<0.000998	<15.0	<15.0	<15.0	<15.0	**743**
South #2	12/21/2017	1'	In-Situ	<0.00101	<0.00101	<0.00101	<0.00101	<0.00101	<14.9	<14.9	<14.9	<14.9	<9.71
NMOCD Regulatory Guideline				**10**	**-**	**-**	**-**	**50**	**-**	**-**	**-**	**5,000**	**600**

Bold denotes concentraions above NMOCD Regulatory Guidelines
- = Sample not analyzed for constituent.
[K] = Sample analyzed outside of recommended hold time.

Analytical Report 572221

for

TRC Solutions, Inc

Project Manager: Joel Lowry

Lusk Deep Unit A #029H

22-JAN-18

Collected By: Client

6701 Aberdeen, Suite 9 Lubbock, TX 79424

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

22-JAN-18

Project Manager: **Joel Lowry**
TRC Solutions, Inc
2057 Commerce
Midland, TX 79703

Reference: XENCO Report No(s): **572221**
Lusk Deep Unit A #029H
Project Address: Lea Co. NM

Joel Lowry:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 572221. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 572221 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 572221

TRC Solutions, Inc, Midland, TX

Lusk Deep Unit A #029H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SP #1 @ Surf.	S	12-21-17 10:25	0	572221-001
SP #1 @ 1'	S	12-21-17 10:30	1 ft	572221-002
SP #1 @ 2'	S	12-21-17 10:35	2 ft	572221-003
SP #2 @ Surf.	S	12-21-17 10:40	0	572221-004
SP #2 @ 1'	S	12-21-17 10:45	1 ft	572221-005
SP #2 @ 4'	S	12-21-17 10:55	7 ft	572221-007
SP #3 @ Surf.	S	12-21-17 11:00	0	572221-008
SP #3 @ 1'	S	12-21-17 11:05	1 ft	572221-009
SP #3 @ 2'	S	12-21-17 11:10	2 ft	572221-010
SP #4 @ Surf.	S	12-21-17 11:15	0	572221-011
SP #4 @ 1'	S	12-21-17 11:20	1 ft	572221-012
SP #4 @ 2'	S	12-21-17 11:25	2 ft	572221-013
SP #5 @ Surf.	S	12-21-17 11:30	0	572221-014
SP #5 @ 1'	S	12-21-17 11:35	1 ft	572221-015
SP #5 @ 2'	S	12-21-17 11:40	2 ft	572221-016
SP #5 @ 3'	S	12-21-17 11:43	0	572221-017
North #1	S	12-21-17 11:45	1 ft	572221-018
North #2	S	12-21-17 11:50	1 ft	572221-019
East #1	S	12-21-17 11:55	1 ft	572221-020
East #2	S	12-21-17 12:00	1 ft	572221-021
East #3	S	12-21-17 12:10	1 ft	572221-022
West #1	S	12-21-17 12:15	1 ft	572221-023
South #1	S	12-21-17 12:20	1 ft	572221-024
South #2	S	12-21-17 12:30	1 ft	572221-025
SP #2 @ 2'	S	12-21-17 10:50	2 ft	Not Analyzed

Client Name: TRC Solutions, Inc

Project Name: Lusk Deep Unit A #029H

Project ID:
Work Order Number(s): *572221*

Report Date: *22-JAN-18*
Date Received: *12/27/2017*

Sample receipt non conformances and comments:

1.001 1/16/18 8015 DRO-ORO added to samples 013 & 017 per Joel Lowry. OK to run out of hold time.

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3037396 BTEX by SW 8260B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3037445 BTEX by SW 8260B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3037542 BTEX by SW 8260B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 572221

TRC Solutions, Inc, Midland, TX

Project Name: Lusk Deep Unit A #029H

Project Id:
Contact: Joel Lowry
Project Location: Lea Co. NM

Date Received in Lab: Wed Dec-27-17 05:12 pm
Report Date: 22-JAN-18
Project Manager: Kelsey Brooks

Analysis Requested															
	Lab Id:	572221-001		572221-002		572221-003		572221-004		572221-005		572221-007	
	Field Id:	SP #1 @ Surf.		SP #1 @ 1'		SP #1 @ 2'		SP #2 @ Surf.		SP #2 @ 1'		SP #2 @ 4'	
	Depth:	0-		1- ft		2- ft		0-		1- ft		7- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-21-17 10:25		Dec-21-17 10:30		Dec-21-17 10:35		Dec-21-17 10:40		Dec-21-17 10:45		Dec-21-17 10:55	
BTEX by SW 8260B SUB: TX104704215-17-23	***Extracted:***	Jan-02-18 18:00		Jan-02-18 15:45				Jan-02-18 18:00		Jan-02-18 15:45			
	Analyzed:	Jan-02-18 20:01		Jan-02-18 16:51				Jan-02-18 19:44		Jan-02-18 17:32			
	Units/RL:	mg/kg	RL	mg/kg	RL			mg/kg	RL	mg/kg	RL		
Benzene		0.565	0.0996	<0.000998	0.000998			1.70	0.0998	<0.00100	0.00100		
Toluene		14.5	0.0996	<0.000998	0.000998			36.8	0.0998	<0.00100	0.00100		
Ethylbenzene		15.1	0.0996	<0.000998	0.000998			26.8	0.0998	<0.00100	0.00100		
m,p-Xylenes		19.2	0.199	<0.00200	0.00200			33.0	0.200	<0.00200	0.00200		
o-Xylene		8.29	0.0996	<0.000998	0.000998			13.1	0.0998	<0.00100	0.00100		
Total Xylenes		27.49	0.0996	<0.000998	0.000998			46.1	0.0998	<0.001	0.001		
Total BTEX		57.655	0.0996	<0.000998	0.000998			111.4	0.0998	<0.001	0.001		
Chloride by EPA 300 SUB: TX104704215-17-23	***Extracted:***	Jan-03-18 14:00		Jan-03-18 14:00				Jan-03-18 14:00		Jan-03-18 14:00		Jan-03-18 14:00	
	Analyzed:	Jan-03-18 17:17		Jan-03-18 17:50				Jan-03-18 18:02		Jan-03-18 18:13		Jan-03-18 18:46	
	Units/RL:	mg/kg	RL	mg/kg	RL			mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		11900	99.0	57.2	9.78			12600	97.1	3230	47.3	7510	48.0
DRO-ORO By SW8015B SUB: TX104704215-17-23	***Extracted:***	Dec-29-17 10:27		Dec-29-17 10:30		Dec-29-17 10:33		Dec-29-17 10:36		Dec-29-17 10:39			
	Analyzed:	Dec-30-17 10:15		Dec-30-17 00:02		Dec-30-17 00:22		Dec-30-17 12:00		Dec-30-17 00:44			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Gasoline Range Hydrocarbons (GRO)		541	15.0	<14.9	14.9	<14.9	14.9	846	14.9	<14.9	14.9		
Diesel Range Organics (DRO)		7800 D	150	<14.9	14.9	15.0	14.9	8590 D	149	<14.9	14.9		
Oil Range Hydrocarbons (ORO)		799	15.0	<14.9	14.9	<14.9	14.9	1460 D	149	<14.9	14.9		

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 572221

TRC Solutions, Inc, Midland, TX

Project Name: Lusk Deep Unit A #029H

Project Id:
Contact: Joel Lowry
Project Location: Lea Co. NM

Date Received in Lab: Wed Dec-27-17 05:12 pm
Report Date: 22-JAN-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	572221-008		572221-009		572221-010		572221-011		572221-012		572221-013	
	Field Id:	SP #3 @ Surf.		SP #3 @ 1'		SP #3 @ 2'		SP #4 @ Surf.		SP #4 @ 1'		SP #4 @ 2'	
	Depth:	0-		1- ft		2- ft		0-		1- ft		2- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-21-17 11:00		Dec-21-17 11:05		Dec-21-17 11:10		Dec-21-17 11:15		Dec-21-17 11:20		Dec-21-17 11:25	
BTEX by SW 8260B SUB: TX104704215-17-23	***Extracted:***	Jan-02-18 18:00						Jan-02-18 18:00		Jan-02-18 18:00		Jan-02-18 18:00	
	Analyzed:	Jan-02-18 21:07						Jan-02-18 20:17		Jan-02-18 19:11		Jan-02-18 23:02	
	Units/RL:	mg/kg	RL					mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		0.00249	0.000990					17.0	0.0994	<0.0248	0.0248	<0.000990	0.000990
Toluene		0.0392	0.000990					301 D	0.994	58.1 D	0.198	<0.000990	0.000990
Ethylbenzene		0.0105	0.000990					188 D	0.994	73.9 D	0.198	<0.000990	0.000990
m,p-Xylenes		0.0105	0.00198					225 D	1.99	98.9 D	0.396	<0.00198	0.00198
o-Xylene		0.00487	0.000990					93.3 D	0.994	35.8 D	0.198	<0.000990	0.000990
Total Xylenes		0.01537	0.00099					318.3	0.994	134.7	0.198	<0.00099	0.00099
Total BTEX		0.06756	0.00099					824.3	0.0994	266.7	0.0248	<0.00099	0.00099
Chloride by EPA 300 SUB: TX104704215-17-23	***Extracted:***	Jan-03-18 14:00		Jan-03-18 14:00		Jan-03-18 14:00		Jan-03-18 14:00		Jan-03-18 14:00			
	Analyzed:	Jan-03-18 18:58		Jan-03-18 19:09		Jan-03-18 19:20		Jan-03-18 19:31		Jan-03-18 19:42			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		13300	99.8	326	9.90	22.3	9.71	36.6	9.58	48.2	9.94		
DRO-ORO By SW8015B SUB: TX104704215-17-23	***Extracted:***	Dec-29-17 10:42		Dec-29-17 10:45				Dec-29-17 16:18		Dec-29-17 16:21		Jan-18-18 11:54	
	Analyzed:	Jan-02-18 21:12		Dec-30-17 01:05				Dec-30-17 09:13		Dec-30-17 09:54		Jan-19-18 02:03	
	Units/RL:	mg/kg	RL	mg/kg	RL			mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		38.1	14.9	<14.9	14.9			8210	150	2230	15.0	<14.9 K	14.9
Diesel Range Organics (DRO)		1330	14.9	<14.9	14.9			24700	150	5060	15.0	<14.9 K	14.9
Oil Range Hydrocarbons (ORO)		181	14.9	<14.9	14.9			3670	150	511	15.0	<14.9 K	14.9

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 572221

TRC Solutions, Inc, Midland, TX

Project Name: Lusk Deep Unit A #029H

Project Id:
Contact: Joel Lowry
Project Location: Lea Co. NM

Date Received in Lab: Wed Dec-27-17 05:12 pm
Report Date: 22-JAN-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	572221-014		572221-015		572221-016		572221-017		572221-018		572221-019	
	Field Id:	SP #5 @ Surf.		SP #5 @ 1'		SP #5 @ 2'		SP #5 @ 3'		North #1		North #2	
	Depth:	0-		1- ft		2- ft		0-		1- ft		1- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-21-17 11:30		Dec-21-17 11:35		Dec-21-17 11:40		Dec-21-17 11:43		Dec-21-17 11:45		Dec-21-17 11:50	
BTEX by SW 8260B SUB: TX104704215-17-23	***Extracted:***	Jan-03-18 17:00		Jan-03-18 17:00		Jan-03-18 17:00		Jan-04-18 13:00		Jan-03-18 14:20		Jan-03-18 14:20	
	Analyzed:	Jan-03-18 21:58		Jan-03-18 22:13		Jan-03-18 21:42		Jan-04-18 14:03		Jan-03-18 15:27		Jan-03-18 15:44	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		32.5	0.100	25.9	0.0996	0.406	0.100	<0.0250	0.0250	<0.000990	0.000990	<0.00101	0.00101
Toluene		334 D	1.00	291 D	0.996	36.5	0.100	0.0472	0.0250	0.00144	0.000990	<0.00101	0.00101
Ethylbenzene		229 D	1.00	158 D	0.996	54.3 D	0.990	0.399	0.0250	<0.000990	0.000990	<0.00101	0.00101
m,p-Xylenes		290 D	2.00	193 D	1.99	52.4	0.200	1.21	0.0499	<0.00198	0.00198	<0.00202	0.00202
o-Xylene		117 D	1.00	72.4 D	0.996	26.3	0.100	1.00	0.0250	<0.000990	0.000990	<0.00101	0.00101
Total Xylenes		407	1	265.4	0.996	78.7	0.1	2.21	0.025	<0.00099	0.00099	<0.00101	0.00101
Total BTEX		1002.5	0.1	740.3	0.0996	169.906	0.1	2.6562	0.025	0.00144	0.00099	<0.00101	0.00101
Chloride by EPA 300 SUB: TX104704215-17-23	***Extracted:***	Jan-03-18 14:00		Jan-03-18 14:00		Jan-03-18 14:00				Jan-03-18 14:00		Jan-03-18 14:00	
	Analyzed:	Jan-03-18 19:53		Jan-03-18 20:05		Jan-03-18 20:16				Jan-03-18 20:27		Jan-03-18 21:23	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL			mg/kg	RL	mg/kg	RL
Chloride		3800	49.2	5320	48.3	51.8	9.33			251	9.51	249	9.58
DRO-ORO By SW8015B SUB: TX104704215-17-23	***Extracted:***	Dec-29-17 16:24		Dec-29-17 16:27		Jan-03-18 10:36		Jan-18-18 11:57		Dec-29-17 16:33		Dec-29-17 16:36	
	Analyzed:	Dec-30-17 09:34		Dec-30-17 10:35		Jan-09-18 04:39		Jan-19-18 08:40		Dec-30-17 01:27		Dec-30-17 01:48	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		8780	150	7030 D	149	2160	15.0	96.6 K	14.9	<15.0	15.0	<15.0	15.0
Diesel Range Organics (DRO)		17100	150	9150 D	149	4680	15.0	750 K	14.9	<15.0	15.0	<15.0	15.0
Oil Range Hydrocarbons (ORO)		2710	150	921	14.9	565	15.0	108 K	14.9	<15.0	15.0	<15.0	15.0

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 572221

TRC Solutions, Inc, Midland, TX

Project Name: Lusk Deep Unit A #029H

Project Id:
Contact: Joel Lowry
Project Location: Lea Co. NM

Date Received in Lab: Wed Dec-27-17 05:12 pm
Report Date: 22-JAN-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	572221-020		572221-021		572221-022		572221-023		572221-024		572221-025	
	Field Id:	East #1		East #2		East #3		West #1		South #1		South #2	
	Depth:	1- ft		1- ft		1- ft		1- ft		1- ft		1- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-21-17 11:55		Dec-21-17 12:00		Dec-21-17 12:10		Dec-21-17 12:15		Dec-21-17 12:20		Dec-21-17 12:30	
BTEX by SW 8260B SUB: TX104704215-17-23	***Extracted:***	Jan-03-18 14:20		Jan-03-18 14:20		Jan-03-18 17:00		Jan-03-18 17:00		Jan-04-18 15:00		Jan-03-18 17:00	
	Analyzed:	Jan-03-18 16:01		Jan-03-18 16:21		Jan-03-18 18:48		Jan-03-18 19:04		Jan-04-18 16:31		Jan-03-18 19:35	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00101	0.00101	<0.000996	0.000996	<0.000994	0.000994	<0.000994	0.000994	<0.000998	0.000998	<0.00101	0.00101
Toluene		<0.00101	0.00101	<0.000996	0.000996	<0.000994	0.000994	0.00147	0.000994	<0.000998	0.000998	<0.00101	0.00101
Ethylbenzene		<0.00101	0.00101	<0.000996	0.000996	<0.000994	0.000994	<0.000994	0.000994	<0.000998	0.000998	<0.00101	0.00101
m,p-Xylenes		<0.00202	0.00202	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200	<0.00202	0.00202
o-Xylene		<0.00101	0.00101	<0.000996	0.000996	<0.000994	0.000994	<0.000994	0.000994	<0.000998	0.000998	<0.00101	0.00101
Total Xylenes		<0.00101	0.00101	<0.000996	0.000996	<0.000994	0.000994	<0.000994	0.000994	<0.000998	0.000998	<0.00101	0.00101
Total BTEX		<0.00101	0.00101	<0.000996	0.000996	<0.000994	0.000994	0.00147	0.000994	<0.000998	0.000998	<0.00101	0.00101
Chloride by EPA 300 SUB: TX104704215-17-23	***Extracted:***	Jan-03-18 14:00		Jan-03-18 14:00		Jan-03-18 14:00		Jan-03-18 14:00		Jan-03-18 14:00		Jan-03-18 14:00	
	Analyzed:	Jan-03-18 21:34		Jan-03-18 21:45		Jan-03-18 21:56		Jan-03-18 22:08		Jan-03-18 23:15		Jan-03-18 23:26	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		119	9.98	<9.71	9.71	<9.78	9.78	270	9.90	743	9.71	<9.71	9.71
DRO-ORO By SW8015B SUB: TX104704215-17-23	***Extracted:***	Dec-29-17 16:39		Dec-29-17 16:42		Dec-29-17 16:45		Dec-29-17 16:48		Dec-29-17 16:51		Jan-03-18 10:39	
	Analyzed:	Dec-30-17 02:09		Dec-30-17 02:30		Dec-30-17 03:55		Dec-30-17 04:15		Dec-30-17 04:37		Jan-08-18 12:12	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9
Diesel Range Organics (DRO)		<15.0	15.0	17.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037271 **Sample:** 572221-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 00:02

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.7	99.2	78	70-135	
o-Terphenyl	40.6	49.6	82	70-135	

Lab Batch #: 3037271 **Sample:** 572221-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 00:22

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.9	99.3	78	70-135	
o-Terphenyl	43.6	49.7	88	70-135	

Lab Batch #: 3037271 **Sample:** 572221-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 00:44

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.2	99.0	85	70-135	
o-Terphenyl	45.4	49.5	92	70-135	

Lab Batch #: 3037271 **Sample:** 572221-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 01:05

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	75.2	99.1	76	70-135	
o-Terphenyl	40.3	49.6	81	70-135	

Lab Batch #: 3037298 **Sample:** 572221-018 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 01:27

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	74.2	100	74	70-135	
o-Terphenyl	38.0	50.0	76	70-135	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037298 **Sample:** 572221-019 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 01:48

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	81.5	100	82	70-135	
o-Terphenyl	43.8	50.0	88	70-135	

Lab Batch #: 3037298 **Sample:** 572221-020 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 02:09

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	82.5	100	83	70-135	
o-Terphenyl	48.3	50.0	97	70-135	

Lab Batch #: 3037298 **Sample:** 572221-021 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 02:30

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.4	100	77	70-135	
o-Terphenyl	42.7	50.0	85	70-135	

Lab Batch #: 3037298 **Sample:** 572221-022 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 03:55

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	80.8	100	81	70-135	
o-Terphenyl	41.9	50.0	84	70-135	

Lab Batch #: 3037298 **Sample:** 572221-023 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 04:15

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	83.7	100	84	70-135	
o-Terphenyl	47.1	50.0	94	70-135	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037298 **Sample:** 572221-024 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 04:37

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	81.8	100	82	70-135	
o-Terphenyl	43.7	50.0	87	70-135	

Lab Batch #: 3037298 **Sample:** 572221-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 09:13

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	42.0	50.0	84	70-135	

Lab Batch #: 3037298 **Sample:** 572221-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 09:34

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	100	104	70-135	
o-Terphenyl	57.7	50.0	115	70-135	

Lab Batch #: 3037298 **Sample:** 572221-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 09:54

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	82.4	100	82	70-135	
o-Terphenyl	52.0	50.0	104	70-135	

Lab Batch #: 3037271 **Sample:** 572221-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 10:15

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.1	99.8	91	70-135	
o-Terphenyl	57.1	49.9	114	70-135	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037298 **Sample:** 572221-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 10:35

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	71.6	99.6	72	70-135	
o-Terphenyl	59.5	49.8	119	70-135	

Lab Batch #: 3037271 **Sample:** 572221-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/30/17 12:00

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.5	99.6	88	70-135	
o-Terphenyl	58.6	49.8	118	70-135	

Lab Batch #: 3037321 **Sample:** 572221-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/02/18 16:51

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0513	0.0500	103	74-126	
1,2-Dichloroethane-D4	0.0476	0.0500	95	80-120	
Toluene-D8	0.0500	0.0500	100	73-132	

Lab Batch #: 3037321 **Sample:** 572221-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/02/18 17:32

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0524	0.0500	105	74-126	
1,2-Dichloroethane-D4	0.0507	0.0500	101	80-120	
Toluene-D8	0.0490	0.0500	98	73-132	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037321 **Sample:** 572221-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/02/18 19:11

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0472	0.0500	94	74-126	
1,2-Dichloroethane-D4	0.0520	0.0500	104	80-120	
Toluene-D8	0.0583	0.0500	117	73-132	

Lab Batch #: 3037321 **Sample:** 572221-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/02/18 19:44

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0449	0.0500	90	74-126	
1,2-Dichloroethane-D4	0.0452	0.0500	90	80-120	
Toluene-D8	0.0534	0.0500	107	73-132	

Lab Batch #: 3037321 **Sample:** 572221-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/02/18 20:01

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0454	0.0500	91	74-126	
1,2-Dichloroethane-D4	0.0436	0.0500	87	80-120	
Toluene-D8	0.0517	0.0500	103	73-132	

Lab Batch #: 3037321 **Sample:** 572221-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/02/18 20:17

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0453	0.0500	91	74-126	
1,2-Dichloroethane-D4	0.0481	0.0500	96	80-120	
Toluene-D8	0.0555	0.0500	111	73-132	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037321 **Sample:** 572221-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/02/18 21:07

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0497	0.0500	99	74-126	
1,2-Dichloroethane-D4	0.0478	0.0500	96	80-120	
Toluene-D8	0.0520	0.0500	104	73-132	

Lab Batch #: 3037271 **Sample:** 572221-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/02/18 21:12

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89.0	99.5	89	70-135	
o-Terphenyl	45.8	49.8	92	70-135	

Lab Batch #: 3037321 **Sample:** 572221-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/02/18 23:02

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0515	0.0500	103	74-126	
1,2-Dichloroethane-D4	0.0459	0.0500	92	80-120	
Toluene-D8	0.0520	0.0500	104	73-132	

Lab Batch #: 3037271 **Sample:** 572221-001 / DL **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/02/18 23:57

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	80.1	99.8	80	70-135	
o-Terphenyl	44.2	49.9	89	70-135	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037298 **Sample:** 572221-015 / DL **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 00:18

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	71.9	99.6	72	70-135	
o-Terphenyl	47.1	49.8	95	70-135	

Lab Batch #: 3037271 **Sample:** 572221-004 / DL **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 00:38

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.0	99.6	85	70-135	
o-Terphenyl	48.0	49.8	96	70-135	

Lab Batch #: 3037396 **Sample:** 572221-012 / DL **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 13:04

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0472	0.0500	94	74-126	
1,2-Dichloroethane-D4	0.0447	0.0500	89	80-120	
Toluene-D8	0.0565	0.0500	113	73-132	

Lab Batch #: 3037396 **Sample:** 572221-011 / DL **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 13:21

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0465	0.0500	93	74-126	
1,2-Dichloroethane-D4	0.0421	0.0500	84	80-120	
Toluene-D8	0.0502	0.0500	100	73-132	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037396 **Sample:** 572221-018 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 15:27

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0516	0.0500	103	74-126	
1,2-Dichloroethane-D4	0.0496	0.0500	99	80-120	
Toluene-D8	0.0509	0.0500	102	73-132	

Lab Batch #: 3037396 **Sample:** 572221-019 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 15:44

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0527	0.0500	105	74-126	
1,2-Dichloroethane-D4	0.0552	0.0500	110	80-120	
Toluene-D8	0.0501	0.0500	100	73-132	

Lab Batch #: 3037396 **Sample:** 572221-020 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 16:01

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0520	0.0500	104	74-126	
1,2-Dichloroethane-D4	0.0508	0.0500	102	80-120	
Toluene-D8	0.0502	0.0500	100	73-132	

Lab Batch #: 3037396 **Sample:** 572221-021 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 16:21

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0523	0.0500	105	74-126	
1,2-Dichloroethane-D4	0.0475	0.0500	95	80-120	
Toluene-D8	0.0508	0.0500	102	73-132	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037445 **Sample:** 572221-022 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 18:48

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0510	0.0500	102	74-126	
1,2-Dichloroethane-D4	0.0498	0.0500	100	80-120	
Toluene-D8	0.0515	0.0500	103	73-132	

Lab Batch #: 3037445 **Sample:** 572221-023 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 19:04

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0509	0.0500	102	74-126	
1,2-Dichloroethane-D4	0.0476	0.0500	95	80-120	
Toluene-D8	0.0523	0.0500	105	73-132	

Lab Batch #: 3037445 **Sample:** 572221-025 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 19:35

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0522	0.0500	104	74-126	
1,2-Dichloroethane-D4	0.0457	0.0500	91	80-120	
Toluene-D8	0.0510	0.0500	102	73-132	

Lab Batch #: 3037445 **Sample:** 572221-016 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 21:42

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0495	0.0500	99	74-126	
1,2-Dichloroethane-D4	0.0475	0.0500	95	80-120	
Toluene-D8	0.0449	0.0500	90	73-132	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037445 **Sample:** 572221-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 21:58

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0456	0.0500	91	74-126	
1,2-Dichloroethane-D4	0.0443	0.0500	89	80-120	
Toluene-D8	0.0448	0.0500	90	73-132	

Lab Batch #: 3037445 **Sample:** 572221-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 22:13

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0478	0.0500	96	74-126	
1,2-Dichloroethane-D4	0.0454	0.0500	91	80-120	
Toluene-D8	0.0496	0.0500	99	73-132	

Lab Batch #: 3037542 **Sample:** 572221-017 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/04/18 14:03

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0546	0.0500	109	74-126	
1,2-Dichloroethane-D4	0.0539	0.0500	108	80-120	
Toluene-D8	0.0482	0.0500	96	73-132	

Lab Batch #: 3037542 **Sample:** 572221-014 / DL **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/04/18 15:16

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0497	0.0500	99	74-126	
1,2-Dichloroethane-D4	0.0467	0.0500	93	80-120	
Toluene-D8	0.0482	0.0500	96	73-132	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037542 **Sample:** 572221-016 / DL **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/04/18 15:54

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0519	0.0500	104	74-126	
1,2-Dichloroethane-D4	0.0517	0.0500	103	80-120	
Toluene-D8	0.0449	0.0500	90	73-132	

Lab Batch #: 3037542 **Sample:** 572221-024 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/04/18 16:31

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0566	0.0500	113	74-126	
1,2-Dichloroethane-D4	0.0560	0.0500	112	80-120	
Toluene-D8	0.0397	0.0500	79	73-132	

Lab Batch #: 3037397 **Sample:** 572221-025 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/08/18 12:12

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	74.1	99.6	74	70-135	
o-Terphenyl	35.4	49.8	71	70-135	

Lab Batch #: 3037397 **Sample:** 572221-016 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/09/18 04:39

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	99.9	104	70-135	
o-Terphenyl	43.8	50.0	88	70-135	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3038649 **Sample:** 572221-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/19/18 02:03

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	72.1	99.2	73	70-135	
o-Terphenyl	38.1	49.6	77	70-135	

Lab Batch #: 3038649 **Sample:** 572221-017 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/19/18 08:40

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	73.6	99.6	74	70-135	
o-Terphenyl	36.6	49.8	73	70-135	

Lab Batch #: 3037271 **Sample:** 7636744-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/29/17 12:52

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	72.6	100	73	70-135	
o-Terphenyl	39.9	50.0	80	70-135	

Lab Batch #: 3037298 **Sample:** 7636802-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/29/17 17:03

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	78.6	100	79	70-135	
o-Terphenyl	42.9	50.0	86	70-135	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037321 **Sample:** 7636872-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/02/18 15:37

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0516	0.0500	103	74-126	
1,2-Dichloroethane-D4	0.0465	0.0500	93	80-120	
Toluene-D8	0.0482	0.0500	96	73-132	

Lab Batch #: 3037397 **Sample:** 7636876-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/03/18 11:56

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.2	100	99	70-135	
o-Terphenyl	56.7	50.0	113	70-135	

Lab Batch #: 3037396 **Sample:** 7636943-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/03/18 12:09

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0509	0.0500	102	74-126	
1,2-Dichloroethane-D4	0.0482	0.0500	96	80-120	
Toluene-D8	0.0497	0.0500	99	73-132	

Lab Batch #: 3037445 **Sample:** 7636978-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/03/18 18:33

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0489	0.0500	98	74-126	
1,2-Dichloroethane-D4	0.0467	0.0500	93	80-120	
Toluene-D8	0.0558	0.0500	112	73-132	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037542 **Sample:** 7637024-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/04/18 12:32

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0520	0.0500	104	74-126	
1,2-Dichloroethane-D4	0.0496	0.0500	99	80-120	
Toluene-D8	0.0495	0.0500	99	73-132	

Lab Batch #: 3038649 **Sample:** 7637669-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/18/18 17:18

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	70.2	100	70	70-135	
o-Terphenyl	37.7	50.0	75	70-135	

Lab Batch #: 3037271 **Sample:** 7636744-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/29/17 12:10

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	82.5	100	83	70-135	
o-Terphenyl	43.5	50.0	87	70-135	

Lab Batch #: 3037298 **Sample:** 7636802-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/29/17 17:23

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.8	100	91	70-135	
o-Terphenyl	47.0	50.0	94	70-135	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037321 **Sample:** 7636872-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/02/18 13:48

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0479	0.0500	96	74-126	
1,2-Dichloroethane-D4	0.0474	0.0500	95	80-120	
Toluene-D8	0.0540	0.0500	108	73-132	

Lab Batch #: 3037396 **Sample:** 7636943-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/03/18 09:39

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0502	0.0500	100	74-126	
1,2-Dichloroethane-D4	0.0538	0.0500	108	80-120	
Toluene-D8	0.0504	0.0500	101	73-132	

Lab Batch #: 3037397 **Sample:** 7636876-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/03/18 11:15

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	100	115	70-135	
o-Terphenyl	62.6	50.0	125	70-135	

Lab Batch #: 3037445 **Sample:** 7636978-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/03/18 16:25

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0499	0.0500	100	74-126	
1,2-Dichloroethane-D4	0.0503	0.0500	101	80-120	
Toluene-D8	0.0520	0.0500	104	73-132	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037542 **Sample:** 7637024-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/04/18 10:07

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0515	0.0500	103	74-126	
1,2-Dichloroethane-D4	0.0494	0.0500	99	80-120	
Toluene-D8	0.0503	0.0500	101	73-132	

Lab Batch #: 3038649 **Sample:** 7637669-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/18/18 16:15

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	81.6	100	82	70-135	
o-Terphenyl	43.4	50.0	87	70-135	

Lab Batch #: 3037271 **Sample:** 7636744-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/29/17 12:31

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89.6	100	90	70-135	
o-Terphenyl	44.4	50.0	89	70-135	

Lab Batch #: 3037298 **Sample:** 7636802-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/29/17 17:44

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.0	100	85	70-135	
o-Terphenyl	42.9	50.0	86	70-135	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037321 **Sample:** 7636872-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/02/18 13:20

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0482	0.0500	96	74-126	
1,2-Dichloroethane-D4	0.0479	0.0500	96	80-120	
Toluene-D8	0.0536	0.0500	107	73-132	

Lab Batch #: 3037396 **Sample:** 7636943-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/03/18 10:56

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0469	0.0500	94	74-126	
1,2-Dichloroethane-D4	0.0470	0.0500	94	80-120	
Toluene-D8	0.0545	0.0500	109	73-132	

Lab Batch #: 3037397 **Sample:** 7636876-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/03/18 11:36

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	100	102	70-135	
o-Terphenyl	52.9	50.0	106	70-135	

Lab Batch #: 3037445 **Sample:** 7636978-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/03/18 17:29

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0521	0.0500	104	74-126	
1,2-Dichloroethane-D4	0.0558	0.0500	112	80-120	
Toluene-D8	0.0454	0.0500	91	73-132	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037542 **Sample:** 7637024-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/04/18 11:28

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0498	0.0500	100	74-126	
1,2-Dichloroethane-D4	0.0503	0.0500	101	80-120	
Toluene-D8	0.0520	0.0500	104	73-132	

Lab Batch #: 3038649 **Sample:** 7637669-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/18/18 16:36

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	76.2	100	76	70-135	
o-Terphenyl	39.7	50.0	79	70-135	

Lab Batch #: 3037271 **Sample:** 572194-009 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/29/17 16:22

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	178	199	89	70-135	
o-Terphenyl	88.4	99.5	89	70-135	

Lab Batch #: 3037321 **Sample:** 572190-004 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/02/18 14:05

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0510	0.0500	102	74-126	
1,2-Dichloroethane-D4	0.0557	0.0500	111	80-120	
Toluene-D8	0.0513	0.0500	103	73-132	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037396 **Sample:** 572221-007 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 10:23

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0517	0.0500	103	74-126	
1,2-Dichloroethane-D4	0.0552	0.0500	110	80-120	
Toluene-D8	0.0508	0.0500	102	73-132	

Lab Batch #: 3037445 **Sample:** 572221-022 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 16:57

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0496	0.0500	99	74-126	
1,2-Dichloroethane-D4	0.0500	0.0500	100	80-120	
Toluene-D8	0.0498	0.0500	100	73-132	

Lab Batch #: 3037542 **Sample:** 572221-024 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/04/18 11:08

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0541	0.0500	108	74-126	
1,2-Dichloroethane-D4	0.0563	0.0500	113	80-120	
Toluene-D8	0.0459	0.0500	92	73-132	

Lab Batch #: 3037271 **Sample:** 572194-009 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/29/17 16:42

SURROGATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	174	198	88	70-135	
o-Terphenyl	90.6	99.0	92	70-135	

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

Form 2 - Surrogate Recoveries

Project Name: Lusk Deep Unit A #029H

Work Orders : 572221,

Project ID:

Lab Batch #: 3037321 **Sample:** 572190-004 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/02/18 14:21

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0506	0.0500	101	74-126	
1,2-Dichloroethane-D4	0.0524	0.0500	105	80-120	
Toluene-D8	0.0538	0.0500	108	73-132	

Lab Batch #: 3037396 **Sample:** 572221-007 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 10:40

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0517	0.0500	103	74-126	
1,2-Dichloroethane-D4	0.0558	0.0500	112	80-120	
Toluene-D8	0.0501	0.0500	100	73-132	

Lab Batch #: 3037445 **Sample:** 572221-022 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 17:13

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0496	0.0500	99	74-126	
1,2-Dichloroethane-D4	0.0498	0.0500	100	80-120	
Toluene-D8	0.0537	0.0500	107	73-132	

Lab Batch #: 3037542 **Sample:** 572221-024 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/04/18 16:49

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0538	0.0500	108	74-126	
1,2-Dichloroethane-D4	0.0576	0.0500	115	80-120	
Toluene-D8	0.0460	0.0500	92	73-132	

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

BS / BSD Recoveries

Project Name: Lusk Deep Unit A #029H

Work Order #: 572221 **Project ID:**

Analyst: JTR **Date Prepared:** 01/02/2018 **Date Analyzed:** 01/02/2018

Lab Batch ID: 3037321 **Sample:** 7636872-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00100	0.100	0.0969	97	0.100	0.0982	98	1	62-132	25	
Toluene	<0.00100	0.100	0.106	106	0.100	0.104	104	2	66-124	25	
Ethylbenzene	<0.00100	0.100	0.109	109	0.100	0.104	104	5	71-134	25	
m,p-Xylenes	<0.00200	0.200	0.208	104	0.200	0.208	104	0	69-128	25	
o-Xylene	<0.00100	0.100	0.107	107	0.100	0.108	108	1	72-131	25	

Analyst: JTR **Date Prepared:** 01/03/2018 **Date Analyzed:** 01/03/2018

Lab Batch ID: 3037396 **Sample:** 7636943-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00100	0.100	0.0965	97	0.100	0.102	102	6	62-132	25	
Toluene	<0.00100	0.100	0.0983	98	0.100	0.110	110	11	66-124	25	
Ethylbenzene	<0.00100	0.100	0.0981	98	0.100	0.109	109	11	71-134	25	
m,p-Xylenes	<0.00200	0.200	0.198	99	0.200	0.215	108	8	69-128	25	
o-Xylene	<0.00100	0.100	0.101	101	0.100	0.111	111	9	72-131	25	

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

BS / BSD Recoveries

Project Name: Lusk Deep Unit A #029H

Work Order #: 572221 **Project ID:**

Analyst: JTR **Date Prepared:** 01/03/2018 **Date Analyzed:** 01/03/2018

Lab Batch ID: 3037445 **Sample:** 7636978-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00100	0.100	0.0967	97	0.100	0.115	115	17	62-132	25	
Toluene	<0.00100	0.100	0.103	103	0.100	0.0967	97	6	66-124	25	
Ethylbenzene	<0.00100	0.100	0.0971	97	0.100	0.104	104	7	71-134	25	
m,p-Xylenes	<0.00200	0.200	0.199	100	0.200	0.214	107	7	69-128	25	
o-Xylene	<0.00100	0.100	0.0979	98	0.100	0.103	103	5	72-131	25	

Analyst: JTR **Date Prepared:** 01/04/2018 **Date Analyzed:** 01/04/2018

Lab Batch ID: 3037542 **Sample:** 7637024-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00100	0.100	0.102	102	0.100	0.114	114	11	62-132	25	
Toluene	<0.00100	0.100	0.0920	92	0.100	0.0987	99	7	66-124	25	
Ethylbenzene	<0.00100	0.100	0.0871	87	0.100	0.0998	100	14	71-134	25	
m,p-Xylenes	<0.00200	0.200	0.181	91	0.200	0.204	102	12	69-128	25	
o-Xylene	<0.00100	0.100	0.0869	87	0.100	0.101	101	15	72-131	25	

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

BS / BSD Recoveries

Project Name: Lusk Deep Unit A #029H

Work Order #: 572221 **Project ID:**

Analyst: DHE **Date Prepared:** 01/03/2018 **Date Analyzed:** 01/03/2018

Lab Batch ID: 3037377 **Sample:** 7636896-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<1.00	10.0	9.75	98	10.0	9.69	97	1	80-120	20	

Analyst: DHE **Date Prepared:** 01/03/2018 **Date Analyzed:** 01/03/2018

Lab Batch ID: 3037378 **Sample:** 7636897-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<1.00	10.0	9.77	98	10.0	9.75	98	0	80-120	20	

Analyst: ARL **Date Prepared:** 12/29/2017 **Date Analyzed:** 12/29/2017

Lab Batch ID: 3037271 **Sample:** 7636744-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	857	86	1000	846	85	1	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	917	92	1000	918	92	0	70-135	35	

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

BS / BSD Recoveries

Project Name: Lusk Deep Unit A #029H

Work Order #: 572221 **Project ID:**

Analyst: ISU **Date Prepared:** 12/29/2017 **Date Analyzed:** 12/29/2017

Lab Batch ID: 3037298 **Sample:** 7636802-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	921	92	1000	859	86	7	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	1010	101	1000	950	95	6	70-135	35	

Analyst: ARL **Date Prepared:** 01/03/2018 **Date Analyzed:** 01/03/2018

Lab Batch ID: 3037397 **Sample:** 7636876-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1000	100	1000	904	90	10	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	1050	105	1000	1010	101	4	70-135	35	

Analyst: ARL **Date Prepared:** 01/18/2018 **Date Analyzed:** 01/18/2018

Lab Batch ID: 3038649 **Sample:** 7637669-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	986	99	1000	931	93	6	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	1130	113	1000	1070	107	5	70-135	35	

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

Form 3 - MS / MSD Recoveries

Project Name: Lusk Deep Unit A #029H

Work Order # : 572221 **Project ID:**

Lab Batch ID: 3037321 **QC- Sample ID:** 572190-004 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/02/2018 **Date Prepared:** 01/02/2018 **Analyst:** JTR

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000998	0.0998	0.0797	80	0.0998	0.0882	88	10	62-132	25	
Toluene	<0.000998	0.0998	0.0850	85	0.0998	0.0948	95	11	66-124	25	
Ethylbenzene	<0.000998	0.0998	0.0824	83	0.0998	0.0928	93	12	71-134	25	
m,p-Xylenes	<0.00200	0.200	0.165	83	0.200	0.182	91	10	69-128	25	
o-Xylene	<0.000998	0.0998	0.0857	86	0.0998	0.0975	98	13	72-131	25	

Lab Batch ID: 3037396 **QC- Sample ID:** 572221-007 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/03/2018 **Date Prepared:** 01/03/2018 **Analyst:** JTR

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000998	0.0998	0.0876	88	0.0996	0.0889	89	1	62-132	25	
Toluene	<0.000998	0.0998	0.0922	92	0.0996	0.0926	93	0	66-124	25	
Ethylbenzene	<0.000998	0.0998	0.0890	89	0.0996	0.0900	90	1	71-134	25	
m,p-Xylenes	<0.00200	0.200	0.180	90	0.199	0.180	90	0	69-128	25	
o-Xylene	<0.000998	0.0998	0.0900	90	0.0996	0.0923	93	3	72-131	25	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: Lusk Deep Unit A #029H

Work Order # : 572221 **Project ID:**

Lab Batch ID: 3037445 **QC- Sample ID:** 572221-022 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/03/2018 **Date Prepared:** 01/03/2018 **Analyst:** JTR

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000998	0.0998	0.102	102	0.0996	0.0924	93	10	62-132	25	
Toluene	<0.000998	0.0998	0.102	102	0.0996	0.104	104	2	66-124	25	
Ethylbenzene	<0.000998	0.0998	0.110	110	0.0996	0.0925	93	17	71-134	25	
m,p-Xylenes	<0.00200	0.200	0.225	113	0.199	0.192	96	16	69-128	25	
o-Xylene	<0.000998	0.0998	0.109	109	0.0996	0.0932	94	16	72-131	25	

Lab Batch ID: 3037542 **QC- Sample ID:** 572221-024 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/04/2018 **Date Prepared:** 01/04/2018 **Analyst:** JTR

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000992	0.0992	0.125	126	0.0998	0.129	129	3	62-132	25	
Toluene	<0.000992	0.0992	0.0829	84	0.0998	0.0851	85	3	66-124	25	
Ethylbenzene	<0.000992	0.0992	0.0911	92	0.0998	0.0951	95	4	71-134	25	
m,p-Xylenes	<0.00198	0.198	0.196	99	0.200	0.198	99	1	69-128	25	
o-Xylene	<0.000992	0.0992	0.0984	99	0.0998	0.0992	99	1	72-131	25	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: Lusk Deep Unit A #029H

Work Order # : 572221 **Project ID:**

Lab Batch ID: 3037377 **QC- Sample ID:** 572221-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/03/2018 **Date Prepared:** 01/03/2018 **Analyst:** DHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	11900	990	12900	101	990	12900	101	0	80-120	20	

Lab Batch ID: 3037377 **QC- Sample ID:** 572221-018 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/03/2018 **Date Prepared:** 01/03/2018 **Analyst:** DHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	251	95.1	345	99	95.1	346	100	0	80-120	20	

Lab Batch ID: 3037378 **QC- Sample ID:** 572194-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/04/2018 **Date Prepared:** 01/03/2018 **Analyst:** DHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	4620	489	5130	104	489	5100	98	1	80-120	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: Lusk Deep Unit A #029H

Work Order # : 572221 **Project ID:**

Lab Batch ID: 3037378 **QC- Sample ID:** 572225-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/03/2018 **Date Prepared:** 01/03/2018 **Analyst:** DHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	687	489	1180	101	489	1180	101	0	80-120	20	

Lab Batch ID: 3037271 **QC- Sample ID:** 572194-009 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/29/2017 **Date Prepared:** 12/29/2017 **Analyst:** ARL

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

DRO-ORO By SW8015B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<14.9	1990	1590	80	1980	1730	87	8	70-135	35	
Diesel Range Organics (DRO)	<14.9	1990	1910	96	1980	2030	103	6	70-135	35	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

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Phoenix, Arizona (480-355-0900)
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572221

Xenco Job # 572221

Client / Reporting Information	Project Information
Company Name / Branch: TRC Environmental Corporation	Project Name/Number: Lusk Deep Unit A #029H
Company Address: 2057 Commerce Drive, Midland, TX 79703	Project Location: Lea Co, NM
Email: jlowry@trcsolutions.com Phone No: 432-466-4450	Invoice To: COG Operating C/O Becky Haskell
Project Contact: Joel Lowry	Invoice:
Samplers's Name Joel Lowry	

Analytical Information

Matrix Codes: W = Water; S = Soil/Sed/Solid; GW =Ground Water; DW = Drinking Water; P = Product; SW = Surface water; SL = Sludge; OW =Ocean/Sea Water; WI = Wipe; O = Oil; WW= Waste Water; A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH 8015 M Ext	Chloride E 300	BTEX 8021B	Hold	Field Comments
1	SP #1 @ Surf.	0	12/21/2017	10:25	s	1									x	x	x		
2	SP #1 @ 1'	1	12/21/2017	10:30	s	1									x	x			
3	SP #1 @ 2'	2	12/21/2017	10:35	s	1									x				
4	SP #2 @ Surf.	0	12/21/2017	10:40	s	1									x	x	x		
5	SP #2 @ 1'	1	12/21/2017	10:45	s	1									x	x			
6	SP #2 @ 2'	2	12/21/2017	10:50	s	1												x	
7	SP #2 @ 4'	4	12/21/2017	10:55	s	1										x			
8	SP #3 @ Surf.	0	12/21/2017	11:00	s	1									x	x	x		
9	SP #3 @ 1'	1	12/21/2017	11:05	s	1									x	x			
10	SP #3 @ 2'	2	12/21/2017	11:10	s	1										x			

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] ~~Next Day EMERGENCY~~
- [ ] ~~7 Day TAT~~
- [ ] 2 Day EMERGENCY
- [x] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Notes:
jlowry@trcsolutions.com
rhaskell@concho.com
kblackburn@trcsolutions.com
dneel2@concho.com
FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

Relinquished by Sampler: 1	Date Time: 12/22 3:05	Received By: 1	Relinquished By: 2	Date Time:	Received By: 2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time: 12/27 5:14	Received By: 5	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
				12/27/17 17:12	1.2 / 1.1 IR 3 +0.1

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572224 BW

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Xenco Job # 572224 221

Client / Reporting Information	Project Information
Company Name / Branch: TRC Environmental Corporation	Project Name/Number: ~~Phillips State #004~~ Lust Deep Unit A #029H
Company Address: 2057 Commerce Drive, Midland, TX 79703	Project Location: Lea Co, NM
Email: jlowry@trcsolutions.com Phone No: 432-466-4450	Invoice To: COG Operating C/O Becky Haskell
Project Contact: Joel Lowry	Invoice:
Samplers's Name Joel Lowry	

Per Joel 12/28/17

Analytical Information

Matrix Codes: W = Water; S = Soil/Sed/Solid; GW =Ground Water; DW = Drinking Water; P = Product; SW = Surface water; SL = Sludge; OW =Ocean/Sea Water; WI = Wipe; O = Oil; WW= Waste Water; A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH 8015 M Ext	Chloride E 300	BTEX 8021B	hold	Field Comments
1	SP #4 @ Surf.	0	12/21/2017	11:15	s	1									x	x	x		
2	SP #4 @ 1'	1	12/21/2017	11:20	s	1									x	x			
3	SP #4 @ 2'	2	12/21/2017	11:25	s	1												x	
4	SP #5 @ Surf.	0	12/21/2017	11:30	s	1									x	x	x		
5	SP #5 @ 1'	1	12/21/2017	11:35	s	1									x	x			
6	SP #5 @ 3'	3	12/21/2017	11:40	s	1												x	
7	North #1	1	12/21/2017	11:45	s	1									x	x	x		
8	Norh #2	1	12/21/2017	11:50	s	1									x	x	x		
9	East #1	1	12/21/2017	11:55	s	1									x	x	x		
10	East #2	1	12/21/2017	12:00	s	1									x	x	x		

Data Deliverable Information

- [ ] Same Day TAT
- [ ] ~~Next Day EMERGENCY~~
- [ ] 2 Day EMERGENCY
- [ ] 3 Day EMERGENCY
- [ ] 5 Day TAT
- [ ] 7 Day TAT
- [x] Contract TAT

TAT Starts Day received by Lab, if received by 5:00 pm

- [ ] Level II Std QC
- [ ] Level III Std QC+ Forms
- [ ] Level 3 (CLP Forms)
- [ ] TRRP Checklist
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] TRRP Level IV
- [ ] UST / RG -411

Notes:

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kblackburn@trcsolutions.com

dneel2@concho.com

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Joel Lowry	12/27 3:06	1	2		2
3	Relinquished by:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time: 12/27 5:15	Received By: 5 Brenda Ward	Custody Seal #	Preserved where applicable	On Ice ✓ Cooler Temp. IR-3 Thermo. Corr. Factor 1.2/1.1 -0.1

12/27/17 17:12

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Phoenix, Arizona (480-355-0900)

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Xenco Job # 572221

Client / Reporting Information	Project Information
Company Name / Branch: TRC Environmental Corporation	Project Name/Number: ~~Phillips State #001~~ Lusk Deep Unit A #029H (Per Joel 12/28/17)
Company Address: 2057 Commerce Drive, Midland, TX 79703	Project Location: Lea Co, NM
Email: jlowry@trcsolutions.com Phone No: 432-466-4450	Invoice To: COG Operating C/O Becky Haskell
Project Contact: Joel Lowry	Invoice:
Samplers's Name Joel Lowry	

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Analytical Information: TPH 8015 M Ext	Chloride E 300	BTEX 8021B	Field Comments
1	East #3	1	12/21/2017	12:10	s	1									x	x	x	
2	West #1	1	12/21/2017	12:15	s	1									x	x	x	
3	South #1	1	12/21/2017	12:20	s	1									x	x	x	
4	South #2	1	12/21/2017	12:30	s	1									x	x	x	
5	SP #5 @ 2'	1	12/21/17															
6																		
7																		
8																		
9																		
10																		

Matrix Codes: W = Water; S = Soil/Sed/Solid; GW =Ground Water; DW = Drinking Water; P = Product; SW = Surface water; SL = Sludge; OW =Ocean/Sea Water; WI = Wipe; O = Oil; WW= Waste Water; A = Air

Data Deliverable Information			
☐ Same Day TAT	☐ 5 Day TAT	☐ Level II Std QC	☐ Level IV (Full Data Pkg /raw data)
☐ Next Day EMERGENCY	☐ 7 Day TAT	☐ Level III Std QC+ Forms	☐ TRRP Level IV
☐ 2 Day EMERGENCY	☒ Contract TAT	☐ Level 3 (CLP Forms)	☐ UST / RG -411
☐ 3 Day EMERGENCY		☐ TRRP Checklist	
TAT Starts Day received by Lab, if received by 5:00 pm			

Notes:

jlowry@trcsolutions.com

rhaskell@concho.com

kblackburn@trcsolutions.com

dneel2@concho.com

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SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		12/22 3:04	1	2		2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by:	Date Time: 12/27 5:15	Received By: 5	Custody Seal # 12/27/17	Preserved where applicable	On Ice ✓ Cooler Temp. IR-3 1.2 1.1 Thermo. Corr. Factor -0.1

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572221

Xenco Job # 572221

Client / Reporting Information

Company Name / Branch: TRC Environmental Corporation
Company Address: 2057 Commerce Drive, Midland, TX 79703
Email: jlowry@trcsolutions.com
Phone No: 432-466-4450
Project Contact: Joel Lowry
Samplers's Name Joel Lowry

Project Information

Project Name/Number: Lusk Deep Unit A #029H
Project Location: Lea Co, NM
Invoice To: COG Operating C/O Becky Haskell
Invoice:

Analytical Information

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
WI = Wipe
O = Oil
WW= Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH 8015 M Ext	Chloride E 300	BTEX 8021B	Hold	Field Comments
1	SP #1 @ Surf.	0	12/21/2017	10:25	s	1									X	X	X		
2	SP #1 @ 1'	1	12/21/2017	10:30	s	1									X	X			
3	SP #1 @ 2'	2	12/21/2017	10:35	s	1									X				
4	SP #2 @ Surf.	0	12/21/2017	10:40	s	1									X	X	X		
5	SP #2 @ 1'	1	12/21/2017	10:45	s	1									X	X			
6	SP #2 @ 2'	2	12/21/2017	10:50	s	1												X	
7	SP #2 @ 4'	4	12/21/2017	10:55	s	1										X			
8	SP #3 @ Surf.	0	12/21/2017	11:00	s	1									X	X	X		
9	SP #3 @ 1'	1	12/21/2017	11:05	s	1									X	X			
10	SP #3 @ 2'	2	12/21/2017	11:10	s	1										X			

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [x] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Notes:

jlowry@trcsolutions.com
maskell@concho.com
kblackburn@trcsolutions.com
dneel2@concho.com

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Joel Lowry	12/22 3:05		2		2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
		12/27 5:14	5	12/27/17 17:12		1.2 1.1 IR 3 +0.1

Notice: Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such loses are due to circumstances beyond the control of Xenco. A minimum charge of $75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at $5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

Final 1.002

CHAIN OF CUSTODY

XENCO LABORATORIES

Setting the Standard since 1990

Page 1 of 2 3

Stafford, Texas (281-240-4200)
Dallas Texas (214-902-0300)
San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)
Phoenix, Arizona (480-355-0900)
www.xenco.com

572224 BW 221
21

Xenco Job # 572224

Client / Reporting Information

Company Name / Branch: TRC Environmental Corporation
Company Address: 2057 Commerce Drive, Midland, TX 79703
Email: jlowry@trcsolutions.com
Phone No: 432-466-4450
Project Contact: Joel Lowry
Samplers's Name Joel Lowry

Project Information Per Joel 12/28/17

Project Name/Number: ~~Phillips State #004~~ Lusk Deep Unit A #029H
Project Location: Lea Co, NM
Invoice To: COG Operating C/O Becky Haskell
Invoice:

Analytical Information

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW = Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW = Ocean/Sea Water
WI = Wipe
O = Oil
WW = Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH 8015 M Ext	Chloride E 300	BTEX 8021B	hold	Field Comments
1	SP #4 @ Surf.	0	12/21/2017	11:15	s	1									x	x	x		
2	SP #4 @ 1'	1	12/21/2017	11:20	s	1									x	x			
3	SP #4 @ 2'	2	12/21/2017	11:25	s	1												x	
4	SP #5 @ Surf.	0	12/21/2017	11:30	s	1									x	x	x		
5	SP #5 @ 1' SP#5 — 2'	1	12/21/2017	11:35	s	1									x	x			
6	SP #5 @ 3'	3	12/21/2017	11:40	s	1												x	
7	North #1	1	12/21/2017	11:45	s	1									x	x	x		
8	Norh #2	1	12/21/2017	11:50	s	1									x	x	x		
9	East #1	1	12/21/2017	11:55	s	1									x	x	x		
10	East #2	1	12/21/2017	12:00	s	1									x	x	x		

Data Deliverable Information

- ☐ Same Day TAT
- ☐ 5 Day TAT
- ☐ Next Day EMERGENCY
- ☐ ~~7 Day TAT~~
- ☐ 2 Day EMERGENCY
- ☒ Contract TAT
- ☐ 3 Day EMERGENCY
- TAT Starts Day received by Lab, if received by 5:00 pm
- ☐ Level II Std QC
- ☐ Level III Std QC+ Forms
- ☐ Level 3 (CLP Forms)
- ☐ TRRP Checklist
- ☐ Level IV (Full Data Pkg /raw data)
- ☐ TRRP Level IV
- ☐ UST / RG -411

Notes:

jlowry@trcsolutions.com
rhaskell@concho.com
kblackburn@trcsolutions.com
dneel2@concho.com
FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Joel Lowry	12/27 3:06		2		2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by:	Date Time: 12/27 5:15	Received By: Brenda Ward	Custody Seal #	Preserved where applicable	On Ice ☐

Cooler Temp. IR 3 — Thermo. Corr. Factor 1.2 | 1.1 | -0.1

Notice: Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such loses are due to circumstances beyond the control of Xenco. A minimum charge of $75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at $5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

Final 1.002

CHAIN OF CUSTODY

XENCO LABORATORIES

Setting the Standard since 1990

Page 1 Of 1 2 3 3

Stafford,Texas (281-240-4200)
Dallas Texas (214-902-0300)
San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)
Phoenix, Arizona (480-355-0900)
www.xenco.com

572224 (2)
21

Xenco Job # 572221

Client / Reporting Information	Project Information
Company Name / Branch: TRC Environmental Corporation	Project Name/Number: ~~Phillips State #001~~ Lusk Deep Unit A #029 H (Per Joel 12/28/17)
Company Address: 2057 Commerce Drive, Midland, TX 79703	Project Location: Lea Co, NM
Email: jlowry@trcsolutions.com / Phone No: 432-466-4450	Invoice To: COG Operating C/O Becky Haskell
Project Contact: Joel Lowry	Invoice:
Samplers's Name Joel Lowry	

Matrix Codes: W = Water; S = Soil/Sed/Solid; GW =Ground Water; DW = Drinking Water; P = Product; SW = Surface water; SL = Sludge; OW =Ocean/Sea Water; WI = Wipe; O = Oil; WW= Waste Water; A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Analytical Information: TPH 8015 M Ext	Chloride E 300	BTEX 8021B	Field Comments
1	East #3	1	12/21/2017	12:10	s	1									x	x	x	
2	West #1	1	12/21/2017	12:15	s	1									x	x	x	
3	South #1	1	12/21/2017	12:20	s	1									x	x	x	
4	South #2	1	12/21/2017	12:30	s	1									x	x	x	
5	SP #5 @ 2'	1	12/21/17															
6																		
7																		
8																		
9																		
10																		

Data Deliverable Information

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [x] Contract TAT
- [ ] 3 Day EMERGENCY
- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

TAT Starts Day received by Lab, if received by 5:00 pm

Notes:
jlowry@trcsolutions.com
rhaskell@concho.com
kblackburn@trcsolutions.com
dneel2@concho.com
FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Joel Lowry	12/22 3:00	Kelsie Beckham	2		2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by: Kelsie Beckham	Date Time: 12/27 5:15	Received By: 5 Brenda Ward	Custody Seal # 12/27/17	Preserved where applicable	On Ice ✓ Cooler Temp. IR-3 1.2|1.1 Thermo. Corr. Factor -0.1

Notice: Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such loses are due to circumstances beyond the control of Xenco. A minimum charge of $75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at $5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

Inter-Office Shipment

IOS Number **1053900**

Date/Time: 12/28/17 17:13
Lab# From: **Lubbock**
Lab# To: **Houston**

Created by: Brenda Ward
Delivery Priority:
Air Bill No.: 771105606137

Please send report to: Kelsey Brooks
Address: 6701 Aberdeen, Suite 9 Lubbock, TX 79424
Phone:
E-Mail: kelsey.brooks@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
572221-001	S	SP #1 @ Surf.	12/21/17 10:25	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-001	S	SP #1 @ Surf.	12/21/17 10:25	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-001	S	SP #1 @ Surf.	12/21/17 10:25	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	
572221-001	S	SP #1 @ Surf.	12/21/17 10:25	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-002	S	SP #1 @ 1'	12/21/17 10:30	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-002	S	SP #1 @ 1'	12/21/17 10:30	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-002	S	SP #1 @ 1'	12/21/17 10:30	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-003	S	SP #1 @ 2'	12/21/17 10:35	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-003	S	SP #1 @ 2'	12/21/17 10:35	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-004	S	SP #1 @ Surf.	12/21/17 10:40	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-004	S	SP #1 @ Surf.	12/21/17 10:40	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-004	S	SP #1 @ Surf.	12/21/17 10:40	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	
572221-004	S	SP #1 @ Surf.	12/21/17 10:40	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-005	S	SP #2 @ 1'	12/21/17 10:45	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-005	S	SP #2 @ 1'	12/21/17 10:45	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-005	S	SP #2 @ 1'	12/21/17 10:45	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-006	S	SP #2 @ 2'	12/21/17 10:50	SW8015GRO	TPH GRO by EPA 8015 Mod.	HOLD	01/04/18	KEB	PHCG	
572221-006	S	SP #2 @ 2'	12/21/17 10:50	SW8015B_DROORO	DRO-ORO By SW8015B	HOLD	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-006	S	SP #2 @ 2'	12/21/17 10:50	E300_CL	Chloride by EPA 300	HOLD	01/18/18	KEB	CL	
572221-007	S	SP #2 @ 4'	12/21/17 10:55	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-008	S	SP #3 @ Surf.	12/21/17 11:00	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-008	S	SP #3 @ Surf.	12/21/17 11:00	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	
572221-008	S	SP #3 @ Surf.	12/21/17 11:00	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-008	S	SP #3 @ Surf.	12/21/17 11:00	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-009	S	SP #3 @ 1'	12/21/17 11:05	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	

Inter-Office Shipment

IOS Number **1053900**

Date/Time: 12/28/17 17:13
Lab# From: **Lubbock**
Lab# To: **Houston**

Created by: Brenda Ward
Delivery Priority:
Air Bill No.: 771105606137

Please send report to: Kelsey Brooks
Address: 6701 Aberdeen, Suite 9 Lubbock, TX 79424
Phone:
E-Mail: kelsey.brooks@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
572221-009	S	SP #3 @ 1'	12/21/17 11:05	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-009	S	SP #3 @ 1'	12/21/17 11:05	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-010	S	SP #3 @ 2'	12/21/17 11:10	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-011	S	SP #4 @ Surf.	12/21/17 11:15	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-011	S	SP #4 @ Surf.	12/21/17 11:15	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	
572221-011	S	SP #4 @ Surf.	12/21/17 11:15	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-011	S	SP #4 @ Surf.	12/21/17 11:15	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-012	S	SP #4 @ 1'	12/21/17 11:20	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-012	S	SP #4 @ 1'	12/21/17 11:20	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-012	S	SP #4 @ 1'	12/21/17 11:20	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-013	S	SP #4 @ 2'	12/21/17 11:25	E300_CL	Chloride by EPA 300	HOLD	01/18/18	KEB	CL	
572221-014	S	SP #5 @ Surf.	12/21/17 11:30	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-014	S	SP #5 @ Surf.	12/21/17 11:30	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	
572221-014	S	SP #5 @ Surf.	12/21/17 11:30	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-014	S	SP #5 @ Surf.	12/21/17 11:30	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-015	S	SP #5 @ 1'	12/21/17 11:35	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-015	S	SP #5 @ 1'	12/21/17 11:35	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-015	S	SP #5 @ 1'	12/21/17 11:35	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-016	S	SP #5 @ 2'	12/21/17 11:40	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-016	S	SP #5 @ 2'	12/21/17 11:40	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-016	S	SP #5 @ 2'	12/21/17 11:40	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-017	S	SP #5 @ 3'	12/21/17 11:43	E300_CL	Chloride by EPA 300	HOLD	01/18/18	KEB	CL	
572221-018	S	North #1	12/21/17 11:45	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-018	S	North #1	12/21/17 11:45	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-018	S	North #1	12/21/17 11:45	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	

Inter-Office Shipment

IOS Number **1053900**

Date/Time: 12/28/17 17:13
Lab# From: **Lubbock**
Lab# To: **Houston**

Created by: Brenda Ward
Delivery Priority:
Air Bill No.: 771105606137

Please send report to: Kelsey Brooks
Address: 6701 Aberdeen, Suite 9 Lubbock, TX 79424
Phone:
E-Mail: kelsey.brooks@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
572221-018	S	North #1	12/21/17 11:45	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-019	S	North #2	12/21/17 11:50	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-019	S	North #2	12/21/17 11:50	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-019	S	North #2	12/21/17 11:50	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-019	S	North #2	12/21/17 11:50	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	
572221-020	S	East #1	12/21/17 11:55	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-020	S	East #1	12/21/17 11:55	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-020	S	East #1	12/21/17 11:55	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-020	S	East #1	12/21/17 11:55	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	
572221-021	S	East #2	12/21/17 12:00	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	
572221-021	S	East #2	12/21/17 12:00	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-021	S	East #2	12/21/17 12:00	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-021	S	East #2	12/21/17 12:00	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-022	S	East #3	12/21/17 12:10	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-022	S	East #3	12/21/17 12:10	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-022	S	East #3	12/21/17 12:10	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-022	S	East #3	12/21/17 12:10	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	
572221-023	S	West #1	12/21/17 12:15	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	
572221-023	S	West #1	12/21/17 12:15	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-023	S	West #1	12/21/17 12:15	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-023	S	West #1	12/21/17 12:15	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-024	S	South #1	12/21/17 12:20	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	
572221-024	S	South #1	12/21/17 12:20	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-024	S	South #1	12/21/17 12:20	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	
572221-024	S	South #1	12/21/17 12:20	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	

Inter-Office Shipment

IOS Number **1053900**

Date/Time: 12/28/17 17:13
Lab# From: **Lubbock**
Lab# To: **Houston**

Created by: Brenda Ward
Delivery Priority:
Air Bill No.: 771105606137

Please send report to: Kelsey Brooks
Address: 6701 Aberdeen, Suite 9 Lubbock, TX 79424
Phone:
E-Mail: kelsey.brooks@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
572221-025	S	South #2	12/21/17 12:30	SW8015B_DROORO	DRO-ORO By SW8015B	01/03/18	01/04/18	KEB	PHCC10C28 PHCC28C35	
572221-025	S	South #2	12/21/17 12:30	SW8021B	BTEX by EPA 8021B	01/03/18	01/04/18	KEB	BR4FBZ BZ BZME EBZ X	
572221-025	S	South #2	12/21/17 12:30	E300_CL	Chloride by EPA 300	01/03/18	01/18/18	KEB	CL	
572221-025	S	South #2	12/21/17 12:30	SW8015GRO	TPH GRO by EPA 8015 Mod.	01/03/18	01/04/18	KEB	PHCG	

Inter Office Shipment or Sample Comments:

Relinquished By: Brenda Ward
Brenda Ward

Date Relinquished: 12/28/2017

Received By: R. C. Vandenberghe
Rene Vandenberghe

Date Received: 12/29/2017 10:00

Cooler Temperature: 3.6

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 1053900

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : hou-068

Sent By: Brenda Ward **Date Sent:** 12/28/2017 05:13 PM

Received By: Rene Vandenberghe **Date Received:** 12/29/2017 10:00 AM

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	3.6	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received with appropriate temperature?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**No**	
#5 *Custody Seals Signed and dated for Containers/coolers	**N/A**	
#6 *IOS present?	**Yes**	
#7 Any missing/extra samples?	**No**	
#8 IOS agrees with sample label(s)/matrix?	**Yes**	
#9 Sample matrix/ properties agree with IOS?	**Yes**	
#10 Samples in proper container/ bottle?	**Yes**	
#11 Samples properly preserved?	**Yes**	
#12 Sample container(s) intact?	**Yes**	
#13 Sufficient sample amount for indicated test(s)?	**Yes**	
#14 All samples received within hold time?	**Yes**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ **Contacted by :** _____ **Date:** _____

Checklist reviewed by: _____ Date: 12/29/2017
Rene Vandenberghe

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: TRC Solutions, Inc

Date/ Time Received: 12/27/2017 05:12:00 PM

Work Order #: 572221

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-3

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	1.1	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**	
#5 Custody Seals intact on sample bottles?	**N/A**	
#6*Custody Seals Signed and dated?	**N/A**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**Yes**	Xenco Houston
#18 Water VOC samples have zero headspace?	**N/A**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Brenda Ward Date: 12/28/2017
Brenda Ward

Checklist reviewed by: Date: 12/28/2017

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: **COG Operating, LLC** (OGRID# 229137)	Contact: **Robert McNeill**
Address: **600 West Illinois Avenue, Midland TX 79701**	Telephone No.: **432-683-7443**
Facility Name: **Lusk Deep Unit A #029H**	Facility Type: **Well**

Surface Owner: BLM	Mineral Owner: Federal	API No.: 30-025-41563

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	17	19S	32E	355	North	660	West	Lea

Latitude: 32.6667595 **Longitude:** -103.7948532 NAD83

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 10bbls Oil & 20bbls PW	Volume Recovered: 8bbls Oil & 10bbls PW
Source of Release: Suction Line	Date and Hour of Occurrence: 11/24/2017 6:30am	Date and Hour of Discovery: 11/24/2017 6:30am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Oliva Yu-NMOCD Shelly Tucker-BLM	
By Whom? Sheldon Hitchcock	Date and Hour: 11/24/2017 11:33am	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

RECEIVED
By Olivia Yu at 9:19 am, Nov 28, 2017

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Bands on 4" suction line failed resulting in a release onto the well pad and into the adjacent pasture. The suction line was repaired.

Describe Area Affected and Cleanup Action Taken.*

The release impacted the well pad and the adjacent pasture. A vacuum truck was dispatched to recover all freestanding fluids. Concho will have the spill area evaluated for any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Sheldon Hitchcock

Printed Name: Sheldon L. Hitchcock

Title: HSE Coordinator

E-mail Address: slhitchcock@concho.com

Date: 11/27/2017 Phone: 575-746-2010

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 11/28/2017 Expiration Date:

Conditions of Approval: see attached directive

Attached ☑

* Attach Additional Sheets If Necessary

1RP-4882 nOY1733234682

pOY1733234867

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: **COG Operating, LLC** (OGRID# 229137)	Contact: **Robert McNeill**
Address: **600 West Illinois Avenue, Midland TX 79701**	Telephone No.: **432-683-7443**
Facility Name**: Lusk Deep Unit A #029H**	Facility Type**: Well**

Surface Owner: BLM	Mineral Owner: Federal	API No.: 30-025-41563

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	17	19S	32E	355	North	660	West	Lea

Latitude: 32.6667595 **Longitude**: -103.7948532 NAD83

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 15 bbls PW	Volume Recovered: 10bbls PW
Source of Release: Water Seal	Date and Hour of Occurrence: 12/16/2017 6:00am	Date and Hour of Discovery: 12/16/2017 6:00am
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By Olivia Yu at 2:33 pm, Dec 18, 2017

Describe Cause of Problem and Remedial Action Taken.*

The shaft on the H-pump twisted off causing the water seal to leak and release produced water onto the well pad. The pump will be removed and replaced.

Describe Area Affected and Cleanup Action Taken.*

The release impacted the well pad. A vacuum truck was dispatched to recover all freestanding fluids. Concho will have the spill area evaluated for any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Dakota Neel

Printed Name: Dakota Neel

Title: HSE Coordinator

E-mail Address dneel2@concho.com

Date: 12/17/2017 Phone: 575-746-2010

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 12/18/2017 Expiration Date:

Conditions of Approval:

see attached directive

Attached ☑

* Attach Additional Sheets If Necessary

1RP-4897 nOY1735252600 pOY1735252768

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _12/17/2017_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-4897__ has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _1/18/2018_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

● Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

● Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

● Nominal detection limits for field and laboratory analyses must be provided.

● Composite sampling is not generally allowed.

● Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

●Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

● If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

● Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us