

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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

pJXK16 00436312

4065

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

Initial Report Final Report

Name of Company COG Operating LLC	Contact Robert McNeill
Address 600 W. Illinois Ave, Midland, Texas 79701	Telephone No. (432) 230-0077
Facility Name Corazon State Unit #1H	Facility Type Tank Battery

Surface Owner: State	Mineral Owner	Lease No. (API) 30-025-40714
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
X	3	21S	33E					

Latitude **32.50081 N°** Longitude **103.55281 W °**

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release 15 bbls of Oil, 3 bbls of Produced Water	Volume Recovered 13 bbls of Oil, 2bbls of Produced Water
Source of Release: FWKO	Date and Hour of Occurrence 05-05-2013	Date and Hour of Discovery 05-05-2013 6:00 am

Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?
--	------------------

By Whom?	Date and Hour
----------	---------------

Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A
---	--

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
The electric submersible pump grounded out due to a mechanical failure causing high pressure to blow out a gasket on the water dump valve and the sight glass on the FWKO. The contaminated area was excavated to below the NM RRAL and then backfilled with clean material up to grade. The contaminated material was taken to a proper disposal.

Describe Area Affected and Cleanup Action Taken.*
Tetra Tech inspected site and collected samples to define spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review.

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:		OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez		Approved by District Supervisor:	
Title: Senior Project Manager		Approval Date:	Expiration Date:
E-mail Address: ike.tavarez@tetrattech.com		Conditions of Approval:	
Date: _____ Phone: (432) 682-4559		Attached <input type="checkbox"/>	

* Attach Additional Sheets If Necessary

SITE INFORMATION

Report Type: Closure

General Site Information:

Site:	Corazon State Unit #1H				
Company:	COG Operating LLC				
Section, Township and Range	Unit P	Sec 3	T21S	R33E	
Lease Number:	(API#) 30-025-40714				
County:	Lea County				
GPS:	32.50090° N			103.55344° W	
Surface Owner:	State				
Mineral Owner:					
Directions:	From the intersection of Hwy 176 and Marathon Rd., travel west on Hwy 176 for 5.1 miles, turn left (south) onto lease road and travel 1.8 miles, turn left (east) and travel 1.4 miles to the site.				

Release Data:

Date Released:	5/5/2013
Type Release:	Produced Water and Oil
Source of Contamination:	FWKO
Fluid Released:	15 bbls Oil 3 bbls Produced Water
Fluids Recovered:	13 bbls Oil 2 bbls Produced Water

Official Communication:

Name:	Robert McNeill	Ike Tavaréz
Company:	COG Operating, LLC	Tetra Tech
Address:	One Concho Center 600 W. Illinois Ave.	1910 N. Big Spring
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432) 686-3023	(432) 682-4559
Fax:	(432) 684-7137	
Email:	pellis@conchoresources.com	ike.tavarez@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	10
>100 ft.	0	0
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:	0	

Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	5,000

HOBBS OCD

JAN 24 2014

RECEIVED



TETRA TECH

HOBBS OCD

JAN 24 2014

RECEIVED

November 04, 2013

Mr. Geoffrey Leking
Environmental Engineer Specialist
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

Re: Closure Report for the COG Operating LLC., Corazon State Unit #1H, Unit P, Section 3, Township 21 South, Range 33 East, Lea County, New Mexico.

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Corazon State Unit #1H located in Unit P, Section 3, Township 21 South, Range 33 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.50090°, W 103.55344°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on May 5, 2013, and released approximately eighteen (18) barrels of produced fluid from the free water knock out. To alleviate the problem, COG personnel replaced the free water knock out and the back pressure relief valve. Fifteen (15) barrels of standing fluids were recovered. The spill initiated inside of a lined facility but a light overspray affected the adjacent pasture measuring approximately 75' x 115'. The pooled area (heaviest stained area) in the pasture measured approximately 20' x 20'. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 3. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 125' below surface. The average depth to groundwater map is shown in Appendix B.

Tetra Tech

4000 North Big Spring, Suite 401, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On May 31, 2013, Tetra Tech personnel inspected and sampled the spill area. The heaviest stained area (20' x 20') was assessed and installed one (1) auger hole (AH-1) using a stainless steel hand auger. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole location is shown on Figure 3.

Referring to Table 1, AH-1 sample at 0-1' did not exceed the TPH or BTEX RRAL's. A chloride concentration of 2,050 mg/kg was detected at 0-1', but declined with depth to 785 mg/kg at 1-1.5' and 25.5 mg/kg at 2-2.5' below surface.

Remedial Activities

On May 31, 2013, Tetra Tech supervised the excavation of AH-1, and the area was excavated to 1.5' below surface. Once excavated, a confirmation sample was collected for analysis. Referring to Table 1, the confirmation sample showed a chloride concentration of 224 mg/Kg. Based on the results, the area was then backfilled and brought to grade with clean material. Approximately 13 cubic yards of soil were hauled off to the proper disposal.



TETRA TECH

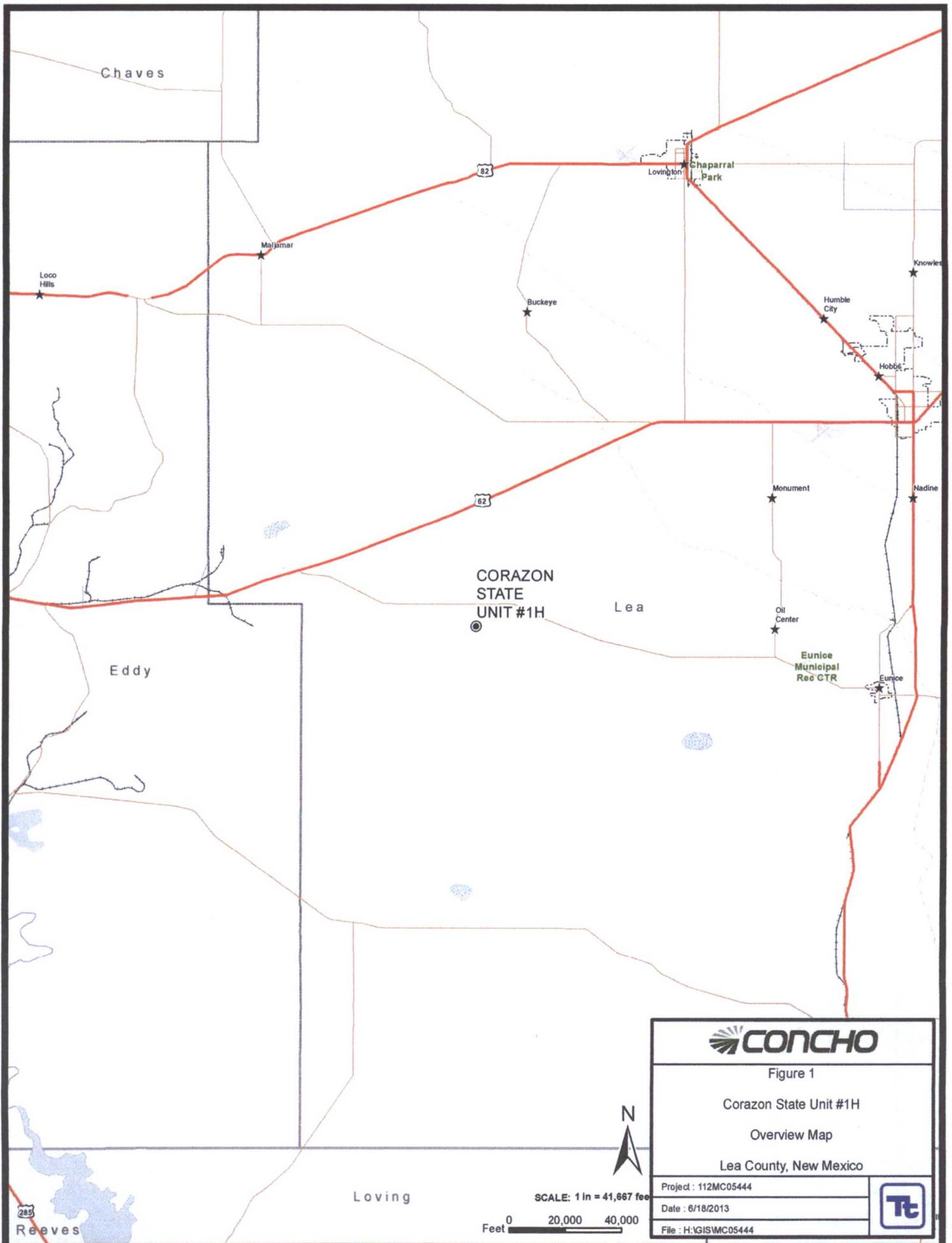
Conclusion

Based on the remedial activities performed, COG requests closure of this site. The final C-141 is included in Appendix A. If you have any questions or comments concerning the assessment or the remedial activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavaréz, PG
Senior Project Manager

cc: Robert McNeill – COG



Chaves

Eddy

CORAZON
STATE
UNIT #1H

Lea

Loving

Reeves

Figure 1	
Corazon State Unit #1H	
Overview Map	
Lea County, New Mexico	
Project : 112MC05444	
Date : 6/18/2013	
File : H:\GIS\MC05444	



CORAZON STATE UNIT #1H



Figure 2

Corazon State Unit #1H

Topo Map 1:24,000

Lea County, New Mexico

Project : 112MC05444

Date : 6/18/2013

File : H:\GIS\MC05444





PASTURE

LIGHT OVERSPRAY

115'

75'

AH-1

GAS RUN

PJ

PAD

SEP

FWKO

HT

OIL

OIL

OIL

EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- ★ LEAK SOURCE
- ▨ SPILL AREA

SCALE: 1 IN = 64 FEET

Feet 0 20 40



Figure 3

Corazon State Unit #1H

Spill Assessment Map

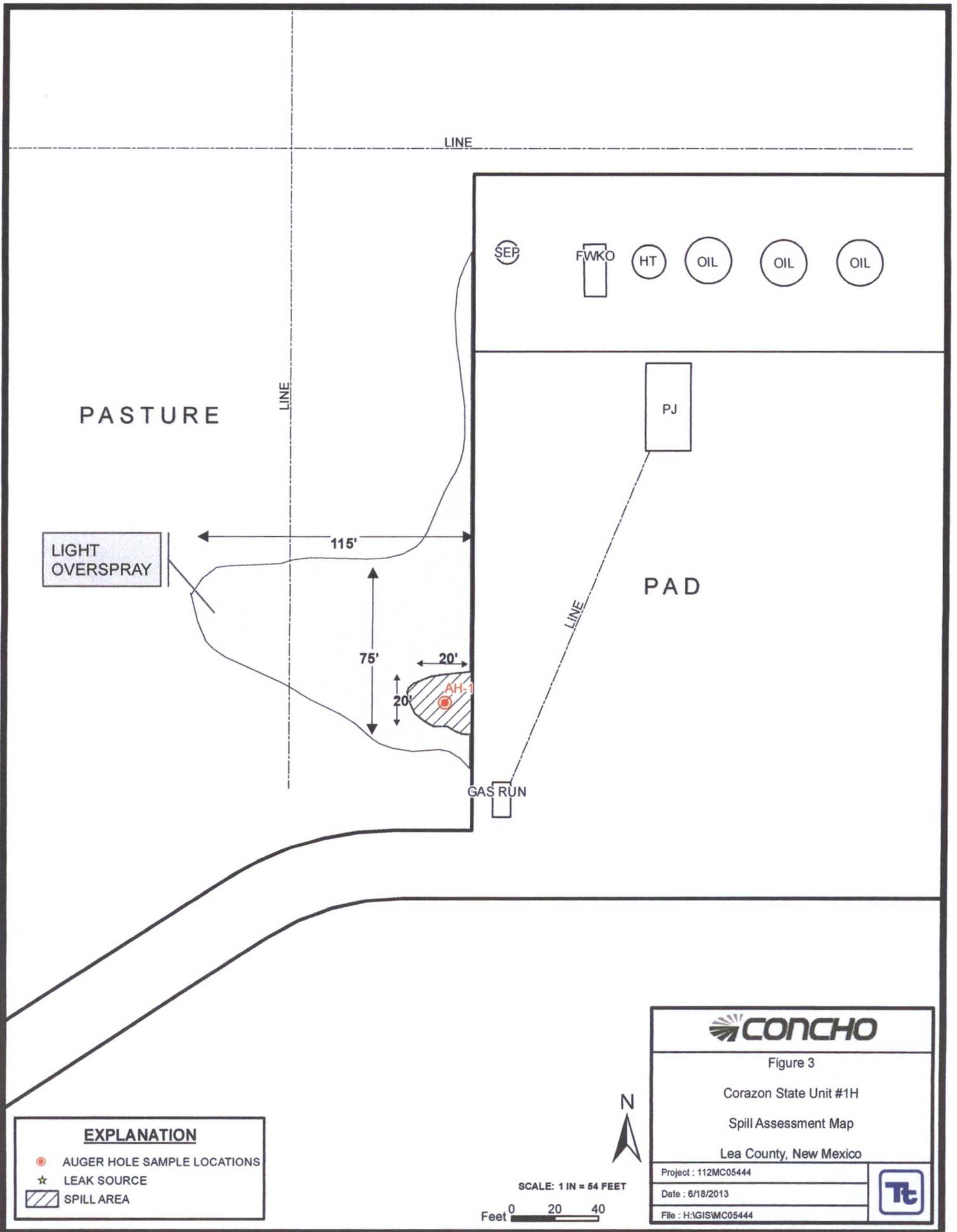
Lea County, New Mexico

Project : 112MC05444

Date : 6/18/2013

File : H:\GISMC05444





EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- ★ LEAK SOURCE
- ▨ SPILL AREA

CONCHO

Figure 3

Corazon State Unit #1H

Spill Assessment Map

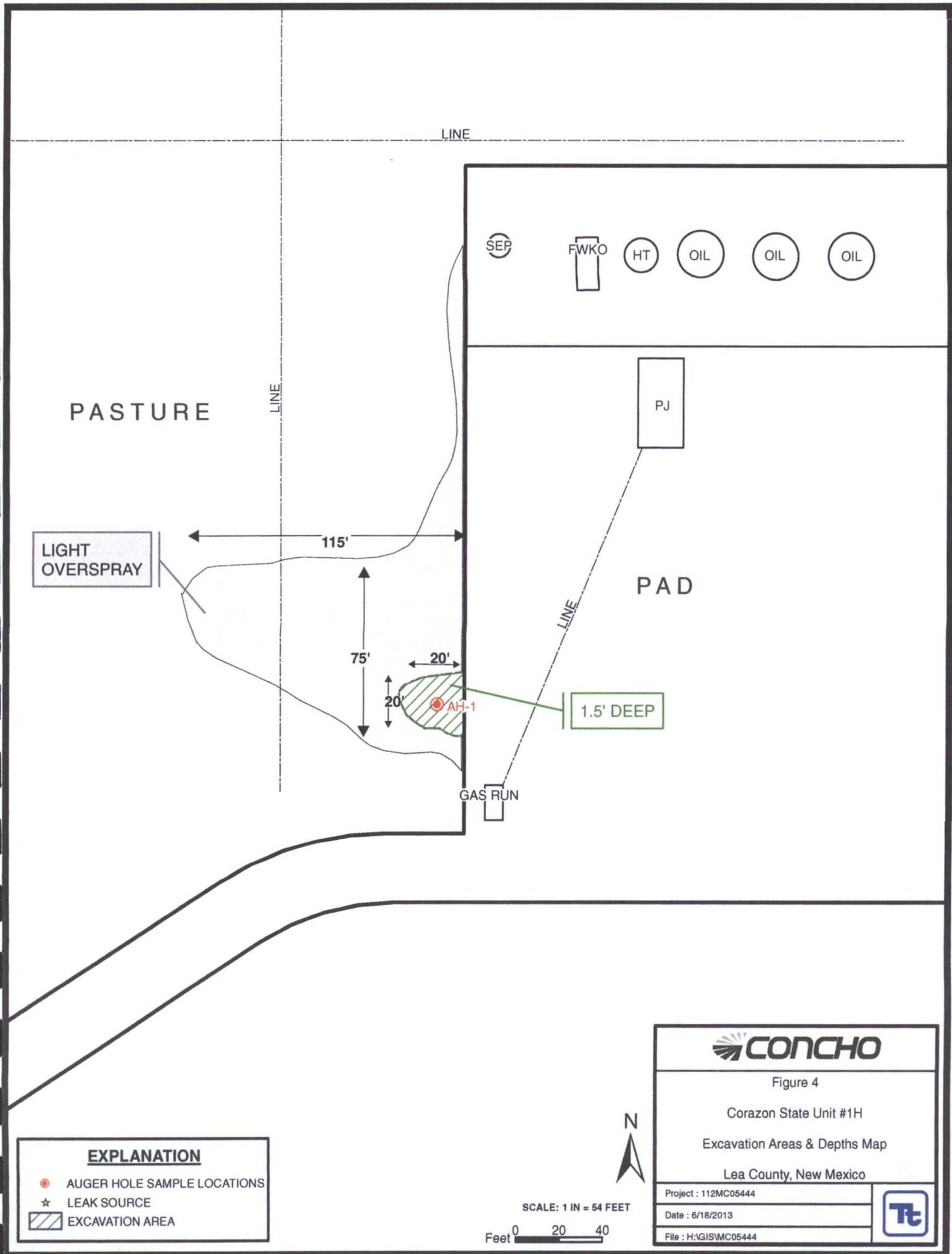
Lea County, New Mexico

Project : 112MC05444

Date : 6/18/2013

File : H:\GIS\MC05444





LIGHT OVERSPRAY

PASTURE

LINE

LINE

SEP

FWKO

HT

OIL

OIL

OIL

PJ

PAD

115'

75'

20'

20'

AH-1

1.5' DEEP

GAS RUN

LINE

EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- ★ LEAK SOURCE
- ▨ EXCAVATION AREA



SCALE: 1 IN = 54 FEET

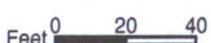


Figure 4

Corazon State Unit #1H

Excavation Areas & Depths Map

Lea County, New Mexico

Project : 112MC05444

Date : 6/18/2013

File : H:\GIS\MC05444



Table 1
COG Operating LLC.
Corazon State Unit 1H
Eddy County, New Mexico

Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-1	5/31/2013	0-1	0		X	<4.00	57.9	57.9	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	2,050
	"	1-1.5	"	X		-	-	-	-	-	-	-	-	785
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	25.5
CS-1 Bottom Hole	10/23/2013	-	1.5	X		-	-	-	-	-	-	-	-	224

Excavated

(-) Not Analyzed

(BEB) Below Excavation Bottom

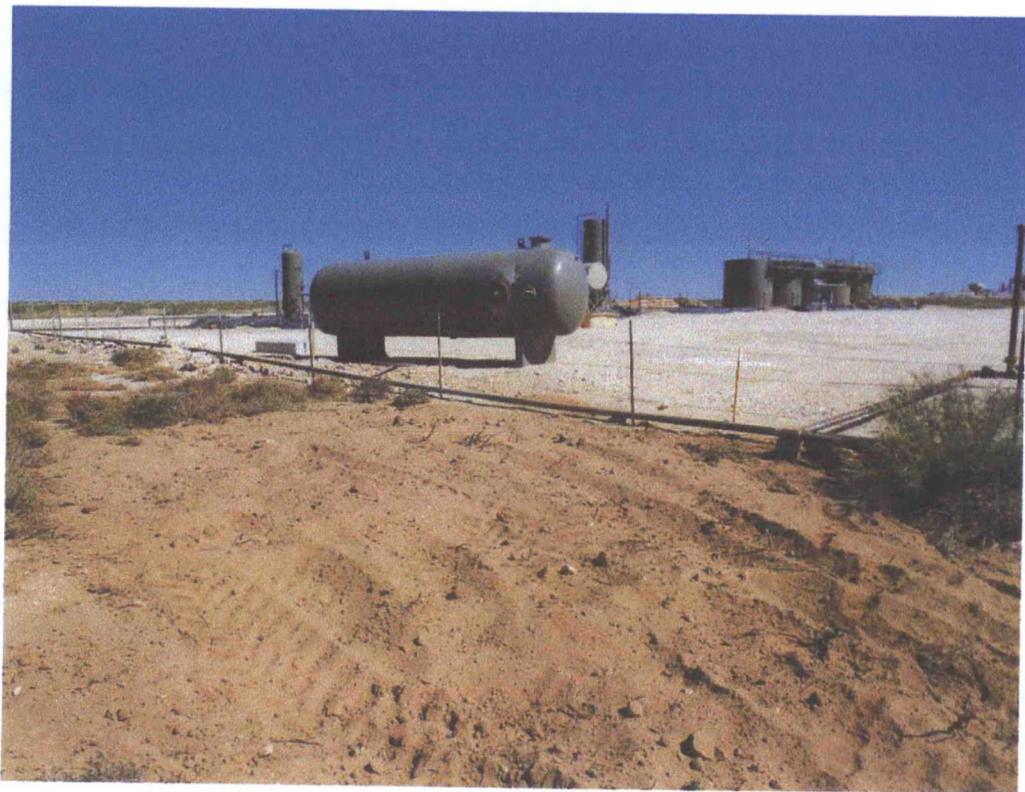
COG Operating LLC
Corazon State Unit #1H
Tank Battery
Lea County, New Mexico



TETRA TECH



View East – AH-1 at 1.5'



View Northeast – AH-1 backfilled

Water Well Data
Average Depth to Groundwater (ft)
COG-Corazon State Unit #1H
Lea County, New Mexico

20 South 33 East

6	5	4	3	2	1
	278				
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
					+300
30	29	28	27	26	25
31	32	33	34	35	36

20 South 34 East

6	5	4	125	3	2	1
7	8	9	10	11	12	
18	17	128	16	15	14	13
	140			160		
19	20	21	22	23	24	25
					270	
30	29	28	27	26	25	24
31	32	33	34	82	35	36

20 South 35 East

6	56	5	64	4	3	2	1
64							
7	8	9	10	11	12		
							49
18	17	16	15	14	13		
19	20	21	22	23	24		
30	29	28	27	26	25		
31	66	32	33	34	35	36	
		89					

21 South 32 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

21 South 33 East

6	5	4	3	279	1
			SITE	107	
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
		179			
31	32	33	34	35	36

21 South 34 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South 32 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
				382	
19(S)	20	21	22	23	24
280					
30	29	28	27	26	25
31	32	33	34	35	36

22 South 33 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
					391
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South 34 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Field water level
- New Mexico Water and Infrastructure Data System



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

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Ike Tavarez
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: June 7, 2013

Work Order: 13060302

Project Location: Eddy Co., NM
Project Name: COG/Corazon State Unit 1 H
Project Number: 112MC05444

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
330697	AH-1 0-1'	soil	2013-05-31	00:00	2013-05-31
330698	AH-1 1-1.5'	soil	2013-05-31	00:00	2013-05-31
330699	AH-1 2-2.5'	soil	2013-05-31	00:00	2013-05-31

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

This report consists of a total of 17 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

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Case Narrative

Samples for project COG/Corazon State Unit 1 H were received by TraceAnalysis, Inc. on 2013-05-31 and assigned to work order 13060302. Samples for work order 13060302 were received intact at a temperature of 5.1 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	86470	2013-06-05 at 11:30	102079	2013-06-07 at 08:53
Chloride (Titration)	SM 4500-Cl B	86384	2013-06-04 at 08:55	102060	2013-06-06 at 15:00
TPH DRO - NEW	S 8015 D	86425	2013-06-04 at 13:00	102009	2013-06-05 at 11:27
TPH GRO	S 8015 D	86462	2013-06-05 at 09:00	102052	2013-06-06 at 12:07

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13060302 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 330697 - AH-1 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 102079
Prep Batch: 86470

Analytical Method: S 8021B
Date Analyzed: 2013-06-07
Sample Preparation: 2013-06-05

Prep Method: S 5035
Analyzed By: KC
Prepared By: KC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	1	<0.0200	mg/Kg	1	0.0200
Toluene	u	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	u	1	<0.0200	mg/Kg	1	0.0200
Xylene	u	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.66	mg/Kg	1	2.00	83	70 - 130
4-Bromofluorobenzene (4-BFB)			1.69	mg/Kg	1	2.00	84	70 - 130

Sample: 330697 - AH-1 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 102060
Prep Batch: 86384

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-06-06
Sample Preparation: 2013-06-04

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2050	mg/Kg	10	4.00

Sample: 330697 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 102009
Prep Batch: 86425

Analytical Method: S 8015 D
Date Analyzed: 2013-06-05
Sample Preparation: 2013-06-04

Prep Method: N/A
Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	57.9	mg/Kg	1	50.0

Report Date: June 7, 2013
112MC05444

Work Order: 13060302
COG/Corazon State Unit 1 H

Page Number: 5 of 17
Eddy Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{NT}	Q _{NT}	143	mg/Kg	1	100	143	55.1 - 135.7

Sample: 330697 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 102052
Prep Batch: 86462

Analytical Method: S 8015 D
Date Analyzed: 2013-06-06
Sample Preparation: 2013-06-05

Prep Method: S 5035
Analyzed By: KC
Prepared By: KC

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.74	mg/Kg	1	2.00	87	70 - 130
4-Bromofluorobenzene (4-BFB)			1.70	mg/Kg	1	2.00	85	70 - 130

Sample: 330698 - AH-1 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 102060
Prep Batch: 86384

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-06-06
Sample Preparation: 2013-06-04

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			785	mg/Kg	10	4.00

Sample: 330699 - AH-1 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 102060
Prep Batch: 86384

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-06-06
Sample Preparation: 2013-06-04

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

continued ...

Report Date: June 7, 2013
112MC05444

Work Order: 13060302
COG/Corazon State Unit 1 H

Page Number: 6 of 17
Eddy Co., NM

sample 330699 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
-----------	------	------	--------------	-------	----------	----

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			25.5	mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 102009

QC Batch: 102009
Prep Batch: 86425

Date Analyzed: 2013-06-05
QC Preparation: 2013-06-04

Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<10.2	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			128	mg/Kg	1	100	128	55.1 - 135.7

Method Blank (1) QC Batch: 102052

QC Batch: 102052
Prep Batch: 86462

Date Analyzed: 2013-06-06
QC Preparation: 2013-06-05

Analyzed By: KC
Prepared By: KC

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	3.33	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.74	mg/Kg	1	2.00	87	70 - 130
4-Bromofluorobenzene (4-BFB)			1.63	mg/Kg	1	2.00	82	70 - 130

Method Blank (1) QC Batch: 102060

QC Batch: 102060
Prep Batch: 86384

Date Analyzed: 2013-06-06
QC Preparation: 2013-06-04

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

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Method Blank (1) QC Batch: 102079

QC Batch: 102079
Prep Batch: 86470

Date Analyzed: 2013-06-07
QC Preparation: 2013-06-05

Analyzed By: KC
Prepared By: KC

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00810	mg/Kg	0.02
Toluene		1	<0.00750	mg/Kg	0.02
Ethylbenzene		1	<0.00730	mg/Kg	0.02
Xylene		1	<0.00700	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.64	mg/Kg	1	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB)			1.64	mg/Kg	1	2.00	82	70 - 130

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 102009
Prep Batch: 86425

Date Analyzed: 2013-06-05
QC Preparation: 2013-06-04

Analyzed By: CW
Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	214	mg/Kg	1	250	<10.2	86	66.9 - 119.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	194	mg/Kg	1	250	<10.2	78	66.9 - 119.9	10	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	138	123	mg/Kg	1	100	138	123	76.8 - 140.2

Laboratory Control Spike (LCS-1)

QC Batch: 102052
Prep Batch: 86462

Date Analyzed: 2013-06-06
QC Preparation: 2013-06-05

Analyzed By: KC
Prepared By: KC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	19.7	mg/Kg	1	20.0	<2.32	98	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	21.0	mg/Kg	1	20.0	<2.32	105	70 - 130	6	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.72	1.78	mg/Kg	1	2.00	86	89	70 - 130
4-Bromofluorobenzene (4-BFB)	1.78	1.81	mg/Kg	1	2.00	89	90	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 102060
Prep Batch: 86384

Date Analyzed: 2013-06-06
QC Preparation: 2013-06-04

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2820	mg/Kg	1	2500	<3.85	113	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2740	mg/Kg	1	2500	<3.85	110	85 - 115	3	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 102079
Prep Batch: 86470

Date Analyzed: 2013-06-07
QC Preparation: 2013-06-05

Analyzed By: KC
Prepared By: KC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.81	mg/Kg	1	2.00	<0.00810	90	70 - 130
Toluene		1	1.93	mg/Kg	1	2.00	<0.00750	96	70 - 130
Ethylbenzene		1	2.03	mg/Kg	1	2.00	<0.00730	102	70 - 130
Xylene		1	5.92	mg/Kg	1	6.00	<0.00700	99	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.77	mg/Kg	1	2.00	<0.00810	88	70 - 130	2	20
Toluene		1	1.89	mg/Kg	1	2.00	<0.00750	94	70 - 130	2	20
Ethylbenzene		1	1.97	mg/Kg	1	2.00	<0.00730	98	70 - 130	3	20
Xylene		1	5.77	mg/Kg	1	6.00	<0.00700	96	70 - 130	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.73	1.69	mg/Kg	1	2.00	86	84	70 - 130
4-Bromofluorobenzene (4-BFB)	1.91	1.76	mg/Kg	1	2.00	96	88	70 - 130

Matrix Spike (MS-1) Spiked Sample: 330697

QC Batch: 102009
Prep Batch: 86425

Date Analyzed: 2013-06-05
QC Preparation: 2013-06-04

Analyzed By: CW
Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	232	mg/Kg	1	250	57.9	70	36.1 - 147.2

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	223	mg/Kg	1	250	57.9	66	36.1 - 147.2	4	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	129	126	mg/Kg	1	100	129	126	78.3 - 131.6

Matrix Spike (MS-1) Spiked Sample: 330825

QC Batch: 102052
Prep Batch: 86462

Date Analyzed: 2013-06-06
QC Preparation: 2013-06-05

Analyzed By: KC
Prepared By: KC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	19.4	mg/Kg	1	20.0	<2.32	97	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	19.7	mg/Kg	1	20.0	<2.32	98	70 - 130	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.73	1.72	mg/Kg	1	2	86	86	70 - 130
4-Bromofluorobenzene (4-BFB)	1.77	1.79	mg/Kg	1	2	88	90	70 - 130

Matrix Spike (MS-1) Spiked Sample: 330708

QC Batch: 102060
Prep Batch: 86384

Date Analyzed: 2013-06-06
QC Preparation: 2013-06-04

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			5840	mg/Kg	10	2500	3100	110	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			5570	mg/Kg	10	2500	3100	99	78.9 - 121	5	20

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

Matrix Spike (MS-1) Spiked Sample: 330825

QC Batch: 102079
Prep Batch: 86470

Date Analyzed: 2013-06-07
QC Preparation: 2013-06-05

Analyzed By: KC
Prepared By: KC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.20	mg/Kg	1	2.00	<0.00810	110	70 - 130
Toluene		1	2.36	mg/Kg	1	2.00	<0.00750	118	70 - 130
Ethylbenzene		1	2.46	mg/Kg	1	2.00	<0.00730	123	70 - 130
Xylene		1	7.20	mg/Kg	1	6.00	<0.00700	120	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.21	mg/Kg	1	2.00	<0.00810	110	70 - 130	0	20
Toluene		1	2.37	mg/Kg	1	2.00	<0.00750	118	70 - 130	0	20
Ethylbenzene		1	2.47	mg/Kg	1	2.00	<0.00730	124	70 - 130	0	20
Xylene		1	7.25	mg/Kg	1	6.00	<0.00700	121	70 - 130	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.60	1.68	mg/Kg	1	2	80	84	70 - 130
4-Bromofluorobenzene (4-BFB)	1.69	1.72	mg/Kg	1	2	84	86	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 102009

Date Analyzed: 2013-06-05

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	257	103	80 - 120	2013-06-05

Standard (CCV-2)

QC Batch: 102009

Date Analyzed: 2013-06-05

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	213	85	80 - 120	2013-06-05

Standard (CCV-3)

QC Batch: 102009

Date Analyzed: 2013-06-05

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	214	86	80 - 120	2013-06-05

Standard (CCV-4)

QC Batch: 102009

Date Analyzed: 2013-06-05

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	207	83	80 - 120	2013-06-05

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Standard (CCV-1)

QC Batch: 102052

Date Analyzed: 2013-06-06

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.01	101	80 - 120	2013-06-06

Standard (CCV-2)

QC Batch: 102052

Date Analyzed: 2013-06-06

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.06	106	80 - 120	2013-06-06

Standard (CCV-3)

QC Batch: 102052

Date Analyzed: 2013-06-06

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.13	113	80 - 120	2013-06-06

Standard (CCV-1)

QC Batch: 102060

Date Analyzed: 2013-06-06

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	103	103	85 - 115	2013-06-06

Standard (CCV-2)

QC Batch: 102060

Date Analyzed: 2013-06-06

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	97.2	97	85 - 115	2013-06-06

Standard (CCV-1)

QC Batch: 102079

Date Analyzed: 2013-06-07

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0830	83	80 - 120	2013-06-07
Toluene		1	mg/kg	0.100	0.0866	87	80 - 120	2013-06-07
Ethylbenzene		1	mg/kg	0.100	0.0862	86	80 - 120	2013-06-07
Xylene		1	mg/kg	0.300	0.254	85	80 - 120	2013-06-07

Standard (CCV-2)

QC Batch: 102079

Date Analyzed: 2013-06-07

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0952	95	80 - 120	2013-06-07
Toluene		1	mg/kg	0.100	0.0967	97	80 - 120	2013-06-07
Ethylbenzene		1	mg/kg	0.100	0.0962	96	80 - 120	2013-06-07
Xylene		1	mg/kg	0.300	0.281	94	80 - 120	2013-06-07

Standard (CCV-3)

QC Batch: 102079

Date Analyzed: 2013-06-07

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0928	93	80 - 120	2013-06-07
Toluene		1	mg/kg	0.100	0.0959	96	80 - 120	2013-06-07
Ethylbenzene		1	mg/kg	0.100	0.0954	95	80 - 120	2013-06-07
Xylene		1	mg/kg	0.300	0.276	92	80 - 120	2013-06-07

Appendix

Report Definitions

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

Laboratory Certifications

Certifying Authority	Certification Number	Laboratory Location
- NCTRCA	WFWB384444Y0909	TraceAnalysis
- DBE	VN 20657	TraceAnalysis
- HUB	1752439743100-86536	TraceAnalysis
- WBE	237019	TraceAnalysis
1 NELAP	T104704392-12-4	Midland

Standard Flags

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

Attachments

Report Date: June 7, 2013
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Work Order: 13060302
COG/Corazon State Unit 1 H

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Eddy Co., NM

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

Summary Report

Ike Tavaréz
 Tetra Tech
 1910 N. Big Spring Street
 Midland, TX 79705

Report Date: June 7, 2013

Work Order: 13060302



Project Location: Eddy Co., NM
 Project Name: COG/Corazon State Unit 1 H
 Project Number: 112MC05444

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
330697	AH-1 0-1'	soil	2013-05-31	00:00	2013-05-31
330698	AH-1 1-1.5'	soil	2013-05-31	00:00	2013-05-31
330699	AH-1 2-2.5'	soil	2013-05-31	00:00	2013-05-31

Sample - Field Code	BTEX				TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)		
330697 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	57.9	<4.00

Sample: 330697 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		2050	mg/Kg	4

Sample: 330698 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		785	mg/Kg	4

Sample: 330699 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		25.5	mg/Kg	4



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

November 06, 2013

IKE TAVAREZ

TETRA TECH

1910 N. BIG SPRING STREET

MIDLAND, TX 79705

RE: CARAZON STATE UNIT #1H

Enclosed are the results of analyses for samples received by the laboratory on 11/05/13 9:00.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 TETRA TECH
 IKE TAVAREZ
 1910 N. BIG SPRING STREET
 MIDLAND TX, 79705
 Fax To: (432) 682-3946

Received:	11/05/2013	Sampling Date:	10/23/2013
Reported:	11/06/2013	Sampling Type:	Soil
Project Name:	CARAZON STATE UNIT #1H	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: AH-1 (1.5 BH) (H302690-01)

Chloride, SM4500Cl-B

mg/kg

Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	11/05/2013	ND	416	104	400	3.92	

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

