SITE INFORMATION

Report Type: Closure Report

General Site Information:						
Site:	Skelly Unit #968					
Company:	COG Operating LLC					
Section, Township and Range	Sec 15	T17S	R31E			
Lease Number:	API-30-015-35816					
County:	Eddy County					
GPS:	32.83548° N			103.85998° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	In Loco Hills, from the intersection of HWY 529 and HWY 82, travel East on 82 for approximately 0.4 miles, turn North onto CR 223 and continue for approximately 0.8 miles, turn East onto lease road and continue for approximately 0.1 miles, turn North onto lease road and continue for approximately 0.3 miles to location					

Release Data:	
Date Released:	11/4/2013
Type Release:	Produced water and oil
Source of Contamination:	Polyline connection failure
Fluid Released:	5 bbls
Fluids Recovered:	0 bbls

Official Communication:			
Name:	Robert McNeil		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		4000 N. Big Spring
	600 W. Illinois Ave.		Ste 401
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	rmcneil@conchoresources.com		Ike.Tavarez@tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	10	
>100 ft.	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:	**10**	

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

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 04 2014
RECEIVED

TETRA TECH

May 19, 2014

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
811S. First Street
Artesia, New Mexico 88210

Re: Closure Report for the COG Operating LLC., Skelly Unit #968 Tank Battery, Unit F, Section 15, Township 17 South, Range 31 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from Skelly Unit #968 Tank Battery; located in Unit F, Section 15, Township 17 South, Range 31 East, Eddy County, New Mexico. (Site). The spill site coordinates are N 32.83548°, W 103.85998°. 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 November 04, 2013, and released approximately two (2) barrels of oil and three (3) barrels of produced water from a polyline connection. To alleviate the problem, COG personnel replaced the polyline. None of standing fluid was recovered. The spill initiated south of the tank battery pad affecting an area approximately 100' X 30' in the pasture. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 15. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 300' below surface. The groundwater data is shown in Appendix B.

Tetra Tech
4000 North Big Spring, Ste #401 Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.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 December 10, 2013, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils. 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 results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, only auger hole (AH-3) exceeded the TPH and BTEX RRAL at 0-1', but declined with depth below the RRAL at 1'-1.5' below surface. A shallow chloride impact was detected in all of the auger holes. Auger holes (AH-1, AH-2, AH-3, and AH-4) detected chloride highs of 1,060 mg/kg at 1'-1.5' below surface, 4,130 mg/kg at 1'-1.5' below surface, 4,170 mg/kg at 3'-3.5' below surface, and 9,340 mg/kg at 2'-2.5', respectively. The chloride concentrations in auger holes (AH-1, AH-2, and AH-3) declined with depth at 2.0' to 3.0' and were all vertically defined. In the area of AH-4, the chloride spiked at 3.0-3.5' of 4,170 mg/kg and possible could be cross-contamination from the upper soils.

Remedial Activities

On April 23, 2014, Tetra Tech supervised the removal of impacted material as highlighted (green) in Table 1 and shown on Figure 4. The area of AH-1 was excavated with hand where accessible a depth of approximately 1.5'. Auger holes (AH-2 and AH-4) were excavated to a depth of approximately 2.5' below surface. To evaluate the deeper soils, the area of AH-3 was trenched with a backhoe to confirm the chloride spike at 3-3.5' below surface. Referring to Table 1, T-1 did not show any impact to the subsurface soils. Based on the field results, the area was then excavated to approximately 1.5' below surface.

Once the areas were excavated to the appropriate depths, the excavation was backfilled with clean material to grade. Approximately 160 cubic yards of contaminated material was taken to the proper disposal.

Conclusion

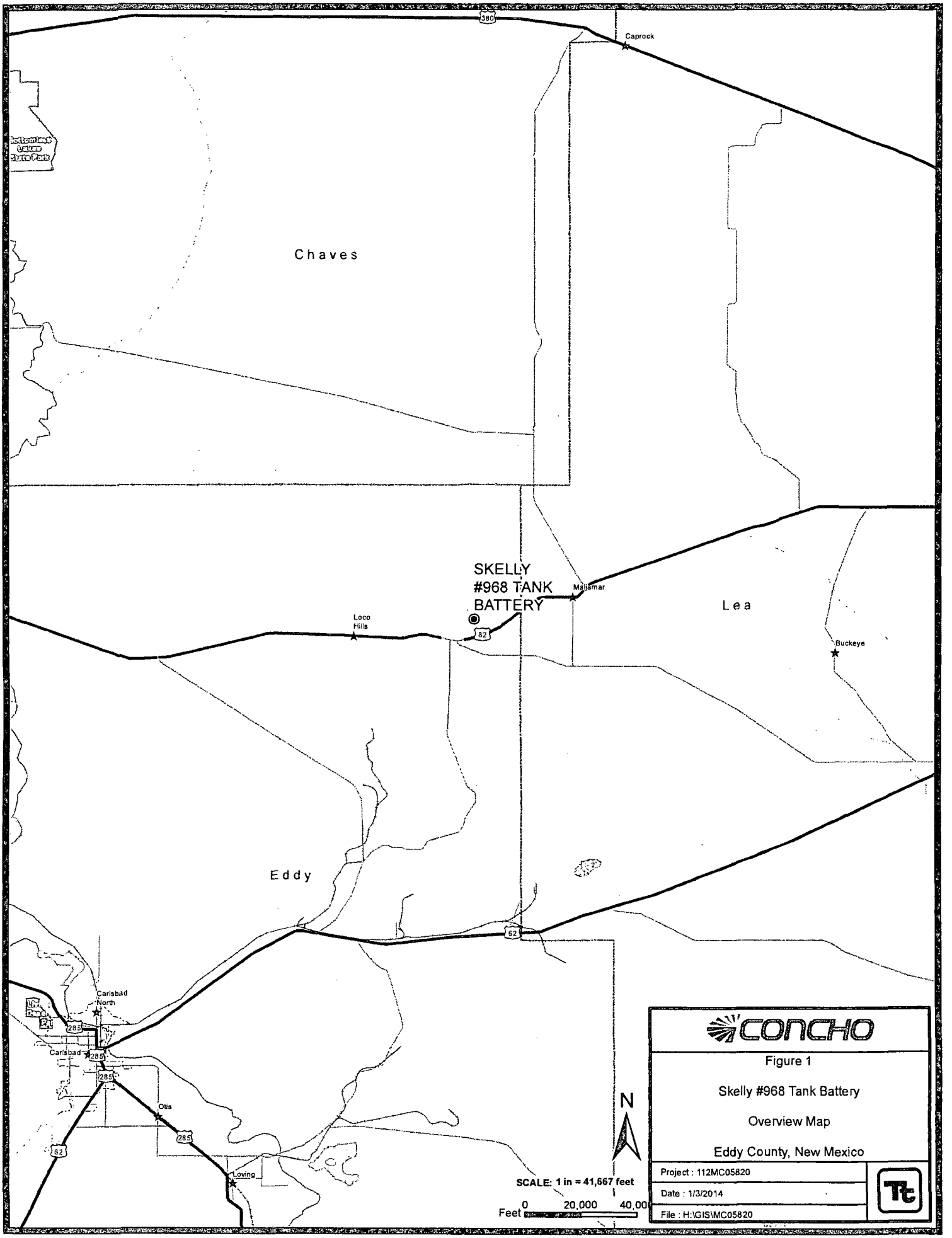
Based on the assessment and work performed at this site, COG requests closure of this spill issue. A Final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

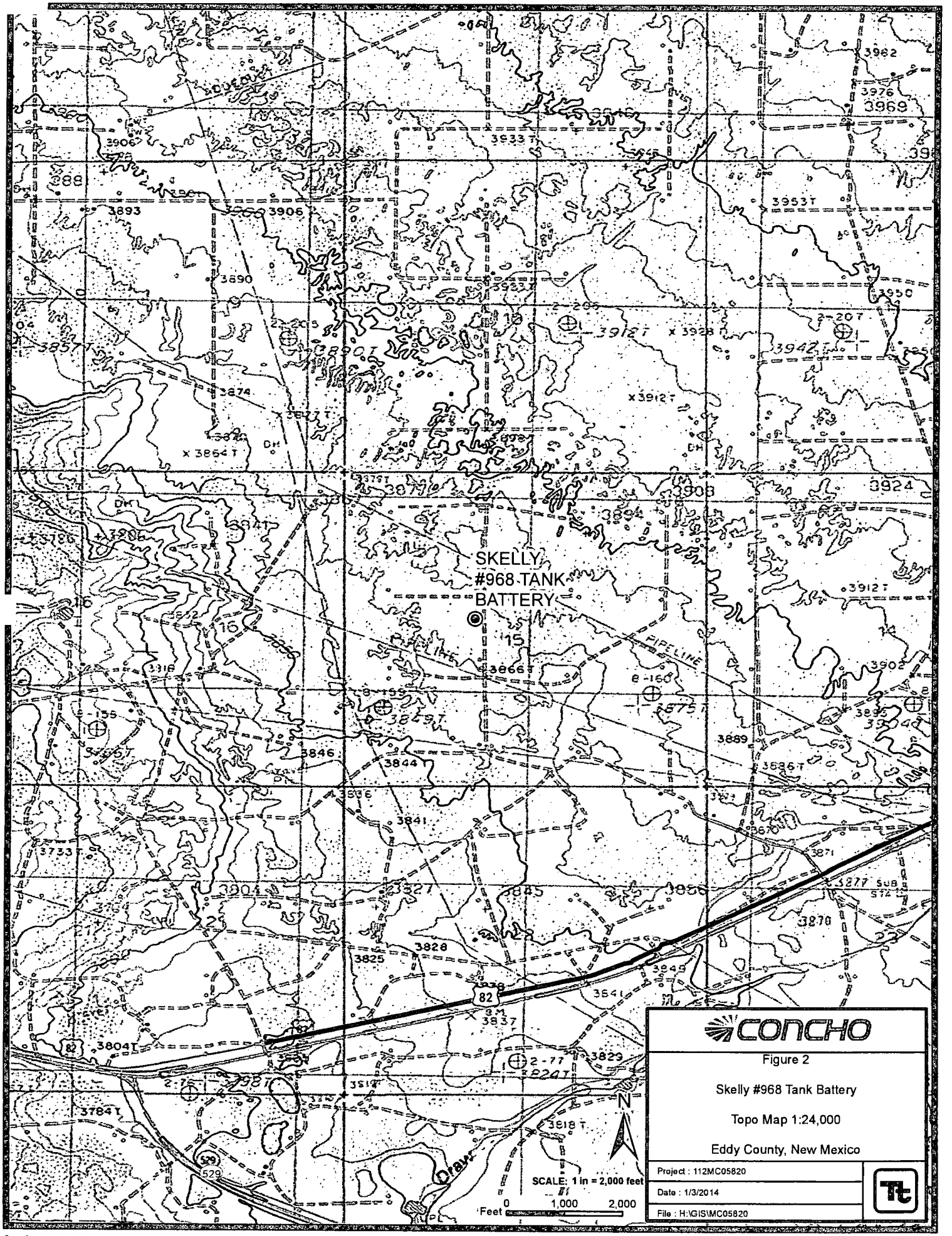
Ike Tavarez, PG
Project Management

cc: Robert McNeil – COG
Jeff Robertson - BLM

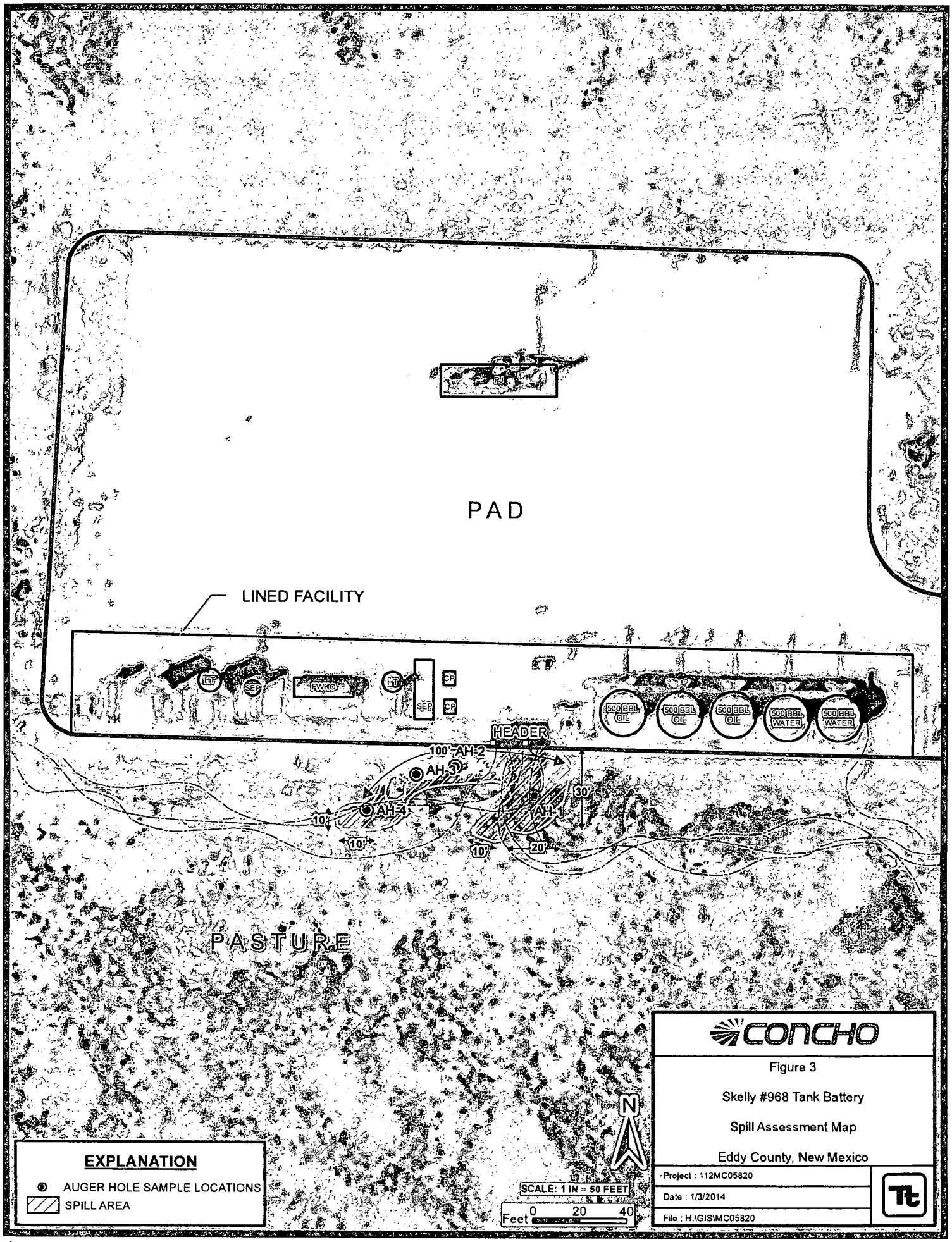
Figures

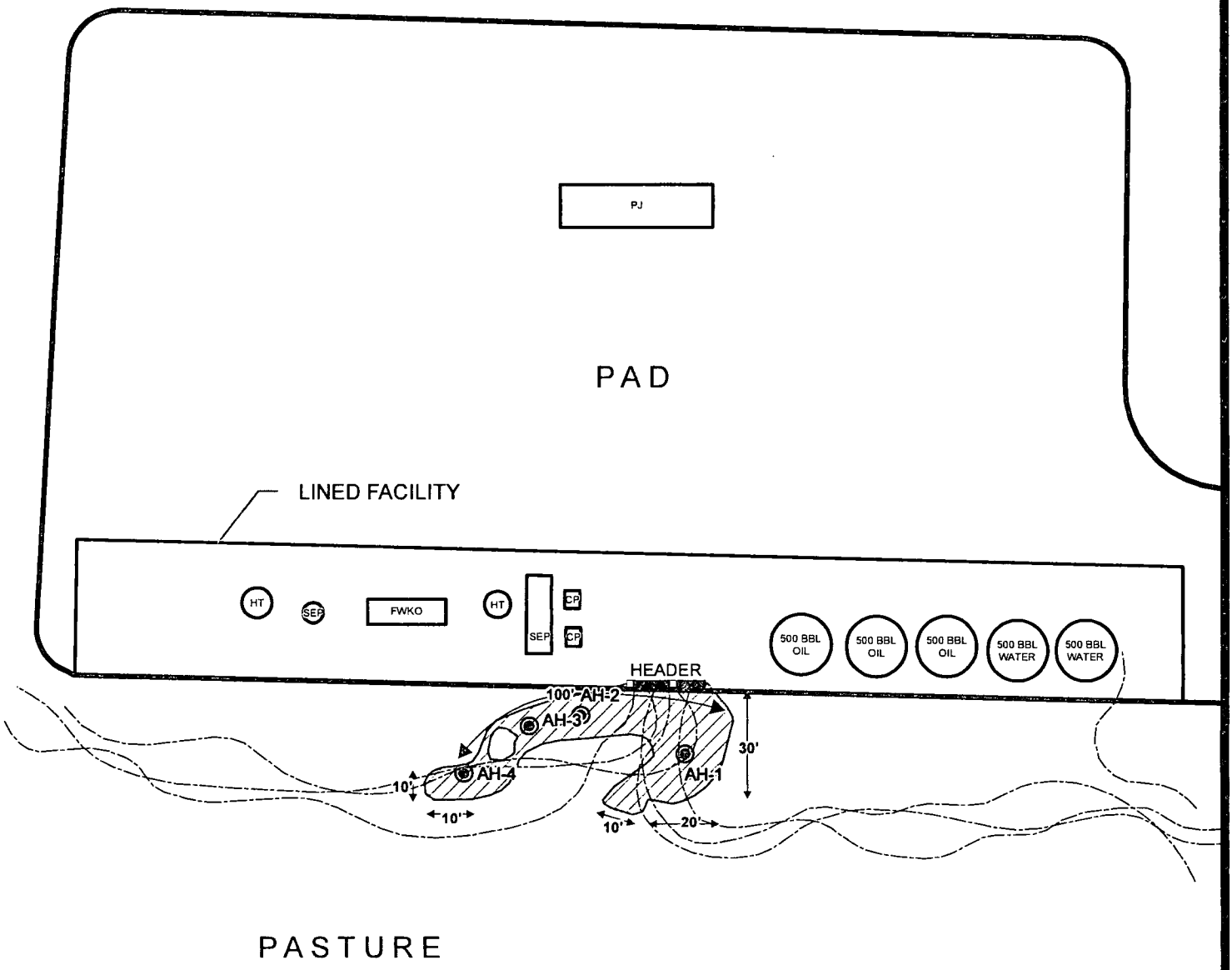


Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo


PAD
LINED FACILITY
HEP
SEP
FWKO
HT
SEP
DP
DP
500 BBL OIL
500 BBL OIL
500 BBL OIL
500 BBL WATER
500 BBL WATER
HEADER
100'
AH-2
AH-3
AH-4
AH-1
30'
10'
10'
10'
20'
PASTURE
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
SPILL AREA
N
SCALE: 1 IN = 50 FEET
Feet 0 20 40
CONCHO
Figure 3
Skelly #968 Tank Battery
Spill Assessment Map
Eddy County, New Mexico
-Project : 112MC05820
Date : 1/3/2014
File : H:\GIS\MC05820
Drawn By: Isabel Marmolejo



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- SPILL AREA

N

SCALE: 1 IN = 50 FEET

Feet 0 20 40

CONCHO

Figure 3

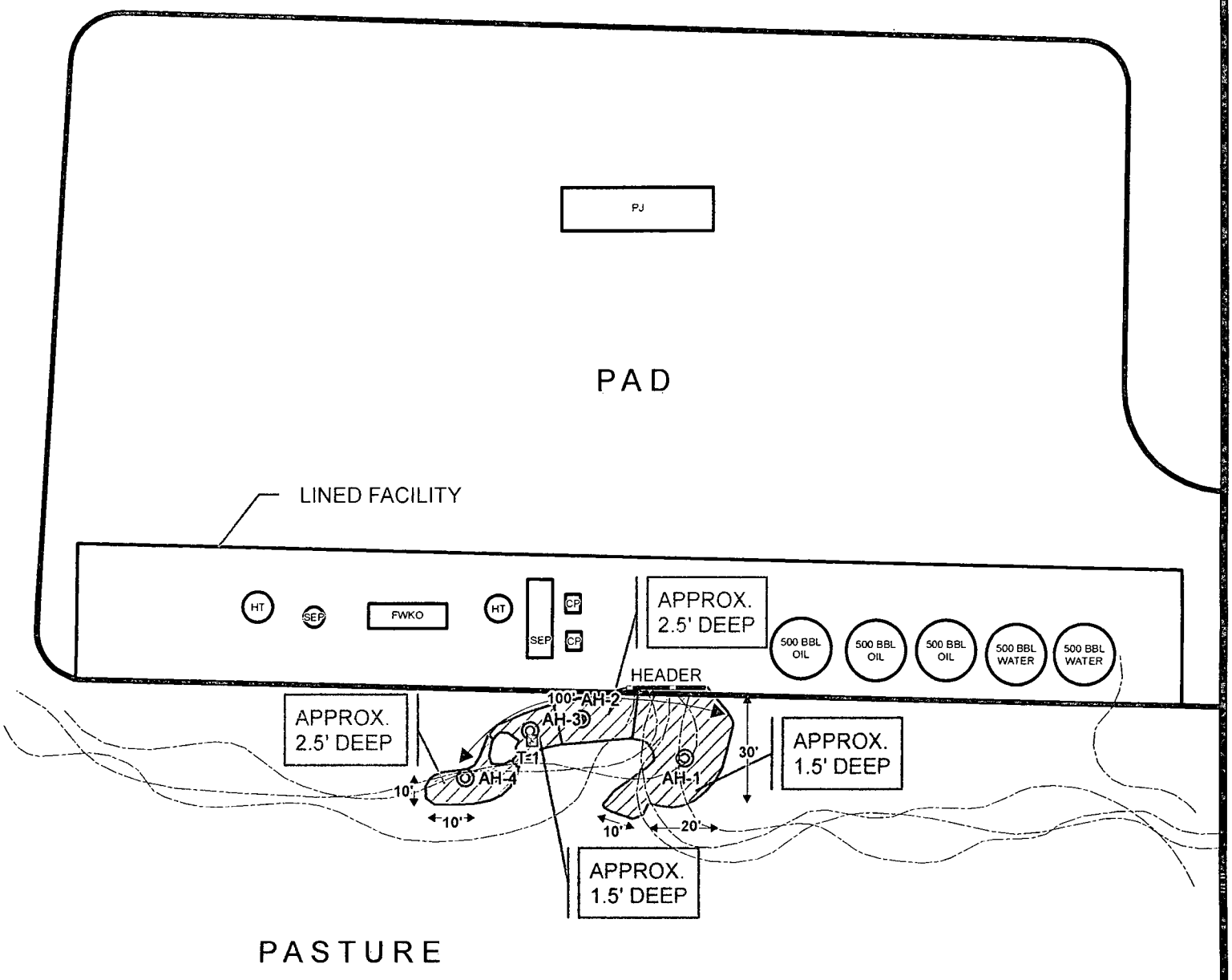
Skelly #968 Tank Battery

Spill Assessment Map

Eddy County, New Mexico

Project : 112MC05820	
Date : 1/3/2014	
File : H:\GIS\MC05820	

Drawn By: Isabel Marmolejo



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- TRENCH LOCATION
- EXCAVATED AREAS

N

SCALE: 1 IN = 50 FEET

Feet 0 20 40

CONCHO

Figure 4

Skelly #968 Tank Battery

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 112MC05820	
Date : 05/07/2014	
File : H:\GIS\MC05820	

Drawn By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC.
Skelly Unit #968
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-1	12/12/2013	0-1	-	X		<4.00	251	251	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	803
	"	1-1.5	-	X		-	-	-	-	-	-	-	-	**1,060**
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	66.5
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	52.3
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	114
	"	5-5.5	-	X		-	-	-	-	-	-	-	-	247
AH-2	12/12/2013	0-1	-		X	277	1360	1637	<0.100	4.39	10.9	12.7	28.0	**2,940**
	"	1-1.5	-		X	-	-	-	-	-	-	-	-	**4,130**
	"	2-2.5	-	X	X	-	-	-	-	-	-	-	-	**2,490**
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	200
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	<20.0
AH-3	12/12/2013	0-1	-		X	**1,070**	**7,520**	**8,590**	<0.400	9.6	40.3	48.7	**98.6**	**2,080**
	"	1-1.5	-		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	**1,040**
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	721
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	**4,170**
T-1	4/24/2014	0	-		x	-	-	-	-	-	-	-	-	128
	"	2	-	X		-	-	-	-	-	-	-	-	32.0
	"	4	-	X		-	-	-	-	-	-	-	-	512
	"	6	-	X		-	-	-	-	-	-	-	-	<16.0
	"	8	-	X		-	-	-	-	-	-	-	-	<16.0
	"	10	-	X		-	-	-	-	-	-	-	-	32.0
AH-4	12/12/2013	0-1	-		X	4.37	125	129	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	**1,530**
	"	1-1.5	-		X	-	-	-	-	-	-	-	-	**1,440**
	"	2-2.5	-		X	-	-	-	-	-	-	-	-	**9,340**
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	497
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	<20.0

Excavated Depths

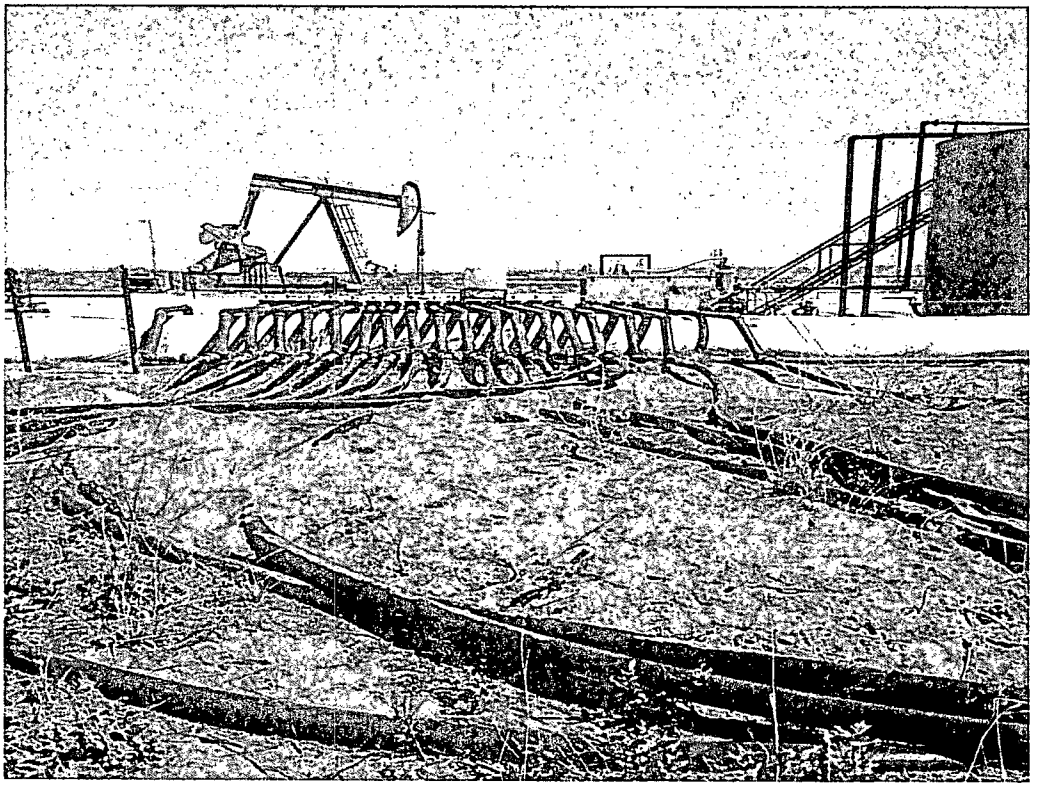
(-) Not Analyzed

(BEB) Below Excavation Bottom

COG Operating LLC
Skelly Unit #968
Tank Battery
Eddy County, New Mexico

TETRA TECH

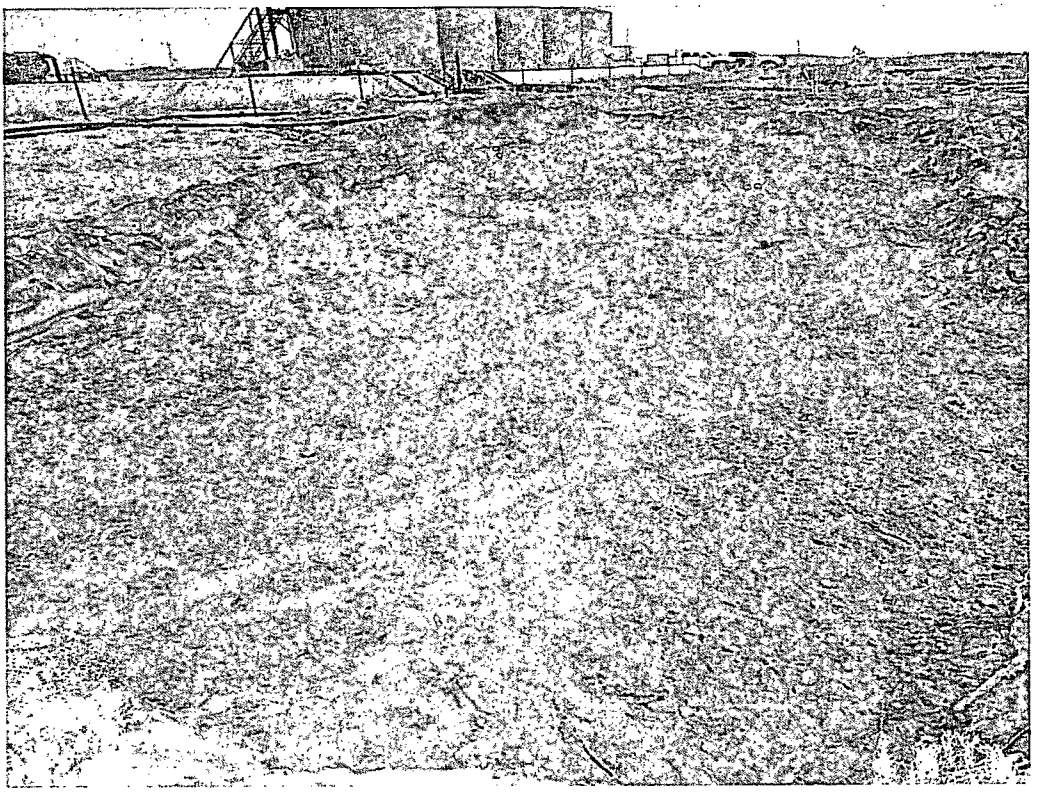
View East – T-1 in Area of AH-3 at 10.0'



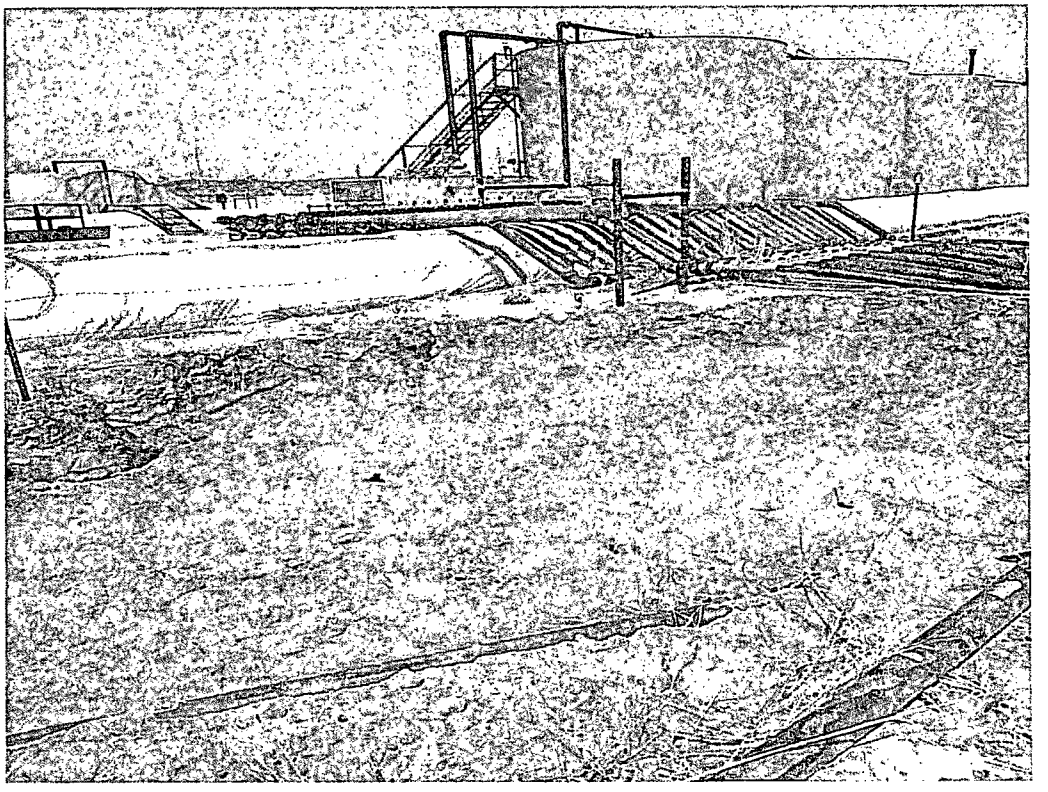
View North – Area of AH-1 Deferred due to Header

COG Operating LLC
Skelly Unit #968
Tank Battery
Eddy County, New Mexico

TETRA TECH



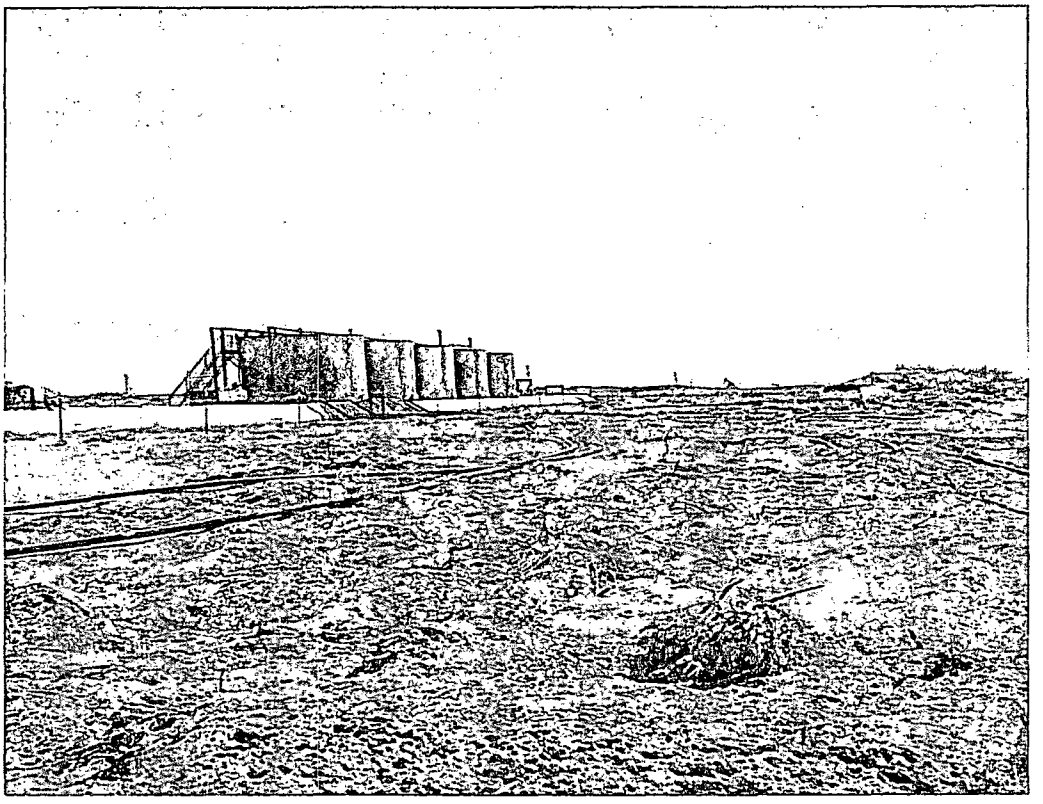
View East – Area of AH-3 and AH-4



View East – Area of AH-2

COG Operating LLC
Skelly Unit #968
Tank Battery
Eddy County, New Mexico

TETRA TECH



View East – Excavation Backfilled

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

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 West Illinois Avenue, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Skelly Unit #968	Facility Type	Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-015-35816

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	15	17S	31E					Eddy

Latitude 32.83548 **Longitude** 103.85998

NATURE OF RELEASE

Type of Release Oil and produced water	Volume of Release 2bbls of oil 3bbls produced water	Volume Recovered 0bbls of oil 0bbls of produced water
Source of Release Polyline	Date and Hour of Occurrence 11-04-2013	Date and Hour of Discovery 11-04-2013 1:18pm
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.	

RECEIVED
JUN 04 2014
NMOCD ARTESIA

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Polyline connection failed on header. Replaced 25' of polyline going to the header.

Describe Area Affected and Cleanup Action Taken.*

Initially 2bbls of oil and 3bbls of produced water was released due to a polyline failure. We were unable to recover any fluid. The spill was in the adjacent pasture. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a work plan to the NMOCD/BLM for approval prior to any significant remediation work.

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: Robert Grubbs Jr.	Approved by District Supervisor:	
Title: Senior Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address: rgrubbs@concho.com	Conditions of Approval:	Attached ☐
Date: 11-08-2013 Phone: 432-661-6601		

* Attach Additional Sheets If Necessary

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

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) 685-4332**
Facility Name **Skelly Unit #968**	Facility Type **Tank Battery**

Surface Owner: Federal	Mineral Owner	Lease No. (API#) 30-015-35816

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	15	17S	31E					

Latitude 32.83548° N **Longitude** 103.85998° W

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release 2 bbls Oil, 3 bbls Produced Water	Volume Recovered 0 bbls of Oil and Produced Water
Source of Release: Polyline	Date and Hour of Occurrence 11/04/2013	Date and Hour of Discovery 11/04/2013 1:18pm
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. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

RECEIVED
JUN 04 2014
NMOCD ARTESIA

Describe Cause of Problem and Remedial Action Taken.*

Polyline connection failed on header. Replaced 25' of polyline going to the header.

Describe Area Affected and Cleanup Action Taken.*

Initially 2bbls of oil and 3bbls of produced water were released due to a polyline failure. COG was unable to recover any fluid. The spill was in the adjacent pasture. 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 (Agent for COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 5-19-14 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Skelly Unit #968
Eddy County, New Mexico

16 South 30 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

16 South 31 East

Carlsbad

6	5	4	3	2 **290**	1
7	8	9	10	11	12 **288**
18	17	16	15	14 **113** **314**	13 **299**
19	20	21	22	23	24
30	29	28	27	26	25
31 **290**	32	33	34	35	36

16 South 32 East

6	5	4	3 **65**	2 **265**	1 **265**
7	8	9	10	11	12 **215**
18	17	16 **221**	15	14	13 **215**
19 **220**	20	21 **210**	22	23 **210**	24
30	29	28	27	26 **243**	25
31	32	33	34	35	36 **260**

17 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20 **80**	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15 **SITE**	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34 **271**	35	36

17 South 32 East

6	5	4 **82** Maljamar	3 **175**	2 **60**	1 **225**
7	8	9	10 **132**	11 **70** **88**	12 **120**
18	17	16	15	14	13
19	20	21	22	23	24
30 180 dry	29	28	27	26	25
31	32	33	34	35	36

18 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23 **44**	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 **400**
18	17	16	15 **98**	14 **317**	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 **261**	36

18 South 32 East

6	5	4 **65**	3	2	1
7 **460** **82**	8	9	10	11	12
18	17	16 **84**	15	14	13
19	20 **164**	21	22 **429**	23	24
30	29	28	27	26	25
31	32	33	34 **117**	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

Appendix C

Summary Report

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

Report Date: January 2, 2014

Work Order: 13121627

Project Location: Eddy Co, NM
Project Name: COG/Skelly Unit #968
Project Number: 112MC05810

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
349118	AH-1 0-1'	soil	2013-12-12	00:00	2013-12-16
349119	AH-1 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349120	AH-1 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349121	AH-1 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349122	AH-1 4-4.5'	soil	2013-12-12	00:00	2013-12-16
349123	AH-1 5-5.5'	soil	2013-12-12	00:00	2013-12-16
349124	AH-2 0-1'	soil	2013-12-12	00:00	2013-12-16
349125	AH-2 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349126	AH-2 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349127	AH-2 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349128	AH-2 4-4.5'	soil	2013-12-12	00:00	2013-12-16
349129	AH-3 0-1'	soil	2013-12-12	00:00	2013-12-16
349130	AH-3 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349131	AH-3 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349132	AH-3 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349133	AH-4 0-1'	soil	2013-12-12	00:00	2013-12-16
349134	AH-4 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349135	AH-4 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349136	AH-4 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349137	AH-4 4-4.5'	soil	2013-12-12	00:00	2013-12-16

	BTEX				TPH DRO - NEW	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
349118 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**251**	<4.00
349124 - AH-2 0-1'	<0.100	**4.39**	**10.9**	**12.7**	**1360**	**277**
349129 - AH-3 0-1'	<0.400	**9.62**	**40.3**	**48.7**	**7520**	**1070**
349130 - AH-3 1-1.5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00

continued ...

... continued

Sample - Field Code	BTEX Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
349133 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**125**	**4.37**

Sample: 349118 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**803**	mg/Kg	4

Sample: 349119 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1060**	mg/Kg	4

Sample: 349120 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**66.5**	mg/Kg	4

Sample: 349121 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**52.3**	mg/Kg	4

Sample: 349122 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**114**	mg/Kg	4

Sample: 349123 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**247**	mg/Kg	4

Sample: 349124 - AH-2 0-1'

continued ...

sample 349124 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		**2940**	mg/Kg	4

Sample: 349125 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**4130**	mg/Kg	4

Sample: 349126 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**2490**	mg/Kg	4

Sample: 349127 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**200**	mg/Kg	4

Sample: 349128 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 349129 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**2080**	mg/Kg	4

Sample: 349130 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1040**	mg/Kg	4

Sample: 349131 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**721**	mg/Kg	4

Sample: 349132 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**4170**	mg/Kg	4

Sample: 349133 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**1530**	mg/Kg	4

Sample: 349134 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1440**	mg/Kg	4

Sample: 349135 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**9340**	mg/Kg	4

Sample: 349136 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**497**	mg/Kg	4

Sample: 349137 - AH-4 4-4.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

TRACEANALYSIS, INC.

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: January 2, 2014

Work Order: 13121627

Project Location: Eddy Co, NM
Project Name: COG/Skelly Unit #968
Project Number: 112MC05810

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
349118	AH-1 0-1'	soil	2013-12-12	00:00	2013-12-16
349119	AH-1 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349120	AH-1 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349121	AH-1 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349122	AH-1 4-4.5'	soil	2013-12-12	00:00	2013-12-16
349123	AH-1 5-5.5'	soil	2013-12-12	00:00	2013-12-16
349124	AH-2 0-1'	soil	2013-12-12	00:00	2013-12-16
349125	AH-2 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349126	AH-2 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349127	AH-2 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349128	AH-2 4-4.5'	soil	2013-12-12	00:00	2013-12-16
349129	AH-3 0-1'	soil	2013-12-12	00:00	2013-12-16
349130	AH-3 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349131	AH-3 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349132	AH-3 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349133	AH-4 0-1'	soil	2013-12-12	00:00	2013-12-16
349134	AH-4 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349135	AH-4 2-2.5'	soil	2013-12-12	00:00	2013-12-16

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
349136	AH-4 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349137	AH-4 4-4.5'	soil	2013-12-12	00:00	2013-12-16

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.

Michael Abel

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

Report Contents

Case Narrative

Samples for project COG/Skelly Unit #968 were received by TraceAnalysis, Inc. on 2013-12-16 and assigned to work order 13121627. Samples for work order 13121627 were received intact at a temperature of 4.1 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	91111	2013-12-17 at 10:57	107646	2013-12-18 at 03:00
Chloride (Titration)	SM 4500-Cl B	91351	2013-12-31 at 08:40	107963	2014-01-02 at 14:09
Chloride (Titration)	SM 4500-Cl B	91351	2013-12-31 at 08:40	107965	2014-01-02 at 14:17
TPH DRO - NEW	S 8015 D	91113	2013-12-17 at 11:15	107650	2013-12-18 at 09:12
TPH GRO	S 8015 D	91149	2013-12-18 at 13:01	107711	2013-12-19 at 01:40

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 13121627 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: 349118 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	107646	Date Analyzed:	2013-12-18	Analyzed By:	AK
Prep Batch:	91111	Sample Preparation:	2013-12-17	Prepared By:	AK

Parameter	Flag	Cert	Result	RL 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)			1.62	mg/Kg	1	2.00	81	70 - 130
4-Bromofluorobenzene (4-BFB)			1.68	mg/Kg	1	2.00	84	70 - 130

Sample: 349118 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**803**	mg/Kg	5	4.00

Sample: 349118 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	107650	Date Analyzed:	2013-12-18	Analyzed By:	KC
Prep Batch:	91113	Sample Preparation:	2013-12-17	Prepared By:	KC

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		1	**251**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			119	mg/Kg	1	100	119	70 - 130

Sample: 349118 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	107711	Date Analyzed:	2013-12-19	Analyzed By:	AK
Prep Batch:	91149	Sample Preparation:	2013-12-18	Prepared By:	AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.20	mg/Kg	1	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)			2.26	mg/Kg	1	2.00	113	70 - 130

Sample: 349119 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1060**	mg/Kg	5	4.00

Sample: 349120 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

continued ...

sample 349120 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**66.5**	mg/Kg	5	4.00

Sample: 349121 - AH-1 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**52.3**	mg/Kg	5	4.00

Sample: 349122 - AH-1 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**114**	mg/Kg	5	4.00

Sample: 349123 - AH-1 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**247**	mg/Kg	5	4.00

Sample: 349124 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	107646	Date Analyzed:	2013-12-18	Analyzed By:	AK
Prep Batch:	91111	Sample Preparation:	2013-12-17	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	<0.100	mg/Kg	5	0.0200
Toluene		1	**4.39**	mg/Kg	5	0.0200
Ethylbenzene		1	**10.9**	mg/Kg	5	0.0200
Xylene		1	**12.7**	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.49	mg/Kg	5	2.00	74	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	5.76	mg/Kg	5	2.00	288	70 - 130

Sample: 349124 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2940**	mg/Kg	10	4.00

Sample: 349124 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	107650	Date Analyzed:	2013-12-18	Analyzed By:	KC
Prep Batch:	91113	Sample Preparation:	2013-12-17	Prepared By:	KC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**1360**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	167	mg/Kg	5	100	167	70 - 130

Sample: 349124 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	107711	Date Analyzed:	2013-12-19	Analyzed By:	AK
Prep Batch:	91149	Sample Preparation:	2013-12-18	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**277**	mg/Kg	5	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.04	mg/Kg	5	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	12.3	mg/Kg	5	2.00	615	70 - 130

Sample: 349125 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4130**	mg/Kg	10	4.00

Sample: 349126 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2490**	mg/Kg	10	4.00

Sample: 349127 - AH-2 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**200**	mg/Kg	5	4.00

Sample: 349128 - AH-2 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107965	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 349129 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	107646	Date Analyzed:	2013-12-18	Analyzed By:	AK
Prep Batch:	91111	Sample Preparation:	2013-12-17	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.400	mg/Kg	20	0.0200
Toluene		1	**9.62**	mg/Kg	20	0.0200
Ethylbenzene		1	**40.3**	mg/Kg	20	0.0200

continued ...

sample 349129 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Xylene		1	**48.7**	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.40	mg/Kg	20	2.00	70	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	17.8	mg/Kg	20	2.00	890	70 - 130

Sample: 349129 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107965	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2080**	mg/Kg	5	4.00

Sample: 349129 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	107650	Date Analyzed:	2013-12-18	Analyzed By:	KC
Prep Batch:	91113	Sample Preparation:	2013-12-17	Prepared By:	KC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**7520**	mg/Kg	50	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	408	mg/Kg	50	100	408	70 - 130

Sample: 349129 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	107711	Date Analyzed:	2013-12-19	Analyzed By:	AK
Prep Batch:	91149	Sample Preparation:	2013-12-18	Prepared By:	AK

Sample: 349130 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	107650	Date Analyzed:	2013-12-18	Analyzed By:	KC
Prep Batch:	91113	Sample Preparation:	2013-12-17	Prepared By:	KC

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			107	mg/Kg	1	100	107	70 - 130

Sample: 349130 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	107711	Date Analyzed:	2013-12-19	Analyzed By:	AK
Prep Batch:	91149	Sample Preparation:	2013-12-18	Prepared By:	AK

Parameter	Flag	Cert	Result	RL 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)			2.24	mg/Kg	1	2.00	112	70 - 130
4-Bromofluorobenzene (4-BFB)			2.18	mg/Kg	1	2.00	109	70 - 130

Sample: 349131 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107965	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**721**	mg/Kg	5	4.00

Sample: 349132 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107965	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**4170**	mg/Kg	10	4.00

Sample: 349133 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	107646	Date Analyzed:	2013-12-18	Analyzed By:	AK
Prep Batch:	91111	Sample Preparation:	2013-12-17	Prepared By:	AK

Parameter	Flag	Cert	Result	RL 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)			1.56	mg/Kg	1	2.00	78	70 - 130
4-Bromofluorobenzene (4-BFB)			1.71	mg/Kg	1	2.00	86	70 - 130

Sample: 349133 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107965	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1530**	mg/Kg	10	4.00

Sample: 349133 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	107650	Date Analyzed:	2013-12-18	Analyzed By:	KC
Prep Batch:	91113	Sample Preparation:	2013-12-17	Prepared By:	KC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**125**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			110	mg/Kg	1	100	110	70 - 130

Sample: 349133 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	107711	Date Analyzed:	2013-12-19	Analyzed By:	AK
Prep Batch:	91149	Sample Preparation:	2013-12-18	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**4.37**	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.35	mg/Kg	1	2.00	118	70 - 130
4-Bromofluorobenzene (4-BFB)			2.24	mg/Kg	1	2.00	112	70 - 130

Sample: 349134 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107965	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1440**	mg/Kg	10	4.00

Sample: 349135 - AH-4 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107965	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**9340**	mg/Kg	10	4.00

Sample: 349136 - AH-4 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107965	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**497**	mg/Kg	5	4.00

Sample: 349137 - AH-4 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107965	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 107646

QC Batch:	107646	Date Analyzed:	2013-12-18	Analyzed By:	AK
Prep Batch:	91111	QC Preparation:	2013-12-17	Prepared By:	AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00533	mg/Kg	0.02
Toluene		1	<0.00645	mg/Kg	0.02
Ethylbenzene		1	<0.0116	mg/Kg	0.02
Xylene		1	<0.00874	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.71	mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)			1.71	mg/Kg	1	2.00	86	70 - 130

Method Blank (1) QC Batch: 107650

QC Batch:	107650	Date Analyzed:	2013-12-18	Analyzed By:	KC
Prep Batch:	91113	QC Preparation:	2013-12-17	Prepared By:	KC

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<6.88	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			107	mg/Kg	1	100	107	88.3 - 126.1

Method Blank (1) QC Batch: 107711

QC Batch:	107711	Date Analyzed:	2013-12-19	Analyzed By:	AK
Prep Batch:	91149	QC Preparation:	2013-12-18	Prepared By:	AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<2.32	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.19	mg/Kg	1	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1	2.00	100	70 - 130

Method Blank (1) QC Batch: 107963

QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	QC Preparation:	2013-12-31	Prepared By:	AR

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

Method Blank (1) QC Batch: 107965

QC Batch:	107965	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	QC Preparation:	2013-12-31	Prepared By:	AR

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

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 107646 | Date Analyzed: 2013-12-18 | Analyzed By: AK
Prep Batch: 91111 | QC Preparation: 2013-12-17 | Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.55	mg/Kg	1	2.00	<0.00533	78	70 - 130
Toluene		1	1.57	mg/Kg	1	2.00	<0.00645	78	70 - 130
Ethylbenzene		1	1.62	mg/Kg	1	2.00	<0.0116	81	70 - 130
Xylene		1	4.94	mg/Kg	1	6.00	<0.00874	82	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	1.56	mg/Kg	1	2.00	<0.00533	78	70 - 130	1	20
Toluene		1	1.59	mg/Kg	1	2.00	<0.00645	80	70 - 130	1	20
Ethylbenzene		1	1.63	mg/Kg	1	2.00	<0.0116	82	70 - 130	1	20
Xylene		1	4.96	mg/Kg	1	6.00	<0.00874	83	70 - 130	0	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)	1.53	1.56	mg/Kg	1	2.00	76	78	70 - 130
4-Bromofluorobenzene (4-BFB)	1.70	1.56	mg/Kg	1	2.00	85	78	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 107650 | Date Analyzed: 2013-12-18 | Analyzed By: KC
Prep Batch: 91113 | QC Preparation: 2013-12-17 | Prepared By: KC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	264	mg/Kg	1	250	<6.88	106	79.4 - 120.1

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

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	265	mg/Kg	1	250	<6.88	106	79.4 - 120.1	0	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	115	113	mg/Kg	1	100	115	113	92.9 - 137.7

Laboratory Control Spike (LCS-1)

QC Batch: 107711 | Date Analyzed: 2013-12-19 | Analyzed By: AK
Prep Batch: 91149 | QC Preparation: 2013-12-18 | Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.2	mg/Kg	1	20.0	<2.32	81	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	16.1	mg/Kg	1	20.0	<2.32	80	70 - 130	1	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)	2.24	2.15	mg/Kg	1	2.00	112	108	70 - 130
4-Bromofluorobenzene (4-BFB)	2.32	2.45	mg/Kg	1	2.00	116	122	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 107963 | Date Analyzed: 2014-01-02 | Analyzed By: AR
Prep Batch: 91351 | QC Preparation: 2013-12-31 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2440	mg/Kg	1	2500	<3.85	98	89.7 - 115.9

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
Chloride			2600	mg/Kg	1	2500	<3.85	104	89.7 - 115.9	6	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: 107965 | Date Analyzed: 2014-01-02 | Analyzed By: AR
Prep Batch: 91351 | QC Preparation: 2013-12-31 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2570	mg/Kg	1	2500	<3.85	103	89.7 - 115.9

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
Chloride			2390	mg/Kg	1	2500	<3.85	96	89.7 - 115.9	7	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: 349082

QC Batch: 107646 | Date Analyzed: 2013-12-18 | Analyzed By: AK
Prep Batch: 91111 | QC Preparation: 2013-12-17 | Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.57	mg/Kg	1	2.00	<0.00533	78	70 - 130
Toluene		1	1.64	mg/Kg	1	2.00	<0.00645	82	70 - 130
Ethylbenzene		1	1.67	mg/Kg	1	2.00	<0.0116	84	70 - 130
Xylene		1	5.04	mg/Kg	1	6.00	<0.00874	84	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	1.56	mg/Kg	1	2.00	<0.00533	78	70 - 130	1	20
Toluene		1	1.63	mg/Kg	1	2.00	<0.00645	82	70 - 130	1	20
Ethylbenzene		1	1.69	mg/Kg	1	2.00	<0.0116	84	70 - 130	1	20
Xylene		1	5.11	mg/Kg	1	6.00	<0.00874	85	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)	1.56	1.54	mg/Kg	1	2	78	77	70 - 130
4-Bromofluorobenzene (4-BFB)	1.60	1.62	mg/Kg	1	2	80	81	70 - 130

Matrix Spike (MS-1) Spiked Sample: 349055

QC Batch: 107650 | Date Analyzed: 2013-12-18 | Analyzed By: KC
Prep Batch: 91113 | QC Preparation: 2013-12-17 | Prepared By: KC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	256	mg/Kg	1	250	12.6	97	64.8 - 149.9

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	251	mg/Kg	1	250	12.6	95	64.8 - 149.9	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
n-Tricosane	111	110	mg/Kg	1	100	111	110	85.4 - 147.7

Matrix Spike (MS-1) Spiked Sample:

QC Batch: 107711 | Date Analyzed: 2013-12-19 | Analyzed By: AK
Prep Batch: 91149 | QC Preparation: 2013-12-18 | Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	14.2	mg/Kg	1	20.0	<2.32	71	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	14.8	mg/Kg	1	20.0	<2.32	74	70 - 130	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
Trifluorotoluene (TFT)	2.06	1.92	mg/Kg	1	2	103	96	70 - 130
4-Bromofluorobenzene (4-BFB)	2.14	2.21	mg/Kg	1	2	107	110	70 - 130

Matrix Spike (MS-1) Spiked Sample: 349127

QC Batch: 107963 | Date Analyzed: 2014-01-02 | Analyzed By: AR
Prep Batch: 91351 | QC Preparation: 2013-12-31 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2920	mg/Kg	5	2500	200	109	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			3000	mg/Kg	5	2500	200	112	78.9 - 121	3	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: 349137

QC Batch: 107965 | Date Analyzed: 2014-01-02 | Analyzed By: AR
Prep Batch: 91351 | QC Preparation: 2013-12-31 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2340	mg/Kg	5	2500	<19.2	94	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			2430	mg/Kg	5	2500	<19.2	97	78.9 - 121	4	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 107646 | Date Analyzed: 2013-12-18 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0908	91	80 - 120	2013-12-18
Toluene		1	mg/kg	0.100	0.0891	89	80 - 120	2013-12-18
Ethylbenzene		1	mg/kg	0.100	0.0883	88	80 - 120	2013-12-18
Xylene		1	mg/kg	0.300	0.264	88	80 - 120	2013-12-18

Standard (CCV-2)

QC Batch: 107646 | Date Analyzed: 2013-12-18 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0909	91	80 - 120	2013-12-18
Toluene		1	mg/kg	0.100	0.0877	88	80 - 120	2013-12-18
Ethylbenzene		1	mg/kg	0.100	0.0860	86	80 - 120	2013-12-18
Xylene		1	mg/kg	0.300	0.262	87	80 - 120	2013-12-18

Standard (CCV-3)

QC Batch: 107646 | Date Analyzed: 2013-12-18 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0889	89	80 - 120	2013-12-18
Toluene		1	mg/kg	0.100	0.0882	88	80 - 120	2013-12-18
Ethylbenzene		1	mg/kg	0.100	0.0853	85	80 - 120	2013-12-18
Xylene		1	mg/kg	0.300	0.257	86	80 - 120	2013-12-18

Standard (CCV-1)

QC Batch: 107650 | Date Analyzed: 2013-12-18 | Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	261	104	80 - 120	2013-12-18

Standard (CCV-2)

QC Batch: 107650 | Date Analyzed: 2013-12-18 | Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	254	102	80 - 120	2013-12-18

Standard (CCV-3)

QC Batch: 107650 | Date Analyzed: 2013-12-18 | Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	267	107	80 - 120	2013-12-18

Standard (CCV-1)

QC Batch: 107711 | Date Analyzed: 2013-12-19 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.933	93	80 - 120	2013-12-19

Standard (CCV-2)

QC Batch: 107711 | Date Analyzed: 2013-12-19 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.851	85	80 - 120	2013-12-19

Standard (CCV-3)

QC Batch: 107711 Date Analyzed: 2013-12-19 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.851	85	80 - 120	2013-12-19

Standard (CCV-1)

QC Batch: 107963 Date Analyzed: 2014-01-02 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	97.8	98	85 - 115	2014-01-02

Standard (CCV-2)

QC Batch: 107963 Date Analyzed: 2014-01-02 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	102	102	85 - 115	2014-01-02

Standard (CCV-1)

QC Batch: 107965 Date Analyzed: 2014-01-02 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	101	101	85 - 115	2014-01-02

Standard (CCV-2)

QC Batch: 107965 Date Analyzed: 2014-01-02 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	98.7	99	85 - 115	2014-01-02

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-13-7	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 then 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

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

1012-27

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 2

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 112M105 B10

PROJECT NAME: COG / Skelly unit #903 Eddy Co, NM

LAB I.D. NUMBER	DATE 2013	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
349118	12/12		S		X	AH 1 (0-1')	1				X		X	X											X			
119			S		X	(1-1.5')	1				X														X			
120			S		X	(2-2.5')	1				X														X			
121			S		X	(3-3.5')	1				X														X			
122			S		X	(4-4.5')	1				X														X			
123			S		X	(5-5.5')	1				X														X			
124			S		X	AH 2 (0-1')	1				X		X	X											X			
125			S		X	(1-1.5')	1				X														X			
126			S		X	(2-2.5')	1				X														X			
127			S		X	(3-3.5')	1				X														X			

RELINQUISHED BY: (Signature)	Date: 12/16/13 Time: 0830	RECEIVED BY: (Signature)	Date: 12/16/13 Time: 8:53
SAMPLED BY: (Print & Initial) RC / AG	Date: 12/16/13 Time: 0830		
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS	AIRBILL #: OTHER:		
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
TETRA TECH CONTACT PERSON: Ike	Results by: RUSH Charges Authorized: Yes No		
RECEIVING LABORATORY: Trace ADDRESS: CITY: Midland STATE: TX ZIP: CONTACT: PHONE:	RECEIVED BY: (Signature) DATE: TIME:		

SAMPLE CONDITION WHEN RECEIVED: 4°

REMARKS: * Run deeper samples if TPH is greater than 5,000 mg/Kg or if total BTex exceeds 50 mg/Kg or if Benzene exceeds 10mg/Kg

Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

Midland All

13121627

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 2

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: 106/ SITE MANAGER: Ike Jaurez

PROJECT NO.: 112mc05810 PROJECT NAME: 106/ Skelly Unit #968 Eddy Co, NM

LAB I.D. NUMBER	DATE 2013	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH TX1005 (Ext. to C35)	TPH 8015 MOD.	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
128	12/12					AH 2 (4-4.5')																				+				
129						AH 3 (0-1')							+	+												+				
130						(1-1.5')																				+				
131						(2-2.5')																				+				
132						(3-3.5')																				+				
133						AH 4 (0-1')							+	+												+				
134						(1-1.5')																				+				
135						(2-2.5')																				+				
136						(3-3.5)																				+				
137						(4-4.5')																				+				

RELINQUISHED BY: (Signature) Date: 12/16/13 Time: 0830 RECEIVED BY: (Signature) Date: 12/16/13 Time: 8:15

SAMPLED BY: (Print & Initial) RR/MG Date: 12/16/13 Time: 0830

RELINQUISHED BY: (Signature) Date: Time: RECEIVED BY: (Signature) Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS AIRBILL #: OTHER:

RELINQUISHED BY: (Signature) Date: Time: RECEIVED BY: (Signature) Date: Time:

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE: DATE: TIME:
RECEIVED BY: (Signature)

TETRA TECH CONTACT PERSON: Ike

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4°

REMARKS:

Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

CARDINAL Laboratories

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

May 01, 2014

IKE TAVAREZ

TETRA TECH

1910 N. BIG SPRING STREET

MIDLAND, TX 79705

RE: SKELLY #968 TB

Enclosed are the results of analyses for samples received by the laboratory on 04/25/14 9:20.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	04/25/2014	Sampling Date:	04/24/2014
Reported:	05/01/2014	Sampling Type:	Soil
Project Name:	SKELLY #968 TB	Sampling Condition:	** (See Notes)
Project Number:	112MC05820	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: T-1 (AH-3) 0' (H401251-01)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**128**	16.0	04/30/2014	ND	400	100	400	7.69	

Sample ID: T-1 (AH-3) 2' (H401251-02)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	04/30/2014	ND	400	100	400	7.69	

Sample ID: T-1 (AH-3) 4' (H401251-03)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**512**	16.0	04/30/2014	ND	400	100	400	7.69	

Sample ID: T-1 (AH-3) 6' (H401251-04)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	04/30/2014	ND	400	100	400	7.69	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	04/25/2014	Sampling Date:	04/24/2014
Reported:	05/01/2014	Sampling Type:	Soil
Project Name:	SKELLY #968 TB	Sampling Condition:	** (See Notes)
Project Number:	112MC05820	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: T-1 (AH-3) 8' (H401251-05)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	04/30/2014	ND	400	100	400	7.69	

Sample ID: T-1 (AH-3) 10' (H401251-06)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	04/30/2014	ND	400	100	400	7.69	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Chain of Custody Record

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

H2D1251

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 112MC05820

PROJECT NAME: Skelly #968 TB

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
1	4-24-14	11:00				T-1 (AH-3) 0'																		X				
2	"					T-1 (AH-3) 2'																		X				
3						T-1 (AH-3) 4'																		X				
4						T-1 (AH-3) 6'																		X				
5						T-1 (AH-3) 8'																		X				
6						T-1 (AH-3) 10'																		X				

RELINQUISHED BY: (Signature) Date: 4-25-14 Time:

RECEIVED BY: (Signature) Date: 4/25/14 Time: 9:20

SAMPLED BY: (Print & Initial) Date: Time:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS

AIRBILL #:

OTHER:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

TETRA TECH CONTACT PERSON:

Results by:

RECEIVING LABORATORY:

ADDRESS:

CITY: STATE: ZIP:

CONTACT: PHONE:

RECEIVED BY: (Signature)

DATE: TIME:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 21.8°C

REMARKS:

Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.