SITE INFORMATION

Report Type: Closure Report

General Site Information:						
Site:	W D McIntyre					
Company:	COG Operating LLC					
Section, Township and Range	Unit A	Sec 20	T17S	R30E		
Lease Number:	API-30-015-04226					
County:	Eddy County					
GPS:	32.82628° N			103.98571° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From Loco Hills turn North on Hwy 217 Hagerman Cuttoff Road and travel north for approx. 0.50 miles. The location is between Hwy 217 and the lease road (at the Y).					

Release Data:	
Date Released:	7/8/2013
Type Release:	Produced Water
Source of Contamination:	6" Mainline
Fluid Released:	332 bbls
Fluids Recovered:	330 bbls

Official Communication:			
Name:	Robert McNeill		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		4000 N. Big Spring St.
	600 W. Illinois Ave.		
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 682-4559
Fax:	(432) 684-7137		
Email:	rmcneill@conchoresources.com		ike.tavarez@tetratech.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:	**10**	

Acceptable Soil RRAL (mg/kg)		
Benzene	***Total BTEX***	***TPH***
10	50	1,000

TETRA TECH

January 31, 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., W.D. McIntyre Pipeline, Unit A, Section 20, Township 17 South, Range 30 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to assess a spill from the W.D. McIntyre Pipeline, located in Unit A, Section 20, Township 17 South, Range 30 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.82628°, W 103.98571°. 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 July 8, 2013, and released approximately three hundred and thirty two (332) barrels of produced water from a produced water pipeline. While installing another pipeline, a backhoe struck a 6" pipeline. All of the fluids remained inside the pipeline trench. To alleviate the problem, COG personnel repaired the pipeline. Three hundred and thirty (330) barrels of produced water were recovered. The pipe line trench was backfilled to grade with clean soil. The spill occurred in the pasture affecting an area approximately 8' X 60'. The initial C-141 form is enclosed in Appendix A.

Groundwater

According to the New Mexico State Engineers Office there is one well listed in Section 30 with a depth to groundwater of 80' below surface. According to the NMOCD groundwater map the depth to groundwater is between 50' and 100' below surface. The groundwater data is shown in Appendix B.

Tetra Tech
4000 North Big Spring, 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 1,000 mg/kg.

Soil Assessment and Analytical Results

On September 4, 2013, Tetra Tech personnel inspected and sampled the spill area. Seven (7) auger holes (AH-1 through AH-7) 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 sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all auger hole (AH-1 through AH-7) were below the RRAL for BTEX, and TPH. Elevated chlorides were detected in all of the auger holes ranging from approximately 1,000 mg/kg to 9,000 mg/kg. Auger holes (AH-1, AH-4 and AH-7) were vertically defined and showed chloride concentrations of 9,060 mg/kg at 0-1.0', 5,850 mg/kg at 1-1.5' and 3,170 mg/kg at 1-1.5'; however declined to 638 mg/kg at 1-1.5', 135 mg/kg at 5-5.5' and 287 mg/kg at 2-2.5', respectively. Auger holes (AH-2, AH-3, AH-5 and AH-6) showed chloride concentrations that declined with depth, but still had elevated levels of 5,070 mg/kg at 3-3.5', 1,710 mg/kg at 1-1.5', 2,810 mg/kg at 2-2.5' and 2,090 mg/kg at 5-5.5', respectively. These areas were not vertically defined.

Remedial Activities

On December 16, 2013, Tetra Tech supervised the excavation of the impacted soil as highlighted (green) in Table 1 and shown on Figure 4.

Prior to excavating, the areas of AH-2, AH-3, AH-5 and AH-6 were trenched with a backhoe to define the chloride extents. Auger holes (AH-2 and AH-3) showed elevated chloride concentrations of 5,480 mg/kg at 4.0', but declined to 1,290 mg/kg at 8.0' and 6,020 mg/kg at 4.0', respectively. The chloride concentrations in the area of AH-3 increased to 15,200 mg/kg at 10.0' and were not vertically defined. Auger holes (AH-5 and AH-6) showed chloride concentrations declined with depth to 670 mg/kg at 4.0' and 645 mg/kg at 8.0' below surface, respectively.

Based on the results and the vicinity of the lines, the deeper impacted areas were excavated to approximately 3.0' to 5.0' below surface. Once excavated, the excavation bottoms were lined with a 40 mil plastic liner to cap the deeper impact. The shallow areas of AH-1 and AH-7 were both excavated down to 1.0' to 2.0' below surface.

Based on the AH-3 data, the impacted soil is confined between two lines approximately 10' x 20' and appears to be limited impacted near the edge of the lease road. If needed or required for proper closure, Tetra Tech will drill a borehole in the area of AH-3 to vertically define the chloride impact. However, due to the limited area and lines in the area, the drilling rig may not be accessible for the area.

Approximately 180 yards of contaminated soil was transported to proper disposal and the excavations were backfilled with clean soil to grade.

Conclusion

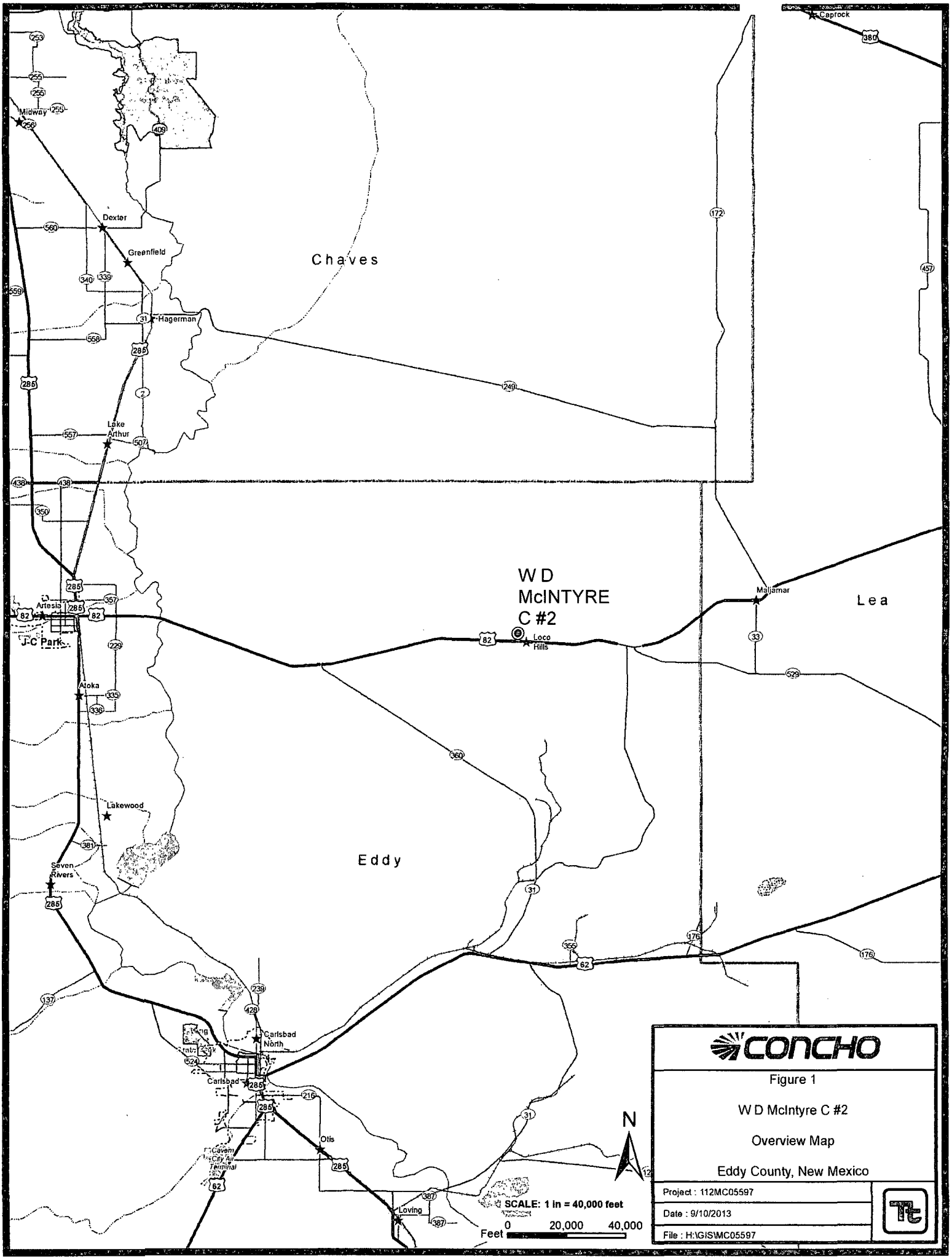
Based on the remedial activities, COG request closure of the site. The final C-141 is included in Appendix A. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Marcus Kujawski
Technician IV

cc: Robert McNeill – COG

Figures



CONCHO

Figure 1

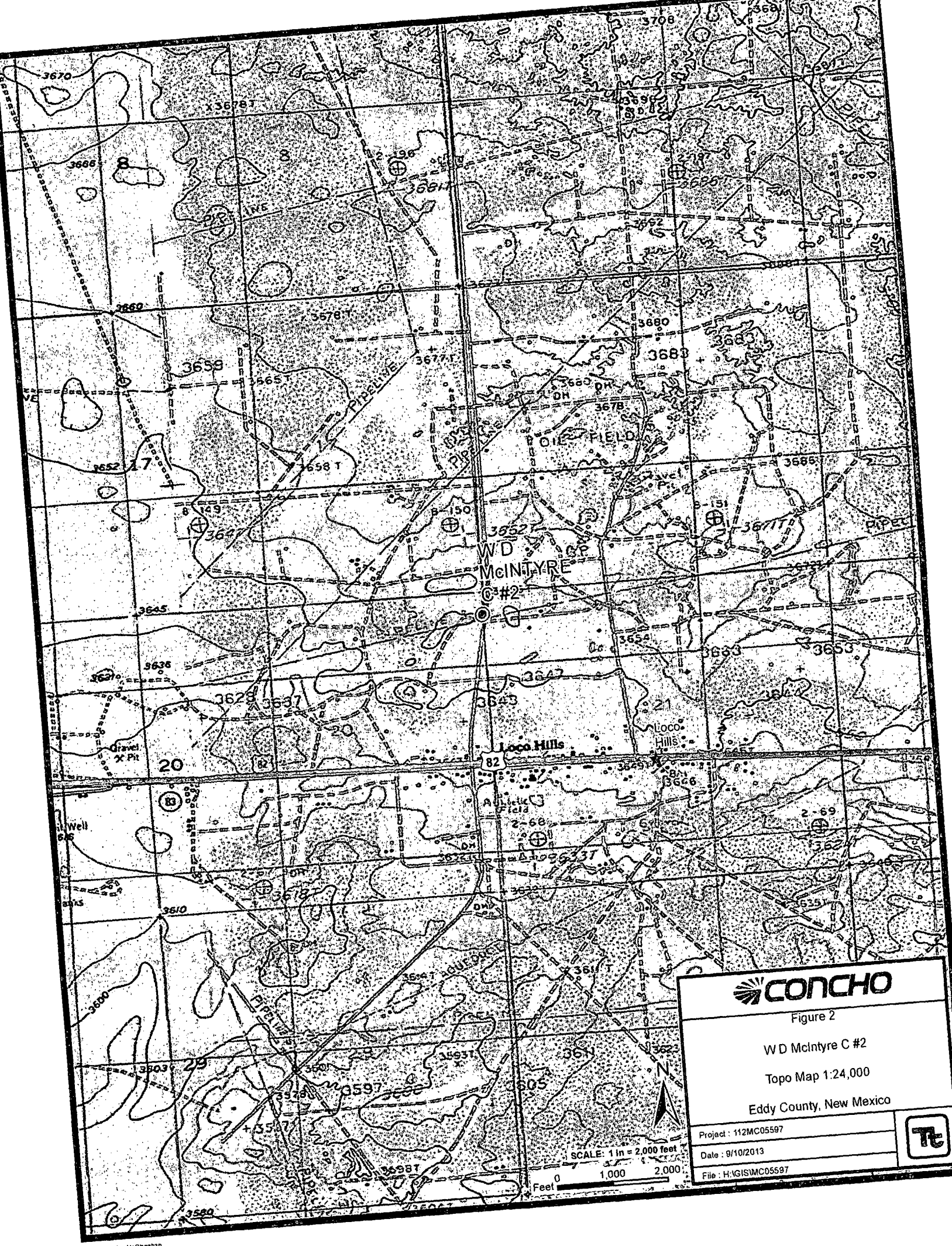
W D McIntyre C #2

Overview Map

Eddy County, New Mexico

Project : 112MC05597	
Date : 9/10/2013	
File : H:\GIS\MC05597	

Drawn By: Alan McClanahan



CONCHO

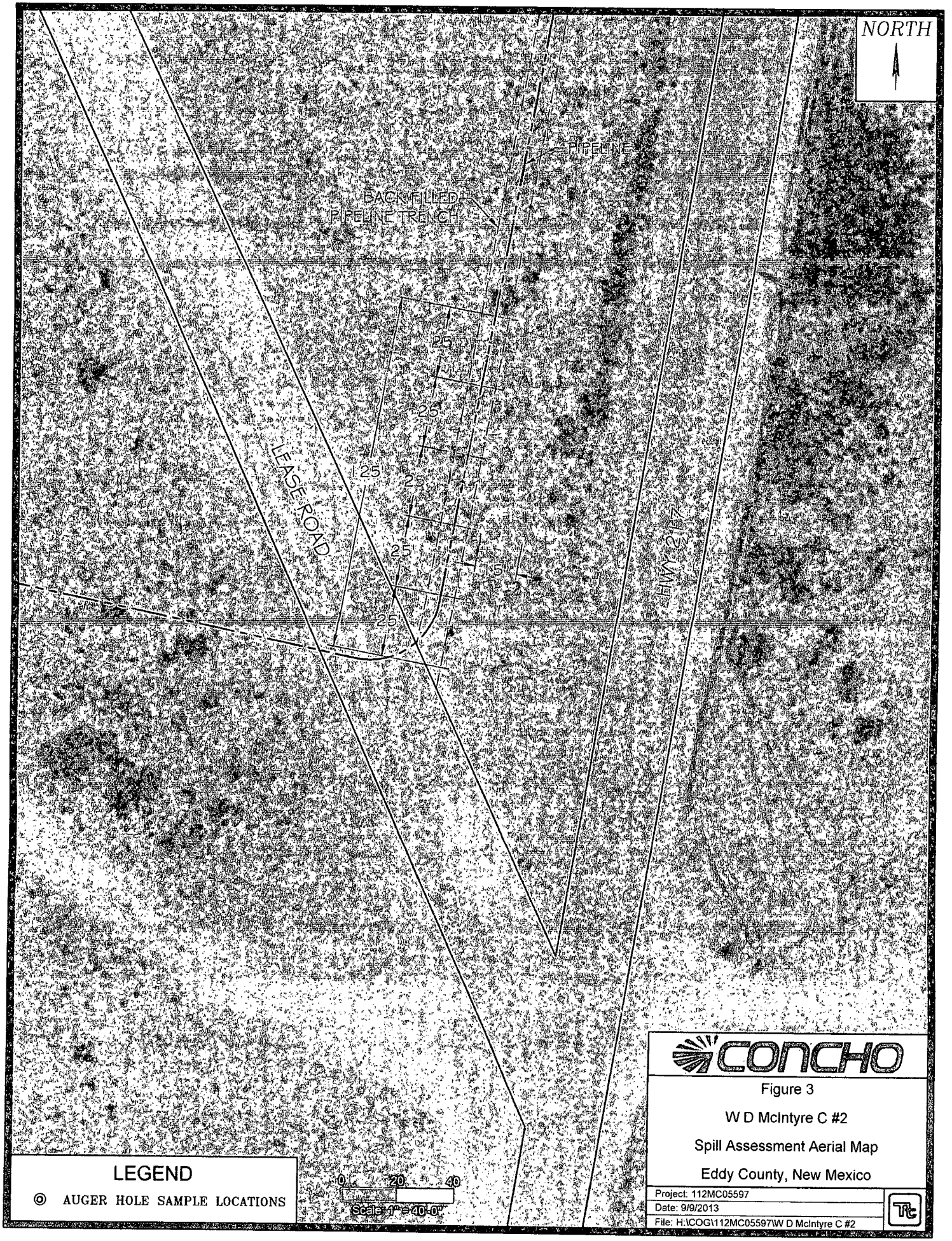
Figure 2

W D McIntyre C #2

Topo Map 1:24,000

Eddy County, New Mexico

Project : 112MC05597	
Date : 9/10/2013	
File : H:\GIS\MC05597	



CONCHO

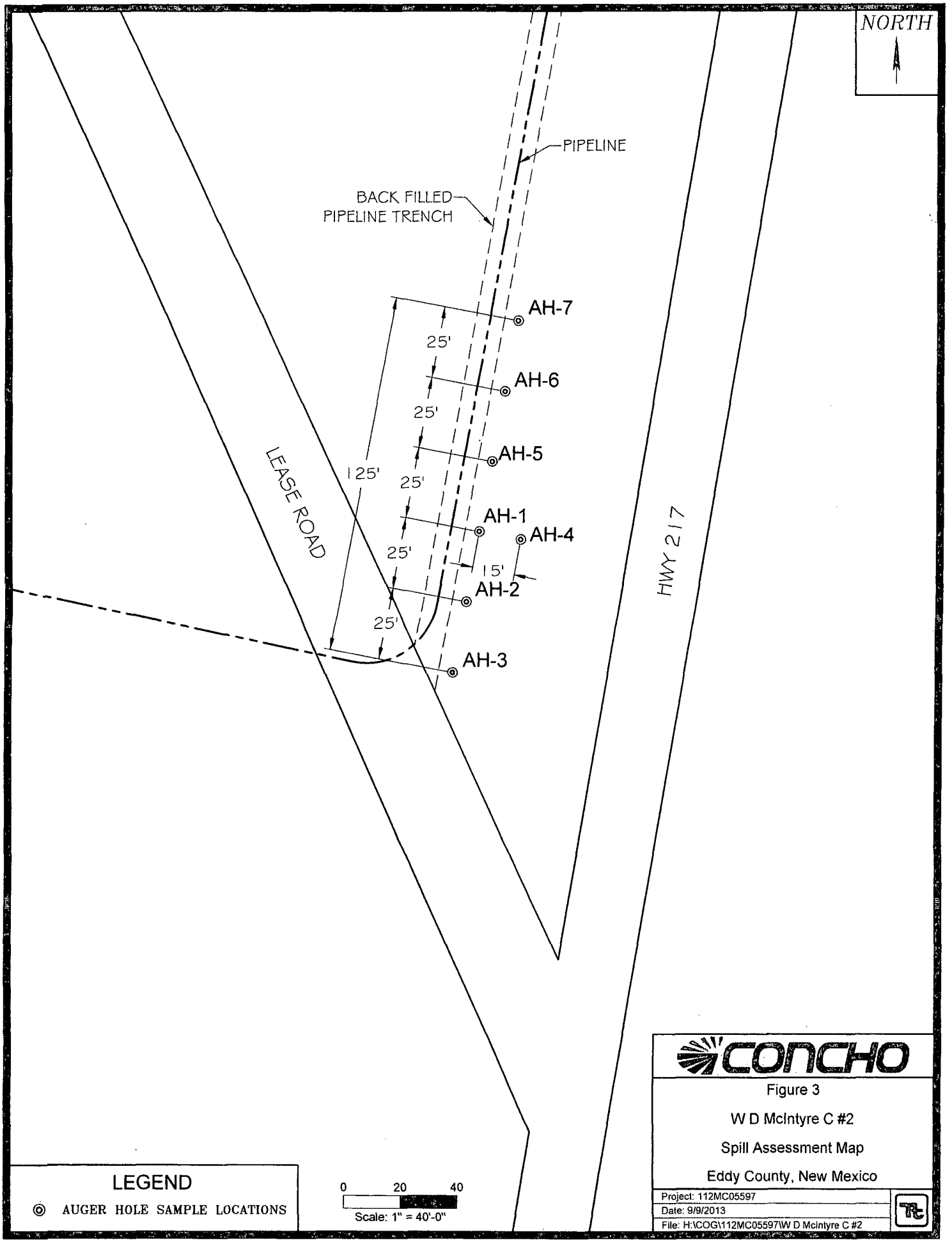
Figure 3

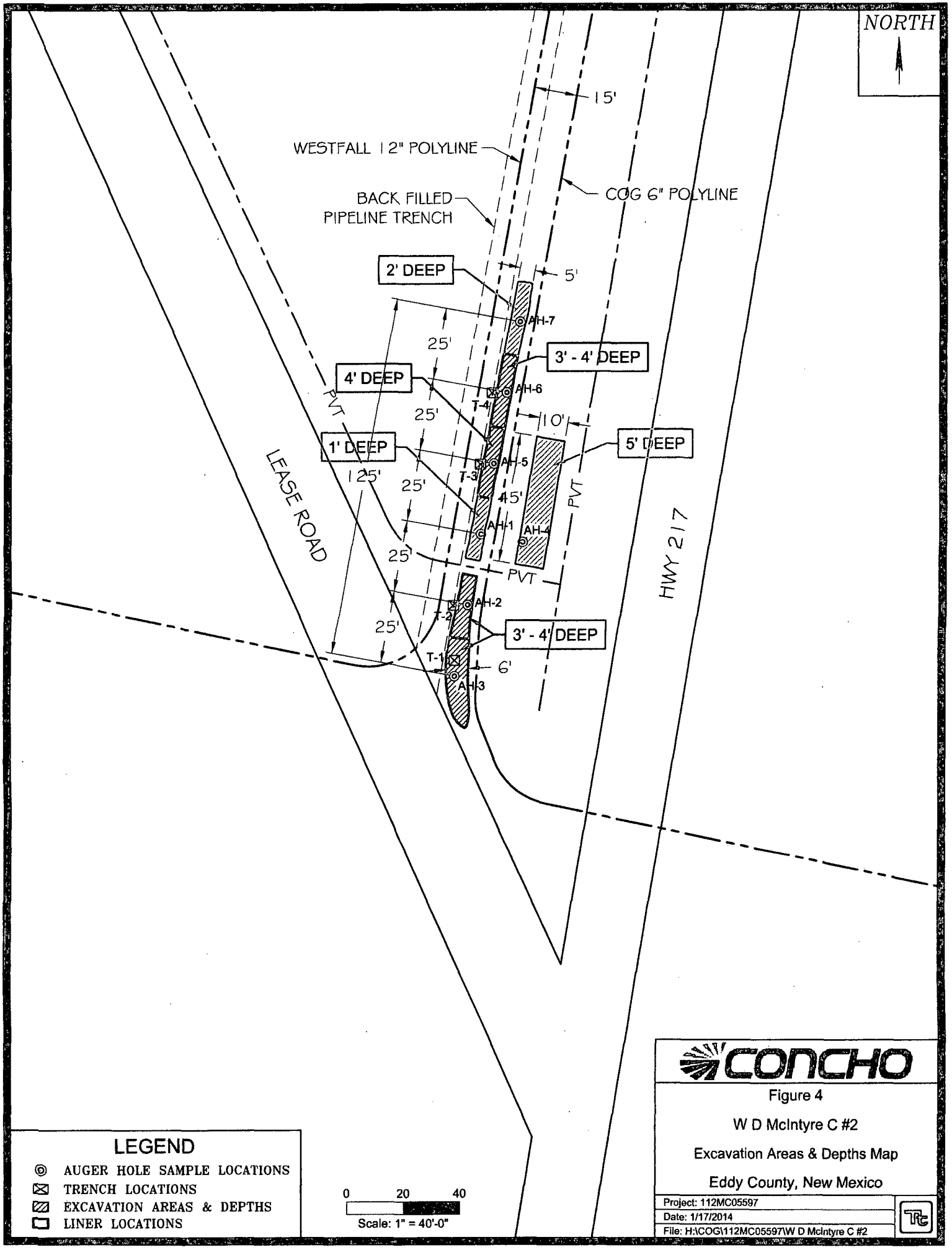
W D McIntyre C #2

Spill Assessment Aerial Map

Eddy County, New Mexico

Project: 112MC05597	
Date: 9/9/2013	
File: H:\COG\112MC05597\W D McIntyre C #2	


NORTH
PIPELINE
BACK FILLED
PIPELINE TRENCH
AH-7
AH-6
AH-5
AH-1
AH-4
AH-2
AH-3
25'
25'
25'
125'
25'
25'
15'
LEASE ROAD
HWY 217
LEGEND
AUGER HOLE SAMPLE LOCATIONS
0 20 40
Scale: 1" = 40'-0"
CONCHO
Figure 3
W D McIntyre C #2
Spill Assessment Map
Eddy County, New Mexico
Project: 112MC05597
Date: 9/9/2013
File: H:\COG\112MC05597W D McIntyre C #2


NORTH
15'
WESTFALL 12" POLYLINE
BACK FILLED
PIPELINE TRENCH
COG 6" POLYLINE
2' DEEP
5'
AH-7
25'
3' - 4' DEEP
4' DEEP
AH-6
T-4
25'
10'
1' DEEP
5' DEEP
AH-5
T-3
125'
25'
45'
AH-1
AH-4
25'
PVT
PVT
PVT
LEASE ROAD
HWY 217
AH-2
T-2
25'
3' - 4' DEEP
T-1
6'
AH-3
LEGEND
AUGER HOLE SAMPLE LOCATIONS
TRENCH LOCATIONS
EXCAVATION AREAS & DEPTHS
LINER LOCATIONS
0
20
40
Scale: 1" = 40'-0"
CONCHO
Figure 4
W D McIntyre C #2
Excavation Areas & Depths Map
Eddy County, New Mexico
Project: 112MC05597
Date: 1/17/2014
File: H:\COG\112MC05597\W D McIntyre C #2

Tables

Table 1
COG Operating LLC.
W. D. McIntyre C #2
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	9/4/2013	0-1			X	<20.0	298	298	<0.100	<0.100	<0.100	<0.100	<0.100	9,060
	"	1-1.5	-	X		-	-	-	-	-	-	-	-	638
Bottom Hole	12/19/2013	1.5	-	X		-	-	-	-	-	-	-	-	865
AH-2	9/4/2013	0-1			X	<4.00	80.8	80.8	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	8,760
	"	1-1.5			X									5,080
	"	2-2.5			X									5,490
Trench	"	3-3.5			X									5,070
T-2	12/19/2013	0			X									650
	"	2			X									3,480
	"	4			X									5,480
	"	6	-	X		-	-	-	-	-	-	-	-	2,060
	"	8	-	X		-	-	-	-	-	-	-	-	1,290
AH-3	9/4/2013	0-1			X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	4,410
Trench	"	1-1.5			X									1,710
T-1	12/19/2013	0			X									10,000
	12/19/2013	2			X									7,320
	"	4			X									6,020
	"	6	-	X		-	-	-	-	-	-	-	-	4,100
	"	8	-	X		-	-	-	-	-	-	-	-	21,200
	"	10	-	X		-	-	-	-	-	-	-	-	15,200
South Side Wall	12/19/2013	-	-	X		-	-	-	-	-	-	-	-	41.0

Table 1
COG Operating LLC.
W. D. McIntyre C #2
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-4	9/4/2013	0-1			X	<4.00	52.8	52.8	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	4,210
	"	1-1.5			X	-	-	-	-	-	-	-	-	5,850
	"	2-2.5			X	-	-	-	-	-	-	-	-	5,180
	"	3-3.5			X	-	-	-	-	-	-	-	-	3,670
	"	4-4.5			X	-	-	-	-	-	-	-	-	4,950
	"	5-5.5			X	-	-	-	-	-	-	-	-	135
	"	6-6.5	-	X		-	-	-	-	-	-	-	-	798
North Side Wall	12/19/2013	-	-	X		-	-	-	-	-	-	-	-	31.0
EAST ~~South~~ Side Wall	"	-	-	X		-	-	-	-	-	-	-	-	132
South Side Wall	"	-	-	X		-	-	-	-	-	-	-	-	2,570
Bottom Hole	"	5	-	X		-	-	-	-	-	-	-	-	616
AH-5	9/4/2013	0-1			X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	5,170
	"	1-1.5			X	-	-	-	-	-	-	-	-	1,200
Trench	"	2-2.5			X	-	-	-	-	-	-	-	-	2,810
T-3	12/19/2013	0			X	-	-	-	-	-	-	-	-	5,810
	"	2			X	-	-	-	-	-	-	-	-	4,620
	"	4			X	-	-	-	-	-	-	-	-	670
	"	6	-	X		-	-	-	-	-	-	-	-	620
	"	8	-	X		-	-	-	-	-	-	-	-	645
AH-6	9/4/2013	0-1			X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	2,090
	"	1-1.5			X	-	-	-	-	-	-	-	-	1,840
	"	2-2.5			X	-	-	-	-	-	-	-	-	3,170
	"	3-3.5			X	-	-	-	-	-	-	-	-	4,510
	"	4-4.5		X		-	-	-	-	-	-	-	-	5,020
Trench	"	5-5.5		X		-	-	-	-	-	-	-	-	2,090
T-4	12/19/2013	0			X	-	-	-	-	-	-	-	-	5,810
	"	2			X	-	-	-	-	-	-	-	-	4,620
	"	4			X	-	-	-	-	-	-	-	-	670
	"	6	-	X		-	-	-	-	-	-	-	-	620
	"	8	-	X		-	-	-	-	-	-	-	-	645

Table 1
COG Operating LLC.
W. D. McIntyre C #2
Eddy County, New Mexico

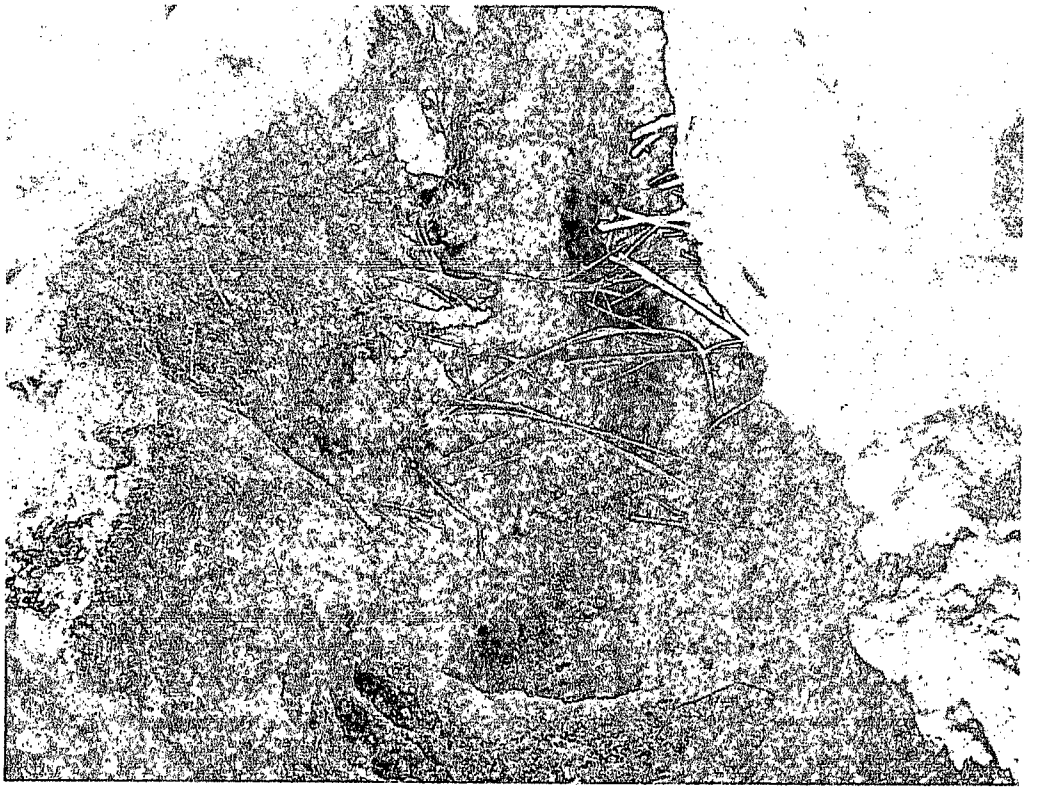
Sample ID	Sample Date	Sample Depth (ft)	BEB Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-7	9/4/2013	0-1			X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	1,840
	"	1-1.5			X									3,170
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	287
North Side Wall	12/19/2013	-	-	X		-	-	-	-	-	-	-	-	71.0

(-) Not Analyzed
(BEB) Below Excavation Bottom
Excavation Depths
Trench Trench to Define
40 mil Liner Installed

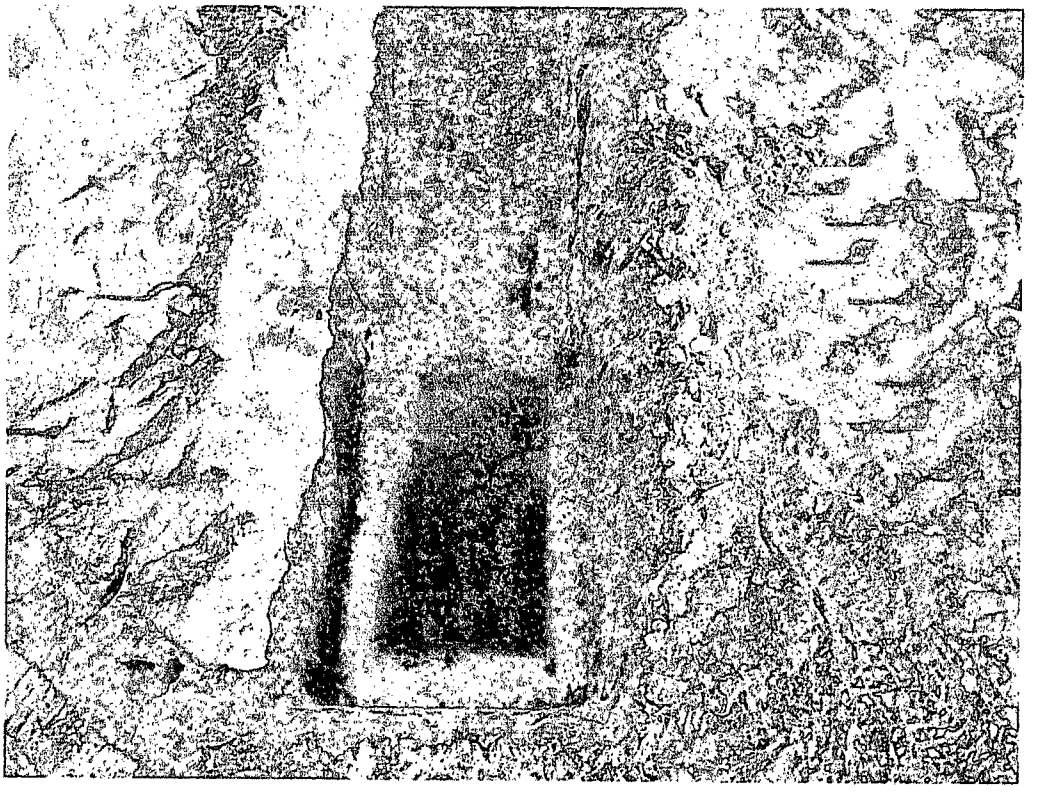
Date Modified: 09/23/2013 112MC05597

Photos

COG Operating LLC
W D McIntyre C #2
Eddy County, New Mexico



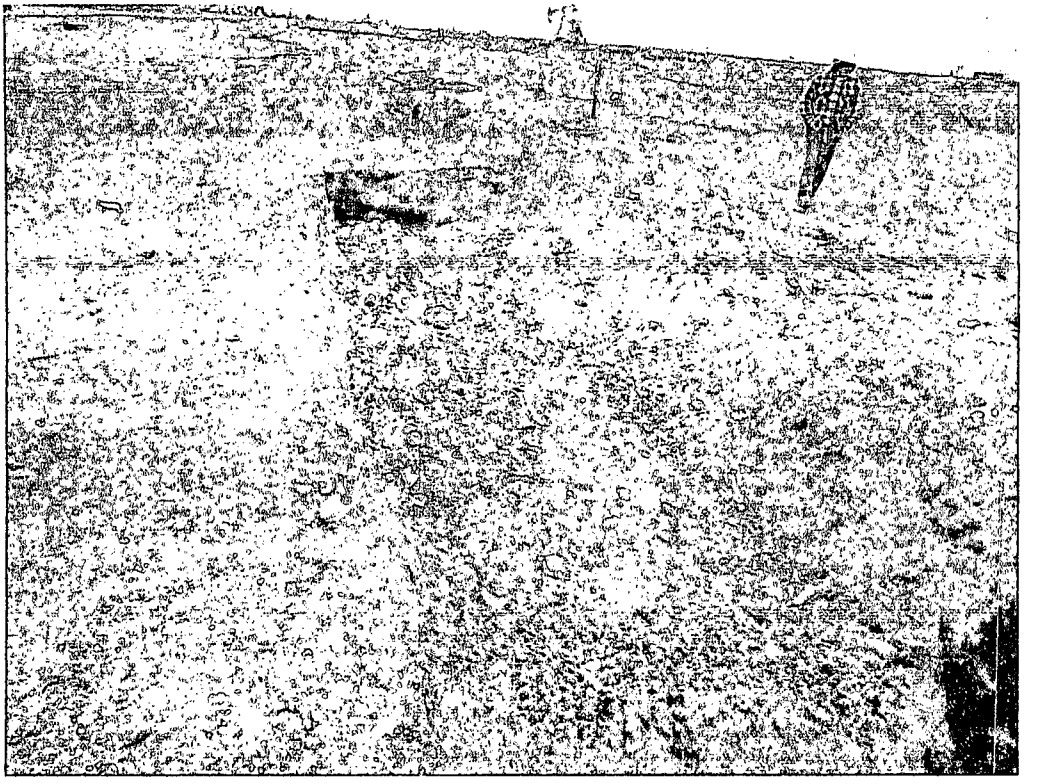
View South – T-1 in area of AH-2



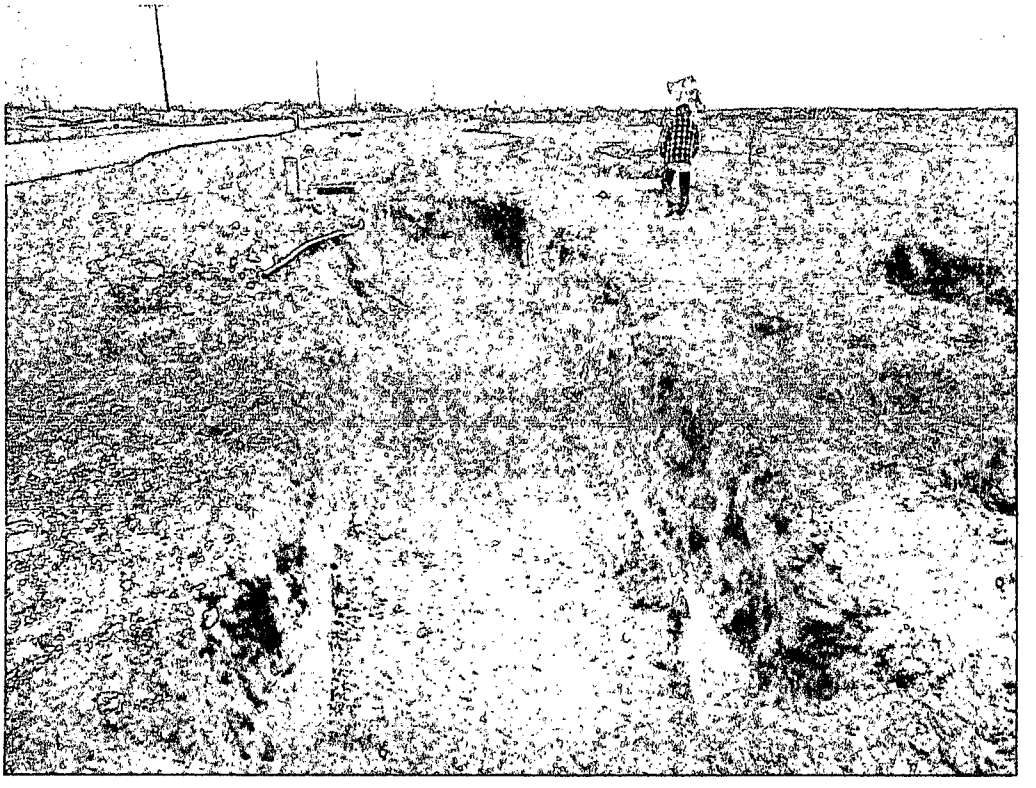
View South – T-4 in area of AH-6

COG Operating LLC
W D McIntyre C #2
Eddy County, New Mexico

TETRA TECH



View South – AH-1, AH-2, and AH-3 excavated

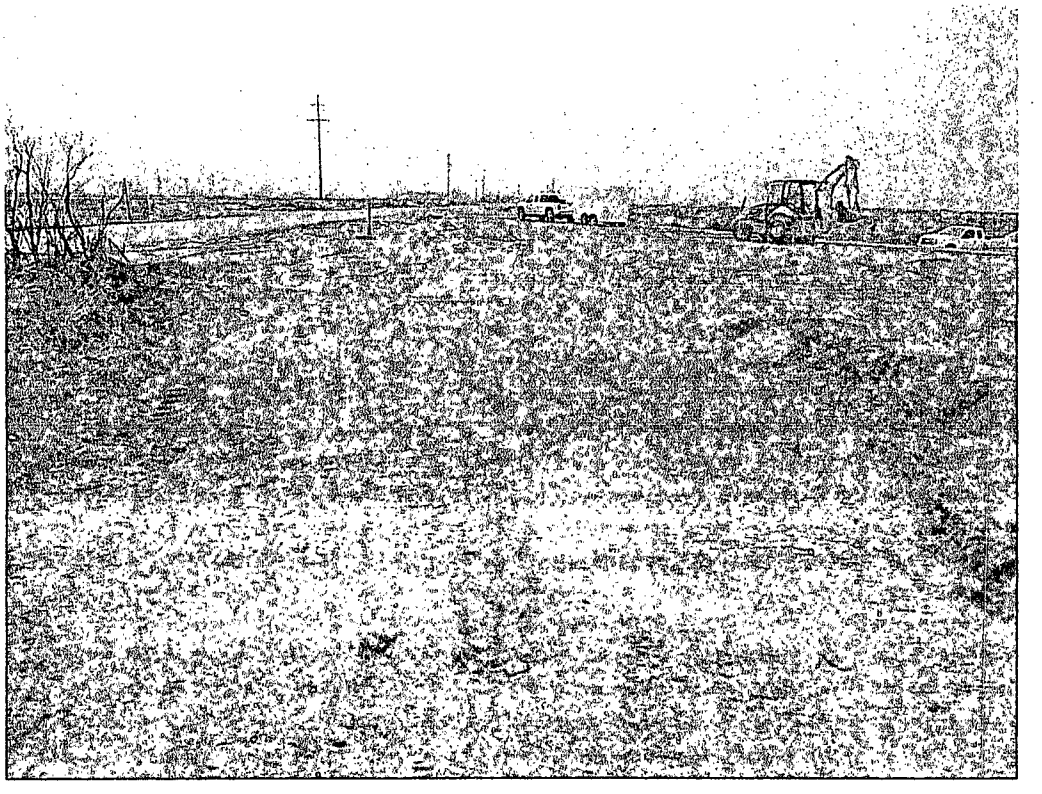


View South – AH-4 Excavated

COG Operating LLC
W D McIntyre C #2
Eddy County, New Mexico

TETRA TECH

View South – AH-5 and AH-6 excavated



View South – Excavation backfilled

Appendix A

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	Pat Ellis
Address	600 West Illinois Avenue, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	W D MCINTYRE C #002	Facility Type	MAINLINE

Surface Owner	Mineral Owner	Lease No. (API#)
FEDERAL		30-015-04226

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	20	17S	30E					EDDY

Latitude 32 49.912 **Longitude** 103 57.544

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 332bbls	Volume Recovered 330bbls
Source of Release 6"mainline	Date and Hour of Occurrence 07-08-2013	Date and Hour of Discovery 07-08-2013 5:00pm
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher – MNOCD / James Amos - BLM	
By Whom? Michelle Mullins	Date and Hour 07-10-2013 10:43am	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

While installing another pipeline a Trackhoe struck a 6" mainline.

Describe Area Affected and Cleanup Action Taken.*

Initially 332bbls of produced water was released from a 6" main line. We were able to recover 330bbls with vacuum trucks. The spill area was mainly contained in a 30'x5 trench and a run off area of 40'x5'. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present the NMOCD/BLM with a work plan 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: 07-10-2013 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 **W D McIntyre C #2**	Facility Type **Mainline**

Surface Owner: Federal	Mineral Owner	Lease No. (API#) 30-015-04226

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	20	17S	30E					Eddy

Latitude 32 49.912° N **Longitude** 103 57.544° W

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 332 bbls	Volume Recovered 330 bbls
Source of Release: 6" Mainline	Date and Hour of Occurrence 07/08/2013	Date and Hour of Discovery 07/08/2013 5:00 pm
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Mike Bratcher – NMOCD / James Amos - BLM**	
By Whom? Michelle Mullins	Date and Hour 07/10/2013 10:43 am	
Was a Watercourse Reached? ☐ Yes ☒ 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.*

While installing another pipeline, a track hoe struck a 6" mainline.

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Describe Area Affected and Cleanup Action Taken.*

Initially 332bbls of produced water were release from a 6" mainline. 330bbls were recovered using a vacuum truck. The spill area was mainly contained in a 30' X 5' trench and a run off area of 40' X 5'. 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: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 01/16/2014 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - McIntyre C #002
Eddy County, New Mexico

16 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14 220 dry	13
19 **110**	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

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

6	5	4	3	2 **290**	1
7	8	9	10	11	12 **288**
18	17	16	15	14 **113** **314**	13299
19	20	21	22	23	24
30	29	28	27	26	25
31 **290**	32	33	34	35	36

17 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 **76** **80**	23	24
30	29 **210** **208**	28	27	26	25
31	32	33	34	35 153	36

17 South 30 East

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

18 South 29 East

6	5	4	3	2	1
7	8	9	10 **95**	11	12
18	17	16	15	14	13
19	20	21	22	23	24 **158**
30	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	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	14 **317**	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 **261**	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: September 17, 2013

Work Order: 13090531

Project Location: NM
Project Name: COG/W. D. McIntyre C #2
Project Number: TBD

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
341147	AH-1 0-1'	soil	2013-09-04	00:00	2013-09-05
341148	AH-1 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341149	AH-2 0-1'	soil	2013-09-04	00:00	2013-09-05
341150	AH-2 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341151	AH-2 2-2.5'	soil	2013-09-04	00:00	2013-09-05
341152	AH-2 3-3.5'	soil	2013-09-04	00:00	2013-09-05
341153	AH-3 0-1'	soil	2013-09-04	00:00	2013-09-05
341154	AH-3 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341155	AH-4 0-1'	soil	2013-09-04	00:00	2013-09-05
341156	AH-4 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341157	AH-4 2-2.5'	soil	2013-09-04	00:00	2013-09-05
341158	AH-4 3-3.5'	soil	2013-09-04	00:00	2013-09-05
341159	AH-4 4-4.5'	soil	2013-09-04	00:00	2013-09-05
341160	AH-4 5-5.5'	soil	2013-09-04	00:00	2013-09-05
341161	AH-4 6-6.5'	soil	2013-09-04	00:00	2013-09-05
341162	AH-5 0-1'	soil	2013-09-04	00:00	2013-09-05
341163	AH-5 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341164	AH-5 2-2.5'	soil	2013-09-04	00:00	2013-09-05
341165	AH-6 0-1'	soil	2013-09-04	00:00	2013-09-05
341166	AH-6 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341167	AH-6 2-2.5'	soil	2013-09-04	00:00	2013-09-05
341168	AH-6 3-3.5'	soil	2013-09-04	00:00	2013-09-05
341169	AH-6 4-4.5'	soil	2013-09-04	00:00	2013-09-05
341170	AH-6 5-5.5'	soil	2013-09-04	00:00	2013-09-05
341171	AH-7 0-1'	soil	2013-09-04	00:00	2013-09-05
341172	AH-7 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341173	AH-7 2-2.5'	soil	2013-09-04	00:00	2013-09-05

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)
341147 - AH-1 0-1'	<0.100 [1]	<0.100	<0.100	<0.100	**298**	<20.0 [2] Qs
341149 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**80.8**	<4.00 Qs
341153 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
341155 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**52.8**	<4.00 Qs
341162 - AH-5 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
341165 - AH-6 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
341171 - AH-7 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs

Sample: 341147 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**9060**	mg/Kg	4

Sample: 341148 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**638**	mg/Kg	4

Sample: 341149 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**8760**	mg/Kg	4

Sample: 341150 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**5080**	mg/Kg	4

Sample: 341151 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**5490**	mg/Kg	4

Sample: 341152 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**5070**	mg/Kg	4

[1] Dilution due to surfactants.
[2] Dilution due to surfactants.

Sample: 341153 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**4410**	mg/Kg	4

Sample: 341154 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1710**	mg/Kg	4

Sample: 341155 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**4210**	mg/Kg	4

Sample: 341156 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**5850**	mg/Kg	4

Sample: 341157 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**5180**	mg/Kg	4

Sample: 341158 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**3670**	mg/Kg	4

Sample: 341159 - AH-4 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**4950**	mg/Kg	4

Sample: 341160 - AH-4 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**135**	mg/Kg	4

Sample: 341161 - AH-4 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**798**	mg/Kg	4

Sample: 341162 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		**5170**	mg/Kg	4

Sample: 341163 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1200**	mg/Kg	4

Sample: 341164 - AH-5 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**2810**	mg/Kg	4

Sample: 341165 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		**958**	mg/Kg	4

Sample: 341166 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**4110**	mg/Kg	4

Sample: 341167 - AH-6 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**4670**	mg/Kg	4

Sample: 341168 - AH-6 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**4510**	mg/Kg	4

Sample: 341169 - AH-6 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**5020**	mg/Kg	4

Sample: 341170 - AH-6 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**2090**	mg/Kg	4

Sample: 341171 - AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		**1840**	mg/Kg	4

Sample: 341172 - AH-7 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**3170**	mg/Kg	4

Sample: 341173 - AH-7 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**287**	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: September 17, 2013

Work Order: 13090531

Project Location: NM
Project Name: COG/W. D. McIntyre C #2
Project Number: TBD

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
341147	AH-1 0-1'	soil	2013-09-04	00:00	2013-09-05
341148	AH-1 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341149	AH-2 0-1'	soil	2013-09-04	00:00	2013-09-05
341150	AH-2 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341151	AH-2 2-2.5'	soil	2013-09-04	00:00	2013-09-05
341152	AH-2 3-3.5'	soil	2013-09-04	00:00	2013-09-05
341153	AH-3 0-1'	soil	2013-09-04	00:00	2013-09-05
341154	AH-3 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341155	AH-4 0-1'	soil	2013-09-04	00:00	2013-09-05
341156	AH-4 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341157	AH-4 2-2.5'	soil	2013-09-04	00:00	2013-09-05
341158	AH-4 3-3.5'	soil	2013-09-04	00:00	2013-09-05
341159	AH-4 4-4.5'	soil	2013-09-04	00:00	2013-09-05
341160	AH-4 5-5.5'	soil	2013-09-04	00:00	2013-09-05
341161	AH-4 6-6.5'	soil	2013-09-04	00:00	2013-09-05
341162	AH-5 0-1'	soil	2013-09-04	00:00	2013-09-05
341163	AH-5 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341164	AH-5 2-2.5'	soil	2013-09-04	00:00	2013-09-05

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
341165	AH-6 0-1'	soil	2013-09-04	00:00	2013-09-05
341166	AH-6 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341167	AH-6 2-2.5'	soil	2013-09-04	00:00	2013-09-05
341168	AH-6 3-3.5'	soil	2013-09-04	00:00	2013-09-05
341169	AH-6 4-4.5'	soil	2013-09-04	00:00	2013-09-05
341170	AH-6 5-5.5'	soil	2013-09-04	00:00	2013-09-05
341171	AH-7 0-1'	soil	2013-09-04	00:00	2013-09-05
341172	AH-7 1-1.5'	soil	2013-09-04	00:00	2013-09-05
341173	AH-7 2-2.5'	soil	2013-09-04	00:00	2013-09-05

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.

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

Report Contents

Case Narrative

Samples for project COG/W. D. McIntyre C #2 were received by TraceAnalysis, Inc. on 2013-09-05 and assigned to work order 13090531. Samples for work order 13090531 were received intact at a temperature of 1.9 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	88988	2013-09-13 at 11:01	105115	2013-09-17 at 08:04
Chloride (Titration)	SM 4500-Cl B	89016	2013-09-14 at 11:24	105099	2013-09-15 at 14:07
Chloride (Titration)	SM 4500-Cl B	89016	2013-09-14 at 11:24	105107	2013-09-16 at 14:59
Chloride (Titration)	SM 4500-Cl B	89016	2013-09-14 at 11:24	105108	2013-09-16 at 15:29
TPH DRO - NEW	S 8015 D	88905	2013-09-10 at 15:00	104931	2013-09-11 at 11:38
TPH GRO	S 8015 D	88988	2013-09-13 at 11:01	105116	2013-09-17 at 08:08

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 13090531 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: 341147 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	105115	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	Prepared By:	AK

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene [1]	U	1	<0.100	mg/Kg	5	0.0200
Toluene	U	1	<0.100	mg/Kg	5	0.0200
Ethylbenzene	U	1	<0.100	mg/Kg	5	0.0200
Xylene	U	1	<0.100	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.85	mg/Kg	5	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			2.27	mg/Kg	5	2.00	114	70 - 130

Sample: 341147 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105099	Date Analyzed:	2013-09-15	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			**9060**	mg/Kg	10	4.00

Sample: 341147 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	104931	Date Analyzed:	2013-09-11	Analyzed By:	KC
Prep Batch:	88905	Sample Preparation:	2013-09-10	Prepared By:	KC

Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO		1	**298**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			141	mg/Kg	1	100	141	76.3 - 192.6

Sample: 341147 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	105116	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO [2]	Qs,U	1	<20.0	mg/Kg	5	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.75	mg/Kg	5	2.00	88	70 - 130
4-Bromofluorobenzene (4-BFB)			2.31	mg/Kg	5	2.00	116	70 - 130

Sample: 341148 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105099	Date Analyzed:	2013-09-15	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**638**	mg/Kg	5	4.00

Sample: 341149 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	105115	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	Prepared By:	AK

continued ...

sample 341149 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

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)			1.65	mg/Kg	1	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB)			1.93	mg/Kg	1	2.00	96	70 - 130

Sample: 341149 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105099	Date Analyzed:	2013-09-15	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**8760**	mg/Kg	10	4.00

Sample: 341149 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	104931	Date Analyzed:	2013-09-11	Analyzed By:	KC
Prep Batch:	88905	Sample Preparation:	2013-09-10	Prepared By:	KC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	B	1	**80.8**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			125	mg/Kg	1	100	125	76.3 - 192.6

Sample: 341149 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	105116	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	Prepared By:	AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.85	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			2.20	mg/Kg	1	2.00	110	70 - 130

Sample: 341150 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105099	Date Analyzed:	2013-09-15	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5080**	mg/Kg	10	4.00

Sample: 341151 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105099	Date Analyzed:	2013-09-15	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5490**	mg/Kg	10	4.00

Sample: 341152 - AH-2 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105099	Date Analyzed:	2013-09-15	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5070**	mg/Kg	10	4.00

Sample: 341153 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	105115	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	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)			1.72	mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)			1.91	mg/Kg	1	2.00	96	70 - 130

Sample: 341153 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105099	Date Analyzed:	2013-09-15	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**4410**	mg/Kg	10	4.00

Sample: 341153 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	104931	Date Analyzed:	2013-09-11	Analyzed By:	KC
Prep Batch:	88905	Sample Preparation:	2013-09-10	Prepared By:	KC

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			123	mg/Kg	1	100	123	76.3 - 192.6

Sample: 341153 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	105116	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	Prepared By:	AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.95	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.20	mg/Kg	1	2.00	110	70 - 130

Sample: 341154 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105107	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1710**	mg/Kg	10	4.00

Sample: 341155 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	105115	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	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)			1.72	mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)			2.03	mg/Kg	1	2.00	102	70 - 130

Sample: 341155 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105107	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**4210**	mg/Kg	10	4.00

Sample: 341155 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	104931	Date Analyzed:	2013-09-11	Analyzed By:	KC
Prep Batch:	88905	Sample Preparation:	2013-09-10	Prepared By:	KC

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	B	1	**52.8**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			134	mg/Kg	1	100	134	76.3 - 192.6

Sample: 341155 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	105116	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	Prepared By:	AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.92	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			2.34	mg/Kg	1	2.00	117	70 - 130

Sample: 341156 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105107	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5850**	mg/Kg	10	4.00

Sample: 341157 - AH-4 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105107	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5180**	mg/Kg	10	4.00

Sample: 341158 - AH-4 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105107	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**3670**		mg/Kg	10	4.00

Sample: 341159 - AH-4 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105107	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**4950**		mg/Kg	10	4.00

Sample: 341160 - AH-4 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105107	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**135**		mg/Kg	5	4.00

Sample: 341161 - AH-4 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105107	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**798**	mg/Kg	5	4.00

Sample: 341162 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	105115	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	Prepared By:	AK

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)			1.78	mg/Kg	1	2.00	89	70 - 130
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	70 - 130

Sample: 341162 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105107	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5170**	mg/Kg	10	4.00

Sample: 341162 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	104931	Date Analyzed:	2013-09-11	Analyzed By:	KC
Prep Batch:	88905	Sample Preparation:	2013-09-10	Prepared By:	KC

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			128	mg/Kg	1	100	128	76.3 - 192.6

Sample: 341162 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	105116	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	Prepared By:	AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.98	mg/Kg	1	2.00	99	70 - 130
4-Bromofluorobenzene (4-BFB)			2.33	mg/Kg	1	2.00	116	70 - 130

Sample: 341163 - AH-5 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105107	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1200**	mg/Kg	5	4.00

Sample: 341164 - AH-5 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105108	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2810**	mg/Kg	10	4.00

Sample: 341165 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	105115	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	Prepared By:	AK

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)			1.82	mg/Kg	1	2.00	91	70 - 130
4-Bromofluorobenzene (4-BFB)			1.97	mg/Kg	1	2.00	98	70 - 130

Sample: 341165 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105108	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**958**	mg/Kg	5	4.00

Sample: 341165 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	104931	Date Analyzed:	2013-09-11	Analyzed By:	KC
Prep Batch:	88905	Sample Preparation:	2013-09-10	Prepared By:	KC

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			131	mg/Kg	1	100	131	76.3 - 192.6

Sample: 341165 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	105116	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	Prepared By:	AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			2.27	mg/Kg	1	2.00	114	70 - 130

Sample: 341166 - AH-6 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105108	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4110**	mg/Kg	5	4.00

Sample: 341167 - AH-6 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105108	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4670**	mg/Kg	10	4.00

Sample: 341168 - AH-6 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105108	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4510**	mg/Kg	10	4.00

Sample: 341169 - AH-6 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105108	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5020**	mg/Kg	10	4.00

Sample: 341170 - AH-6 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105108	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2090**	mg/Kg	10	4.00

Sample: 341171 - AH-7 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	105115	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	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)			1.76	mg/Kg	1	2.00	88	70 - 130
4-Bromofluorobenzene (4-BFB)			1.92	mg/Kg	1	2.00	96	70 - 130

Sample: 341171 - AH-7 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105108	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1840**	mg/Kg	10	4.00

Sample: 341171 - AH-7 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	104931	Date Analyzed:	2013-09-11	Analyzed By:	KC
Prep Batch:	88905	Sample Preparation:	2013-09-10	Prepared By:	KC

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			136	mg/Kg	1	100	136	76.3 - 192.6

Sample: 341171 - AH-7 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	105116	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	Sample Preparation:	2013-09-13	Prepared By:	AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.95	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.18	mg/Kg	1	2.00	109	70 - 130

Sample: 341172 - AH-7 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105108	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3170**	mg/Kg	10	4.00

Sample: 341173 - AH-7 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105108	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	Sample Preparation:	2013-09-14	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**287**	mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 104931

QC Batch:	104931	Date Analyzed:	2013-09-11	Analyzed By:	KC
Prep Batch:	88905	QC Preparation:	2013-09-10	Prepared By:	KC

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	20.0	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			101	mg/Kg	1	100	101	64.1 - 164.4

Method Blank (1) QC Batch: 105099

QC Batch:	105099	Date Analyzed:	2013-09-15	Analyzed By:	AR
Prep Batch:	89016	QC Preparation:	2013-09-14	Prepared By:	AR

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

Method Blank (1) QC Batch: 105107

QC Batch:	105107	Date Analyzed:	2013-09-16	Analyzed By:	AR
Prep Batch:	89016	QC Preparation:	2013-09-14	Prepared By:	AR

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

Method Blank (1) QC Batch: 105108

QC Batch: 105108 | Date Analyzed: 2013-09-16 | Analyzed By: AR
Prep Batch: 89016 | QC Preparation: 2013-09-14 | Prepared By: AR

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

Method Blank (1) QC Batch: 105115

QC Batch: 105115 | Date Analyzed: 2013-09-17 | Analyzed By: AK
Prep Batch: 88988 | QC Preparation: 2013-09-13 | Prepared By: AK

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)			1.74	mg/Kg	1	2.00	87	70 - 130
4-Bromofluorobenzene (4-BFB)			2.03	mg/Kg	1	2.00	102	70 - 130

Method Blank (1) QC Batch: 105116

QC Batch: 105116 | Date Analyzed: 2013-09-17 | Analyzed By: AK
Prep Batch: 88988 | QC Preparation: 2013-09-13 | 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)			1.95	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.30	mg/Kg	1	2.00	115	70 - 130

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 104931 | Date Analyzed: 2013-09-11 | Analyzed By: KC
Prep Batch: 88905 | QC Preparation: 2013-09-10 | Prepared By: KC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	280	mg/Kg	1	250	20	104	53.8 - 129

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	287	mg/Kg	1	250	20	107	53.8 - 129	2	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	101	106	mg/Kg	1	100	101	106	61.3 - 170.4

Laboratory Control Spike (LCS-1)

QC Batch: 105099 | Date Analyzed: 2013-09-15 | Analyzed By: AR
Prep Batch: 89016 | QC Preparation: 2013-09-14 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2400	mg/Kg	1	2500	<3.85	96	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			2470	mg/Kg	1	2500	<3.85	99	89.7 - 115.9	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: 105107 | Date Analyzed: 2013-09-16 | Analyzed By: AR
Prep Batch: 89016 | QC Preparation: 2013-09-14 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2720	mg/Kg	1	2500	<3.85	109	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			2640	mg/Kg	1	2500	<3.85	106	89.7 - 115.9	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: 105108 | Date Analyzed: 2013-09-16 | Analyzed By: AR
Prep Batch: 89016 | QC Preparation: 2013-09-14 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2700	mg/Kg	1	2500	<3.85	108	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			2670	mg/Kg	1	2500	<3.85	107	89.7 - 115.9	1	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: 105115 | Date Analyzed: 2013-09-17 | Analyzed By: AK
Prep Batch: 88988 | QC Preparation: 2013-09-13 | Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.74	mg/Kg	1	2.00	<0.00810	87	70 - 130
Toluene		1	1.78	mg/Kg	1	2.00	<0.00750	89	70 - 130
Ethylbenzene		1	1.78	mg/Kg	1	2.00	<0.00730	89	70 - 130

continued ...

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Xylene		1	5.42	mg/Kg	1	6.00	<0.00700	90	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	1.72	mg/Kg	1	2.00	<0.00810	86	70 - 130	1	20
Toluene		1	1.75	mg/Kg	1	2.00	<0.00750	88	70 - 130	2	20
Ethylbenzene		1	1.77	mg/Kg	1	2.00	<0.00730	88	70 - 130	0	20
Xylene		1	5.40	mg/Kg	1	6.00	<0.00700	90	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)	1.77	1.72	mg/Kg	1	2.00	88	86	70 - 130
4-Bromofluorobenzene (4-BFB)	2.14	2.14	mg/Kg	1	2.00	107	107	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 105116 | Date Analyzed: 2013-09-17 | Analyzed By: AK
Prep Batch: 88988 | QC Preparation: 2013-09-13 | Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	15.9	mg/Kg	1	20.0	<2.32	80	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	17.1	mg/Kg	1	20.0	<2.32	86	70 - 130	7	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)	1.63	1.85	mg/Kg	1	2.00	82	92	70 - 130
4-Bromofluorobenzene (4-BFB)	2.40	2.48	mg/Kg	1	2.00	120	124	70 - 130

Matrix Spike (MS-1) Spiked Sample: 341000

QC Batch: 104931 | Date Analyzed: 2013-09-11 | Analyzed By: KC
Prep Batch: 88905 | QC Preparation: 2013-09-10 | Prepared By: KC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	369	mg/Kg	1	250	64.4	122	29 - 168.5

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	337	mg/Kg	1	250	64.4	109	29 - 168.5	9	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	106	111	mg/Kg	1	100	106	111	59.5 - 168.9

Matrix Spike (MS-1) Spiked Sample: 341153

QC Batch: 105099 | Date Analyzed: 2013-09-15 | Analyzed By: AR
Prep Batch: 89016 | QC Preparation: 2013-09-14 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			6810	mg/Kg	10	2500	4410	96	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			6470	mg/Kg	10	2500	4410	82	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: 341163

QC Batch: 105107 | Date Analyzed: 2013-09-16 | Analyzed By: AR
Prep Batch: 89016 | QC Preparation: 2013-09-14 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3770	mg/Kg	5	2500	1200	103	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			3850	mg/Kg	5	2500	1200	106	78.9 - 121	2	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: 341173

QC Batch: 105108 | Date Analyzed: 2013-09-16 | Analyzed By: AR
Prep Batch: 89016 | QC Preparation: 2013-09-14 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2870	mg/Kg	5	2500	287	103	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			2820	mg/Kg	5	2500	287	101	78.9 - 121	2	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: 341187

QC Batch: 105115 | Date Analyzed: 2013-09-17 | Analyzed By: AK
Prep Batch: 88988 | QC Preparation: 2013-09-13 | Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.58	mg/Kg	1	2.00	<0.00810	79	70 - 130
Toluene		1	1.61	mg/Kg	1	2.00	<0.00750	80	70 - 130
Ethylbenzene		1	1.61	mg/Kg	1	2.00	<0.00730	80	70 - 130
Xylene		1	4.91	mg/Kg	1	6.00	<0.00700	82	70 - 130

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

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.67	mg/Kg	1	2.00	<0.00810	84	70 - 130	6	20
Toluene		1	1.71	mg/Kg	1	2.00	<0.00750	86	70 - 130	6	20
Ethylbenzene		1	1.72	mg/Kg	1	2.00	<0.00730	86	70 - 130	7	20
Xylene		1	5.24	mg/Kg	1	6.00	<0.00700	87	70 - 130	6	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)	1.58	1.66	mg/Kg	1	2	79	83	70 - 130
4-Bromofluorobenzene (4-BFB)	1.94	2.02	mg/Kg	1	2	97	101	70 - 130

Matrix Spike (MS-1) Spiked Sample:

QC Batch:	105116	Date Analyzed:	2013-09-17	Analyzed By:	AK
Prep Batch:	88988	QC Preparation:	2013-09-13	Prepared By:	AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Qs	Qs	1	12.5	mg/Kg	1	20.0	<2.32	62	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	Qs	Qs	1	13.6	mg/Kg	1	20.0	<2.32	68	70 - 130	8	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)	1.81	1.87	mg/Kg	1	2	90	94	70 - 130
4-Bromofluorobenzene (4-BFB)	2.46	2.55	mg/Kg	1	2	123	128	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 104931 | Date Analyzed: 2013-09-11 | 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	298	119	80 - 120	2013-09-11

Standard (CCV-2)

QC Batch: 104931 | Date Analyzed: 2013-09-11 | 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	260	104	80 - 120	2013-09-11

Standard (CCV-3)

QC Batch: 104931 | Date Analyzed: 2013-09-11 | 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	269	108	80 - 120	2013-09-11

Standard (CCV-1)

QC Batch: 105099 | Date Analyzed: 2013-09-15 | 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	99.7	100	85 - 115	2013-09-15

Standard (CCV-2)

QC Batch: 105099 Date Analyzed: 2013-09-15 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	100	100	85 - 115	2013-09-15

Standard (CCV-1)

QC Batch: 105107 Date Analyzed: 2013-09-16 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	99.6	100	85 - 115	2013-09-16

Standard (CCV-2)

QC Batch: 105107 Date Analyzed: 2013-09-16 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	100	100	85 - 115	2013-09-16

Standard (CCV-1)

QC Batch: 105108 Date Analyzed: 2013-09-16 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	100	100	85 - 115	2013-09-16

Standard (CCV-2)

QC Batch: 105108 Date Analyzed: 2013-09-16 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	100	100	85 - 115	2013-09-16

Standard (CCV-1)

QC Batch: 105115 Date Analyzed: 2013-09-17 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	0.0868	87	80 - 120	2013-09-17
Toluene		1	mg/kg	0.100	0.0877	88	80 - 120	2013-09-17
Ethylbenzene		1	mg/kg	0.100	0.0842	84	80 - 120	2013-09-17
Xylene		1	mg/kg	0.300	0.256	85	80 - 120	2013-09-17

Standard (CCV-2)

QC Batch: 105115 Date Analyzed: 2013-09-17 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	0.0890	89	80 - 120	2013-09-17
Toluene		1	mg/kg	0.100	0.0889	89	80 - 120	2013-09-17
Ethylbenzene		1	mg/kg	0.100	0.0842	84	80 - 120	2013-09-17
Xylene		1	mg/kg	0.300	0.255	85	80 - 120	2013-09-17

Standard (CCV-3)

QC Batch: 105115 Date Analyzed: 2013-09-17 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	0.0937	94	80 - 120	2013-09-17
Toluene		1	mg/kg	0.100	0.0932	93	80 - 120	2013-09-17
Ethylbenzene		1	mg/kg	0.100	0.0880	88	80 - 120	2013-09-17
Xylene		1	mg/kg	0.300	0.267	89	80 - 120	2013-09-17

Standard (CCV-1)

QC Batch: 105116 | Date Analyzed: 2013-09-17 | 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	0.865	86	80 - 120	2013-09-17

Standard (CCV-2)

QC Batch: 105116 | Date Analyzed: 2013-09-17 | 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	0.817	82	80 - 120	2013-09-17

Standard (CCV-3)

QC Batch: 105116 | Date Analyzed: 2013-09-17 | 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	0.901	90	80 - 120	2013-09-17

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	T104704392-12-4	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 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

Result Comments

1 Dilution due to surfactants.
2 Dilution due to surfactants.

Attachments

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

13090531

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 3

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

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.:

PROJECT NAME: W D McIntyre C #2

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
341479-4			S		X	AH-1 0-1					X		X	X											X				
148			S		X	" 1-1.5					X														X				
149			S		X	AH-2 0-1					X		X	X											X				
150			S		X	" 1-1.5					X														X				
151			S		X	" 2-2.5					X														X				
152			S		X	" 3-3.5					X														X				
153			S		X	AH-3 0-1					X		X	X											X				
154			S		X	" 1-1.5					X							/							X				
155			S		X	AH-4 0-1					X		X	X											X				
156			S		X	" 1-1.5					X														X				

RELINQUISHED BY: (Signature) — Date: 9-3-13 Time: 14:35 — RECEIVED BY: (Signature) — Date: 9.5.13 Time: 15:05

SAMPLED BY: (Print & Initial) — Date: 9.4.13 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: — RECEIVED BY: (Signature)
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE: DATE: TIME:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 1.9°

REMARKS: Run deeper samples if Benzene exceeds 10, total BTEX exceeds 50, or ~~cracked~~ TPH exceeds 5,000. Chlorides on all

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, NM

13090531

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 3

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.:

PROJECT NAME: WD McIntyre C #2

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
157	9.4		S		X	AH-4 2-2.5					X													X				
158			S		X	" 3-3.5					X													X				
159			S		X	" 4-4.5					X													X				
160			S		X	" 5-5.5					X													X				
161			S		X	" 6-6.5					X													X				
162			S		X	AH-5 0-1					X		X	X										X				
163			S		X	" 1-1.5					X													X				
164			S		X	" 2-2.5					X													X				
165			S		X	AH-6 0-1					X		X	X										X				
166			S		X	" 1-1.5					X													X				

RELINQUISHED BY: (Signature) Date: 9.5.13 Time: 14:05
RECEIVED BY: (Signature) Date: 9.5.13 Time: 14:05
SAMPLED BY: (Print & Initial) Date: 9.4.13 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: DATE: TIME:
RECEIVED BY: (Signature)
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 1.90
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.

13090531

Analysis Request of Chain of Custody Record

PAGE: 3 OF: 3

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.:

PROJECT NAME: ND McIntyre C#2

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
167	9-4		S		X	AH-4 2-2.5					X													X				
168			S		X	3-3.5					X													X				
169			S		X	4-4.5					X													X				
170			S		X	6-5.5					X													X				
171			S		X	AH-7 0-1					X		X	X										X				
172			S		X	1-1.5					X													X				
173			S		X	2-2.5					X													X				
	↓																											

RELINQUISHED BY: (Signature) Date: 9-5-13 Time: 14:10
RECEIVED BY: (Signature) Date: 9/5/13 Time: 14:05
SAMPLED BY: (Print & Initial) MC & CG Date: 9-4-13 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: 1.9°

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.

Summary Report

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

Report Date: January 15, 2014

Work Order: 13123125

Project Location: NM
Project Name: COG/W. D. McIntyre C #2
Project Number: 112MC05597

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
350393	T-1 (2')	soil	2013-12-19	00:00	2013-12-30
350394	T-1 (4')	soil	2013-12-19	00:00	2013-12-30
350395	T-1 (6')	soil	2013-12-19	00:00	2013-12-30
350396	T-1 (8')	soil	2013-12-19	00:00	2013-12-30
350397	T-1 (10')	soil	2013-12-19	00:00	2013-12-30
350398	T-2 (Surface)	soil	2013-12-19	00:00	2013-12-30
350399	T-2 (2')	soil	2013-12-19	00:00	2013-12-30
350400	T-2 (4')	soil	2013-12-19	00:00	2013-12-30
350401	T-2 (6')	soil	2013-12-19	00:00	2013-12-30
350402	T-2 (8')	soil	2013-12-19	00:00	2013-12-30
350403	T-3 (Surface)	soil	2013-12-19	00:00	2013-12-30
350404	T-3 (2')	soil	2013-12-19	00:00	2013-12-30
350405	T-3 (4')	soil	2013-12-19	00:00	2013-12-30
350406	T-3 (6')	soil	2013-12-19	00:00	2013-12-30
350407	T-3 (8')	soil	2013-12-19	00:00	2013-12-30
350408	T-4 (Surface)	soil	2013-12-19	00:00	2013-12-30
350409	T-4 (2')	soil	2013-12-19	00:00	2013-12-30
350410	T-4 (4')	soil	2013-12-19	00:00	2013-12-30
350411	T-4 (6')	soil	2013-12-19	00:00	2013-12-30
350412	T-4 (8')	soil	2013-12-19	00:00	2013-12-30
350413	AH-4 (North Side Wall)	soil	2013-12-19	00:00	2013-12-30
350414	AH-4 (East Side Wall)	soil	2013-12-19	00:00	2013-12-30
350415	AH-4 (South Side Wall)	soil	2013-12-19	00:00	2013-12-30
350416	AH-1 (1.5' Bottom Hole)	soil	2013-12-19	00:00	2013-12-30
350417	AH-3 (South Side Wall)	soil	2013-12-19	00:00	2013-12-30
350418	AH-4 (Bottom Hole-5')	soil	2013-12-19	00:00	2013-12-30
350419	AH-7 (North Side Wall)	soil	2013-12-19	00:00	2013-12-30
350420	T-1 (Surface)	soil	2013-12-19	00:00	2013-12-30

Sample: 350393 - T-1 (2')

Param	Flag	Result	Units	RL
Chloride		**7320**	mg/Kg	5

Sample: 350394 - T-1 (4')

Param	Flag	Result	Units	RL
Chloride		**6020**	mg/Kg	5

Sample: 350395 - T-1 (6')

Param	Flag	Result	Units	RL
Chloride		**4100**	mg/Kg	5

Sample: 350396 - T-1 (8')

Param	Flag	Result	Units	RL
Chloride		**21200**	mg/Kg	5

Sample: 350397 - T-1 (10')

Param	Flag	Result	Units	RL
Chloride		**15200**	mg/Kg	5

Sample: 350398 - T-2 (Surface)

Param	Flag	Result	Units	RL
Chloride		**650**	mg/Kg	5

Sample: 350399 - T-2 (2')

Param	Flag	Result	Units	RL
Chloride		**3480**	mg/Kg	5

Sample: 350400 - T-2 (4')

Param	Flag	Result	Units	RL
Chloride		**5480**	mg/Kg	5

Sample: 350401 - T-2 (6')

Param	Flag	Result	Units	RL
Chloride		**2060**	mg/Kg	5

Sample: 350402 - T-2 (8')

Param	Flag	Result	Units	RL
Chloride		**1290**	mg/Kg	5

Sample: 350403 - T-3 (Surface)

Param	Flag	Result	Units	RL
Chloride		**5810**	mg/Kg	5

Sample: 350404 - T-3 (2')

Param	Flag	Result	Units	RL
Chloride		**4620**	mg/Kg	5

Sample: 350405 - T-3 (4')

Param	Flag	Result	Units	RL
Chloride		**670**	mg/Kg	5

Sample: 350406 - T-3 (6')

Param	Flag	Result	Units	RL
Chloride		**620**	mg/Kg	5

Sample: 350407 - T-3 (8')

Param	Flag	Result	Units	RL
Chloride		**645**	mg/Kg	5

Sample: 350408 - T-4 (Surface)

Param	Flag	Result	Units	RL
Chloride		**596**	mg/Kg	5

Sample: 350409 - T-4 (2')

Param	Flag	Result	Units	RL
Chloride		**1020**	mg/Kg	5

Sample: 350410 - T-4 (4')

Param	Flag	Result	Units	RL
Chloride		**356**	mg/Kg	5

Sample: 350411 - T-4 (6')

Param	Flag	Result	Units	RL
Chloride		**112**	mg/Kg	5

Sample: 350412 - T-4 (8')

Param	Flag	Result	Units	RL
Chloride		**117**	mg/Kg	5

Sample: 350413 - AH-4 (North Side Wall)

Param	Flag	Result	Units	RL
Chloride		**31.0**	mg/Kg	5

Sample: 350414 - AH-4 (East Side Wall)

Param	Flag	Result	Units	RL
Chloride		**132**	mg/Kg	5

Sample: 350415 - AH-4 (South Side Wall)

Param	Flag	Result	Units	RL
Chloride		**2570**	mg/Kg	5

Sample: 350416 - AH-1 (1.5' Bottom Hole)

Param	Flag	Result	Units	RL
Chloride		**865**	mg/Kg	5

Sample: 350417 - AH-3 (South Side Wall)

Param	Flag	Result	Units	RL
Chloride		**41.0**	mg/Kg	5

Sample: 350418 - AH-4 (Bottom Hole-5')

Param	Flag	Result	Units	RL
Chloride		**616**	mg/Kg	5

Sample: 350419 - AH-7 (North Side Wall)

Param	Flag	Result	Units	RL
Chloride		**71.0**	mg/Kg	5

Sample: 350420 - T-1 (Surface)

Param	Flag	Result	Units	RL
Chloride	Qs	**10000**	mg/Kg	5

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 15, 2014

Work Order: 13123125

Project Location: NM
Project Name: COG/W. D. McIntyre C #2
Project Number: 112MC05597

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
350393	T-1 (2')	soil	2013-12-19	00:00	2013-12-30
350394	T-1 (4')	soil	2013-12-19	00:00	2013-12-30
350395	T-1 (6')	soil	2013-12-19	00:00	2013-12-30
350396	T-1 (8')	soil	2013-12-19	00:00	2013-12-30
350397	T-1 (10')	soil	2013-12-19	00:00	2013-12-30
350398	T-2 (Surface)	soil	2013-12-19	00:00	2013-12-30
350399	T-2 (2')	soil	2013-12-19	00:00	2013-12-30
350400	T-2 (4')	soil	2013-12-19	00:00	2013-12-30
350401	T-2 (6')	soil	2013-12-19	00:00	2013-12-30
350402	T-2 (8')	soil	2013-12-19	00:00	2013-12-30
350403	T-3 (Surface)	soil	2013-12-19	00:00	2013-12-30
350404	T-3 (2')	soil	2013-12-19	00:00	2013-12-30
350405	T-3 (4')	soil	2013-12-19	00:00	2013-12-30
350406	T-3 (6')	soil	2013-12-19	00:00	2013-12-30
350407	T-3 (8')	soil	2013-12-19	00:00	2013-12-30
350408	T-4 (Surface)	soil	2013-12-19	00:00	2013-12-30
350409	T-4 (2')	soil	2013-12-19	00:00	2013-12-30
350410	T-4 (4')	soil	2013-12-19	00:00	2013-12-30

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
350411	T-4 (6')	soil	2013-12-19	00:00	2013-12-30
350412	T-4 (8')	soil	2013-12-19	00:00	2013-12-30
350413	AH-4 (North Side Wall)	soil	2013-12-19	00:00	2013-12-30
350414	AH-4 (East Side Wall)	soil	2013-12-19	00:00	2013-12-30
350415	AH-4 (South Side Wall)	soil	2013-12-19	00:00	2013-12-30
350416	AH-1 (1.5' Bottom Hole)	soil	2013-12-19	00:00	2013-12-30
350417	AH-3 (South Side Wall)	soil	2013-12-19	00:00	2013-12-30
350418	AH-4 (Bottom Hole-5')	soil	2013-12-19	00:00	2013-12-30
350419	AH-7 (North Side Wall)	soil	2013-12-19	00:00	2013-12-30
350420	T-1 (Surface)	soil	2013-12-19	00:00	2013-12-30

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.

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

Report Contents

Case Narrative

Samples for project COG/W. D. McIntyre C #2 were received by TraceAnalysis, Inc. on 2013-12-30 and assigned to work order 13123125. Samples for work order 13123125 were received intact at a temperature of 5.7 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	91293	2013-12-30 at 10:00	108315	2014-01-14 at 10:00
Chloride (Titration)	SM 4500-Cl B	91293	2013-12-30 at 10:00	108316	2014-01-14 at 10:30
Chloride (Titration)	SM 4500-Cl B	91293	2013-12-30 at 10:00	108327	2014-01-15 at 12:00
Chloride (Titration)	SM 4500-Cl B	91293	2013-12-30 at 10:00	108328	2014-01-15 at 12:30

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 13123125 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: 350393 - T-1 (2')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108315	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**7320**	mg/Kg	5	5.00

Sample: 350394 - T-1 (4')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108315	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**6020**	mg/Kg	5	5.00

Sample: 350395 - T-1 (6')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108315	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**4100**	mg/Kg	5	5.00

Sample: 350396 - T-1 (8')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108315	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**21200**	mg/Kg	50	5.00

Sample: 350397 - T-1 (10')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108315	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**15200**	mg/Kg	50	5.00

Sample: 350398 - T-2 (Surface)

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108315	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**650**	mg/Kg	5	5.00

Sample: 350399 - T-2 (2')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108315	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3480**	mg/Kg	5	5.00

Sample: 350400 - T-2 (4')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108316	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5480**	mg/Kg	5	5.00

Sample: 350401 - T-2 (6')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108316	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2060**	mg/Kg	5	5.00

Sample: 350402 - T-2 (8')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108316	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1290**	mg/Kg	5	5.00

Sample: 350403 - T-3 (Surface)

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108316	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5810**	mg/Kg	5	5.00

Sample: 350404 - T-3 (2')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108316	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4620**	mg/Kg	5	5.00

Sample: 350405 - T-3 (4')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108316	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**670**	mg/Kg	5	5.00

Sample: 350406 - T-3 (6')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108316	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**620**	mg/Kg	5	5.00

Sample: 350407 - T-3 (8')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108316	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**645**	mg/Kg	5	5.00

Sample: 350408 - T-4 (Surface)

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108316	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**596**	mg/Kg	5	5.00

Sample: 350409 - T-4 (2')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108316	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1020**	mg/Kg	5	5.00

Sample: 350410 - T-4 (4')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108327	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**356**	mg/Kg	1	5.00

Sample: 350411 - T-4 (6')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108327	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**112**	mg/Kg	1	5.00

Sample: 350412 - T-4 (8')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108327	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**117**	mg/Kg	1	5.00

Sample: 350413 - AH-4 (North Side Wall)

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108327	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**31.0**	mg/Kg	1	5.00

Sample: 350414 - AH-4 (East Side Wall)

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108327	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**132**	mg/Kg	1	5.00

Sample: 350415 - AH-4 (South Side Wall)

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108327	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2570**	mg/Kg	5	5.00

Sample: 350416 - AH-1 (1.5' Bottom Hole)

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108327	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**865**	mg/Kg	5	5.00

Sample: 350417 - AH-3 (South Side Wall)

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108327	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**41.0**	mg/Kg	1	5.00

Sample: 350418 - AH-4 (Bottom Hole-5')

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108327	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**616**	mg/Kg	1	5.00

Sample: 350419 - AH-7 (North Side Wall)

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108327	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**71.0**	mg/Kg	1	5.00

Sample: 350420 - T-1 (Surface)

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108328	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	Sample Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Qs		**10000**	mg/Kg	50	5.00

Method Blanks

Method Blank (1) QC Batch: 108315

QC Batch:	108315	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	QC Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.05	mg/Kg	5

Method Blank (1) QC Batch: 108316

QC Batch:	108316	Date Analyzed:	2014-01-14	Analyzed By:	GS
Prep Batch:	91293	QC Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.05	mg/Kg	5

Method Blank (1) QC Batch: 108327

QC Batch:	108327	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	QC Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.05	mg/Kg	5

Method Blank (1) QC Batch: 108328

QC Batch:	108328	Date Analyzed:	2014-01-15	Analyzed By:	GS
Prep Batch:	91293	QC Preparation:	2013-12-30	Prepared By:	GS

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.05	mg/Kg	5

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 108315 | Date Analyzed: 2014-01-14 | Analyzed By: GS
Prep Batch: 91293 | QC Preparation: 2013-12-30 | Prepared By: GS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			99.0	mg/Kg	1	100	<3.05	99	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			100	mg/Kg	1	100	<3.05	100	85 - 115	1	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: 108316 | Date Analyzed: 2014-01-14 | Analyzed By: GS
Prep Batch: 91293 | QC Preparation: 2013-12-30 | Prepared By: GS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			100	mg/Kg	1	100	<3.05	100	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			101	mg/Kg	1	100	<3.05	101	85 - 115	1	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: 108327 | Date Analyzed: 2014-01-15 | Analyzed By: GS
Prep Batch: 91293 | QC Preparation: 2013-12-30 | Prepared By: GS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			99.0	mg/Kg	1	100	<3.05	99	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			99.0	mg/Kg	1	100	<3.05	99	85 - 115	0	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: 108328 | Date Analyzed: 2014-01-15 | Analyzed By: GS
Prep Batch: 91293 | QC Preparation: 2013-12-30 | Prepared By: GS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			99.0	mg/Kg	1	100	<3.05	99	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			100	mg/Kg	1	100	<3.05	100	85 - 115	1	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: 350399

QC Batch: 108315 | Date Analyzed: 2014-01-14 | Analyzed By: GS
Prep Batch: 91293 | QC Preparation: 2013-12-30 | Prepared By: GS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3950	mg/Kg	5	500	3480	94	80 - 120

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			3920	mg/Kg	5	500	3480	88	80 - 120	1	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: 350409

QC Batch: 108316 | Date Analyzed: 2014-01-14 | Analyzed By: GS
Prep Batch: 91293 | QC Preparation: 2013-12-30 | Prepared By: GS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			1540	mg/Kg	5	500	1020	104	80 - 120

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			1560	mg/Kg	5	500	1020	108	80 - 120	1	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: 350419

QC Batch: 108327 | Date Analyzed: 2014-01-15 | Analyzed By: GS
Prep Batch: 91293 | QC Preparation: 2013-12-30 | Prepared By: GS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			483	mg/Kg	1	500	71	82	80 - 120

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			478	mg/Kg	1	500	71	81	80 - 120	1	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: 350426

QC Batch: 108328 | Date Analyzed: 2014-01-15 | Analyzed By: GS
Prep Batch: 91293 | QC Preparation: 2013-12-30 | Prepared By: GS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			13100	mg/Kg	50	500	12600	100	80 - 120

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	Qs	Qs		12800	mg/Kg	50	500	12600	40	80 - 120	2	20

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

Calibration Standards

Standard (ICV-1)

QC Batch: 108315 | Date Analyzed: 2014-01-14 | Analyzed By: GS

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2014-01-14

Standard (CCV-1)

QC Batch: 108315 | Date Analyzed: 2014-01-14 | Analyzed By: GS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2014-01-14

Standard (ICV-1)

QC Batch: 108316 | Date Analyzed: 2014-01-14 | Analyzed By: GS

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.0	99	85 - 115	2014-01-14

Standard (CCV-1)

QC Batch: 108316 | Date Analyzed: 2014-01-14 | Analyzed By: GS

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	2014-01-14

Standard (ICV-1)

QC Batch: 108327 | Date Analyzed: 2014-01-15 | Analyzed By: GS

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2014-01-15

Standard (CCV-1)

QC Batch: 108327 | Date Analyzed: 2014-01-15 | Analyzed By: GS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2014-01-15

Standard (ICV-1)

QC Batch: 108328 | Date Analyzed: 2014-01-15 | Analyzed By: GS

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.0	99	85 - 115	2014-01-15

Standard (CCV-1)

QC Batch: 108328 | Date Analyzed: 2014-01-15 | Analyzed By: GS

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	2014-01-15

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

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.

1219319?

Analysis Request of Chain of Custody Record

PAGE: 2 1 OF: 3

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

CLIENT NAME: COG
SITE MANAGER: Ike Tavarez
PROJECT NO.: 112MC05530
PROJECT NAME: COG / WD McIntyre

ANALYSIS REQUEST (Circle or Specify Method No.): 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 (circled); Gamma Spec.; Alpha Beta (Air); PLM (Asbestos); Major Anions/Cations, pH, TDS

PRESERVATIVE METHOD: HCL, HNO3, ICE, NONE

LAB I.D. NUMBER	DATE 2013	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	Chloride
350393	12/19		S		X	T-1 (2')	1						X
394			S		X	(4')	1						X
395			S		X	(6')	1						X
396			S		X	(8')	1						X
397			S		X	(10')	1						X
398			S		X	T-2 (Surface)	1						X
399			S		X	(2')	1						X
400			S		X	(4')	1						X
401			S		X	(6')	1						X
402			S		X	(8')	1						X

RELINQUISHED BY: (Signature) [signature] Date: 12-29-13 Time:
RECEIVED BY: (Signature) [signature] Date: 12-30-13 Time: 0800

RELINQUISHED BY: (Signature) [signature] Date: 12-30-13 Time: 1810
RECEIVED BY: (Signature) [signature] Date: 12/30/13 Time: 11:10

RELINQUISHED BY: (Signature) [signature] Date: 12/30/13 Time: 15:30
RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) RL HP Date: 12/29/13 Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS AIRBILL #: OTHER:

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Brenda Ward
DATE: 12/31/13 TIME: 9:00

TETRA TECH CONTACT PERSON: Ike Tavarez
Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 5.7°
REMARKS: 2.9/2.8 ZS 2Q722418 Rec'd four add'l samples not listed on COC - added per I.T.

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

RO

12/09/13

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 3

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.: 112MC05530

PROJECT NAME: COG / WD McIntyre

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
403	12/19		S		X	T3 (Surface)	1																	X				
404			S		X	(2')	1																	X				
405			S		X	(4')	1																	X				
406			S		X	(6')	1																	X				
407			S		X	(8')	1																	X				
408			S		X	T4 (Surface)	1																	X				
409			S		X	(2')	1																	X				
410			S		X	(4')	1																	X				
411			S		X	(6')	1																	X				
412			S		X	(8')	1																	X				

RELINQUISHED BY: (Signature) Date: 12-29-13 Time:
RECEIVED BY: (Signature) Date: 12-30-13 Time: 0900

RELINQUISHED BY: (Signature) Date: 12-30-13 Time: 1110
RECEIVED BY: (Signature) Date: 12/30/13 Time: 1110

RELINQUISHED BY: (Signature) Date: 12/30/13 Time: 1530
RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) RC HP Date: 12/29/13 Time:

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

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Brenda Ward
DATE: 12/31/13 TIME: 9:00

SAMPLE CONDITION WHEN RECEIVED: 5°

REMARKS: LS 20722418 2.9/2.8

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

Analysis Request of Chain of Custody Record

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

PAGE: 13 OF: 3

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 112M05597

PROJECT NAME: COG / Ward McIntyre

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
413	12/19		S		X	AH4 (North Side Wall)	1																	X				
414			S		X	(East Side Wall)	1																	X				
415			S		X	(South Side Wall)	1																	X				
416			S		X	AH1 (1.5' Bottom Hole	1																	X				
417						AH-3 South Sidewall																						
418						AH-4 Bottom hole @ 5'																						
419						AH-7 North Sidewall																						
420						T-1 Surface																						

RELINQUISHED BY: (Signature) Date: 12-30-13 Time: 1110
RECEIVED BY: (Signature) Date: 12/30/13 Time: 1110
SAMPLED BY: (Print & Initial) Date: Time:

RELINQUISHED BY: (Signature) Date: 12/30/13 Time: 15:30
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS AIRBILL #: OTHER:

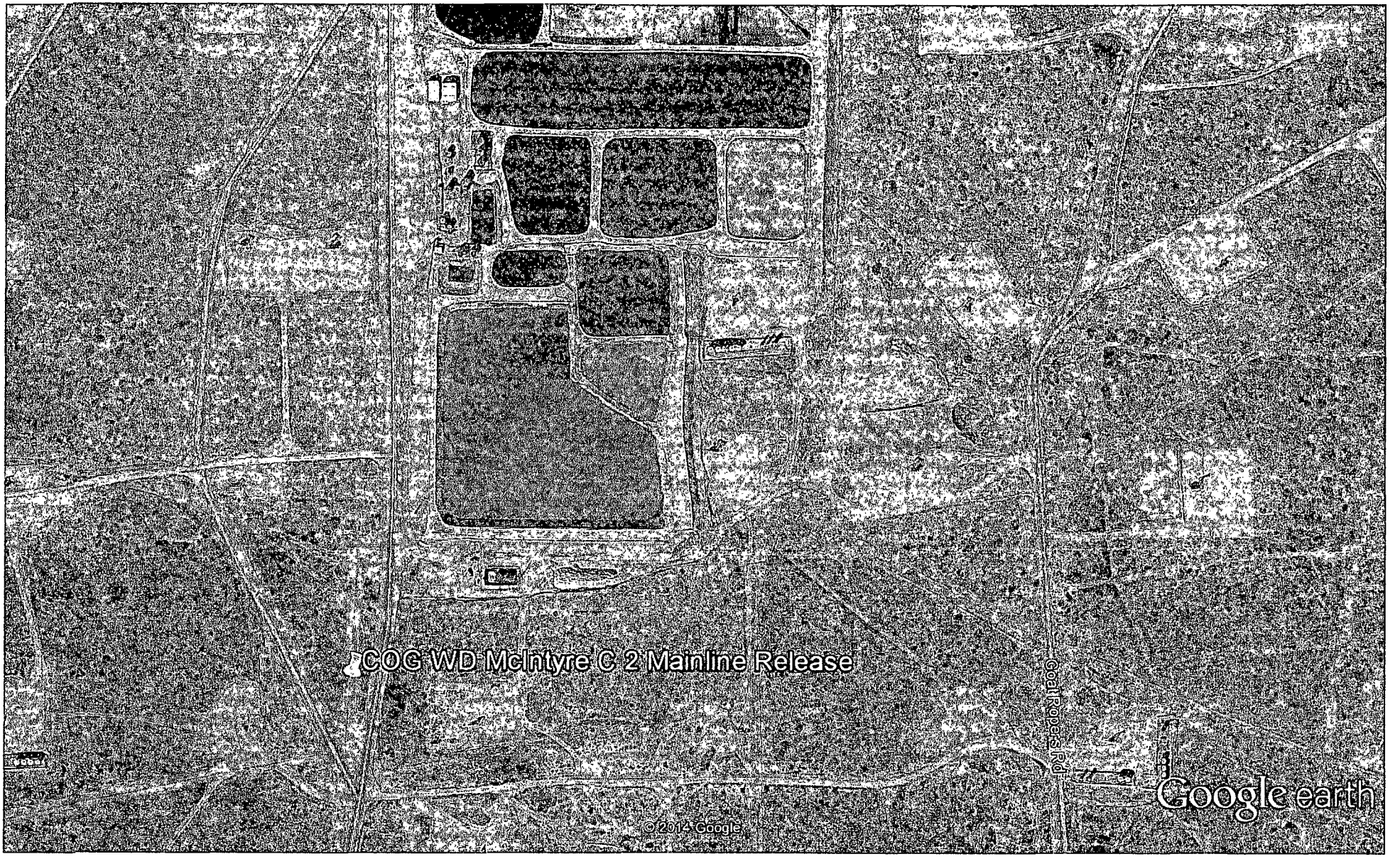
RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
TETRA TECH CONTACT PERSON: Ike Tavarez Results by:

RECEIVING LABORATORY: Trace
ADDRESS: CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Brenda Ward
DATE: 12/31/13 TIME: 9:00
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 5.7°

REMARKS: LS ZQ722418 2.9/2.8

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



Google earth

feet 2000
meters 700

Imagery Date 2/13/14

OCD Print