SITE INFORMATION

Report Type: Closure Report

General Site Information:						
Site:	**Westall A State #3 - Flow line**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit J**	**Sec 36**	**T17S**	**R29E**		
Lease Number:	**API-30-015-03798**					
County:	**Eddy County**					
GPS:	**32.78838° N**			**104.02476° W**		
Surface Owner:	**State**					
Mineral Owner:						
Directions:	From the intersection of Hwy 82 and CR 217, travel south on CR 217 for 2.9 miles, turn right on to CR 216 and travel 100', turn left and travel 0.2 miles to the site.					

Release Data:	
Date Released:	1/15/2012
Type Release:	Produced Water and Oil
Source of Contamination:	Flowline failure
Fluid Released:	40 bbls pw, 20 bbls oil
Fluids Recovered:	35 bbls pw, 18 bbls oil

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Official Communication:			
Name:	Pat Ellis		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	550 W. Texas Ave. Ste. 1300		1910 N. Big Spring
P.O. Box			
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 682-4559
Fax:	(432) 684-7137		
Email:	pellis@conchoresources.com		ike.tavarez@tetratech.com

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

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

TETRA TECH

October 12, 2012

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

Re: Closure Report for the COG Operating LLC., Westall A State #3 Flow Line, Unit J, Section 36, Township 17 South, Range 29 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 Westall A State #3 flow line located in Unit J, Section 36, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.78838°, W 104.02476°. 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 January 15, 2012, and released approximately sixty (60) barrels of produced fluids from a flow line. To alleviate the problem, COG personnel repaired the flow line. Fifty-three (53) barrels of standing fluids were recovered leaving seven (7) barrels unrecovered. The spill initiated east of the pad affecting an area approximately 25' X 130' in the pasture. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 36. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 175' below surface. The groundwater data is shown in Figure B.

Tetra Tech
1910 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 5,000 mg/kg.

Soil Assessment and Analytical Results

On February 16, 2012, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH 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, none of the samples exceeded the TPH or BTEX RRAL concentrations. Elevated chloride concentrations were detected in AH-1, AH-2 and AH-3, with chloride highs of 6,450 mg/kg at 3-3.5', 4,930 mg/kg at 4-4.5' and 4,140 mg/kg at 2-2.5', respectively. The chloride impact was not vertically defined in these areas. The area of AH-4 did not show a chloride impact to the area.

On March 21, 2012, Tetra Tech personnel supervised the installation of boreholes (BH-1, BH-2 and BH-3) utilizing an air rotary drilling rig. The soil boring locations are shown on Figure 3. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1.

Referring to Table 1, the chloride concentrations in all the boreholes installed were vertically defined. The boreholes (BH-1, BH-2 and BH-3) did show chloride impact to the subsurface soils and significantly declined at approximately 6.0' to 9.0' below surface. The deepest chloride impact was

encountered in the area of SB-2 and SB-3, with chloride concentrations greater than 1,000 mg/kg extending down to approximately 14-15' below surface.

Remediation and Conclusion

Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site. The excavated areas and depths are highlighted in Table 1and shown on Figure 4. The final excavation depths of the soil remediation were met as stated in the approved work plan. Approximately 1,040 cubic yards of soil were excavated and transported to R360 facility for proper disposal. The excavated area measured approximately 20' x 85' and 10' x 25' at a depth of approximately 6.0' to 7.0' below surface. The excavated area was then backfilled to grade with clean material.

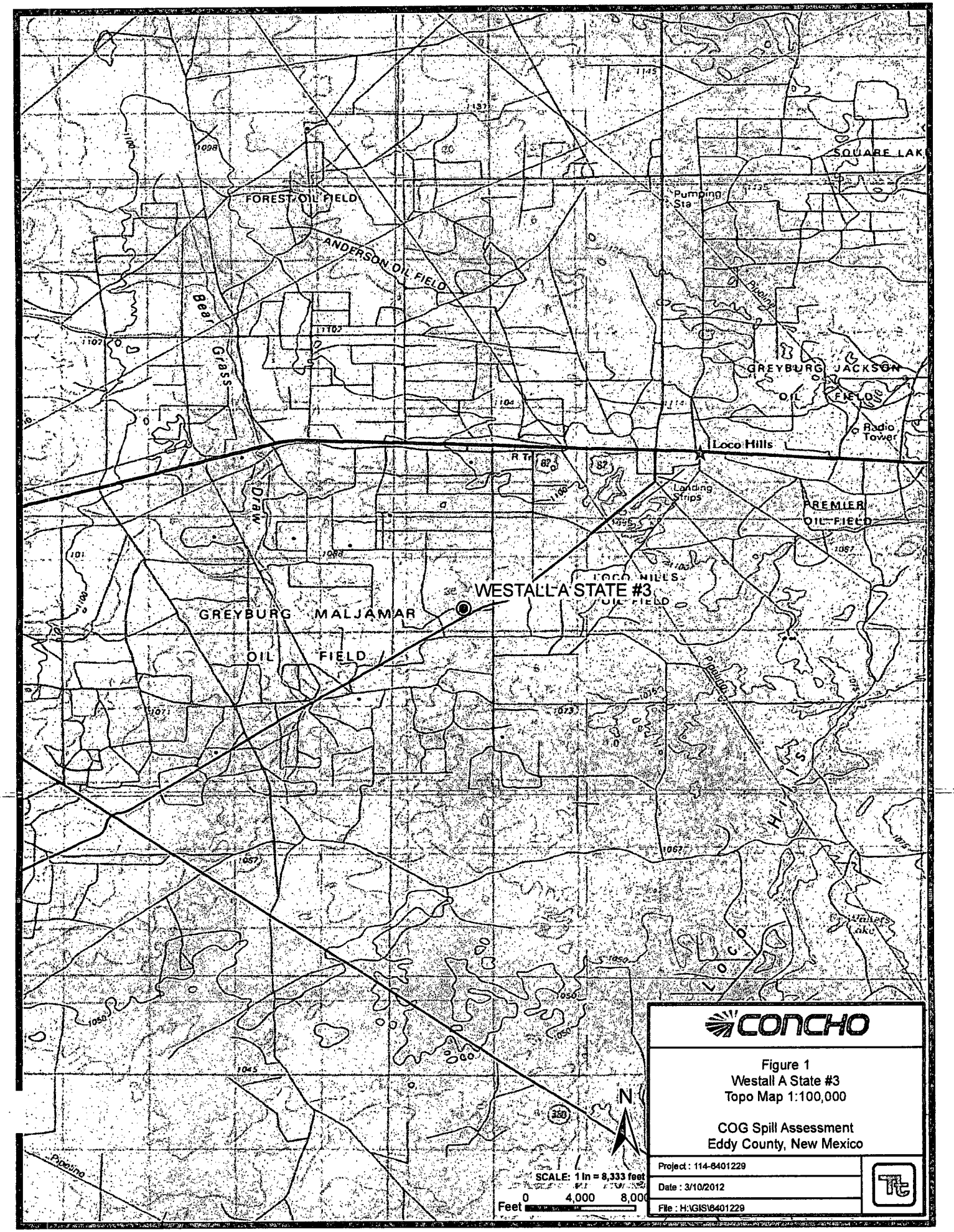
Based on the remedial activities performed, COG request closure of the site. A copy of the C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the remedial activities, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

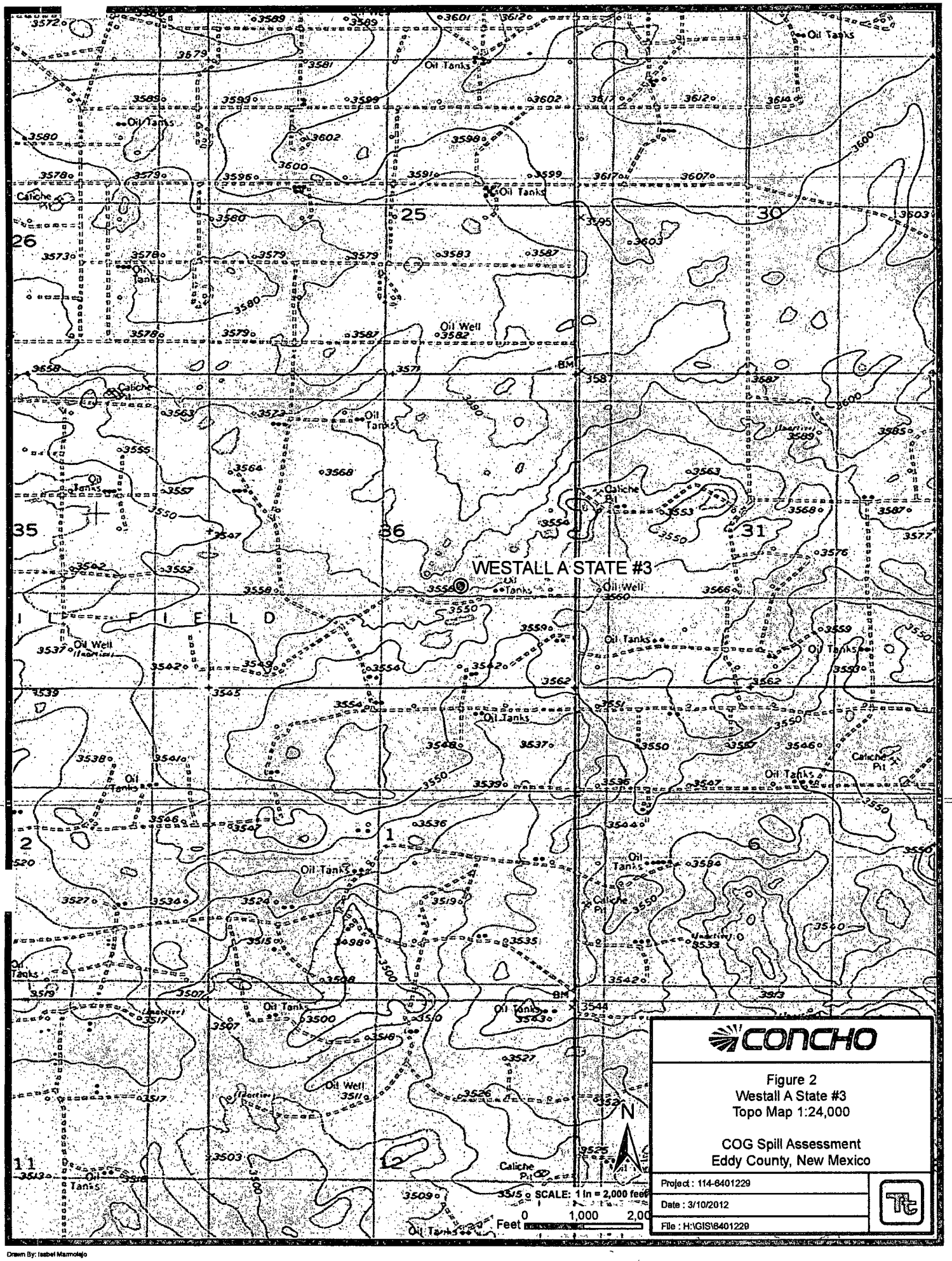
Ike Tavarez, PG
Senior Project Manager

cc: Pat Ellis – COG

Figures



Drawn By: Isabel Marmolejo



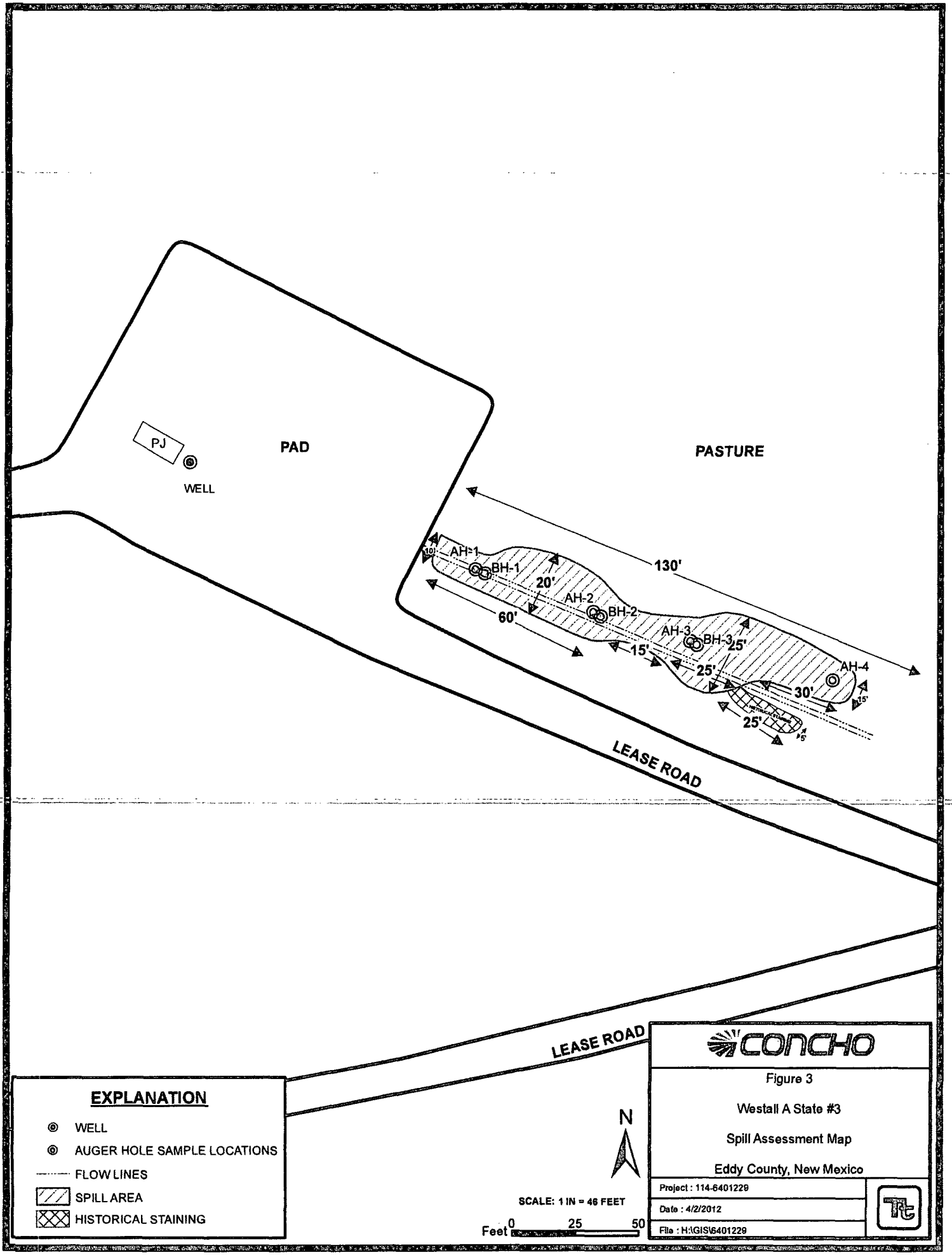
CONCHO

Figure 2
Westall A State #3
Topo Map 1:24,000

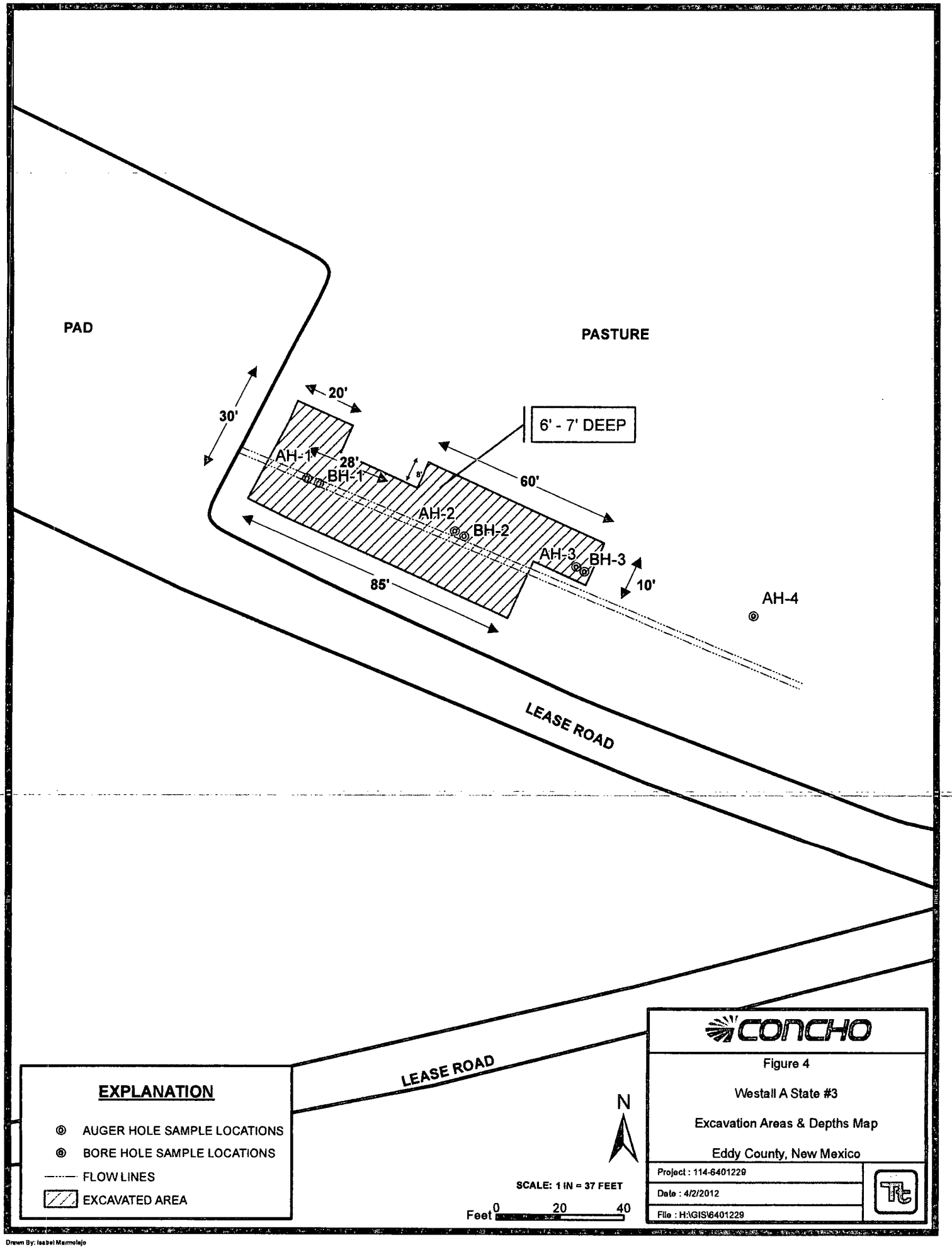
COG Spill Assessment
Eddy County, New Mexico

Project : 114-8401229	
Date : 3/10/2012	
File : H:\GIS\8401229	

Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC.
Westall A State #3
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	2/6/2012	0-1	1		X	84.4	186	270	<0.100	0.304	0.312	0.434	1.05	3,030
	"	1-1.5	1		X	-	-	-	-	-	-	-	-	3,070
	"	2-2.5	1		X	-	-	-	-	-	-	-	-	5,180
	"	3-3.5	1		X	-	-	-	-	-	-	-	-	6,450
BH-1	3/21/2012	0-1	-		X	-	-	-	-	-	-	-	-	2,020
	"	2-3	-		X	-	-	-	-	-	-	-	-	3,330
	"	4-5	-		X	-	-	-	-	-	-	-	-	5,180
	"	6-7	-		X	-	-	-	-	-	-	-	-	3,730
	"	9-10	-	X		-	-	-	-	-	-	-	-	739
	"	14-15	-	X		-	-	-	-	-	-	-	-	447
	"	19-20	-	X		-	-	-	-	-	-	-	-	856
	"	24-25	-	X		-	-	-	-	-	-	-	-	<200
	"	29-30	-	X		-	-	-	-	-	-	-	-	<200

Table 1
COG Operating LLC.
Westall A State #3
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-2	2/6/2012	0-1	1		X	47.1	1,230	1,277	<0.100	<0.100	<0.100	<0.100	<0.100	2,520
	"	1-1.5	1		X	-	-	-	-	-	-	-	-	2,970
	"	2-2.5	1		X	-	-	-	-	-	-	-	-	2,730
	"	3-3.5	1		X	-	-	-	-	-	-	-	-	3,340
	"	4-4.5	1		X	-	-	-	-	-	-	-	-	4,930
	"	5-5.5	1		X	-	-	-	-	-	-	-	-	4,520
BH-2	3/21/2012	0-1	-		X	-	-	-	-	-	-	-	-	1,910
	"	2-3	-		X	-	-	-	-	-	-	-	-	2,860
	"	4-5	-		X	-	-	-	-	-	-	-	-	4,060
	"	6-7	-		X	-	-	-	-	-	-	-	-	3,730
	"	9-10	-	X		-	-	-	-	-	-	-	-	1,980
	"	14-15	-	X		-	-	-	-	-	-	-	-	1,050
	"	19-20	-	X		-	-	-	-	-	-	-	-	218
	"	24-25	-	X		-	-	-	-	-	-	-	-	<200
	"	29-30	-	X		-	-	-	-	-	-	-	-	<200

Table 1
COG Operating LLC.
Westall A State #3
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-3	2/6/2012	0-1	0.5		X	24.6	159	184	<0.0200	0.0667	0.0818	0.148	0.297	3,470
	"	1-1.5	0.5		X	-	-	-	-	-	-	-	-	4,070
	"	2-2.5	0.5		X	-	-	-	-	-	-	-	-	4,140
BH-3	3/21/2012	0-1	-		X	-	-	-	-	-	-	-	-	2,950
	"	2-3	-		X	-	-	-	-	-	-	-	-	2,620
	"	4-5	-		X	-	-	-	-	-	-	-	-	4,030
	"	6-7	-		X	-	-	-	-	-	-	-	-	2,070
	"	9-10	-	X		-	-	-	-	-	-	-	-	1,620
	"	14-15	-	X		-	-	-	-	-	-	-	-	1,100
	"	19-20	-	X		-	-	-	-	-	-	-	-	605
	"	24-25	-	X		-	-	-	-	-	-	-	-	<200
AH-4	2/6/2012	0-1	0.5	X		5.90	830	836	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
	"	1-1.5	0.5	X		-	-	-	-	-	-	-	-	<200
	"	2-2.5	0.5	X		-	-	-	-	-	-	-	-	<200

Excavated Depths

(-) Not Analyzed

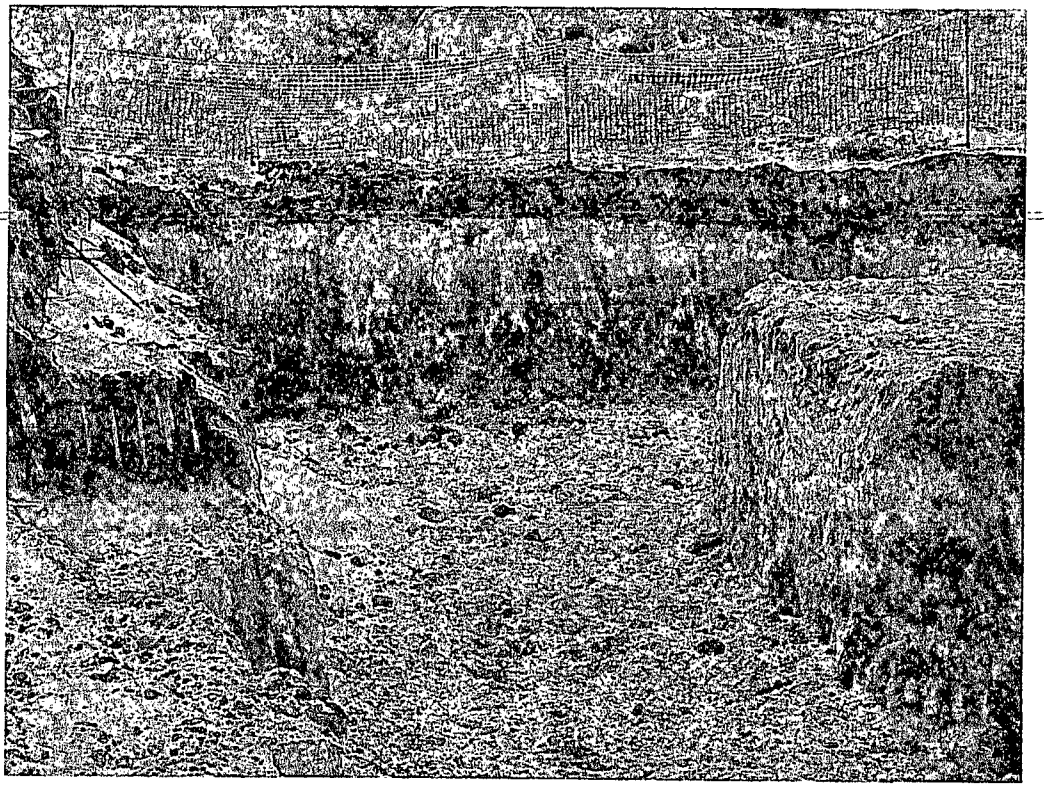
(BEB) Below Excavation Bottom

Photos

COG Operating LLC
Westall A State #3
Eddy County, New Mexico

TETRA TECH

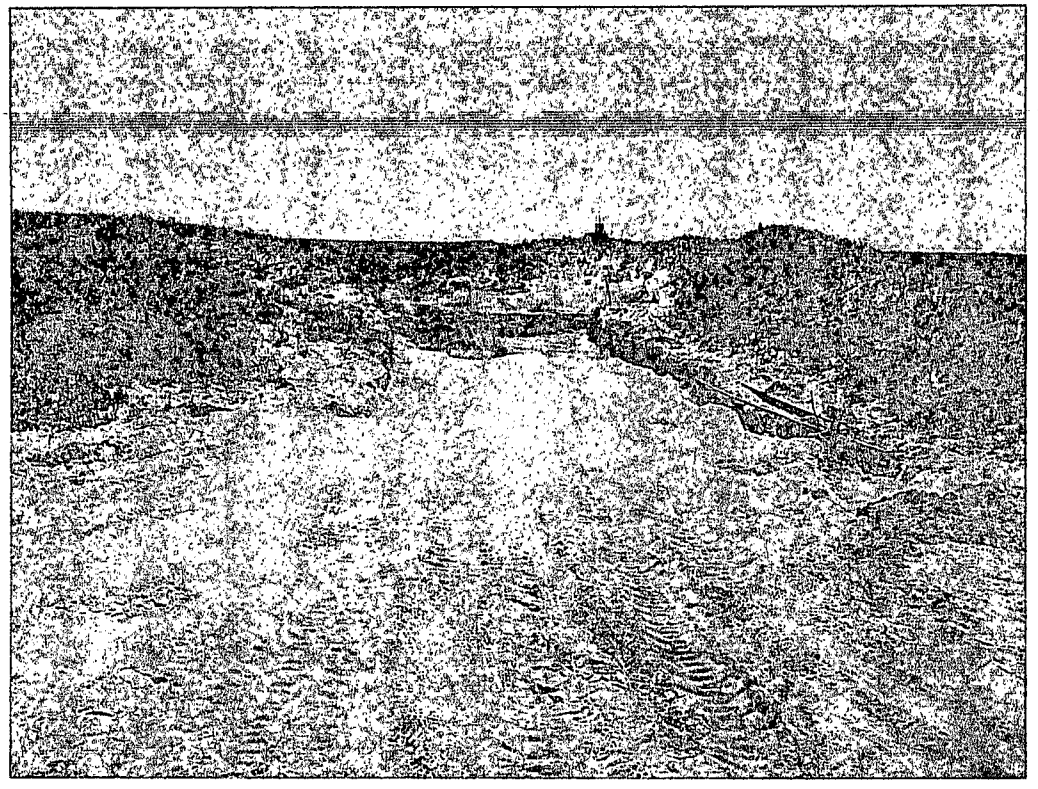
View East – Area of AH-1 and AH-2



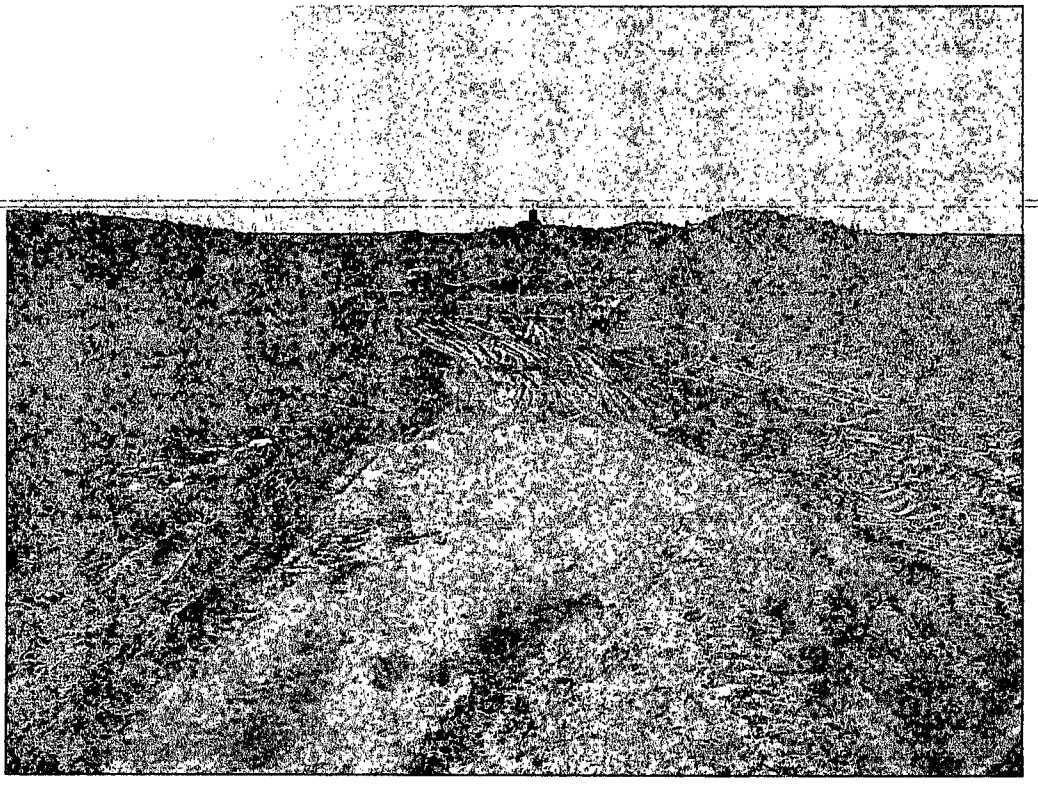
View East – Area of AH-3

COG Operating LLC
Westall A State #3
Eddy County, New Mexico

TETRA TECH



View East - Backfill



View East - Backfill

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

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NOV 01 2012
NMOCD ARTESIA

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	**550 W. Texas, Suite 1300 Midland, Texas 79701**	Telephone No.	**(432) 230-0077**
Facility Name	**Westall A State #3**	Facility Type	**Flowline**

Surface Owner: State	Mineral Owner	Lease No. (API#) 30-015-03798

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	36	17S	29E					Eddy

Latitude N 32.78838° **Longitude** W 104.02476°

NATURE OF RELEASE

Type of Release: Produced water and Oil	Volume of Release 40 bbls pw 20 bbls oil	Volume Recovered 35 bbls pw 18 bbls oil
Source of Release: Poly flowline	Date and Hour of Occurrence 01/15/2012	Date and Hour of Discovery 01/15/2012 10:30 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher-OCD	
By Whom? Josh Russo	Date and Hour 3/15/10 4:59 p.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The poly flowline ruptured causing the release of produced fluids. The poly flowline has been fused back together and has been returned to service.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define the spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted it to NMOCD for review.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez (Agent for COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 10-12-12 Phone: (432) 682-4559		

* 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	Pat Ellis
Address	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Westall A State #3	Facility Type	Flowline

Surface Owner State	Mineral Owner	Lease No. (API#) 30-015-03798

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	36	17S	29E					Eddy

Latitude 32.78836 **Longitude** 104.02499

NATURE OF RELEASE

Type of Release Produced water and Oil	Volume of Release 40bbls pw 20bbls oil	Volume Recovered 35bbls pw 18bbls oil
Source of Release Poly flowline	Date and Hour of Occurrence 01/15/2012	Date and Hour of Discovery 01/15/2012 10:30 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher-OCD	
By Whom? Josh Russo	Date and Hour 01/16/2012 2:54 p.m.	
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.*

The poly flowline ruptured causing the release of produced fluids. The poly flowline has been fused back together and has been returned to service.

Describe Area Affected and Cleanup Action Taken.*

Initially 60bbls of fluid was released from the ruptured flowline and we were able to recover 53bbls with a vacuum truck. All fluids were released in an area off of location measuring roughly 20' x 80'. We have scraped the spill area and disposed of all contaminated material appropriately. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a workplan to the NMOCD 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: Josh Russo	Approved by District Supervisor:	
Title: HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: jrusso@conchoresources.com	Conditions of Approval:	Attached ☐
Date: 01/30/2012 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Westall A State #3
Eddy County, New Mexico

16 South 28 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 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	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

17 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 79	23	24
30	29	28	27	26	25
31	32	33	34 53	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	23	24
30	29	28	27	26	25
31	32	33	34	35	36 SITE

17 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 28 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 65	36

18 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	23	24
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

- 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
- Site Location - Westall A State #3

Appendix C

Summary Report

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

Report Date: March 30, 2012

Work Order: 12032209

Project Location: Eddy Co., NM
Project Name: COG/Westall A State #3
Project Number: 114-6401229

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
291995	BH-1 @ AH-1 0-1'	soil	2012-03-21	00:00	2012-03-22
291996	BH-1 @ AH-1 2-3'	soil	2012-03-21	00:00	2012-03-22
291997	BH-1 @ AH-1 4-5'	soil	2012-03-21	00:00	2012-03-22
291998	BH-1 @ AH-1 6-7'	soil	2012-03-21	00:00	2012-03-22
291999	BH-1 @ AH-1 9-10'	soil	2012-03-21	00:00	2012-03-22
292000	BH-1 @ AH-1 14-15'	soil	2012-03-21	00:00	2012-03-22
292001	BH-1 @ AH-1 19-20'	soil	2012-03-21	00:00	2012-03-22
292002	BH-1 @ AH-1 24-25'	soil	2012-03-21	00:00	2012-03-22
292003	BH-1 @ AH-1 29-30'	soil	2012-03-21	00:00	2012-03-22
292005	BH-2 @ AH-2 0-1'	soil	2012-03-21	00:00	2012-03-22
292006	BH-2 @ AH-2 2-3'	soil	2012-03-21	00:00	2012-03-22
292007	BH-2 @ AH-2 4-5'	soil	2012-03-21	00:00	2012-03-22
292008	BH-2 @ AH-2 6-7'	soil	2012-03-21	00:00	2012-03-22
292009	BH-2 @ AH-2 9-10'	soil	2012-03-21	00:00	2012-03-22
292010	BH-2 @ AH-2 14-15'	soil	2012-03-21	00:00	2012-03-22
292011	BH-2 @ AH-2 19-20'	soil	2012-03-21	00:00	2012-03-22
292012	BH-2 @ AH-2 24-25'	soil	2012-03-21	00:00	2012-03-22
292013	BH-2 @ AH-2 29-30'	soil	2012-03-21	00:00	2012-03-22
292015	BH-3 @ AH-3 0-1'	soil	2012-03-21	00:00	2012-03-22
292016	BH-3 @ AH-3 2-3'	soil	2012-03-21	00:00	2012-03-22
292017	BH-3 @ AH-3 4-5'	soil	2012-03-21	00:00	2012-03-22
292018	BH-3 @ AH-3 6-7'	soil	2012-03-21	00:00	2012-03-22
292019	BH-3 @ AH-3 9-10'	soil	2012-03-21	00:00	2012-03-22
292020	BH-3 @ AH-3 14-15'	soil	2012-03-21	00:00	2012-03-22
292021	BH-3 @ AH-3 19-20'	soil	2012-03-21	00:00	2012-03-22
292022	BH-3 @ AH-3 24-25'	soil	2012-03-21	00:00	2012-03-22

Sample: 291995 - BH-1 @ AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**2020**	mg/Kg	4

Sample: 291996 - BH-1 @ AH-1 2-3'

Param	Flag	Result	Units	RL
Chloride		**3330**	mg/Kg	4

Sample: 291997 - BH-1 @ AH-1 4-5'

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

Sample: 291998 - BH-1 @ AH-1 6-7'

Param	Flag	Result	Units	RL
Chloride		**3730**	mg/Kg	4

Sample: 291999 - BH-1 @ AH-1 9-10'

Param	Flag	Result	Units	RL
Chloride		**739**	mg/Kg	4

Sample: 292000 - BH-1 @ AH-1 14-15'

Param	Flag	Result	Units	RL
Chloride		**447**	mg/Kg	4

Sample: 292001 - BH-1 @ AH-1 19-20'

Param	Flag	Result	Units	RL
Chloride		**856**	mg/Kg	4

Sample: 292002 - BH-1 @ AH-1 24-25'

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

Sample: 292003 - BH-1 @ AH-1 29-30'

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

Sample: 292005 - BH-2 @ AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**1910**	mg/Kg	4

Sample: 292006 - BH-2 @ AH-2 2-3'

Param	Flag	Result	Units	RL
Chloride		**2860**	mg/Kg	4

Sample: 292007 - BH-2 @ AH-2 4-5'

Param	Flag	Result	Units	RL
Chloride		**4060**	mg/Kg	4

Sample: 292008 - BH-2 @ AH-2 6-7'

Param	Flag	Result	Units	RL
Chloride		**3730**	mg/Kg	4

Sample: 292009 - BH-2 @ AH-2 9-10'

Param	Flag	Result	Units	RL
Chloride		**1980**	mg/Kg	4

Sample: 292010 - BH-2 @ AH-2 14-15'

Param	Flag	Result	Units	RL
Chloride		**1050**	mg/Kg	4

Sample: 292011 - BH-2 @ AH-2 19-20'

Param	Flag	Result	Units	RL
Chloride		**218**	mg/Kg	4

Sample: 292012 - BH-2 @ AH-2 24-25'

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

Sample: 292013 - BH-2 @ AH-2 29-30'

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

Sample: 292015 - BH-3 @ AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**2950**	mg/Kg	4

Sample: 292016 - BH-3 @ AH-3 2-3'

Param	Flag	Result	Units	RL
Chloride		**2620**	mg/Kg	4

Sample: 292017 - BH-3 @ AH-3 4-5'

Param	Flag	Result	Units	RL
Chloride		**4030**	mg/Kg	4

Sample: 292018 - BH-3 @ AH-3 6-7'

Param	Flag	Result	Units	RL
Chloride		**2070**	mg/Kg	4

Sample: 292019 - BH-3 @ AH-3 9-10'

Param	Flag	Result	Units	RL
Chloride		**1620**	mg/Kg	4

Sample: 292020 - BH-3 @ AH-3 14-15'

Param	Flag	Result	Units	RL
Chloride		**1100**	mg/Kg	4

Sample: 292021 - BH-3 @ AH-3 19-20'

Param	Flag	Result	Units	RL
Chloride		**605**	mg/Kg	4

Sample: 292022 - BH-3 @ AH-3 24-25'

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

TRACEANALYSIS, INC.

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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: March 30, 2012

Work Order: 12032209

Project Location: Eddy Co., NM
Project Name: COG/Westall A State #3
Project Number: 114-6401229

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
291995	BH-1 @ AH-1 0-1'	soil	2012-03-21	00:00	2012-03-22
291996	BH-1 @ AH-1 2-3'	soil	2012-03-21	00:00	2012-03-22
291997	BH-1 @ AH-1 4-5'	soil	2012-03-21	00:00	2012-03-22
291998	BH-1 @ AH-1 6-7'	soil	2012-03-21	00:00	2012-03-22
291999	BH-1 @ AH-1 9-10'	soil	2012-03-21	00:00	2012-03-22
292000	BH-1 @ AH-1 14-15'	soil	2012-03-21	00:00	2012-03-22
292001	BH-1 @ AH-1 19-20'	soil	2012-03-21	00:00	2012-03-22
292002	BH-1 @ AH-1 24-25'	soil	2012-03-21	00:00	2012-03-22
292003	BH-1 @ AH-1 29-30'	soil	2012-03-21	00:00	2012-03-22
292005	BH-2 @ AH-2 0-1'	soil	2012-03-21	00:00	2012-03-22
292006	BH-2 @ AH-2 2-3'	soil	2012-03-21	00:00	2012-03-22
292007	BH-2 @ AH-2 4-5'	soil	2012-03-21	00:00	2012-03-22
292008	BH-2 @ AH-2 6-7'	soil	2012-03-21	00:00	2012-03-22
292009	BH-2 @ AH-2 9-10'	soil	2012-03-21	00:00	2012-03-22
292010	BH-2 @ AH-2 14-15'	soil	2012-03-21	00:00	2012-03-22
292011	BH-2 @ AH-2 19-20'	soil	2012-03-21	00:00	2012-03-22
292012	BH-2 @ AH-2 24-25'	soil	2012-03-21	00:00	2012-03-22
292013	BH-2 @ AH-2 29-30'	soil	2012-03-21	00:00	2012-03-22

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
292015	BH-3 @ AH-3 0-1'	soil	2012-03-21	00:00	2012-03-22
292016	BH-3 @ AH-3 2-3'	soil	2012-03-21	00:00	2012-03-22
292017	BH-3 @ AH-3 4-5'	soil	2012-03-21	00:00	2012-03-22
292018	BH-3 @ AH-3 6-7'	soil	2012-03-21	00:00	2012-03-22
292019	BH-3 @ AH-3 9-10'	soil	2012-03-21	00:00	2012-03-22
292020	BH-3 @ AH-3 14-15'	soil	2012-03-21	00:00	2012-03-22
292021	BH-3 @ AH-3 19-20'	soil	2012-03-21	00:00	2012-03-22
292022	BH-3 @ AH-3 24-25'	soil	2012-03-21	00:00	2012-03-22

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

Michael Abel

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

Report Contents

Case Narrative

Samples for project COG/Westall A State #3 were received by TraceAnalysis, Inc. on 2012-03-22 and assigned to work order 12032209. Samples for work order 12032209 were received intact at a temperature of 0.9 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	76156	2012-03-26 at 10:12	89723	2012-03-27 at 12:32
Chloride (Titration)	SM 4500-Cl B	76156	2012-03-26 at 10:12	89724	2012-03-27 at 12:33
Chloride (Titration)	SM 4500-Cl B	76156	2012-03-26 at 10:12	89725	2012-03-27 at 12:34

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 12032209 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: 291995 - BH-1 @ AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89723	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2020**	mg/Kg	100	4.00

Sample: 291996 - BH-1 @ AH-1 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89723	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3330**	mg/Kg	100	4.00

Sample: 291997 - BH-1 @ AH-1 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89723	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5180**	mg/Kg	100	4.00

Sample: 291998 - BH-1 @ AH-1 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89723	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3730**	mg/Kg	100	4.00

Sample: 291999 - BH-1 @ AH-1 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89723	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**739**	mg/Kg	50	4.00

Sample: 292000 - BH-1 @ AH-1 14-15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89723	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**447**	mg/Kg	50	4.00

Sample: 292001 - BH-1 @ AH-1 19-20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89723	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**856**	mg/Kg	50	4.00

Sample: 292002 - BH-1 @ AH-1 24-25'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89723	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 292003 - BH-1 @ AH-1 29-30'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89724	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 292005 - BH-2 @ AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89724	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1910**	mg/Kg	100	4.00

Sample: 292006 - BH-2 @ AH-2 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89724	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2860**	mg/Kg	100	4.00

Sample: 292007 - BH-2 @ AH-2 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89724	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**4060**	mg/Kg	100	4.00

Sample: 292008 - BH-2 @ AH-2 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89724	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3730**	mg/Kg	100	4.00

Sample: 292009 - BH-2 @ AH-2 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89724	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1980**	mg/Kg	100	4.00

Sample: 292010 - BH-2 @ AH-2 14-15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89724	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1050**	mg/Kg	100	4.00

Sample: 292011 - BH-2 @ AH-2 19-20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89724	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**218**	mg/Kg	50	4.00

Sample: 292012 - BH-2 @ AH-2 24-25'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89724	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 292013 - BH-2 @ AH-2 29-30'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89724	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 292015 - BH-3 @ AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89725	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2950**	mg/Kg	100	4.00

Sample: 292016 - BH-3 @ AH-3 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89725	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2620**	mg/Kg	100	4.00

Sample: 292017 - BH-3 @ AH-3 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89725	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4030**	mg/Kg	100	4.00

Sample: 292018 - BH-3 @ AH-3 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89725	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2070**	mg/Kg	100	4.00

Sample: 292019 - BH-3 @ AH-3 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89725	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1620**	mg/Kg	100	4.00

Sample: 292020 - BH-3 @ AH-3 14-15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89725	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1100**	mg/Kg	100	4.00

Sample: 292021 - BH-3 @ AH-3 19-20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89725	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**605**	mg/Kg	50	4.00

Sample: 292022 - BH-3 @ AH-3 24-25'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89725	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	Sample Preparation:	2012-03-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Method Blanks

Method Blank (1) QC Batch: 89723

QC Batch:	89723	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	QC Preparation:	2012-03-26	Prepared By:	AR

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

Method Blank (1) QC Batch: 89724

QC Batch:	89724	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	QC Preparation:	2012-03-26	Prepared By:	AR

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

Method Blank (1) QC Batch: 89725

QC Batch:	89725	Date Analyzed:	2012-03-27	Analyzed By:	AR
Prep Batch:	76156	QC Preparation:	2012-03-26	Prepared By:	AR

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

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 89723 | Date Analyzed: 2012-03-27 | Analyzed By: AR
Prep Batch: 76156 | QC Preparation: 2012-03-26 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.3	mg/Kg	1	100	<3.85	96	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			104	mg/Kg	1	100	<3.85	104	85 - 115	8	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: 89724 | Date Analyzed: 2012-03-27 | Analyzed By: AR
Prep Batch: 76156 | QC Preparation: 2012-03-26 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.8	mg/Kg	1	100	<3.85	97	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			103	mg/Kg	1	100	<3.85	103	85 - 115	6	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 89725 | Date Analyzed: 2012-03-27 | Analyzed By: AR
Prep Batch: 76156 | QC Preparation: 2012-03-26 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.9	mg/Kg	1	100	<3.85	97	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			103	mg/Kg	1	100	<3.85	103	85 - 115	6	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: 292002

QC Batch: 89723 | Date Analyzed: 2012-03-27 | Analyzed By: AR
Prep Batch: 76156 | QC Preparation: 2012-03-26 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10300	mg/Kg	100	10000	<385	103	79.4 - 120.6

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			10700	mg/Kg	100	10000	<385	107	79.4 - 120.6	4	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: 292013

QC Batch: 89724 | Date Analyzed: 2012-03-27 | Analyzed By: AR
Prep Batch: 76156 | QC Preparation: 2012-03-26 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10100	mg/Kg	100	10000	<385	101	79.4 - 120.6

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			10700	mg/Kg	100	10000	<385	107	79.4 - 120.6	6	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: 292022

QC Batch: 89725 | Date Analyzed: 2012-03-27 | Analyzed By: AR
Prep Batch: 76156 | QC Preparation: 2012-03-26 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10400	mg/Kg	100	10000	<385	104	79.4 - 120.6

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			10900	mg/Kg	100	10000	<385	109	79.4 - 120.6	5	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: 89723 | Date Analyzed: 2012-03-27 | Analyzed By: AR

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	2012-03-27

Standard (CCV-1)

QC Batch: 89723 | Date Analyzed: 2012-03-27 | 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	99.8	100	85 - 115	2012-03-27

Standard (ICV-1)

QC Batch: 89724 | Date Analyzed: 2012-03-27 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.5	100	85 - 115	2012-03-27

Standard (CCV-1)

QC Batch: 89724 | Date Analyzed: 2012-03-27 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-03-27

Standard (ICV-1)

QC Batch: 89725 | Date Analyzed: 2012-03-27 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.5	100	85 - 115	2012-03-27

Standard (CCV-1)

QC Batch: 89725 | Date Analyzed: 2012-03-27 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-03-27

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	T104704392-11-3	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.
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.

#120322CG

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.: 114-6401229

PROJECT NAME: Westall A State #3

Eddy Co., NM

LAB I.D. NUMBER	DATE 2012	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
291995	3/21		S		X	BH-1 @ AH-1 0-1'	1				X													X				
996						2-3'	1																	X				
997						4-5'	1																	X				
998						6-7'	1																	X				
999						9-10'	1																	X				
292000						14-15'	1																	X				
001						19-20'	1																	X				
002						24-25'	1																	X				
003						29-30'	1																	X				
004						39-40'	1																	X				

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Jeff Kindley — Date: March 22, 2012 Time: 930 — RECEIVED BY: (Signature) — Date: 3/22/12 Time: 9:30

SAMPLED BY: (Print & Initial) Kim — Date: 3/21/12 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: Ike Tavarez — Results by:

RECEIVING LABORATORY: TRACE — RECEIVED BY: (Signature)

ADDRESS: CITY: MIDLAND STATE: TX ZIP:

CONTACT: PHONE: DATE: TIME:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 190 intact

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.

#12032209

Analysis Request of Chain of Custody Record

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.: 114-640 1229

PROJECT NAME: Westall A State #3

Eddy Co, NM

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
005	3/21		S		X	BH-2 @ AH-2 0-1'	1				X	
006						2-3'	1					
007						4-5'	1					
008						6-7'	1					
009						9-10'	1					
010						14-15'	1					
011						19-20'	1					
012						24-25'	1					
013						29-30'	1					
014						39-40'	1					

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	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
												X				

RELINQUISHED BY: (Signature) Date: March 22, 2012 Time: 930

RECEIVED BY: (Signature) Date: 3/22/12 Time: 9:35

SAMPLED BY: (Print & Initial) Kim Date: 3/21/12 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:

RECEIVING LABORATORY: TRACE

ADDRESS:

CITY: MIDLAND STATE: TX ZIP:

CONTACT: PHONE:

RECEIVED BY: (Signature)

DATE: TIME:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: Good Intact

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.

#1h0322057

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

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6401229

PROJECT NAME: Westall A State #3

Eddy Co., NM

LAB I.D. NUMBER	DATE 2012	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
015	3/21		S		X	BH-3 @ AH-3 0-1'	1				X													X				
016						2-3'	1																	X				
017						4-5'	1																	X				
018						6-7'	1																	X				
019						9-10'	1																	X				
020						14-15'	1																	X				
021						19-20'	1																	X				
022						24-25'	1																	X				
023						29-30'	1																					
024					1	39-40'	1																					

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Ike Kimble	Date: March 23, 2012 Time: 930	RECEIVED BY: (Signature)	Date: 3/22/12 Time: 1:35
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:

SAMPLED BY: (Print & Initial) Kim — Date: 3/21/12 Time:

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

TETRA TECH CONTACT PERSON: Ike Tavarez — Results by:

RECEIVING LABORATORY: TRACE — RECEIVED BY: (Signature)

ADDRESS:

CITY: MIDLAND STATE: TX ZIP:

CONTACT: PHONE: DATE: TIME:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: Cool Intact

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: February 20, 2012

Work Order: 12021024

Project Location: Eddy Co., NM
Project Name: COG/Westall A State #3
Project Number: 114-6401229

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
288842	AH-1 0-1' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288843	AH-1 1-1.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288844	AH-1 2-2.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288845	AH-1 3-3.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288846	AH-2 0-1' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288847	AH-2 1-1.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288848	AH-2 2-2.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288849	AH-2 3-3.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288850	AH-2 4-4.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288851	AH-2 5-5.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288852	AH-3 0-1' 0.5' BEB	soil	2012-02-06	00:00	2012-02-10
288853	AH-3 1-1.5' 0.5' BEB	soil	2012-02-06	00:00	2012-02-10
288854	AH-3 2-2.5' 0.5' BEB	soil	2012-02-06	00:00	2012-02-10
288855	AH-4 0-1' 0.5' BEB	soil	2012-02-06	00:00	2012-02-10
288856	AH-4 1-1.5' 0.5' BEB	soil	2012-02-06	00:00	2012-02-10
288857	AH-4 2-2.5' 0.5' BEB	soil	2012-02-06	00:00	2012-02-10

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
288842 - AH-1 0-1' 1' BEB	<0.100	**0.304**	**0.312**	**0.434**	**186**	**84.4**
288846 - AH-2 0-1' 1' BEB	<0.100	<0.100	<0.100	<0.100	**1230**	**47.1**
288852 - AH-3 0-1' 0.5' BEB	<0.0200	**0.0667**	**0.0818**	**0.148**	**159** $_{Q_8}$	**24.6**
288855 - AH-4 0-1' 0.5' BEB	<0.0200	<0.0200	<0.0200	<0.0200	**830**	**5.90**

Sample: 288842 - AH-1 0-1' 1' BEB

continued ...

sample 288842 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		**3030**	mg/Kg	4

Sample: 288843 - AH-1 1-1.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**3070**	mg/Kg	4

Sample: 288844 - AH-1 2-2.5' 1' BEB

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

Sample: 288845 - AH-1 3-3.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**6450**	mg/Kg	4

Sample: 288846 - AH-2 0-1' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**2520**	mg/Kg	4

Sample: 288847 - AH-2 1-1.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**2970**	mg/Kg	4

Sample: 288848 - AH-2 2-2.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**2730**	mg/Kg	4

Sample: 288849 - AH-2 3-3.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**3340**	mg/Kg	4

Sample: 288850 - AH-2 4-4.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**4930**	mg/Kg	4

Sample: 288851 - AH-2 5-5.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**4520**	mg/Kg	4

Sample: 288852 - AH-3 0-1' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**3470**	mg/Kg	4

Sample: 288853 - AH-3 1-1.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**4070**	mg/Kg	4

Sample: 288854 - AH-3 2-2.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**4140**	mg/Kg	4

Sample: 288855 - AH-4 0-1' 0.5' BEB

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

Sample: 288856 - AH-4 1-1.5' 0.5' BEB

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

Sample: 288857 - AH-4 2-2.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		<200	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 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report
(Corrected Report)

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

Report Date: February 20, 2012

Work Order: 12021024

Project Location: Eddy Co., NM
Project Name: COG/Westall A State #3
Project Number: 114-6401229

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
288842	AH-1 0-1' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288843	AH-1 1-1.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288844	AH-1 2-2.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288845	AH-1 3-3.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288846	AH-2 0-1' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288847	AH-2 1-1.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288848	AH-2 2-2.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288849	AH-2 3-3.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288850	AH-2 4-4.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288851	AH-2 5-5.5' 1' BEB	soil	2012-02-06	00:00	2012-02-10
288852	AH-3 0-1' 0.5' BEB	soil	2012-02-06	00:00	2012-02-10
288853	AH-3 1-1.5' 0.5' BEB	soil	2012-02-06	00:00	2012-02-10
288854	AH-3 2-2.5' 0.5' BEB	soil	2012-02-06	00:00	2012-02-10
288855	AH-4 0-1' 0.5' BEB	soil	2012-02-06	00:00	2012-02-10
288856	AH-4 1-1.5' 0.5' BEB	soil	2012-02-06	00:00	2012-02-10
288857	AH-4 2-2.5' 0.5' BEB	soil	2012-02-06	00:00	2012-02-10

Report Corrections (Work Order 12021024)

- 2/20/12: Added BTEX and TPH to samples 288842 and 288846.

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

This report consists of a total of 35 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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

Report Contents

Case Narrative

Samples for project COG/Westall A State #3 were received by TraceAnalysis, Inc. on 2012-02-10 and assigned to work order 12021024. Samples for work order 12021024 were received intact at a temperature of 5.9 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	75170	2012-02-13 at 08:45	88547	2012-02-13 at 14:52
BTEX	S 8021B	75272	2012-02-15 at 14:30	88666	2012-02-16 at 00:21
Chloride (Titration)	SM 4500-Cl B	75143	2012-02-10 at 13:39	88564	2012-02-14 at 13:59
Chloride (Titration)	SM 4500-Cl B	75143	2012-02-10 at 13:39	88566	2012-02-14 at 14:00
Chloride (Titration)	SM 4500-Cl B	75143	2012-02-10 at 13:39	88567	2012-02-14 at 14:01
TPH DRO - NEW	S 8015 D	75146	2012-02-13 at 15:03	88517	2012-02-13 at 15:05
TPH DRO - NEW	S 8015 D	75173	2012-02-14 at 11:20	88549	2012-02-14 at 11:22
TPH DRO - NEW	S 8015 D	75290	2012-02-17 at 15:34	88705	2012-02-17 at 15:39
TPH GRO	S 8015 D	75170	2012-02-13 at 08:45	88543	2012-02-13 at 14:52
TPH GRO	S 8015 D	75272	2012-02-15 at 14:30	88667	2012-02-16 at 00:48

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 12021024 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: 288842 - AH-1 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	88666	Date Analyzed:	2012-02-16	Analyzed By:	tc
Prep Batch:	75272	Sample Preparation:	2012-02-15	Prepared By:	tc

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<0.100	mg/Kg	5	0.0200
Toluene		1	**0.304**	mg/Kg	5	0.0200
Ethylbenzene		1	**0.312**	mg/Kg	5	0.0200
Xylene		1	**0.434**	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			6.45	mg/Kg	5	5.00	129	75 - 135.4
4-Bromofluorobenzene (4-BFB)			5.41	mg/Kg	5	5.00	108	63.6 - 158.9

Sample: 288842 - AH-1 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88564	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3030**	mg/Kg	100	4.00

Sample: 288842 - AH-1 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	88705	Date Analyzed:	2012-02-17	Analyzed By:	DA
Prep Batch:	75290	Sample Preparation:	2012-02-17	Prepared By:	DA

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		1	**186**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			116	mg/Kg	1	100	116	49.3 - 157.5

Sample: 288842 - AH-1 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	88667	Date Analyzed:	2012-02-16	Analyzed By:	tc
Prep Batch:	75272	Sample Preparation:	2012-02-15	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**84.4**	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			5.57	mg/Kg	5	5.00	111	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			5.86	mg/Kg	5	5.00	117	45.1 - 162.2

Sample: 288843 - AH-1 1-1.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88564	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3070**	mg/Kg	100	4.00

Sample: 288844 - AH-1 2-2.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88564	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

continued ...

sample 288844 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5180**	mg/Kg	100	4.00

Sample: 288845 - AH-1 3-3.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88564	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6450**	mg/Kg	100	4.00

Sample: 288846 - AH-2 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	88666	Date Analyzed:	2012-02-16	Analyzed By:	tc
Prep Batch:	75272	Sample Preparation:	2012-02-15	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	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)			6.17	mg/Kg	5	5.00	123	75 - 135.4
4-Bromofluorobenzene (4-BFB)			4.91	mg/Kg	5	5.00	98	63.6 - 158.9

Sample: 288846 - AH-2 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88564	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2520**	mg/Kg	100	4.00

Sample: 288846 - AH-2 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	88705	Date Analyzed:	2012-02-17	Analyzed By:	DA
Prep Batch:	75290	Sample Preparation:	2012-02-17	Prepared By:	DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**1230**	mg/Kg	5	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		179	mg/Kg	5	100	179	49.3 - 157.5

Sample: 288846 - AH-2 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	88667	Date Analyzed:	2012-02-16	Analyzed By:	tc
Prep Batch:	75272	Sample Preparation:	2012-02-15	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**47.1**	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			5.29	mg/Kg	5	5.00	106	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			5.17	mg/Kg	5	5.00	103	45.1 - 162.2

Sample: 288847 - AH-2 1-1.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88566	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2970**	mg/Kg	100	4.00

Sample: 288848 - AH-2 2-2.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88566	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2730**	mg/Kg	100	4.00

Sample: 288849 - AH-2 3-3.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88566	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3340**	mg/Kg	100	4.00

Sample: 288850 - AH-2 4-4.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88566	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4930**	mg/Kg	100	4.00

Sample: 288851 - AH-2 5-5.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88566	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4520**	mg/Kg	100	4.00

Sample: 288852 - AH-3 0-1' 0.5' BEB

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	88547	Date Analyzed:	2012-02-13	Analyzed By:	tc
Prep Batch:	75170	Sample Preparation:	2012-02-13	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene		1	**0.0667**	mg/Kg	1	0.0200
Ethylbenzene		1	**0.0818**	mg/Kg	1	0.0200
Xylene		1	**0.148**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.70	mg/Kg	1	2.00	135	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.35	mg/Kg	1	2.00	118	63.6 - 158.9

Sample: 288852 - AH-3 0-1' 0.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88566	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3470**	mg/Kg	100	4.00

Sample: 288852 - AH-3 0-1' 0.5' BEB

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	88549	Date Analyzed:	2012-02-14	Analyzed By:	DA
Prep Batch:	75173	Sample Preparation:	2012-02-14	Prepared By:	DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	1	**159**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			111	mg/Kg	1	100	111	49.3 - 157.5

Sample: 288852 - AH-3 0-1' 0.5' BEB

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	88543	Date Analyzed:	2012-02-13	Analyzed By:	tc
Prep Batch:	75170	Sample Preparation:	2012-02-13	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**24.6**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.52	mg/Kg	1	2.00	126	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.66	mg/Kg	1	2.00	133	45.1 - 162.2

Sample: 288853 - AH-3 1-1.5' 0.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88566	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4070**	mg/Kg	100	4.00

Sample: 288854 - AH-3 2-2.5' 0.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88566	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4140**	mg/Kg	100	4.00

Sample: 288855 - AH-4 0-1' 0.5' BEB

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	88547	Date Analyzed:	2012-02-13	Analyzed By:	tc
Prep Batch:	75170	Sample Preparation:	2012-02-13	Prepared By:	tc

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)			2.27	mg/Kg	1	2.00	114	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	63.6 - 158.9

Sample: 288855 - AH-4 0-1' 0.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88566	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 288855 - AH-4 0-1' 0.5' BEB

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	88517	Date Analyzed:	2012-02-13	Analyzed By:	DA
Prep Batch:	75146	Sample Preparation:	2012-02-13	Prepared By:	DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**830**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qor	Qor	245	mg/Kg	1	100	245	49.3 - 157.5

Sample: 288855 - AH-4 0-1' 0.5' BEB

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	88543	Date Analyzed:	2012-02-13	Analyzed By:	tc
Prep Batch:	75170	Sample Preparation:	2012-02-13	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**5.90**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.00	mg/Kg	1	2.00	100	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.09	mg/Kg	1	2.00	104	45.1 - 162.2

Sample: 288856 - AH-4 1-1.5' 0.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88566	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 288857 - AH-4 2-2.5' 0.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88567	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Method Blanks

Method Blank (1) QC Batch: 88517

QC Batch:	88517	Date Analyzed:	2012-02-13	Analyzed By:	DA
Prep Batch:	75146	QC Preparation:	2012-02-13	Prepared By:	DA

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	39.1	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			100	mg/Kg	1	100	100	52 - 140.8

Method Blank (1) QC Batch: 88543

QC Batch:	88543	Date Analyzed:	2012-02-13	Analyzed By:	tc
Prep Batch:	75170	QC Preparation:	2012-02-13	Prepared By:	tc

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<1.22	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	78.6 - 109
4-Bromofluorobenzene (4-BFB)			1.91	mg/Kg	1	2.00	96	58 - 100

Method Blank (1) QC Batch: 88547

QC Batch:	88547	Date Analyzed:	2012-02-13	Analyzed By:	tc
Prep Batch:	75170	QC Preparation:	2012-02-13	Prepared By:	tc

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00470	mg/Kg	0.02
Toluene		1	<0.00980	mg/Kg	0.02

continued ...

method blank continued ...

Parameter	Flag	Cert	MDL Result	Units	RL
Ethylbenzene		1	<0.00500	mg/Kg	0.02
Xylene		1	<0.0170	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.35	mg/Kg	1	2.00	118	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.77	mg/Kg	1	2.00	88	55.9 - 112.4

Method Blank (1) QC Batch: 88549

QC Batch:	88549	Date Analyzed:	2012-02-14	Analyzed By:	DA
Prep Batch:	75173	QC Preparation:	2012-02-14	Prepared By:	DA

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<14.5	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			96.3	mg/Kg	1	100	96	52 - 140.8

Method Blank (1) QC Batch: 88564

QC Batch:	88564	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	QC Preparation:	2012-02-10	Prepared By:	AR

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

Method Blank (1) QC Batch: 88566

QC Batch:	88566	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	QC Preparation:	2012-02-10	Prepared By:	AR

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

Method Blank (1) QC Batch: 88567

QC Batch: 88567 | Date Analyzed: 2012-02-14 | Analyzed By: AR
Prep Batch: 75143 | QC Preparation: 2012-02-10 | Prepared By: AR

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

Method Blank (1) QC Batch: 88666

QC Batch: 88666 | Date Analyzed: 2012-02-16 | Analyzed By: tc
Prep Batch: 75272 | QC Preparation: 2012-02-15 | Prepared By: tc

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00470	mg/Kg	0.02
Toluene		1	<0.00980	mg/Kg	0.02
Ethylbenzene		1	<0.00500	mg/Kg	0.02
Xylene		1	<0.0170	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.16	mg/Kg	1	2.00	108	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.29	mg/Kg	1	2.00	64	55.9 - 112.4

Method Blank (1) QC Batch: 88667

QC Batch: 88667 | Date Analyzed: 2012-02-16 | Analyzed By: tc
Prep Batch: 75272 | QC Preparation: 2012-02-15 | Prepared By: tc

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<1.22	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.84	mg/Kg	1	2.00	92	78.6 - 109
4-Bromofluorobenzene (4-BFB)			1.39	mg/Kg	1	2.00	70	58 - 100

Method Blank (1) QC Batch: 88705

QC Batch:	88705	Date Analyzed:	2012-02-17	Analyzed By:	DA
Prep Batch:	75290	QC Preparation:	2012-02-17	Prepared By:	DA

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<14.5	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			94.5	mg/Kg	1	100	94	52 - 140.8

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 88517 | Date Analyzed: 2012-02-13 | Analyzed By: DA
Prep Batch: 75146 | QC Preparation: 2012-02-13 | Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	244	mg/Kg	1	250	<14.5	98	62 - 128.3

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	236	mg/Kg	1	250	<14.5	94	62 - 128.3	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	104	104	mg/Kg	1	100	104	104	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 88543 | Date Analyzed: 2012-02-13 | Analyzed By: tc
Prep Batch: 75170 | QC Preparation: 2012-02-13 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	18.7	mg/Kg	1	20.0	<1.22	94	68.3 - 105.7

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	18.6	mg/Kg	1	20.0	<1.22	93	68.3 - 105.7	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)	2.12	2.01	mg/Kg	1	2.00	106	100	80 - 111.2
4-Bromofluorobenzene (4-BFB)	2.10	1.96	mg/Kg	1	2.00	105	98	66.4 - 106.6

Laboratory Control Spike (LCS-1)

QC Batch: 88547 | Date Analyzed: 2012-02-13 | Analyzed By: tc
Prep Batch: 75170 | QC Preparation: 2012-02-13 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.98	mg/Kg	1	2.00	<0.00470	99	86.5 - 124.9
Toluene		1	1.99	mg/Kg	1	2.00	<0.00980	100	84.7 - 122.5
Ethylbenzene		1	1.98	mg/Kg	1	2.00	<0.00500	99	79.4 - 118.9
Xylene		1	5.80	mg/Kg	1	6.00	<0.0170	97	79.5 - 118.9

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
Benzene		1	2.17	mg/Kg	1	2.00	<0.00470	108	86.5 - 124.9	9	20
Toluene		1	2.20	mg/Kg	1	2.00	<0.00980	110	84.7 - 122.5	10	20
Ethylbenzene		1	2.15	mg/Kg	1	2.00	<0.00500	108	79.4 - 118.9	8	20
Xylene		1	6.37	mg/Kg	1	6.00	<0.0170	106	79.5 - 118.9	9	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.32	2.38	mg/Kg	1	2.00	116	119	73.9 - 127
4-Bromofluorobenzene (4-BFB)	2.05	2.08	mg/Kg	1	2.00	102	104	70.4 - 119

Laboratory Control Spike (LCS-1)

QC Batch: 88549 | Date Analyzed: 2012-02-14 | Analyzed By: DA
Prep Batch: 75173 | QC Preparation: 2012-02-14 | Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	256	mg/Kg	1	250	<14.5	102	62 - 128.3

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	233	mg/Kg	1	250	<14.5	93	62 - 128.3	9	20

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

continued ...

control spikes continued ...

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	98.3	106	mg/Kg	1	100	98	106	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 88564 Date Analyzed: 2012-02-14 Analyzed By: AR
Prep Batch: 75143 QC Preparation: 2012-02-10 Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.0	mg/Kg	1	100	<3.85	97	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			106	mg/Kg	1	100	<3.85	106	85 - 115	9	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: 88566 Date Analyzed: 2012-02-14 Analyzed By: AR
Prep Batch: 75143 QC Preparation: 2012-02-10 Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			93.4	mg/Kg	1	100	<3.85	93	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	<3.85	101	85 - 115	8	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: 88567 | Date Analyzed: 2012-02-14 | Analyzed By: AR
Prep Batch: 75143 | QC Preparation: 2012-02-10 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.0	mg/Kg	1	100	<3.85	97	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			104	mg/Kg	1	100	<3.85	104	85 - 115	7	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: 88666 | Date Analyzed: 2012-02-16 | Analyzed By: tc
Prep Batch: 75272 | QC Preparation: 2012-02-15 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.12	mg/Kg	1	2.00	<0.00470	106	86.5 - 124.9
Toluene		1	2.04	mg/Kg	1	2.00	<0.00980	102	84.7 - 122.5
Ethylbenzene		1	1.94	mg/Kg	1	2.00	<0.00500	97	79.4 - 118.9
Xylene		1	5.58	mg/Kg	1	6.00	<0.0170	93	79.5 - 118.9

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
Benzene		1	1.91	mg/Kg	1	2.00	<0.00470	96	86.5 - 124.9	10	20
Toluene		1	1.84	mg/Kg	1	2.00	<0.00980	92	84.7 - 122.5	10	20
Ethylbenzene		1	1.76	mg/Kg	1	2.00	<0.00500	88	79.4 - 118.9	10	20
Xylene		1	5.06	mg/Kg	1	6.00	<0.0170	84	79.5 - 118.9	10	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.25	2.29	mg/Kg	1	2.00	112	114	73.9 - 127
4-Bromofluorobenzene (4-BFB)	1.66	1.74	mg/Kg	1	2.00	83	87	70.4 - 119

Laboratory Control Spike (LCS-1)

QC Batch: 88667 | Date Analyzed: 2012-02-16 | Analyzed By: tc
Prep Batch: 75272 | QC Preparation: 2012-02-15 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	14.4	mg/Kg	1	20.0	<1.22	72	68.3 - 105.7

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	15.8	mg/Kg	1	20.0	<1.22	79	68.3 - 105.7	9	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)	1.83	1.89	mg/Kg	1	2.00	92	94	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.61	1.76	mg/Kg	1	2.00	80	88	66.4 - 106.6

Laboratory Control Spike (LCS-1)

QC Batch: 88705 | Date Analyzed: 2012-02-17 | Analyzed By: DA
Prep Batch: 75290 | QC Preparation: 2012-02-17 | Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	282	mg/Kg	1	250	<14.5	113	62 - 128.3

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	271	mg/Kg	1	250	<14.5	108	62 - 128.3	4	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	98.5	102	mg/Kg	1	100	98	102	58.6 - 149.6

Matrix Spike (MS-1) Spiked Sample: 288885

QC Batch: 88517 | Date Analyzed: 2012-02-13 | Analyzed By: DA
Prep Batch: 75146 | QC Preparation: 2012-02-13 | Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	254	mg/Kg	1	250	<14.5	102	45.5 - 127

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	232	mg/Kg	1	250	<14.5	93	45.5 - 127	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	104	92.1	mg/Kg	1	100	104	92	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 288885

QC Batch: 88543 | Date Analyzed: 2012-02-13 | Analyzed By: tc
Prep Batch: 75170 | QC Preparation: 2012-02-13 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	14.2	mg/Kg	1	20.0	<1.22	68	28.2 - 157.2

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	16.1	mg/Kg	1	20.0	<1.22	77	28.2 - 157.2	12	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.36	2.60	mg/Kg	1	2	118	130	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	2.28	2.51	mg/Kg	1	2	114	126	77.9 - 122.4

Matrix Spike (MS-1) Spiked Sample: 288887

QC Batch: 88547 | Date Analyzed: 2012-02-13 | Analyzed By: tc
Prep Batch: 75170 | QC Preparation: 2012-02-13 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.93	mg/Kg	1	2.00	<0.00470	96	69.3 - 159.2
Toluene		1	2.04	mg/Kg	1	2.00	<0.00980	102	68.7 - 157
Ethylbenzene		1	2.13	mg/Kg	1	2.00	<0.00500	106	71.6 - 158.2
Xylene		1	6.25	mg/Kg	1	6.00	<0.0170	104	70.8 - 159.8

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.87	mg/Kg	1	2.00	<0.00470	94	69.3 - 159.2	3	20
Toluene		1	1.97	mg/Kg	1	2.00	<0.00980	98	68.7 - 157	4	20
Ethylbenzene		1	2.10	mg/Kg	1	2.00	<0.00500	105	71.6 - 158.2	1	20
Xylene		1	6.12	mg/Kg	1	6.00	<0.0170	102	70.8 - 159.8	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.51	2.56	mg/Kg	1	2	126	128	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	2.10	2.08	mg/Kg	1	2	105	104	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 288804

QC Batch: 88549 | Date Analyzed: 2012-02-14 | Analyzed By: DA
Prep Batch: 75173 | QC Preparation: 2012-02-14 | Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	Qs	1	422	mg/Kg	1	250	408	6	45.5 - 127

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	481	mg/Kg	1	250	408	29	45.5 - 127	13	20

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

continued ...

matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	110	104	mg/Kg	1	100	110	104	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 288846

QC Batch: 88564 | Date Analyzed: 2012-02-14 | Analyzed By: AR
Prep Batch: 75143 | QC Preparation: 2012-02-10 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			12800	mg/Kg	100	10000	2520	103	79.4 - 120.6

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			13500	mg/Kg	100	10000	2520	110	79.4 - 120.6	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: 288856

QC Batch: 88566 | Date Analyzed: 2012-02-14 | Analyzed By: AR
Prep Batch: 75143 | QC Preparation: 2012-02-10 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10100	mg/Kg	100	10000	<385	101	79.4 - 120.6

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			10700	mg/Kg	100	10000	<385	107	79.4 - 120.6	6	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: 288866

QC Batch: 88567 | Date Analyzed: 2012-02-14 | Analyzed By: AR
Prep Batch: 75143 | QC Preparation: 2012-02-10 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10100	mg/Kg	100	10000	<385	101	79.4 - 120.6

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			10800	mg/Kg	100	10000	<385	108	79.4 - 120.6	7	20

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

Matrix Spike (MS-1) Spiked Sample: 288596

QC Batch: 88666 | Date Analyzed: 2012-02-16 | Analyzed By: tc
Prep Batch: 75272 | QC Preparation: 2012-02-15 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	6.44	mg/Kg	5	5.00	<0.0235	129	69.3 - 159.2
Toluene		1	6.34	mg/Kg	5	5.00	0.3117	120	68.7 - 157
Ethylbenzene		1	6.72	mg/Kg	5	5.00	1.051	113	71.6 - 158.2
Xylene		1	21.8	mg/Kg	5	15.0	5.5134	108	70.8 - 159.8

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	5.84	mg/Kg	5	5.00	<0.0235	117	69.3 - 159.2	10	20
Toluene		1	5.94	mg/Kg	5	5.00	0.3117	112	68.7 - 157	6	20
Ethylbenzene		1	6.65	mg/Kg	5	5.00	1.051	112	71.6 - 158.2	1	20
Xylene		1	22.7	mg/Kg	5	15.0	5.5134	114	70.8 - 159.8	4	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5.72	5.90	mg/Kg	5	5	114	118	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	5.29	5.80	mg/Kg	5	5	106	116	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 288846

QC Batch: 88667 | Date Analyzed: 2012-02-16 | Analyzed By: tc
Prep Batch: 75272 | QC Preparation: 2012-02-15 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	87.9	mg/Kg	5	50.0	47.0977	82	28.2 - 157.2

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	104	mg/Kg	5	50.0	47.0977	114	28.2 - 157.2	17	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)	5.56	5.14	mg/Kg	5	5	111	103	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	5.66	5.67	mg/Kg	5	5	113	113	77.9 - 122.4

Matrix Spike (MS-1) Spiked Sample: 288842

QC Batch: 88705 | Date Analyzed: 2012-02-17 | Analyzed By: DA
Prep Batch: 75290 | QC Preparation: 2012-02-17 | Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	485	mg/Kg	1	250	186	120	45.5 - 127

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	496	mg/Kg	1	250	186	124	45.5 - 127	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	105	107	mg/Kg	1	100	105	107	45.4 - 145.8

Calibration Standards

Standard (CCV-1)

QC Batch: 88517 Date Analyzed: 2012-02-13 Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	245	98	80 - 120	2012-02-13

Standard (CCV-2)

QC Batch: 88517 Date Analyzed: 2012-02-13 Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	242	97	80 - 120	2012-02-13

Standard (CCV-1)

QC Batch: 88543 Date Analyzed: 2012-02-13 Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.09	109	80 - 120	2012-02-13

Standard (CCV-2)

QC Batch: 88543 Date Analyzed: 2012-02-13 Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.07	107	80 - 120	2012-02-13

Standard (CCV-1)

QC Batch: 88547 Date Analyzed: 2012-02-13 Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.102	102	80 - 120	2012-02-13
Toluene		1	mg/kg	0.100	0.103	103	80 - 120	2012-02-13
Ethylbenzene		1	mg/kg	0.100	0.101	101	80 - 120	2012-02-13
Xylene		1	mg/kg	0.300	0.299	100	80 - 120	2012-02-13

Standard (CCV-2)

QC Batch: 88547 Date Analyzed: 2012-02-13 Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.102	102	80 - 120	2012-02-13
Toluene		1	mg/kg	0.100	0.103	103	80 - 120	2012-02-13
Ethylbenzene		1	mg/kg	0.100	0.0991	99	80 - 120	2012-02-13
Xylene		1	mg/kg	0.300	0.289	96	80 - 120	2012-02-13

Standard (CCV-1)

QC Batch: 88549 Date Analyzed: 2012-02-14 Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	236	94	80 - 120	2012-02-14

Standard (CCV-2)

QC Batch: 88549 Date Analyzed: 2012-02-14 Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	238	95	80 - 120	2012-02-14

Standard (ICV-1)

QC Batch: 88564 Date Analyzed: 2012-02-14 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.8	100	85 - 115	2012-02-14

Standard (CCV-1)

QC Batch: 88564 Date Analyzed: 2012-02-14 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	2012-02-14

Standard (ICV-1)

QC Batch: 88566 Date Analyzed: 2012-02-14 Analyzed By: AR

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	2012-02-14

Standard (CCV-1)

QC Batch: 88566 Date Analyzed: 2012-02-14 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	99.9	100	85 - 115	2012-02-14

Standard (ICV-1)

QC Batch: 88567 Date Analyzed: 2012-02-14 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.4	99	85 - 115	2012-02-14

Standard (CCV-1)

QC Batch: 88567 Date Analyzed: 2012-02-14 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-02-14

Standard (CCV-1)

QC Batch: 88666 Date Analyzed: 2012-02-16 Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.109	109	80 - 120	2012-02-16
Toluene		1	mg/kg	0.100	0.105	105	80 - 120	2012-02-16
Ethylbenzene		1	mg/kg	0.100	0.102	102	80 - 120	2012-02-16
Xylene		1	mg/kg	0.300	0.292	97	80 - 120	2012-02-16

Standard (CCV-2)

QC Batch: 88666 Date Analyzed: 2012-02-16 Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.113	113	80 - 120	2012-02-16
Toluene		1	mg/kg	0.100	0.110	110	80 - 120	2012-02-16
Ethylbenzene		1	mg/kg	0.100	0.106	106	80 - 120	2012-02-16
Xylene		1	mg/kg	0.300	0.317	106	80 - 120	2012-02-16

Standard (CCV-1)

QC Batch: 88667 | Date Analyzed: 2012-02-16 | Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.00	100	80 - 120	2012-02-16

Standard (CCV-2)

QC Batch: 88667 | Date Analyzed: 2012-02-16 | Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.16	116	80 - 120	2012-02-16

Standard (CCV-2)

QC Batch: 88705 | Date Analyzed: 2012-02-17 | Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	270	108	80 - 120	2012-02-17

Standard (CCV-3)

QC Batch: 88705 | Date Analyzed: 2012-02-17 | Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	258	103	80 - 120	2012-02-17

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	T104704392-11-3	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.
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.

#1202 1024

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 2

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

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-640 1229

PROJECT NAME: COG / Wyatt A State #3
Eddy Co. NM

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
28842	2/6		S		X	AH-1	0-1'	1				X	
843							1'-1.5'						
844							2'-2.5'						
845							3'-3.5'						
846						AH-2	0-1'						
847							1'-1.5'						
848							2'-2.5'						
849							3'-3.5'						
850							4'-4.5'						
851							5'-6.5'						

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. 8081/608; Chloride; Gamma Spec.; Alpha Beta (Air); PLM (Asbestos); Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)	Date: 2/10/12 Time: 1400	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
RECEIVING LABORATORY: Trace ADDRESS: CITY: Midland STATE: TX ZIP: CONTACT: PHONE:		RECEIVED BY: (Signature) DATE: 2-10-12 TIME: 1400	

SAMPLED BY: (Print & Initial) JT RB Date: 2/6/12 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

SAMPLE CONDITION WHEN RECEIVED: 5.9°C intact

REMARKS: If total TPH exceeds 5,000 mg/kg run delineation samples / If BTEX exceeds 50 mg/kg or Benzene exceeds 10 mg/kg run delineation samples

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

#1202 1024

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 2

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-GW01229

PROJECT NAME: COG / Westall A State #3 Eddy Co, NM

LAB I.D. NUMBER	DATE 2012	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
852	2/6		S		X	AH-3	0-1'	0.5' BEB	1				X		X	X										X				
853							1-1.5'	0.5' BEB																						
854							2-2.5'	0.5' BEB																						
855						AH-4	0-1'	0.5' BEB							X	X														
856							1-1.5'	0.5' BEB																						
857							2-2.5'	0.5' BEB																						

RELINQUISHED BY: (Signature) Date: 2/10/12 Time: 1400 — RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) JT / RS Date: 2/6/12 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:

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: 2.10.12 TIME: 1400

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 5.9° C intact

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.

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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: 1 OF: 2

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-240 1229
PROJECT NAME: COG / Wrstall A State #3
Eddy Co, NM

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD (Ext. to C35)	TX1005	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
288842	2/6		S		X	AH-1	0-1'	1' BEB				X		Y	Y												X				
843							1'-1.5'	1' BEB						NA	NA																
844							2'-2.5'	1' BEB																							
845							3'-3.5'	1' BEB																							
846						AH-2	0-1'	1' BEB						Y	Y																
847							1'-1.5'	1' BEB						ND	ND																
848							2'-2.5'	1' BEB																							
849							3'-3.5'	1' BEB																							
850							4'-4.5'	1' BEB																							
851							5'-5.5'	1' BEB																							

RELINQUISHED BY: (Signature) — Date: 2/14/12 Time: 1400
RECEIVED BY: (Signature) — Date: — Time:
SAMPLED BY: (Print & Initial) JT RC — Date: 2/6/12 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: Ike Tavarez — Results by:

RECEIVING LABORATORY: Trace
ADDRESS: Midland
CITY: — STATE: TX — ZIP:
CONTACT: — PHONE:
RECEIVED BY: (Signature)
DATE: 2-10-12 TIME: 1400
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 5.9°C intact

REMARKS: If total TPH exceeds 5,000 mg/Kg rund deeper samples / If BTEX exceeds 50 mg/Kg or Benzene exceeds 10 mg/Kg run deeper samples

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

All back Midland

FEB 15 2012

#1202 1024

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 2

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

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-GHO 1229

PROJECT NAME: COG / Westall State #3 Eddy Co, NM

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH TX1005 (Ext. to C35)	TPH 8015 MOD.	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chlorides	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
852	2/6		S		X	AH-3	0-1'	0.5' BEB	1				X		X	X												X				
853							1-1.5'	0.5' BEB																								
854							2-2.5'	0.5' BEB																								
855						AH-4	0-1'	0.5' BEB							X	X																
856							1-1.5'	0.5' BEB																								
857							2-2.5'	0.5' BEB																								

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 2/10/12 Time: 1400

RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) JT / RS Date: 2/6/12 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: Ike Tavarez

Results by:

RECEIVING LABORATORY: Trace

ADDRESS:

CITY: Midland STATE: TX ZIP:

CONTACT: PHONE:

RECEIVED BY: (Signature)

DATE: 2.10.12 TIME: 1400

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 5.9° C intact

REMARKS:

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