SITE INFORMATION

Report Type: Work Plan

General Site Information:						
Site:	**Berry A Federal Tank Battery**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit E**	**Sec. 21**	**T-17-S**	**R-30-E**		
Lease Number:	**NMLC-054988-A**					
County:	**Eddy County**					
GPS:	**32.82630° N**			**103.97835° W**		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	Intersection of 529 and CR-219 (Goat Ropper Road) travel north on 219 0.5 miles, turn right 100' to location					

Release Data:	
Date Released:	10/12/2011
Type Release:	Produced Fluids
Source of Contamination:	A flowline inside battery ruptured
Fluid Released:	4 bbls oil and 6 bbls of produced water
Fluids Recovered:	3 bbls oil and 5 bbls of produced water

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MAY 21 2012
NMOCD ARTESIA

Official Communication:			
Name:	Pat Ellis		Kim Dorey
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		kim.dorey@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

April 30, 2012

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
1301 West Grand Avenue
Artesia, New Mexico 88210

Re: Assessment and Work Plan for the COG Operating LLC., Berry A Federal Tank Battery, Unit E, Section 21, Township 17 South, Range 30 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Berry A Federal Tank Battery, Unit E, Section 21, Township 17 South, Range 30 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.82630°, W 103.97835°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico Oil Conservation Division (NMOCD) Form C-141 Initial Report, the leak was discovered on March 12, 2012, and released approximately six (6) barrels (bbls) of produced water and four (4) bbls of oil due to a ruptured flowline inside the tank battery. Approximately five (5) bbls of produced water and three (3) bbls of oil were recovered from the spill area. The spill initiated from the flowline inside the tank battery and impacted an area approximately 70' x 10' and tapered down to 5' wide. The entire spill was contained within the bermed facility. The initial Form C-141 is enclosed in Appendix A.

Groundwater

According to the USGS, no water wells are listed in Section 21. According to the NMOCD groundwater map the depth to groundwater is approximately 200' bgs. The groundwater data is shown in Appendix 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 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

Prior to sampling, COG removed approximately 1.0' of impacted material from around the tanks inside the facility. On March 28, 2012, Tetra Tech personnel inspected and sampled the spill area. Two (2) auger holes (AH-1 and AH-2) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C.

Referring to Table 1, the area of AH-1 exceeded the RRAL for TPH, Benzene and total BTEX at 0-1' and 1-1.5' below excavation bottom. Deeper samples at 2.5' decreased below the RRAL. Auger holes (AH-2) did not show any samples above the RRAL.

Elevated chloride concentrations were detected in both AH-1 and AH-2. The chloride concentrations ranged from 2,100 mg/kg (AH-2, 2-2.5') to 16,300 mg/kg (AH-1, 0-1'). The chloride concentrations declined with depth, but were not vertically defined, with bottom hole samples of 8,860 mg/kg (AH-1, 3-3.5') and 6,400 mg/kg (AH-2, 2.5-3').

Due the location of the spill and limited access to the area, Tetra Tech could not install boreholes to define the extents. During the remediation activities, deeper samples will be collected with the use of a backhoe to attempt to define the extent of the impact, if accessible.

TETRA TECH

Work Plan

COG proposes to remove impacted material as highlighted (green) in Table 1 and the foot print shown on Figure 4. The areas of AH-1 and AH-2 will be excavated to a depth approximately 2.0'-3.0' below surface to remove the soil above the RRAL and the elevated chloride concentrations. Once excavated, backhoe trenches will be installed in the area to define the extents of the chloride impact, if accessible. Based on the results, the impacted area will be excavated to the appropriate depths. If the impacted area is not vertically defined, COG requests the impacted area be deferred until abandonment of the facility. Once excavated, the excavation will be backfilled with clean soil. The excavated soil will be hauled to proper disposal.

Due to the limited access and congestion of oil and gas equipment, total excavation depths may not be reached due safety concerns for onsite personnel. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If deeper impact is encountered and excavation is not practicable, the excavated area will be capped with either clay material (1.0' thick) or a 40 mil liner at 3.0' to 4.0' below surface and backfilled to grade, if possible.

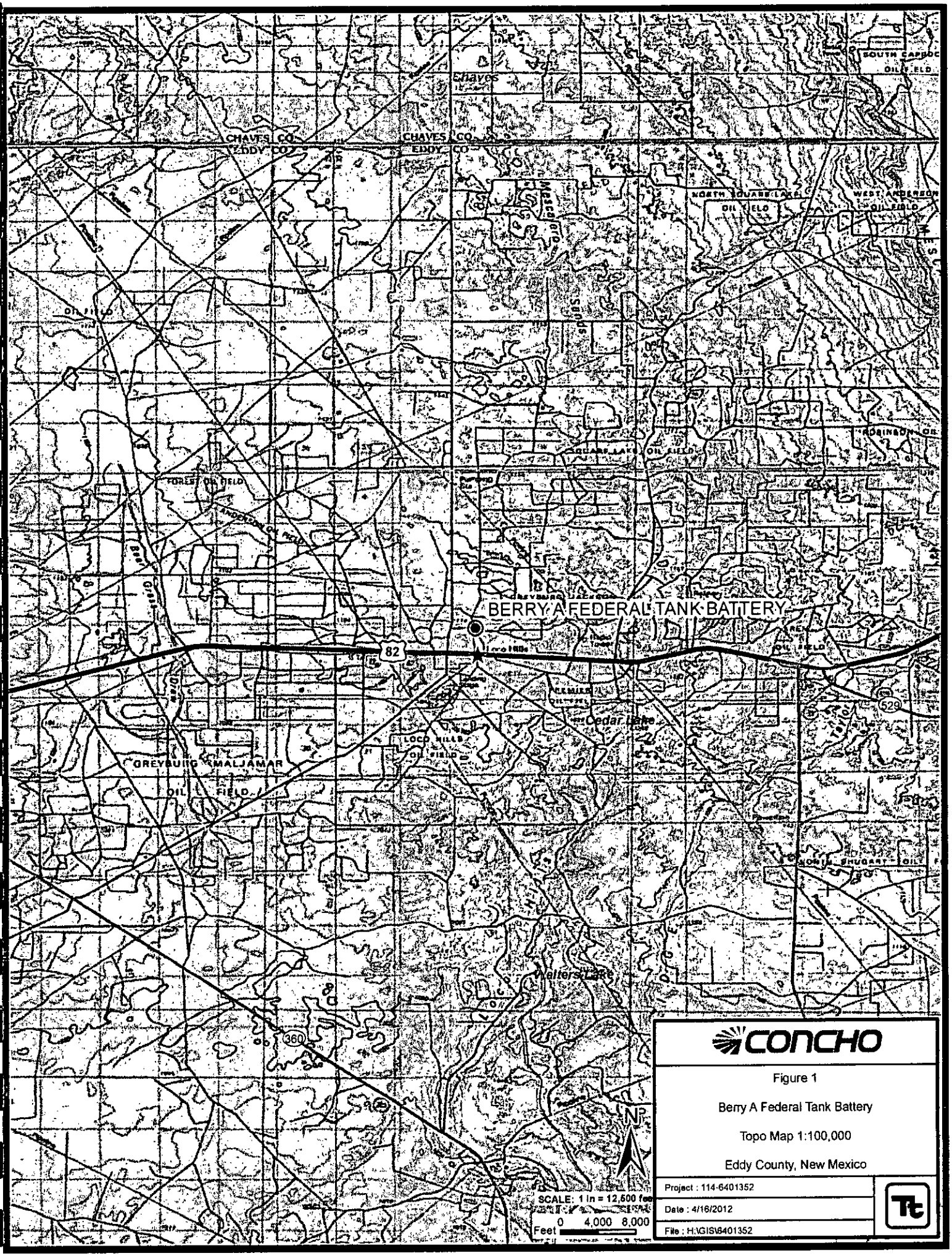
Upon completion, a final report will be submitted to the NMOCD. If you have any questions or require any additional information regarding this work plan, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez
Senior Project Manager

cc: Pat Ellis – COG
Terry Gregston - BLM

Figures



CONCHO

Figure 1

Berry A Federal Tank Battery

Topo Map 1:100,000

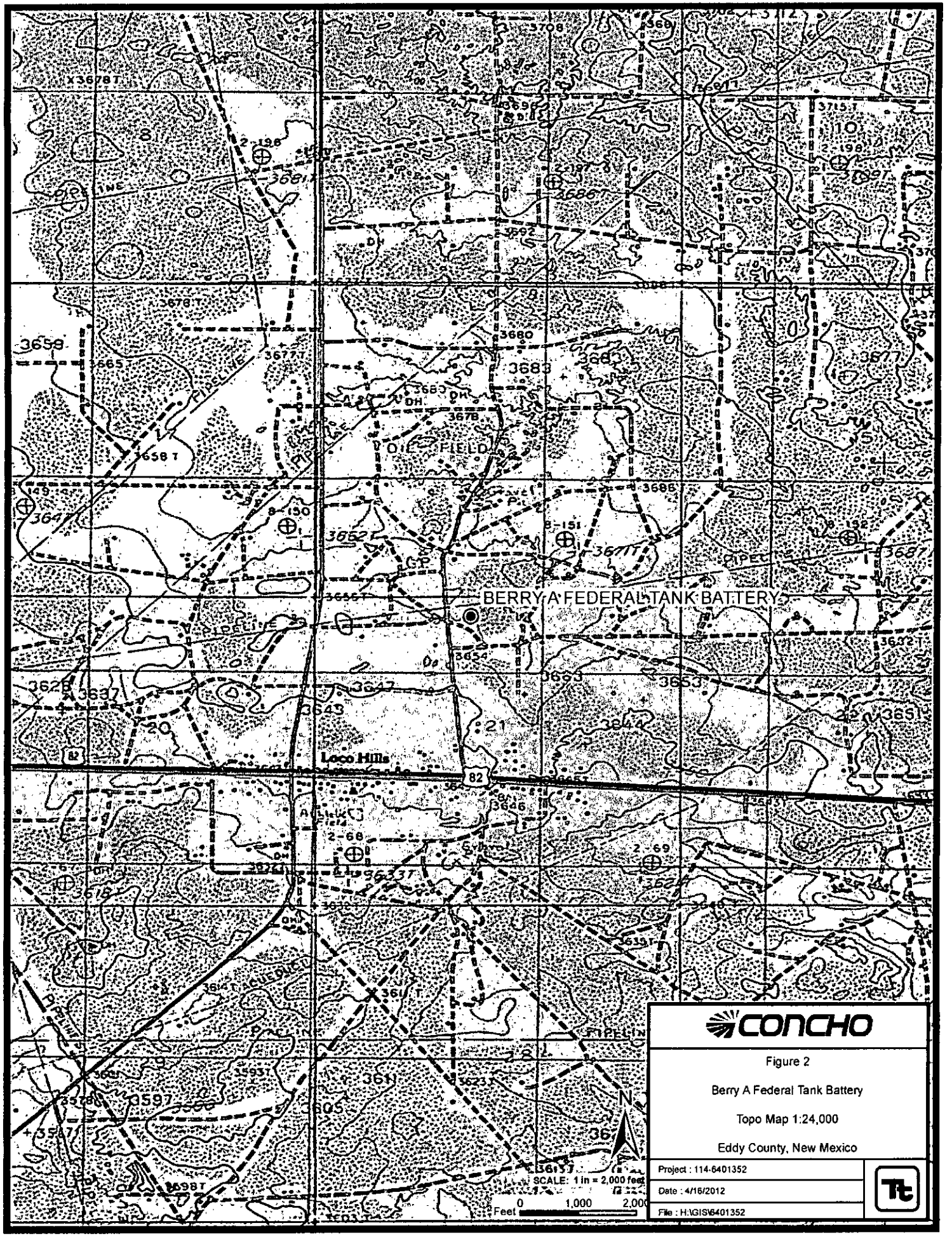
Eddy County, New Mexico

Project : 114-6401352

Date : 4/16/2012

File : H:\GIS\6401352

Drawn By: Isabel Matsotsjo



CONCHO

Figure 2

Berry A Federal Tank Battery

Topo Map 1:24,000

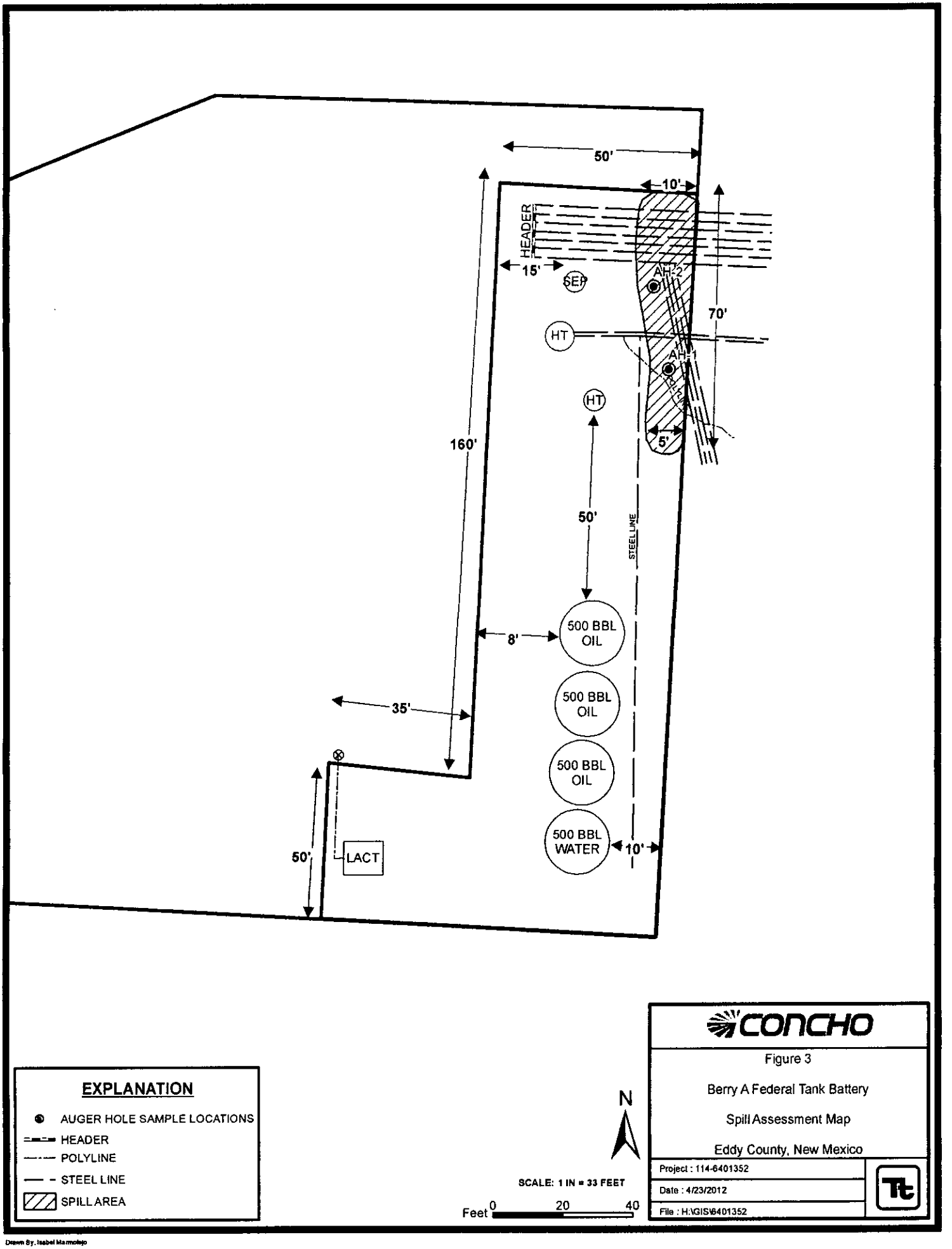
Eddy County, New Mexico

Project : 114-6401352

Date : 4/16/2012

File : H:\GIS\6401352

Drawn By : Isabel Marmolejo



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- HEADER
- POLYLINE
- STEEL LINE
- SPILL AREA

N

SCALE: 1 IN = 33 FEET

Feet 0 20 40

CONCHO

Figure 3

Berry A Federal Tank Battery

Spill Assessment Map

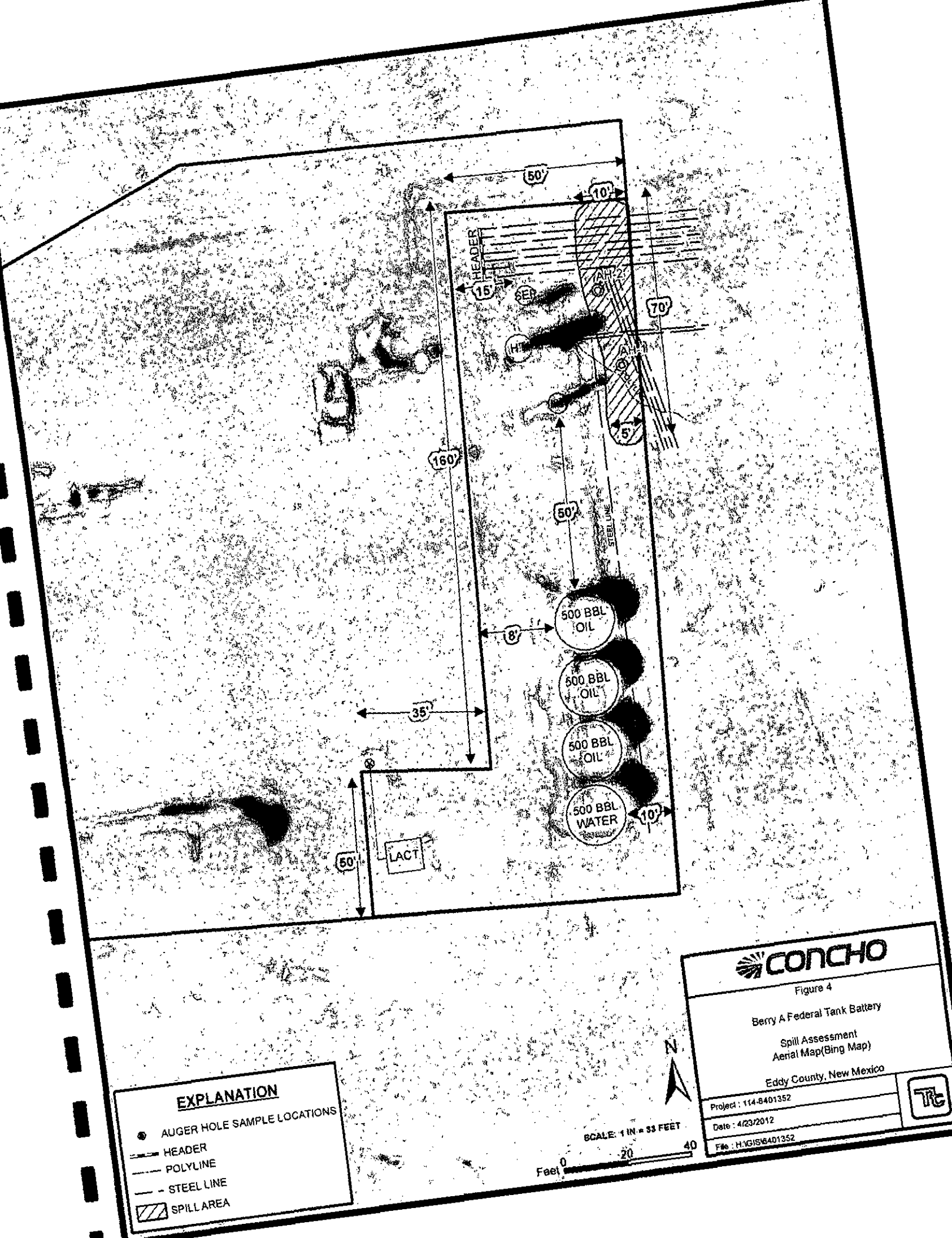
Eddy County, New Mexico

Project : 114-6401352

Date : 4/23/2012

File : H:\GIS\6401352

Drawn By: Isabel Marmolejo


50'
10'
HEADER
15'
SEP
AH-2
OIL
70'
HT
AH-1
OIL
5'
160'
50'
STEEL LINE
500 BBL OIL
8'
500 BBL OIL
35'
500 BBL OIL
500 BBL WATER
10'
50'
LACT
N
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
HEADER
POLYLINE
STEEL LINE
SPILL AREA
SCALE: 1 IN = 33 FEET
Feet 0 20 40
CONCHO
Figure 4
Berry A Federal Tank Battery
Spill Assessment
Aerial Map(Bing Map)
Eddy County, New Mexico
Project : 114-8401352
Date : 4/23/2012
File : H:\GIS\8401352

Tables

Table 1
COG Operating LLC.
Berry A Federal Tank Battery
Eddy County, New Mexico

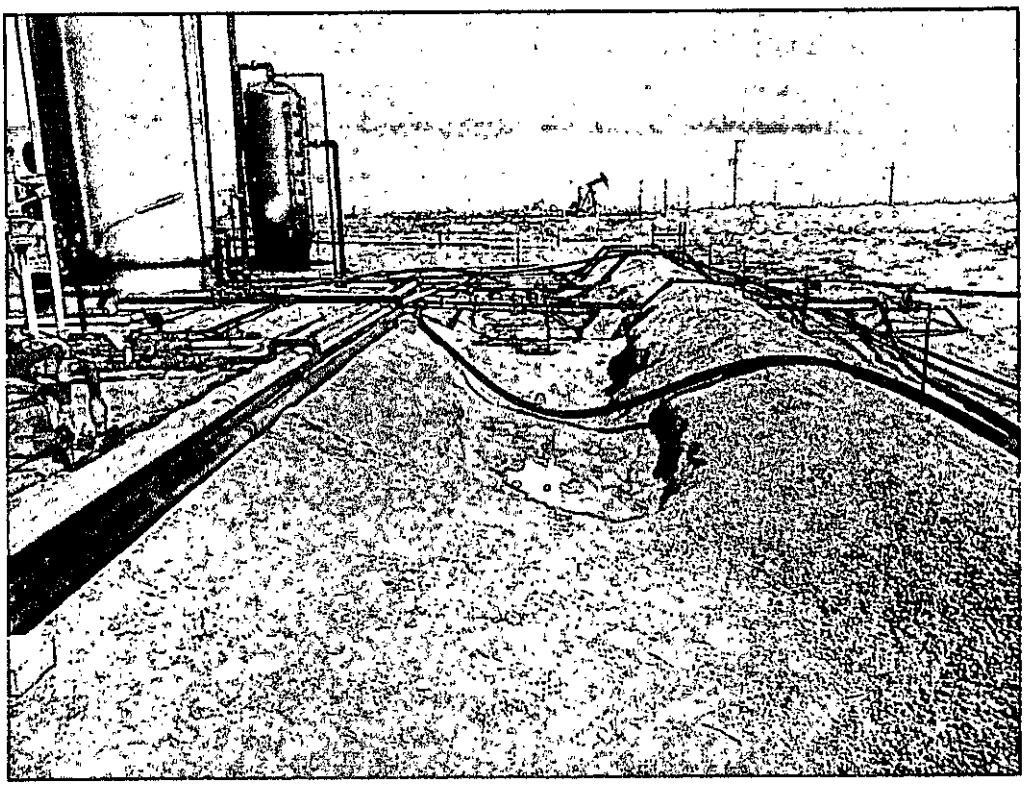
Sample ID	Sample Date	Sample Depth (ft)	BEB Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-1	3/28/2012	0-1	1	X		9,440	3,190	12,630	64.3	264	189	196	713	16,300
	"	1-1.5	1	X		13,300	10,200	23,500	164	416	275	286	1,141	3,900
	"	2-2.5	1	X		1,300	1,560	2,860	0.521	0.700	0.638	2.49	4.35	9,810
*	"	3-3.5	1	X		100	171	271	<0.100	0.331	0.167	0.604	1.10	8,860
AH-2	3/28/2012	0-1	1	X		1,060	2,580	3,640	1.08	6.62	6.90	8.51	23.1	10,600
	"	1-1.5	1	X		-	-	-	-	-	-	-	-	4,200
	"	2-2.5	1	X		-	-	-	-	-	-	-	-	2,100
*	"	2.5-3	1	X		-	-	-	-	-	-	-	-	6,400

(-) Not Analyzed

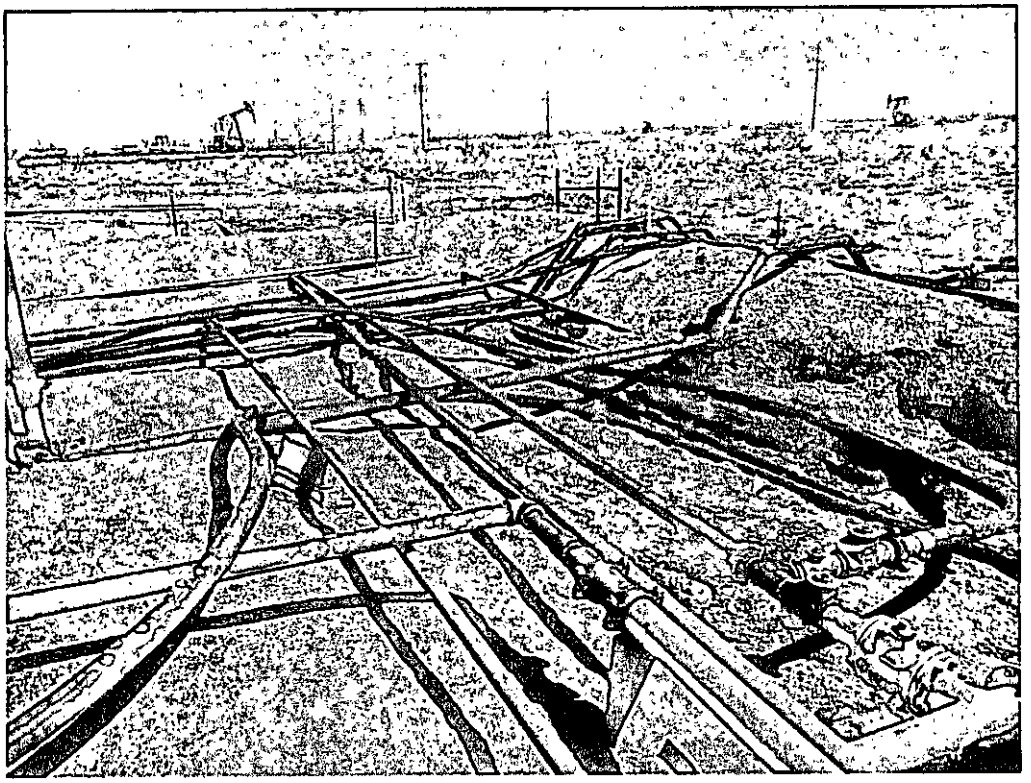
(BEB) Below Excavation Bottom

* Proposed backhoe trench to define extent

Photos



View north – AH-1 -Spill path along backside of tank battery, limited access



View north – Area near AH-2

Appendix A

1352

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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MAY 21 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 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Berry A Federal Tank Battery	Facility Type	Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. NMLC-054988-A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	21	17S	30E					Eddy

Latitude 32.82625 **Longitude** 103.97898

NATURE OF RELEASE

Type of Release Oil and Produced water	Volume of Release 6bbls PW 4bbls Oil	Volume Recovered 5bbls PW 3bbls Oil
Source of Release Flowline	Date and Hour of Occurrence 03/12/2012	Date and Hour of Discovery 03/12/2012 10:00 a.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A flowline inside our Berry A Tank Battery ruptured and released fluid. The old steel flowline has been replaced with a new poly flowline.

Describe Area Affected and Cleanup Action Taken.*

Initially 10bbls were released from the flowline and we were able to recover roughly 8bbls with a vacuum truck. The entire release was contained inside the facility walls of the tank battery. The spill area measures 13' x 50' inside the tank battery. The flowline that ruptured is from the Berry A #10 well (API#) 30-015-30289. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a work plan to the NMOCD/BLM for approval prior to any significant remediation work.

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

Signature:	OIL CONSERVATION DIVISION
Printed Name: Josh Russo	Approved by District Supervisor:
Title: HSE Coordinator	Approval Date: / Expiration Date:
E-mail Address: jrusso@conchoresources.com	Conditions of Approval: / Attached ☐
Date: 03/26/2012 Phone: 432-212-2399	

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Berry A Federal Tank Battery
Eddy County, New Mexico

16 South 29 East

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

16 South 30 East

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

16 South 31 East

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

17 South 29 East

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

17 South 30 East

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

17 South 31 East

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

18 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 **400**
18	17	16	15	14 **317**	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 **281**	36

- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Site Location

Appendix C

Summary Report

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

Report Date: April 11, 2012

Work Order: 12033033

Project Location: Eddy Co., NM
Project Name: COG/Berry A Federal TB
Project Number: 114-6401352

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
293064	AH-1 1' BEB 0-1'	soil	2012-03-28	00:00	2012-03-30
293065	AH-1 1' BEB 1-1.5'	soil	2012-03-28	00:00	2012-03-30
293066	AH-1 1' BEB 2-2.5'	soil	2012-03-28	00:00	2012-03-30
293067	AH-1 1' BEB 3-3.5'	soil	2012-03-28	00:00	2012-03-30
293068	AH-2 1' BEB 0-1'	soil	2012-03-28	00:00	2012-03-30
293069	AH-2 1' BEB 1-1.5'	soil	2012-03-28	00:00	2012-03-30
293070	AH-2 1' BEB 2-2.5'	soil	2012-03-28	00:00	2012-03-30
293071	AH-2 1' BEB 2.5-3'	soil	2012-03-28	00:00	2012-03-30

Sample - Field Code	BTEX Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
293064 - AH-1 1' BEB 0-1'	**64.3**	**264**	**189**	**196**	**3190**	**9440**
293065 - AH-1 1' BEB 1-1.5'	**164**	**416** J-	**275**	**286**	**10200** Qs	**13300**
293066 - AH-1 1' BEB 2-2.5'	**0.521**	**0.700**	**0.638**	**2.49**	**1560**	**1300**
293067 - AH-1 1' BEB 3-3.5'	<0.100	**0.331**	**0.167**	**0.604**	**171**	**100**
293068 - AH-2 1' BEB 0-1'	**1.08** Qr	**6.62** Qr	**6.90** Qr	**8.51** Qr	**2580**	**1060**

Sample: 293064 - AH-1 1' BEB 0-1'

Param	Flag	Result	Units	RL
Chloride		16300	mg/Kg	4

Sample: 293065 - AH-1 1' BEB 1-1.5'

continued ...

sample 293065 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		**3900**	mg/Kg	4

Sample: 293066 - AH-1 1' BEB 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**9810**	mg/Kg	4

Sample: 293067 - AH-1 1' BEB 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**8860**	mg/Kg	4

Sample: 293068 - AH-2 1' BEB 0-1'

Param	Flag	Result	Units	RL
Chloride		**10600**	mg/Kg	4

Sample: 293069 - AH-2 1' BEB 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**4200**	mg/Kg	4

Sample: 293070 - AH-2 1' BEB 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**2100**	mg/Kg	4

Sample: 293071 - AH-2 1' BEB 2.5-3'

Param	Flag	Result	Units	RL
Chloride		**6400**	mg/Kg	4

TRACEANALYSIS, INC.

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

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: April 11, 2012

Work Order: 12033033

Project Location: Eddy Co., NM
Project Name: COG/Berry A Federal TB
Project Number: 114-6401352

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
293064	AH-1 1' BEB 0-1'	soil	2012-03-28	00:00	2012-03-30
293065	AH-1 1' BEB 1-1.5'	soil	2012-03-28	00:00	2012-03-30
293066	AH-1 1' BEB 2-2.5'	soil	2012-03-28	00:00	2012-03-30
293067	AH-1 1' BEB 3-3.5'	soil	2012-03-28	00:00	2012-03-30
293068	AH-2 1' BEB 0-1'	soil	2012-03-28	00:00	2012-03-30
293069	AH-2 1' BEB 1-1.5'	soil	2012-03-28	00:00	2012-03-30
293070	AH-2 1' BEB 2-2.5'	soil	2012-03-28	00:00	2012-03-30
293071	AH-2 1' BEB 2.5-3'	soil	2012-03-28	00:00	2012-03-30

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

Michael Abel

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

Report Contents

Case Narrative

Samples for project COG/Berry A Federal TB were received by TraceAnalysis, Inc. on 2012-03-30 and assigned to work order 12033033. Samples for work order 12033033 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
BTEX	S 8021B	76308	2012-04-02 at 10:48	89915	2012-04-02 at 11:09
BTEX	S 8021B	76335	2012-04-03 at 10:12	89940	2012-04-03 at 10:29
BTEX	S 8021B	76371	2012-04-04 at 10:00	89995	2012-04-04 at 11:05
BTEX	S 8021B	76426	2012-04-06 at 10:00	90067	2012-04-06 at 11:58
Chloride (Titration)	SM 4500-Cl B	76336	2012-04-03 at 09:27	89956	2012-04-04 at 10:51
TPH DRO - NEW	S 8015 D	76291	2012-04-02 at 13:55	89888	2012-04-02 at 13:59
TPH DRO - NEW	S 8015 D	76359	2012-04-04 at 14:12	89977	2012-04-04 at 14:16
TPH DRO - NEW	S 8015 D	76385	2012-04-05 at 13:14	90014	2012-04-05 at 13:16
TPH GRO	S 8015 D	76308	2012-04-02 at 10:48	89908	2012-04-03 at 11:36
TPH GRO	S 8015 D	76371	2012-04-04 at 10:00	89994	2012-04-04 at 10:25
TPH GRO	S 8015 D	76426	2012-04-06 at 10:00	90068	2012-04-06 at 12:25

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 12033033 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: 293064 - AH-1 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	89940	Date Analyzed:	2012-04-03	Analyzed By:	tc
Prep Batch:	76335	Sample Preparation:	2012-04-03	Prepared By:	tc

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene		1	**64.3**	mg/Kg	100	0.0200
Toluene		1	**264**	mg/Kg	100	0.0200
Ethylbenzene		1	**189**	mg/Kg	100	0.0200
Xylene		1	**196**	mg/Kg	100	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			77.7	mg/Kg	100	100	78	75 - 135.4
4-Bromofluorobenzene (4-BFB)			109	mg/Kg	100	100	109	63.6 - 158.9

Sample: 293064 - AH-1 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89956	Date Analyzed:	2012-04-04	Analyzed By:	AR
Prep Batch:	76336	Sample Preparation:	2012-04-03	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**16300**	mg/Kg	100	4.00

Sample: 293064 - AH-1 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	89888	Date Analyzed:	2012-04-02	Analyzed By:	DA
Prep Batch:	76291	Sample Preparation:	2012-04-02	Prepared By:	DA

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		1	**3190**	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	297	mg/Kg	10	100	297	49.3 - 157.5

Sample: 293064 - AH-1 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	89908	Date Analyzed:	2012-04-03	Analyzed By:	tc
Prep Batch:	76308	Sample Preparation:	2012-04-02	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**9440**	mg/Kg	50	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			48.3	mg/Kg	50	50.0	97	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			68.8	mg/Kg	50	50.0	138	45.1 - 162.2

Sample: 293065 - AH-1 1' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	89995	Date Analyzed:	2012-04-04	Analyzed By:	tc
Prep Batch:	76371	Sample Preparation:	2012-04-04	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	**164**	mg/Kg	100	0.0200
Toluene	Je	1	**416**	mg/Kg	100	0.0200
Ethylbenzene		1	**275**	mg/Kg	100	0.0200
Xylene		1	**286**	mg/Kg	100	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			76.5	mg/Kg	100	100	76	75 - 135.4
4-Bromofluorobenzene (4-BFB)			114	mg/Kg	100	100	114	63.6 - 158.9

Sample: 293065 - AH-1 1' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89956	Date Analyzed:	2012-04-04	Analyzed By:	AR
Prep Batch:	76336	Sample Preparation:	2012-04-03	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3900**	mg/Kg	100	4.00

Sample: 293065 - AH-1 1' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	89977	Date Analyzed:	2012-04-04	Analyzed By:	DA
Prep Batch:	76359	Sample Preparation:	2012-04-04	Prepared By:	DA

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qs	1	**10200**	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	959	mg/Kg	10	100	959	49.3 - 157.5

Sample: 293065 - AH-1 1' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	89994	Date Analyzed:	2012-04-04	Analyzed By:	tc
Prep Batch:	76371	Sample Preparation:	2012-04-04	Prepared By:	tc

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO		1	**13300**	mg/Kg	100	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			79.3	mg/Kg	100	100	79	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			112	mg/Kg	100	100	112	45.1 - 162.2

Sample: 293066 - AH-1 1' BEB 2-2.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	90067	Date Analyzed:	2012-04-06	Analyzed By:	AG
Prep Batch:	76426	Sample Preparation:	2012-04-06	Prepared By:	AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	**0.521**	mg/Kg	10	0.0200
Toluene		1	**0.700**	mg/Kg	10	0.0200
Ethylbenzene		1	**0.638**	mg/Kg	10	0.0200
Xylene		1	**2.49**	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			10.7	mg/Kg	10	10.0	107	75 - 135.4
4-Bromofluorobenzene (4-BFB)			11.5	mg/Kg	10	10.0	115	63.6 - 158.9

Sample: 293066 - AH-1 1' BEB 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89956	Date Analyzed:	2012-04-04	Analyzed By:	AR
Prep Batch:	76336	Sample Preparation:	2012-04-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**9810**	mg/Kg	100	4.00

Sample: 293066 - AH-1 1' BEB 2-2.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	90014	Date Analyzed:	2012-04-05	Analyzed By:	DA
Prep Batch:	76385	Sample Preparation:	2012-04-05	Prepared By:	DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**1560**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qar Qar		298	mg/Kg	5	100	298	49.3 - 157.5

Sample: 293066 - AH-1 1' BEB 2-2.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	90068	Date Analyzed:	2012-04-06	Analyzed By:	AG
Prep Batch:	76426	Sample Preparation:	2012-04-06	Prepared By:	AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**1300**	mg/Kg	10	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			10.7	mg/Kg	10	10.0	107	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			14.7	mg/Kg	10	10.0	147	45.1 - 162.2

Sample: 293067 - AH-1 1' BEB 3-3.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	90067	Date Analyzed:	2012-04-06	Analyzed By:	AG
Prep Batch:	76426	Sample Preparation:	2012-04-06	Prepared By:	AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.100	mg/Kg	5	0.0200
Toluene		1	**0.331**	mg/Kg	5	0.0200
Ethylbenzene		1	**0.167**	mg/Kg	5	0.0200
Xylene		1	**0.604**	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			5.78	mg/Kg	5	5.00	116	75 - 135.4
4-Bromofluorobenzene (4-BFB)			5.71	mg/Kg	5	5.00	114	63.6 - 158.9

Sample: 293067 - AH-1 1' BEB 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89956	Date Analyzed:	2012-04-04	Analyzed By:	AR
Prep Batch:	76336	Sample Preparation:	2012-04-03	Prepared By:	AR

continued ...

sample 293067 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**8860**	mg/Kg	100	4.00

Sample: 293067 - AH-1 1' BEB 3-3.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	90014	Date Analyzed:	2012-04-05	Analyzed By:	DA
Prep Batch:	76385	Sample Preparation:	2012-04-05	Prepared By:	DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**171**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			137	mg/Kg	1	100	137	49.3 - 157.5

Sample: 293067 - AH-1 1' BEB 3-3.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	90068	Date Analyzed:	2012-04-06	Analyzed By:	AG
Prep Batch:	76426	Sample Preparation:	2012-04-06	Prepared By:	AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**100**	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			5.65	mg/Kg	5	5.00	113	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			6.24	mg/Kg	5	5.00	125	45.1 - 162.2

Sample: 293068 - AH-2 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	89915	Date Analyzed:	2012-04-02	Analyzed By:	tc
Prep Batch:	76308	Sample Preparation:	2012-04-02	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qr	1	**1.08**	mg/Kg	10	0.0200
Toluene	Qr	1	**6.62**	mg/Kg	10	0.0200
Ethylbenzene	Qr	1	**6.90**	mg/Kg	10	0.0200
Xylene	Qr	1	**8.51**	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			9.61	mg/Kg	10	10.0	96	75 - 135.4
4-Bromofluorobenzene (4-BFB)			11.3	mg/Kg	10	10.0	113	63.6 - 158.9

Sample: 293068 - AH-2 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89956	Date Analyzed:	2012-04-04	Analyzed By:	AR
Prep Batch:	76336	Sample Preparation:	2012-04-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**10600**	mg/Kg	100	4.00

Sample: 293068 - AH-2 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	89888	Date Analyzed:	2012-04-02	Analyzed By:	DA
Prep Batch:	76291	Sample Preparation:	2012-04-02	Prepared By:	DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**2580**	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	346	mg/Kg	10	100	346	49.3 - 157.5

Sample: 293068 - AH-2 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	89908	Date Analyzed:	2012-04-03	Analyzed By:	tc
Prep Batch:	76308	Sample Preparation:	2012-04-02	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**1060**	mg/Kg	10	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			9.55	mg/Kg	10	10.0	96	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			12.1	mg/Kg	10	10.0	121	45.1 - 162.2

Sample: 293069 - AH-2 1' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	*Chloride (Titration)*	*Analytical Method:*	SM 4500-Cl B	*Prep Method:*	N/A
QC Batch:	89956	Date Analyzed:	2012-04-04	Analyzed By:	AR
Prep Batch:	76336	Sample Preparation:	2012-04-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4200**	mg/Kg	100	4.00

Sample: 293070 - AH-2 1' BEB 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89956	Date Analyzed:	2012-04-04	Analyzed By:	AR
Prep Batch:	76336	Sample Preparation:	2012-04-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2100**	mg/Kg	100	4.00

Sample: 293071 - AH-2 1' BEB 2.5-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89956	Date Analyzed:	2012-04-04	Analyzed By:	AR
Prep Batch:	76336	Sample Preparation:	2012-04-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6400**	mg/Kg	100	4.00

Method Blanks

Method Blank (1) QC Batch: 89888

QC Batch: 89888 | Date Analyzed: 2012-04-02 | Analyzed By: DA
Prep Batch: 76291 | QC Preparation: 2012-04-02 | 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			126	mg/Kg	1	100	126	52 - 140.8

Method Blank (1) QC Batch: 89908

QC Batch: 89908 | Date Analyzed: 2012-04-03 | Analyzed By: tc
Prep Batch: 76308 | QC Preparation: 2012-04-02 | 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)			1.65	mg/Kg	1	2.00	82	78.6 - 111
4-Bromofluorobenzene (4-BFB)			1.53	mg/Kg	1	2.00	76	55 - 100

Method Blank (1) QC Batch: 89915

QC Batch: 89915 | Date Analyzed: 2012-04-02 | Analyzed By: tc
Prep Batch: 76308 | QC Preparation: 2012-04-02 | 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)			1.62	mg/Kg	1	2.00	81	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.64	mg/Kg	1	2.00	82	55.9 - 112.4

Method Blank (1) QC Batch: 89940

QC Batch:	89940	Date Analyzed:	2012-04-03	Analyzed By:	tc
Prep Batch:	76335	QC Preparation:	2012-04-03	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)			1.59	mg/Kg	1	2.00	80	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.53	mg/Kg	1	2.00	76	55.9 - 112.4

Method Blank (1) QC Batch: 89956

QC Batch:	89956	Date Analyzed:	2012-04-04	Analyzed By:	AR
Prep Batch:	76336	QC Preparation:	2012-04-03	Prepared By:	AR

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

Method Blank (1) QC Batch: 89977

QC Batch: 89977 | Date Analyzed: 2012-04-04 | Analyzed By: DA
Prep Batch: 76359 | QC Preparation: 2012-04-04 | 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			93.6	mg/Kg	1	100	94	52 - 140.8

Method Blank (1) QC Batch: 89994

QC Batch: 89994 | Date Analyzed: 2012-04-04 | Analyzed By: tc
Prep Batch: 76371 | QC Preparation: 2012-04-04 | Prepared By: tc

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	1.74	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.15	mg/Kg	1	2.00	108	78.6 - 111
4-Bromofluorobenzene (4-BFB)			1.95	mg/Kg	1	2.00	98	55 - 100

Method Blank (1) QC Batch: 89995

QC Batch: 89995 | Date Analyzed: 2012-04-04 | Analyzed By: tc
Prep Batch: 76371 | QC Preparation: 2012-04-04 | 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)			2.12	mg/Kg	1	2.00	106	78 - 123.6

continued ...

method blank continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			2.06	mg/Kg	1	2.00	103	55.9 - 112.4

Method Blank (1) QC Batch: 90014

QC Batch: 90014 | Date Analyzed: 2012-04-05 | Analyzed By: DA
Prep Batch: 76385 | QC Preparation: 2012-04-05 | 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			111	mg/Kg	1	100	111	52 - 140.8

Method Blank (1) QC Batch: 90067

QC Batch: 90067 | Date Analyzed: 2012-04-06 | Analyzed By: AG
Prep Batch: 76426 | QC Preparation: 2012-04-06 | 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)			2.01	mg/Kg	1	2.00	100	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.96	mg/Kg	1	2.00	98	55.9 - 112.4

Method Blank (1) QC Batch: 90068

QC Batch: 90068 | Date Analyzed: 2012-04-06 | Analyzed By: AG
Prep Batch: 76426 | QC Preparation: 2012-04-06 | Prepared By: tc

Parameter	Flag	Cert	MDL Result	Units	RL
GRO			1.52	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.00	mg/Kg	1	2.00	100	78.6 - 111
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	55 - 100

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 89888 | Date Analyzed: 2012-04-02 | Analyzed By: DA
Prep Batch: 76291 | QC Preparation: 2012-04-02 | Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	246	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	245	mg/Kg	1	250	<14.5	98	62 - 128.3	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	116	109	mg/Kg	1	100	116	109	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 89908 | Date Analyzed: 2012-04-03 | Analyzed By: tc
Prep Batch: 76308 | QC Preparation: 2012-04-02 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	18.9	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	19.2	mg/Kg	1	20.0	<1.22	96	68.3 - 105.7	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.91	2.00	mg/Kg	1	2.00	96	100	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.80	1.90	mg/Kg	1	2.00	90	95	66.4 - 106.6

Laboratory Control Spike (LCS-1)

QC Batch: 89915 | Date Analyzed: 2012-04-02 | Analyzed By: tc
Prep Batch: 76308 | QC Preparation: 2012-04-02 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.23	mg/Kg	1	2.00	<0.00470	112	86.5 - 124.9
Toluene		1	2.22	mg/Kg	1	2.00	<0.00980	111	84.7 - 122.5
Ethylbenzene		1	2.23	mg/Kg	1	2.00	<0.00500	112	79.4 - 118.9
Xylene		1	6.68	mg/Kg	1	6.00	<0.0170	111	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	2.19	mg/Kg	1	2.00	<0.00470	110	86.5 - 124.9	2	20
Toluene		1	2.20	mg/Kg	1	2.00	<0.00980	110	84.7 - 122.5	1	20
Ethylbenzene		1	2.21	mg/Kg	1	2.00	<0.00500	110	79.4 - 118.9	1	20
Xylene		1	6.70	mg/Kg	1	6.00	<0.0170	112	79.5 - 118.9	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.89	1.95	mg/Kg	1	2.00	94	98	73.9 - 127
4-Bromofluorobenzene (4-BFB)	1.90	1.93	mg/Kg	1	2.00	95	96	70.4 - 119.9

Laboratory Control Spike (LCS-1)

QC Batch: 89940 | Date Analyzed: 2012-04-03 | Analyzed By: tc
Prep Batch: 76335 | QC Preparation: 2012-04-03 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.20	mg/Kg	1	2.00	<0.00470	110	86.5 - 124.9
Toluene		1	2.18	mg/Kg	1	2.00	<0.00980	109	84.7 - 122.5
Ethylbenzene		1	2.17	mg/Kg	1	2.00	<0.00500	108	79.4 - 118.9
Xylene		1	6.49	mg/Kg	1	6.00	<0.0170	108	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	1	20
Toluene		1	2.17	mg/Kg	1	2.00	<0.00980	108	84.7 - 122.5	0	20

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Ethylbenzene		1	2.16	mg/Kg	1	2.00	<0.00500	108	79.4 - 118.9	0	20
Xylene		1	6.42	mg/Kg	1	6.00	<0.0170	107	79.5 - 118.9	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.51	1.83	mg/Kg	1	2.00	76	92	73.9 - 127
4-Bromofluorobenzene (4-BFB)	1.47	1.80	mg/Kg	1	2.00	74	90	70.4 - 119.9

Laboratory Control Spike (LCS-1)

QC Batch: 89956 | Date Analyzed: 2012-04-04 | Analyzed By: AR
Prep Batch: 76336 | QC Preparation: 2012-04-03 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.2	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			101	mg/Kg	1	100	<3.85	101	85 - 115	5	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: 89977 | Date Analyzed: 2012-04-04 | Analyzed By: DA
Prep Batch: 76359 | QC Preparation: 2012-04-04 | Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	232	mg/Kg	1	250	<14.5	93	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	206	mg/Kg	1	250	<14.5	82	62 - 128.3	12	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	98.0	mg/Kg	1	100	104	98	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 89994 | Date Analyzed: 2012-04-04 | Analyzed By: tc
Prep Batch: 76371 | QC Preparation: 2012-04-04 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.2	mg/Kg	1	20.0	<1.22	86	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	17.3	mg/Kg	1	20.0	<1.22	86	68.3 - 105.7	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.64	1.66	mg/Kg	1	2.00	82	83	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.54	1.56	mg/Kg	1	2.00	77	78	66.4 - 106.6

Laboratory Control Spike (LCS-1)

QC Batch: 89995 | Date Analyzed: 2012-04-04 | Analyzed By: tc
Prep Batch: 76371 | QC Preparation: 2012-04-04 | 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	1.98	mg/Kg	1	2.00	<0.00980	99	84.7 - 122.5
Ethylbenzene		1	1.98	mg/Kg	1	2.00	<0.00500	99	79.4 - 118.9
Xylene		1	5.94	mg/Kg	1	6.00	<0.0170	99	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	2.15	mg/Kg	1	2.00	<0.00470	108	86.5 - 124.9	8	20
Toluene		1	2.16	mg/Kg	1	2.00	<0.00980	108	84.7 - 122.5	9	20

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Ethylbenzene		1	2.14	mg/Kg	1	2.00	<0.00500	107	79.4 - 118.9	8	20
Xylene		1	6.42	mg/Kg	1	6.00	<0.0170	107	79.5 - 118.9	8	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)	1.75	1.88	mg/Kg	1	2.00	88	94	73.9 - 127
4-Bromofluorobenzene (4-BFB)	1.75	1.88	mg/Kg	1	2.00	88	94	70.4 - 119.9

Laboratory Control Spike (LCS-1)

QC Batch: 90014 | Date Analyzed: 2012-04-05 | Analyzed By: DA
Prep Batch: 76385 | QC Preparation: 2012-04-05 | Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	234	mg/Kg	1	250	<14.5	94	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	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	119	120	mg/Kg	1	100	119	120	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 90067 | Date Analyzed: 2012-04-06 | Analyzed By: AG
Prep Batch: 76426 | QC Preparation: 2012-04-06 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.07	mg/Kg	1	2.00	<0.00470	104	86.5 - 124.9
Toluene		1	2.07	mg/Kg	1	2.00	<0.00980	104	84.7 - 122.5
Ethylbenzene		1	2.07	mg/Kg	1	2.00	<0.00500	104	79.4 - 118.9

continued ...

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Xylene		1	6.20	mg/Kg	1	6.00	<0.0170	103	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	2.21	mg/Kg	1	2.00	<0.00470	110	86.5 - 124.9	6	20
Toluene		1	2.19	mg/Kg	1	2.00	<0.00980	110	84.7 - 122.5	6	20
Ethylbenzene		1	2.20	mg/Kg	1	2.00	<0.00500	110	79.4 - 118.9	6	20
Xylene		1	6.58	mg/Kg	1	6.00	<0.0170	110	79.5 - 118.9	6	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.98	2.00	mg/Kg	1	2.00	99	100	73.9 - 127
4-Bromofluorobenzene (4-BFB)	2.02	2.05	mg/Kg	1	2.00	101	102	70.4 - 119.9

Laboratory Control Spike (LCS-1)

QC Batch: 90068 | Date Analyzed: 2012-04-06 | Analyzed By: AG
Prep Batch: 76426 | QC Preparation: 2012-04-06 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.4	mg/Kg	1	20.0	<1.22	87	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	17.5	mg/Kg	1	20.0	<1.22	88	68.3 - 105.7	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.05	1.90	mg/Kg	1	2.00	102	95	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.92	1.80	mg/Kg	1	2.00	96	90	66.4 - 106.6

Matrix Spike (MS-1) Spiked Sample: 293135

QC Batch: 89888 | Date Analyzed: 2012-04-02 | Analyzed By: DA
Prep Batch: 76291 | QC Preparation: 2012-04-02 | Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	1040	mg/Kg	5	250	865	70	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	1040	mg/Kg	5	250	865	70	45.5 - 127	0	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	Qsr	Qsr	290	297	mg/Kg	5	100	290	297	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 293145

QC Batch: 89908 | Date Analyzed: 2012-04-03 | Analyzed By: tc
Prep Batch: 76308 | QC Preparation: 2012-04-02 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	89.9	mg/Kg	5	50.0	34.1827	111	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	97.4	mg/Kg	5	50.0	34.1827	126	28.2 - 157.2	8	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5.33	5.45	mg/Kg	5	5	107	109	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	5.00	5.12	mg/Kg	5	5	100	102	77.9 - 122.4

Matrix Spike (MS-1) Spiked Sample: 293125

QC Batch: 89915 | Date Analyzed: 2012-04-02 | Analyzed By: tc
Prep Batch: 76308 | QC Preparation: 2012-04-02 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.90	mg/Kg	1	2.00	<0.00470	95	69.3 - 159.2
Toluene		1	1.93	mg/Kg	1	2.00	<0.00980	96	68.7 - 157
Ethylbenzene		1	2.01	mg/Kg	1	2.00	<0.00500	100	71.6 - 158.2
Xylene		1	6.02	mg/Kg	1	6.00	<0.0170	100	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	Qr	Qr	1	2.42	mg/Kg	1	2.00	<0.00470	121	69.3 - 159.2	24	20
Toluene	Qr	Qr	1	2.48	mg/Kg	1	2.00	<0.00980	124	68.7 - 157	25	20
Ethylbenzene	Qr	Qr	1	2.59	mg/Kg	1	2.00	<0.00500	130	71.6 - 158.2	25	20
Xylene	Qr	Qr	1	7.83	mg/Kg	1	6.00	<0.0170	130	70.8 - 159.8	26	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.84	2.20	mg/Kg	1	2	92	110	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	1.76	2.17	mg/Kg	1	2	88	108	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 293180

QC Batch: 89940 | Date Analyzed: 2012-04-03 | Analyzed By: tc
Prep Batch: 76335 | QC Preparation: 2012-04-03 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.00	mg/Kg	1	2.00	<0.00470	100	69.3 - 159.2
Toluene		1	2.04	mg/Kg	1	2.00	<0.00980	102	68.7 - 157
Ethylbenzene		1	2.10	mg/Kg	1	2.00	<0.00500	105	71.6 - 158.2
Xylene		1	6.35	mg/Kg	1	6.00	<0.0170	106	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	2.08	mg/Kg	1	2.00	<0.00470	104	69.3 - 159.2	4	20
Toluene		1	2.12	mg/Kg	1	2.00	<0.00980	106	68.7 - 157	4	20

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Ethylbenzene		1	2.18	mg/Kg	1	2.00	<0.00500	109	71.6 - 158.2	4	20
Xylene		1	6.60	mg/Kg	1	6.00	<0.0170	110	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)	1.78	2.05	mg/Kg	1	2	89	102	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	1.74	2.01	mg/Kg	1	2	87	100	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 293073

QC Batch: 89956 | Date Analyzed: 2012-04-04 | Analyzed By: AR
Prep Batch: 76336 | QC Preparation: 2012-04-03 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10300	mg/Kg	100	10000	655	96	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	655	101	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: 293093

QC Batch: 89977 | Date Analyzed: 2012-04-04 | Analyzed By: DA
Prep Batch: 76359 | QC Preparation: 2012-04-04 | Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO Qs	Qs	1	627	mg/Kg	1	250	194	173	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 Qs	Qs	1	709	mg/Kg	1	250	194	206	45.5 - 127	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
n-Tricosane	Qsr	Qsr	220	241	mg/Kg	1	100	220	241	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 293116

QC Batch: 89994 | Date Analyzed: 2012-04-04 | Analyzed By: tc
Prep Batch: 76371 | QC Preparation: 2012-04-04 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	1470	mg/Kg	50	500	870.943	120	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	1360	mg/Kg	50	500	870.943	98	28.2 - 157.2	8	20

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

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	Qsr	Qsr	35.6	44.2	mg/Kg	50	50	71	88	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)			39.2	45.1	mg/Kg	50	50	78	90	77.9 - 122.4

Matrix Spike (MS-1) Spiked Sample: 291980

QC Batch: 89995 | Date Analyzed: 2012-04-04 | Analyzed By: tc
Prep Batch: 76371 | QC Preparation: 2012-04-04 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	111	mg/Kg	100	100	5.7782	105	69.3 - 159.2
Toluene		1	137	mg/Kg	100	100	33.704	103	68.7 - 157
Ethylbenzene		1	134	mg/Kg	100	100	31.288	103	71.6 - 158.2
Xylene		1	363	mg/Kg	100	300	51.0769	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	108	mg/Kg	100	100	5.7782	102	69.3 - 159.2	3	20
Toluene		1	135	mg/Kg	100	100	33.704	101	68.7 - 157	2	20

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Ethylbenzene		1	133	mg/Kg	100	100	31.288	102	71.6 - 158.2	1	20
Xylene		1	358	mg/Kg	100	300	51.0769	102	70.8 - 159.8	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	94.2	92.4	mg/Kg	100	100	94	92	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	99.6	97.1	mg/Kg	100	100	100	97	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 291984

QC Batch: 90014 | Date Analyzed: 2012-04-05 | Analyzed By: DA
Prep Batch: 76385 | QC Preparation: 2012-04-05 | Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	603	mg/Kg	1	250	371	93	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	639	mg/Kg	1	250	371	107	45.5 - 127	6	20

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

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	Qsr	Qsr	148	172	mg/Kg	1	100	148	172	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 293085

QC Batch: 90067 | Date Analyzed: 2012-04-06 | Analyzed By: AG
Prep Batch: 76426 | QC Preparation: 2012-04-06 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	5.78	mg/Kg	5	5.00	<0.0235	116	69.3 - 159.2
Toluene		1	5.77	mg/Kg	5	5.00	<0.0490	115	68.7 - 157
Ethylbenzene		1	5.92	mg/Kg	5	5.00	<0.0250	118	71.6 - 158.2

continued ...

matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Xylene		1	17.7	mg/Kg	5	15.0	<0.0850	118	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	5.38	mg/Kg	5	5.00	<0.0235	108	69.3 - 159.2	7	20
Toluene		1	5.43	mg/Kg	5	5.00	<0.0490	109	68.7 - 157	6	20
Ethylbenzene		1	5.56	mg/Kg	5	5.00	<0.0250	111	71.6 - 158.2	6	20
Xylene		1	16.6	mg/Kg	5	15.0	<0.0850	111	70.8 - 159.8	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5.42	5.33	mg/Kg	5	5	108	107	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	5.38	5.31	mg/Kg	5	5	108	106	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 293117

QC Batch: 90068 | Date Analyzed: 2012-04-06 | Analyzed By: AG
Prep Batch: 76426 | QC Preparation: 2012-04-06 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	46.0	mg/Kg	5	50.0	6.82	78	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	48.0	mg/Kg	5	50.0	6.82	96	28.2 - 157.2	4	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	4.94	4.92	mg/Kg	5	5	99	98	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	4.75	4.77	mg/Kg	5	5	95	95	77.9 - 122.4

Calibration Standards

Standard (CCV-2)

QC Batch: 89888 | Date Analyzed: 2012-04-02 | 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	2012-04-02

Standard (CCV-3)

QC Batch: 89888 | Date Analyzed: 2012-04-02 | 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	2012-04-02

Standard (CCV-1)

QC Batch: 89908 | Date Analyzed: 2012-04-03 | 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	1.17	117	80 - 120	2012-04-03

Standard (CCV-2)

QC Batch: 89908 | Date Analyzed: 2012-04-03 | 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	1.15	115	80 - 120	2012-04-03

Standard (CCV-3)

QC Batch: 89908 | Date Analyzed: 2012-04-03 | 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	1.20	120	80 - 120	2012-04-03

Standard (CCV-1)

QC Batch: 89915 | Date Analyzed: 2012-04-02 | 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	0.105	105	80 - 120	2012-04-02
Toluene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-02
Ethylbenzene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-02
Xylene		1	mg/kg	0.300	0.318	106	80 - 120	2012-04-02

Standard (CCV-2)

QC Batch: 89915 | Date Analyzed: 2012-04-02 | 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	2012-04-02
Toluene		1	mg/kg	0.100	0.108	108	80 - 120	2012-04-02
Ethylbenzene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-02
Xylene		1	mg/kg	0.300	0.315	105	80 - 120	2012-04-02

Standard (CCV-1)

QC Batch: 89940 | Date Analyzed: 2012-04-03 | 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	0.105	105	80 - 120	2012-04-03

continued ...

standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Toluene		1	mg/kg	0.100	0.105	105	80 - 120	2012-04-03
Ethylbenzene		1	mg/kg	0.100	0.103	103	80 - 120	2012-04-03
Xylene		1	mg/kg	0.300	0.312	104	80 - 120	2012-04-03

Standard (CCV-2)

QC Batch: 89940 Date Analyzed: 2012-04-03 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	0.104	104	80 - 120	2012-04-03
Toluene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-03
Ethylbenzene		1	mg/kg	0.100	0.102	102	80 - 120	2012-04-03
Xylene		1	mg/kg	0.300	0.303	101	80 - 120	2012-04-03

Standard (ICV-1)

QC Batch: 89956 Date Analyzed: 2012-04-04 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	103	103	85 - 115	2012-04-04

Standard (CCV-1)

QC Batch: 89956 Date Analyzed: 2012-04-04 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	97.5	98	85 - 115	2012-04-04

Standard (CCV-2)

QC Batch: 89977 | Date Analyzed: 2012-04-04 | 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	2012-04-04

Standard (CCV-3)

QC Batch: 89977 | Date Analyzed: 2012-04-04 | 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	220	88	80 - 120	2012-04-04

Standard (CCV-1)

QC Batch: 89994 | Date Analyzed: 2012-04-04 | 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	1.03	103	80 - 120	2012-04-04

Standard (CCV-2)

QC Batch: 89994 | Date Analyzed: 2012-04-04 | 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	1.17	117	80 - 120	2012-04-04

Standard (CCV-1)

QC Batch: 89995 | Date Analyzed: 2012-04-04 | 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	0.0868	87	80 - 120	2012-04-04
Toluene		1	mg/kg	0.100	0.0879	88	80 - 120	2012-04-04
Ethylbenzene		1	mg/kg	0.100	0.0878	88	80 - 120	2012-04-04
Xylene		1	mg/kg	0.300	0.264	88	80 - 120	2012-04-04

Standard (CCV-2)

QC Batch: 89995 Date Analyzed: 2012-04-04 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	0.100	100	80 - 120	2012-04-04
Toluene		1	mg/kg	0.100	0.0996	100	80 - 120	2012-04-04
Ethylbenzene		1	mg/kg	0.100	0.0983	98	80 - 120	2012-04-04
Xylene		1	mg/kg	0.300	0.296	99	80 - 120	2012-04-04

Standard (CCV-2)

QC Batch: 90014 Date Analyzed: 2012-04-05 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	248	99	80 - 120	2012-04-05

Standard (CCV-3)

QC Batch: 90014 Date Analyzed: 2012-04-05 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	228	91	80 - 120	2012-04-05

Standard (CCV-4)

QC Batch: 90014 | Date Analyzed: 2012-04-05 | 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	228	91	80 - 120	2012-04-05

Standard (CCV-1)

QC Batch: 90067 | Date Analyzed: 2012-04-06 | Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-06
Toluene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-06
Ethylbenzene		1	mg/kg	0.100	0.107	107	80 - 120	2012-04-06
Xylene		1	mg/kg	0.300	0.321	107	80 - 120	2012-04-06

Standard (CCV-2)

QC Batch: 90067 | Date Analyzed: 2012-04-06 | Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.115	115	80 - 120	2012-04-06
Toluene		1	mg/kg	0.100	0.113	113	80 - 120	2012-04-06
Ethylbenzene		1	mg/kg	0.100	0.113	113	80 - 120	2012-04-06
Xylene		1	mg/kg	0.300	0.336	112	80 - 120	2012-04-06

Standard (CCV-1)

QC Batch: 90068 | Date Analyzed: 2012-04-06 | Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.14	114	80 - 120	2012-04-06

Standard (CCV-2)

QC Batch: 90068 | Date Analyzed: 2012-04-06 | Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.06	106	80 - 120	2012-04-06

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.

#12033033

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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.: 114-6401352
PROJECT NAME: Berry A Federal Tank Battery
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
293064	3/28		S		X	AH-1	1' BEB	0-1'	1				X		X	X											X				
065							1' BEB	1-1.5'																			X				
066							1' BEB	2-2.5'																			X				
067							1' BEB	3-3.5'																			X				
068						AH-2	1' BEB	0-1'							X	X											X				
069							1' BEB	1-1.5'																			X				
070							1' BEB	2-2.5'																			X				
071							1' BEB	2.5-3'																			X				

RELINQUISHED BY: (Signature) Date: 3/30/12 Time: 3:40PM
RECEIVED BY: (Signature) Date: 3/30/12 Time: 15:45
SAMPLED BY: (Print & Initial) IT Date: 3-28-12 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: Xenco
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 14° Intact
REMARKS: Run deeper depth if TPH exceed 5,000 mg/kg

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

If Any one Sample of Benzene exceeds 10 mg/kg or total BTEX exceed 50 mg/kg