SITE INFORMATION

Report Type: Closure Report

General Site Information:						
Site:	Jenkins B Federal Water Flood (Northwest Central)					
Company:	COG Operating LLC					
Section, Township and Range	Unit C	Sec 20	T17S	R30E		
Lease Number:	(API#) 30-015-21945					
County:	Eddy County					
GPS:	32.83021° N			103.99532° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From the intersection of Hwy 82 and CR 217, turn right and travel North for approximatly 0.6 miles. Then turn left and travel West for 0.5 miles. The location will be on the right to the north.					

Release Data:	1st Spill	2nd Spill
Date Released:	3/23/2012	6/26/2012
Type Release:	Produced Water and Oil	Oil
Source of Contamination:	Skim Tank	Gun Barrel
Fluid Released:	3 bbls Oil 17 bbls Produced Water	75 bbls Oil
Fluids Recovered:	3 bbls Oil 15 bbls Produced Water	70 bbls Oil

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

Ranking Criteria

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

November 19, 2013

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

Re: Closure Report for the COG Operating LLC., Jenkins B Federal Water Flood, Unit N, Section 17, 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 Jenkins B Federal Water Flood, located in Unit N, Section 17, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.83021°, W 103.99532°. The site location is shown on Figures 1 and 2.

Background

1st Spill

According to the State of New Mexico C-141 Initial Report, the leak was discovered on 23 March, 2012 and released approximately three (3) barrels of oil and seventeen (17) barrels of produced water from a Skim Tank. Three (3) barrels of oil and fifteen (15) barrels of produced water were recovered. Due to the rush of fluid from a new well and a plugged strainer the skim tank overflowed. The strainer has been cleaned out. The initial C-141 form is enclosed in Appendix A.

2nd Spill

According to the State of New Mexico C-141 Initial Report, the leak was discovered on 27 June, 2012 and released approximately seventy five (75) barrels of oil from the gun barrel. Seventy (70) barrels of oil were recovered. The motor valves failed to open and the gun barrel overflowed. Electricians were called out to ensure the problem was resolved.

Tetra Tech
1910 North Big Spring, Midland TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

Groundwater

No water wells were listed within Section 17. According to the NMOCD groundwater map, the average depth to groundwater in this area is 250' below surface. The groundwater data is shown in Figure B.

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 April 20, 2012, Tetra Tech personnel inspected and sampled the spill area. Three (3) auger holes (AH-1 through AH-3) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, AH-2 was above the RRAL for Total BTEX and Total TPH but declined below regulatory levels at 1.5' below surface. Auger holes (AH-1 and AH-3) did not exceed the RRAL for total BTEX or TPH. In addition, all auger holes (AH-1, AH-2, and AH-3) also showed elevated chloride concentrations and AH-1 and AH-3 were not vertically defined. Deeper samples were not collected due to a dense formation.

On June 6, 2012, Tetra Tech supervised the installation of two (2) boreholes (BH-1 and BH-2) using an air rotary drilling rig to assess the soils. The soil bores were installed in the areas of AH-1 and AH-3 to define the vertical extents. Copies of the laboratory analysis chain-of-custody documentation are included in Appendix C. The soil boring results are summarized in Table 1 and shown on Figure 3. Referring to Table 1, both of the boreholes were not vertically defined due to the flowing sands at the depths of 50' to 80'.

On June 12, 2013, Tetra Tech supervised the installation of one (1) soil bore using a hollow stem auger drilling rig to further delineate the impacted soils. Referring to Table 1, SB-1 exceeded the RRAL for Total TPH and Total BTEX but was vertically delineated at a depth of 2.0' below surface. Elevated chloride concentrations were detected at depths down to 90' below surface. However, the chloride concentrations declined with depth and showed 2,000 mg/kg at 90', 1,060 mg/kg at 100' and 92.5 mg/kg at 105', respectively.

Remediation

Between November 6 and November 8, 2013, Tetra Tech personnel were onsite to remove the impacted material as highlighted (green) in Table 1 and shown on Figure 4. Due to the facility equipment onsite, the areas of AH-1, AH-2, AH-3, BH-1, BH-2, and SB-1 were excavated to an approximate depth of 4.0' below surface. Approximately 76 yards of material was removed. A 40 mil plastic liner was installed in the areas in order to cap the remaining impact and prevent further migration of chlorides. Approximately 200 cubic yards of the impacted material was transported offsite for proper disposal. The excavated areas were backfilled with clean soil to surface grade.

TETRA TECH

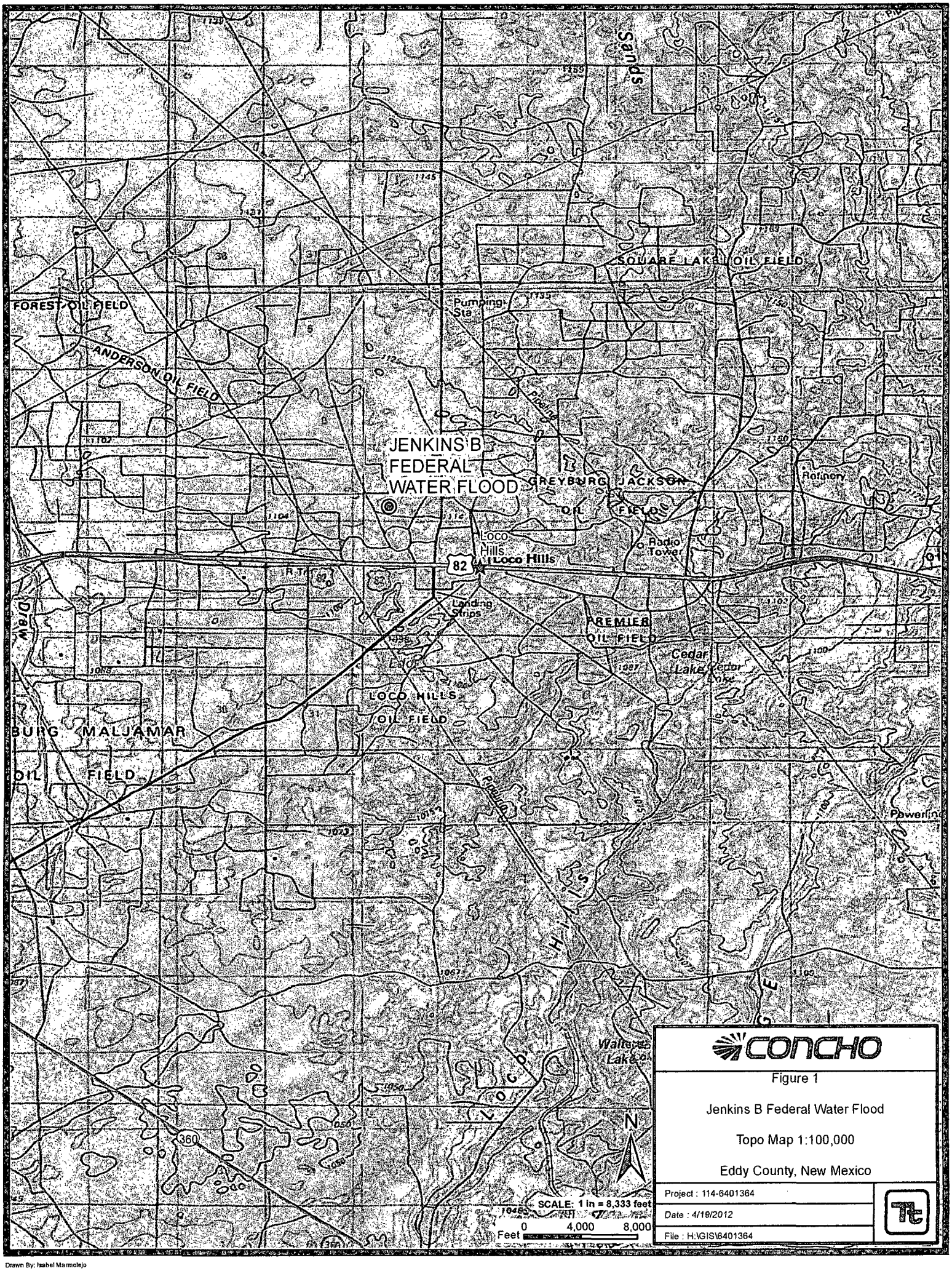
Based on the remediation activities performed at this location, COG requests closure for this site. The C-141(Final) is included in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Clair Gonzales,
Geologist

cc: Robert McNeil – COG
Mike Burton- BLM

Figures



CONCHO

Figure 1

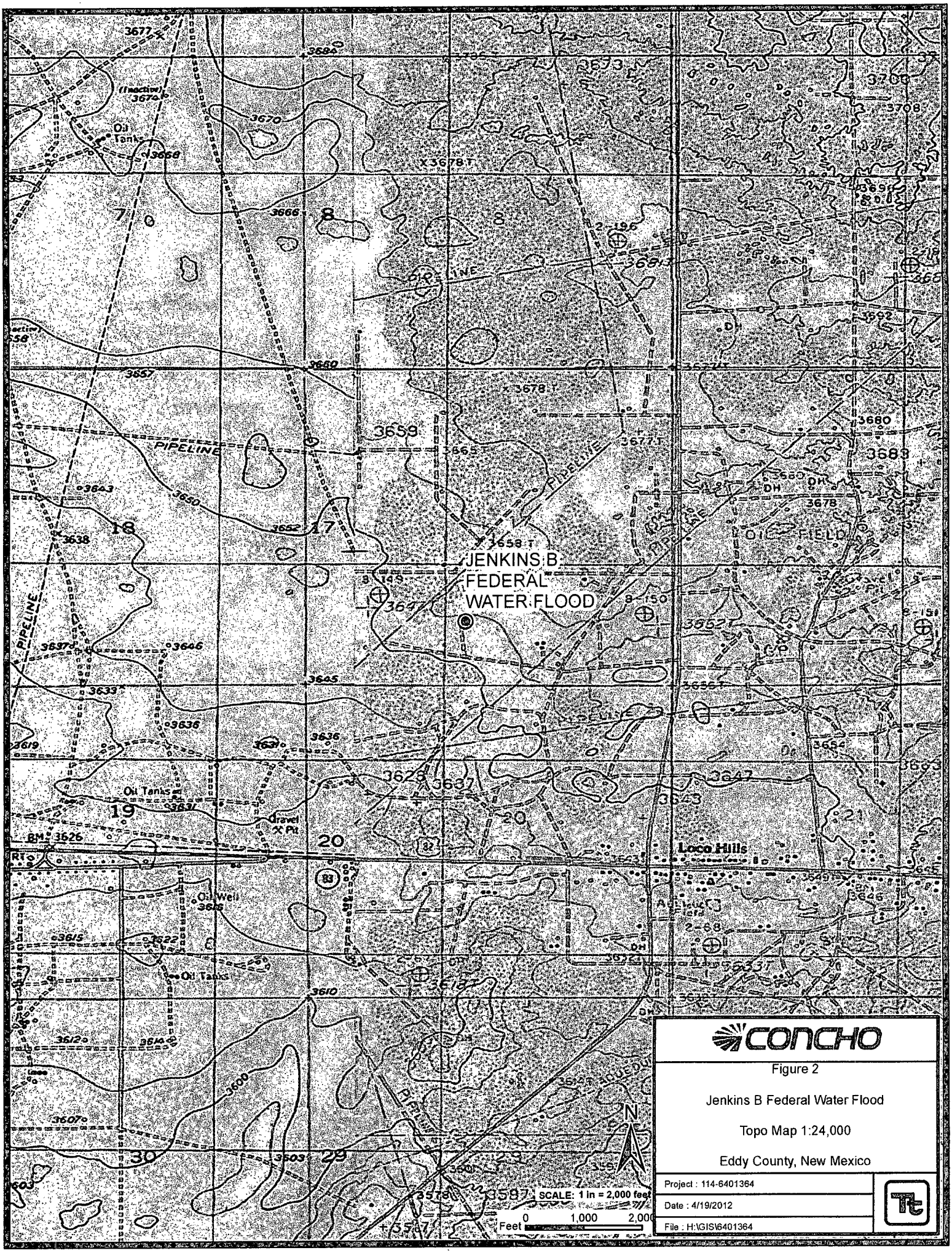
Jenkins B Federal Water Flood

Topo Map 1:100,000

Eddy County, New Mexico

Project : 114-6401364	
Date : 4/19/2012	
File : H:\GIS\6401364	

Drawn By: Isabel Marmolejo



CONCHO

Figure 2

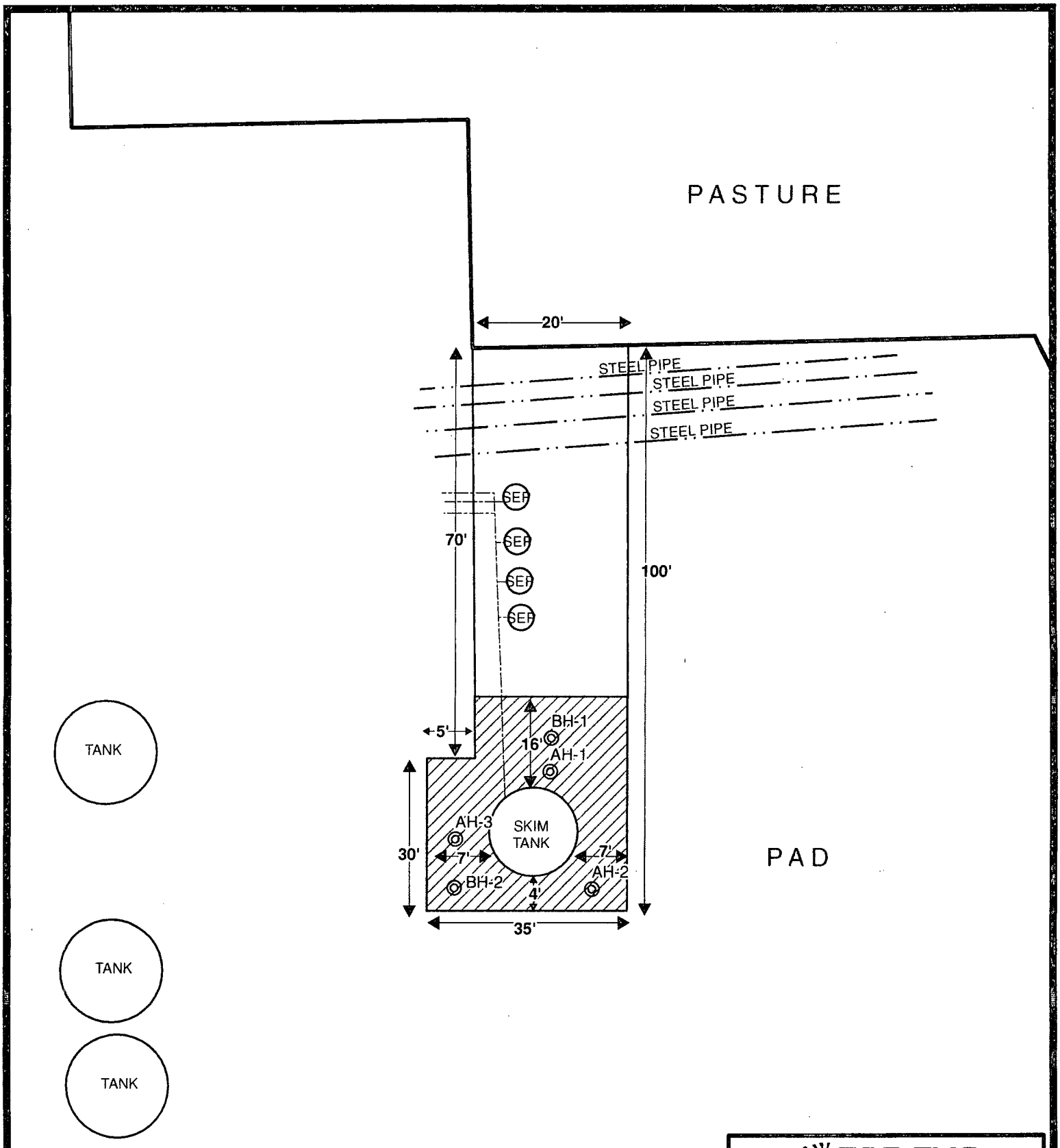
Jenkins B Federal Water Flood

Topo Map 1:24,000

Eddy County, New Mexico

Project : 114-6401364	
Date : 4/19/2012	
File : H:\GIS\6401364	

Drawn By: Isabel Marmolejo



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- BORE HOLE SAMPLE LOCATIONS
- SPILL AREA

N

SCALE: 1 in = 24 feet

Feet 0 10 20

CONCHO

Figure 3

Jenkins B Federal Water Flood

Spill Assessment Map

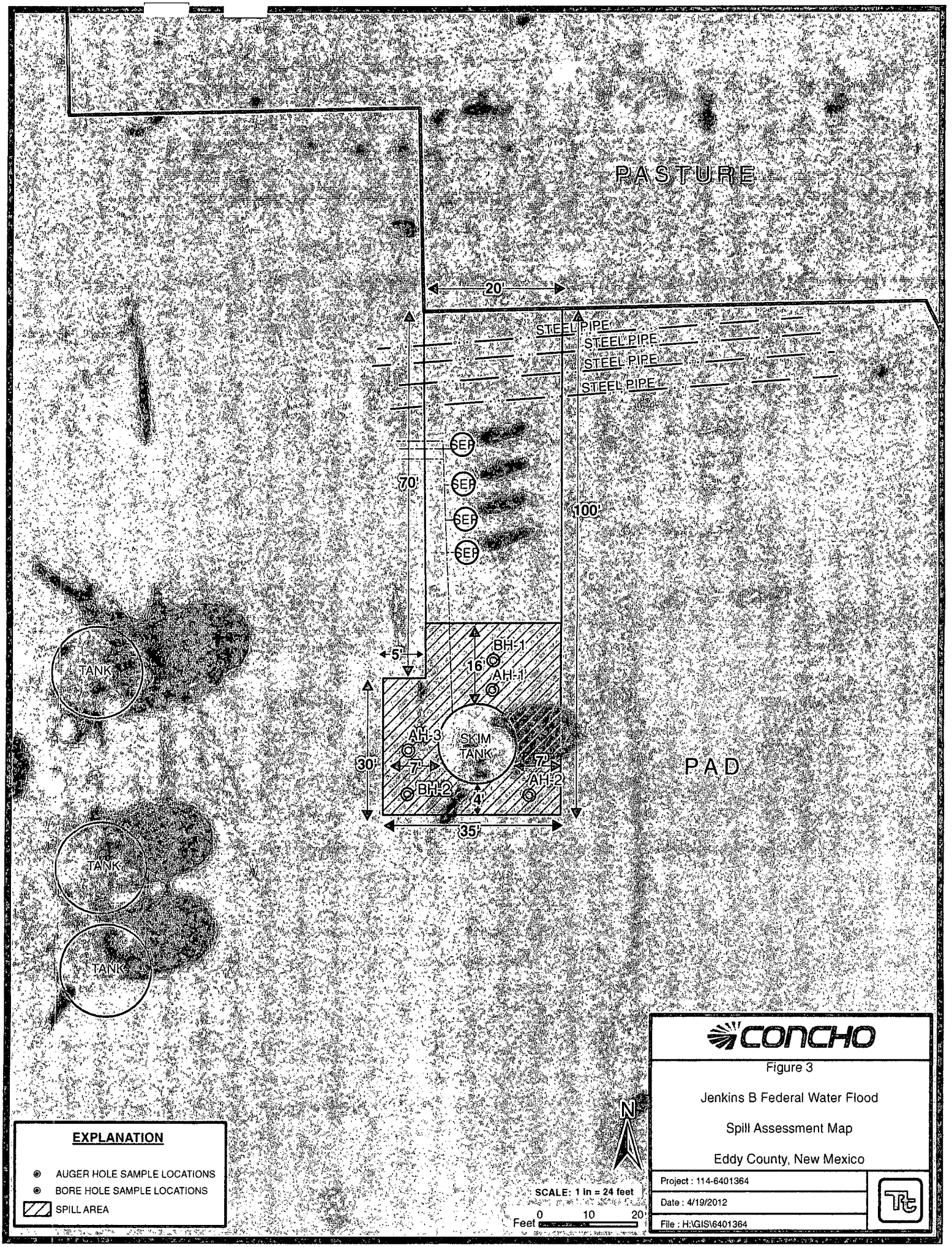
Eddy County, New Mexico

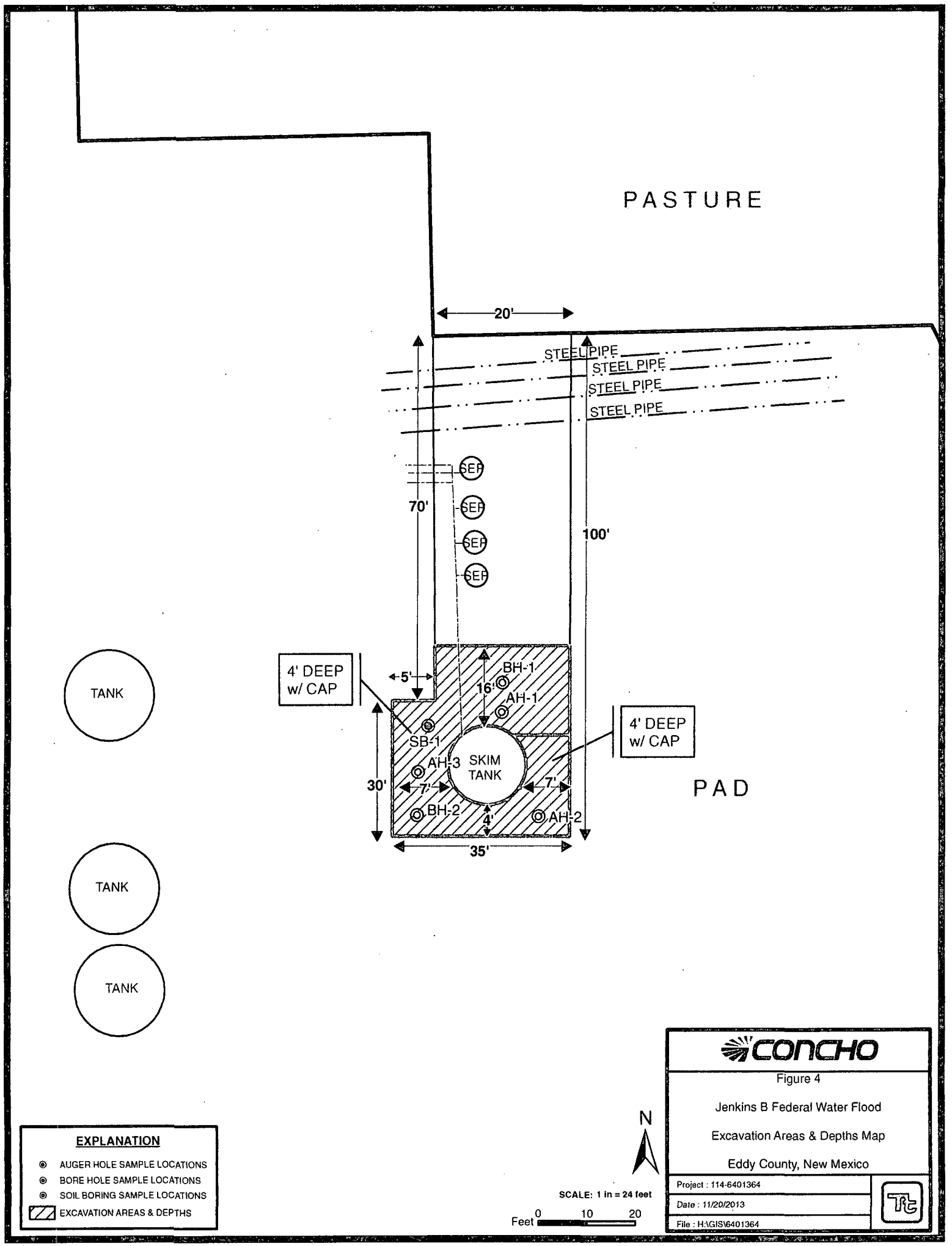
Project : 114-6401364

Date : 4/19/2012

File : H:\GIS\6401364

Drawn By: Isabel Marmolejo


PASTURE
20'
STEEL PIPE
STEEL PIPE
STEEL PIPE
STEEL PIPE
SEP
SEP
SEP
SEP
70'
100'
5'
BH-1
16'
AH-1
AH-3
SKIM TANK
7'
7'
30'
BH-2
4'
AH-2
35'
PAD
TANK
TANK
TANK
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
BORE HOLE SAMPLE LOCATIONS
SPILL AREA
N
SCALE: 1 in = 24 feet
0 10 20
Feet
CONCHO
Figure 3
Jenkins B Federal Water Flood
Spill Assessment Map
Eddy County, New Mexico
Project : 114-6401364
Date : 4/19/2012
File : H:\GIS\6401364
Drawn By: Isabel Marmolejo


PASTURE
20'
STEEL PIPE
STEEL PIPE
STEEL PIPE
STEEL PIPE
SEP
SEP
SEP
SEP
70'
100'
4' DEEP
w/ CAP
5'
BH-1
16'
AH-1
SB-1
AH-3
SKIM
TANK
7'
7'
30'
BH-2
4'
AH-2
35'
4' DEEP
w/ CAP
PAD
TANK
TANK
TANK
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
BORE HOLE SAMPLE LOCATIONS
SOIL BORING SAMPLE LOCATIONS
EXCAVATION AREAS & DEPTHS
N
SCALE: 1 in = 24 feet
Feet 0 10 20
CONCHO
Figure 4
Jenkins B Federal Water Flood
Excavation Areas & Depths Map
Eddy County, New Mexico
Project : 114-6401364
Date : 11/20/2013
File : H:\GIS\6401364
Drawn By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC.
Jenkins B Federal Water Flood
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	4/20/2012	0-1	0.5		X	166	378	544	<0.0200	0.0941	0.782	1.62	2.50	6,670
	"	1-1.5	0.5		X	-	-	-	-	-	-	-	-	1,080
	"	2-2.5	0.5		X	-	-	-	-	-	-	-	-	159
	"	3-3.5	0.5		X	-	-	-	-	-	-	-	-	606
	"	4-4.5	0.5		X	-	-	-	-	-	-	-	-	987
	"	5-5.5	0.5	X		-	-	-	-	-	-	-	-	1,790
	"	6-6.5	0.5	X		-	-	-	-	-	-	-	-	2,910
	"	7-7.5	0.5	X		-	-	-	-	-	-	-	-	2,980
	"	8-8.5	0.5	X		-	-	-	-	-	-	-	-	4,590
	"	9-9.5	0.5	X		-	-	-	-	-	-	-	-	6,480
BH-1	6/6/2012	0-1	0.5		X	-	-	-	-	-	-	-	-	1,740
	"	2-3	0.5		X	-	-	-	-	-	-	-	-	3,190
Air	"	4-5	0.5		X	-	-	-	-	-	-	-	-	780
Rotary	"	6-7	0.5	X		-	-	-	-	-	-	-	-	1,440
	"	9-10	0.5	X		-	-	-	-	-	-	-	-	2,570
	"	14-15	0.5	X		-	-	-	-	-	-	-	-	5,890
	"	19-20	0.5	X		-	-	-	-	-	-	-	-	8,650
	"	24-25	0.5	X		-	-	-	-	-	-	-	-	7,640
	"	29-30	0.5	X		-	-	-	-	-	-	-	-	7,190
	"	39-40	0.5	X		-	-	-	-	-	-	-	-	14,700
	"	49-50	0.5	X		-	-	-	-	-	-	-	-	9,100
	"	59-60	0.5	X		-	-	-	-	-	-	-	-	12,000
	"	69-70	0.5	X		-	-	-	-	-	-	-	-	3,800
	"	79-80	0.5	X		-	-	-	-	-	-	-	-	5,550

Table 1
COG Operating LLC.
Jenkins B Federal Water Flood
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						
SB-1	6/12/2013	0-1	0		X	4,900	8,530	**13,430**	<1.00	59.8	94.8	165	**320**	2,240
	"	2-3	0		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	11,700
Hollow	"	4-5	0		X	-	-	-	-	-	-	-	-	5,130
Stem	"	6-7	0	X		-	-	-	-	-	-	-	-	1,220
Auger	"	9-10	0	X		-	-	-	-	-	-	-	-	7,920
	"	19-20	0	X		-	-	-	-	-	-	-	-	9,460
	"	39-40	0	X		-	-	-	-	-	-	-	-	12,000
	"	59-60	0	X		-	-	-	-	-	-	-	-	2,440
	"	79-80	0	X		-	-	-	-	-	-	-	-	6,150
	"	89-90	0	X		-	-	-	-	-	-	-	-	2,000
	"	99-100	0	X		-	-	-	-	-	-	-	-	1,060
	"	104-105	0	X		-	-	-	-	-	-	-	-	92.5
AH-2	4/20/2012	0-1	0.5		X	4,150	5,970	**10,120**	4.74	61.1	73.4	95.2	**234**	6,540
	"	1-1.5	0.5		X	4.90	<50.0	4.90	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	5,560
	"	2-2.5	0.5	X		-	-	-	-	-	-	-	-	166
AH-3	4/20/2012	0-1	0.5	X	X	33.6	50.3	83.9	<0.0200	0.106	0.105	0.362	0.573	6,130
	"	1-1.5	0.5	X	X	-	-	-	-	-	-	-	-	4,090
	"	2-2.5	0.5	X	X	-	-	-	-	-	-	-	-	900
	"	3-3.5	0.5	X	X	-	-	-	-	-	-	-	-	885
	"	4-4.5	0.5	X	X	-	-	-	-	-	-	-	-	1,810

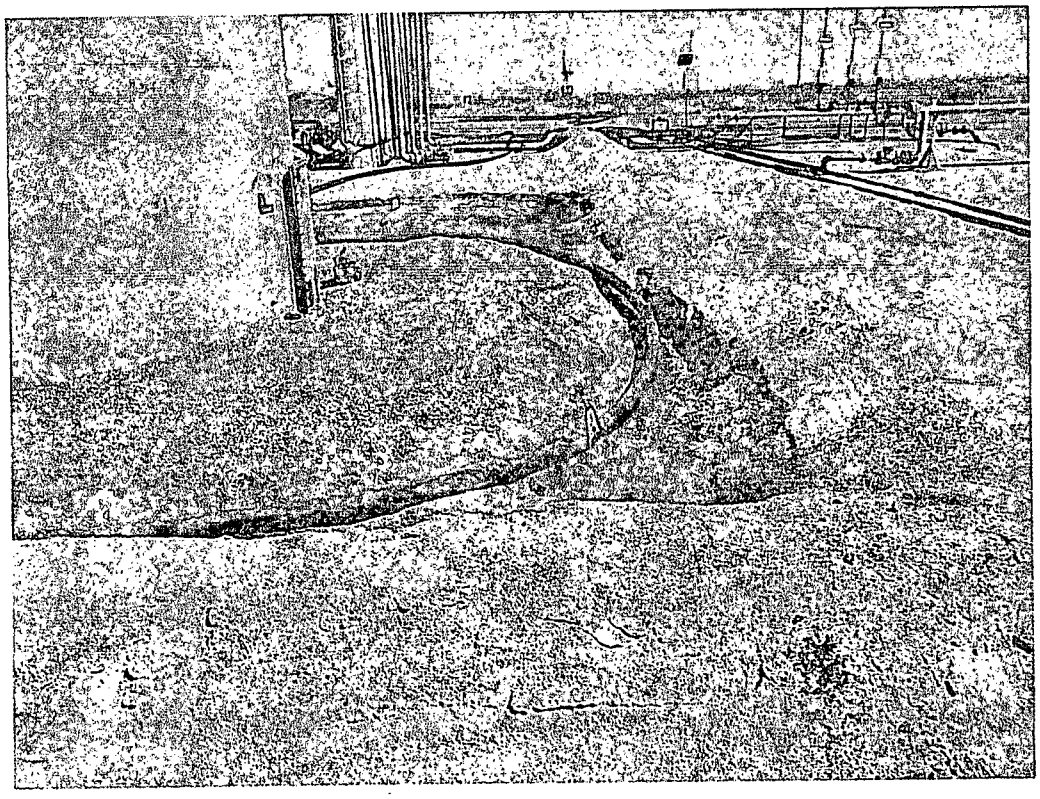
Table 1
COG Operating LLC.
Jenkins B Federal Water Flood
Eddy County, New Mexico

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						
BH-2	6/6/2012	0-1	0.5		X	-	-	-	-	-	-	-	-	1,730
	"	2-3	0.5		X	-	-	-	-	-	-	-	-	1,180
Air	"	4-5	0.5		X	-	-	-	-	-	-	-	-	2,830
Rotary	"	6-7	0.5	X		-	-	-	-	-	-	-	-	3,290
	"	9-10	0.5	X		-	-	-	-	-	-	-	-	6,230
	"	14-15	0.5	X		-	-	-	-	-	-	-	-	6,350
	"	19-20	0.5	X		-	-	-	-	-	-	-	-	6,890
	"	24-25	0.5	X		-	-	-	-	-	-	-	-	4,830
	"	29-30	0.5	X		-	-	-	-	-	-	-	-	6,870
	"	39-40	0.5	X		-	-	-	-	-	-	-	-	7,860
	"	49-50	0.5	X		-	-	-	-	-	-	-	-	5,840
	"	59-60	0.5	X		-	-	-	-	-	-	-	-	8,290
	"	69-70	0.5	X		-	-	-	-	-	-	-	-	4,680
	"	79-80	0.5	X		-	-	-	-	-	-	-	-	4,420

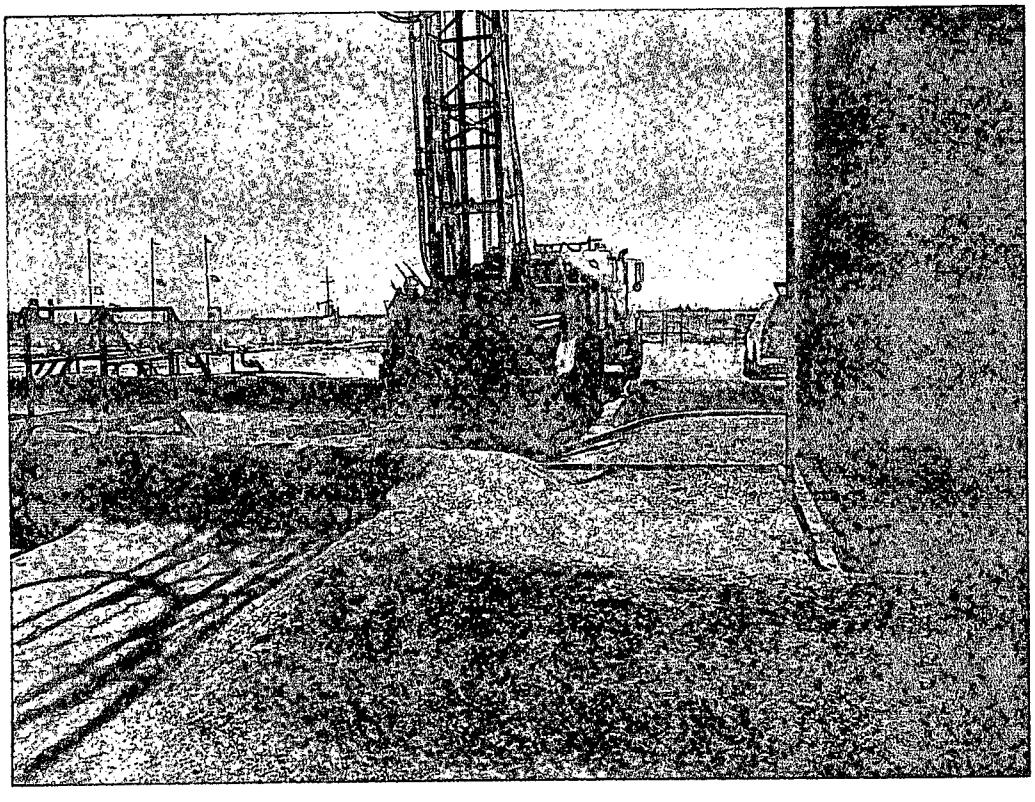
BEB Below Excavation Bottom
(--) Not Analyzed
Excavated Depths
Liner

COG Operating LLC
Jenkins B Fed Water Flood
Eddy County, New Mexico

TETRA TECH



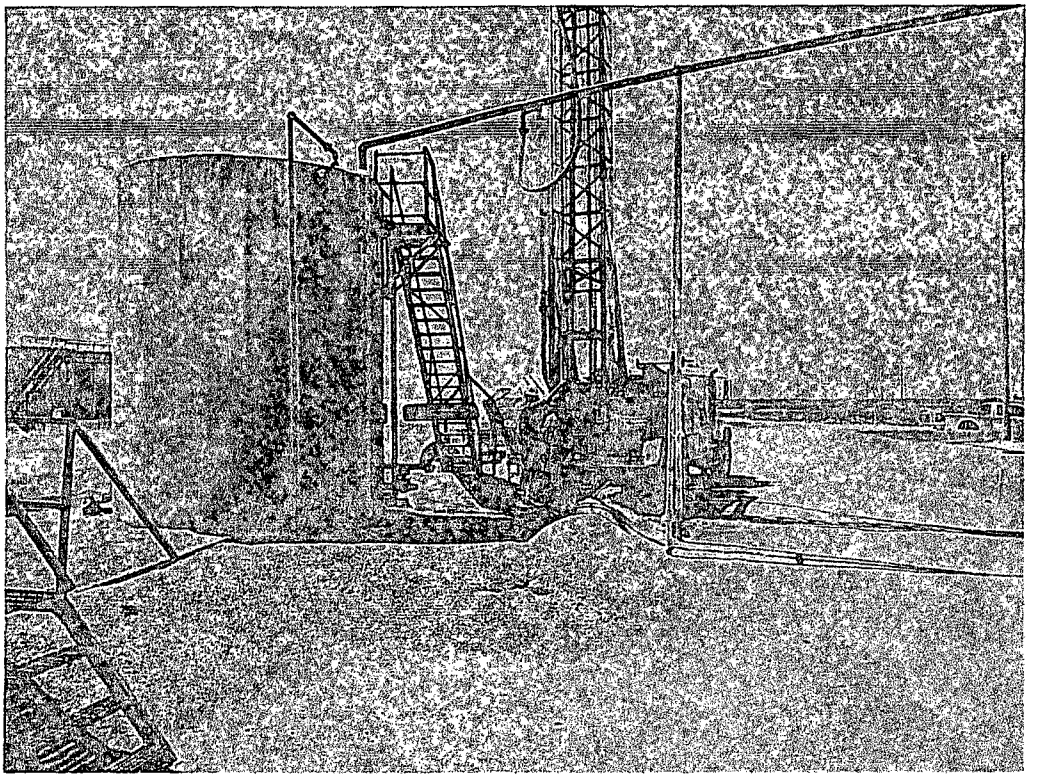
View North – Areas of AH-2 and AH-3



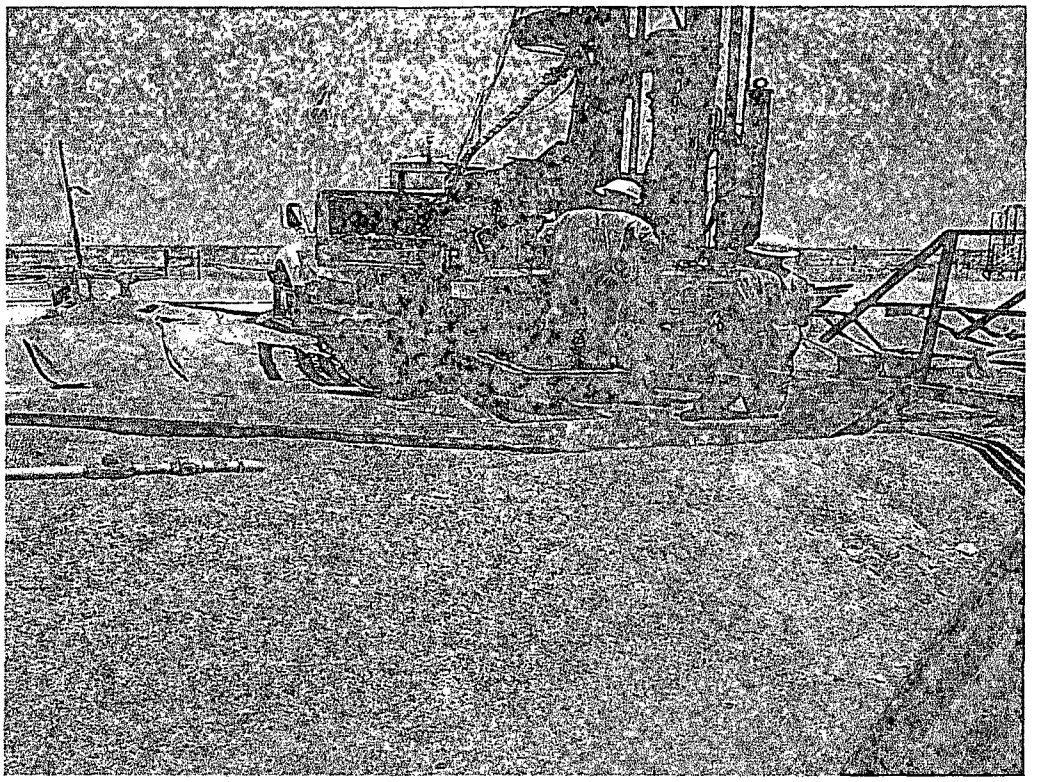
View East – Area of BH-1

COG Operating LLC
Jenkins B Fed Water Flood
Eddy County, New Mexico

TETRA TECH



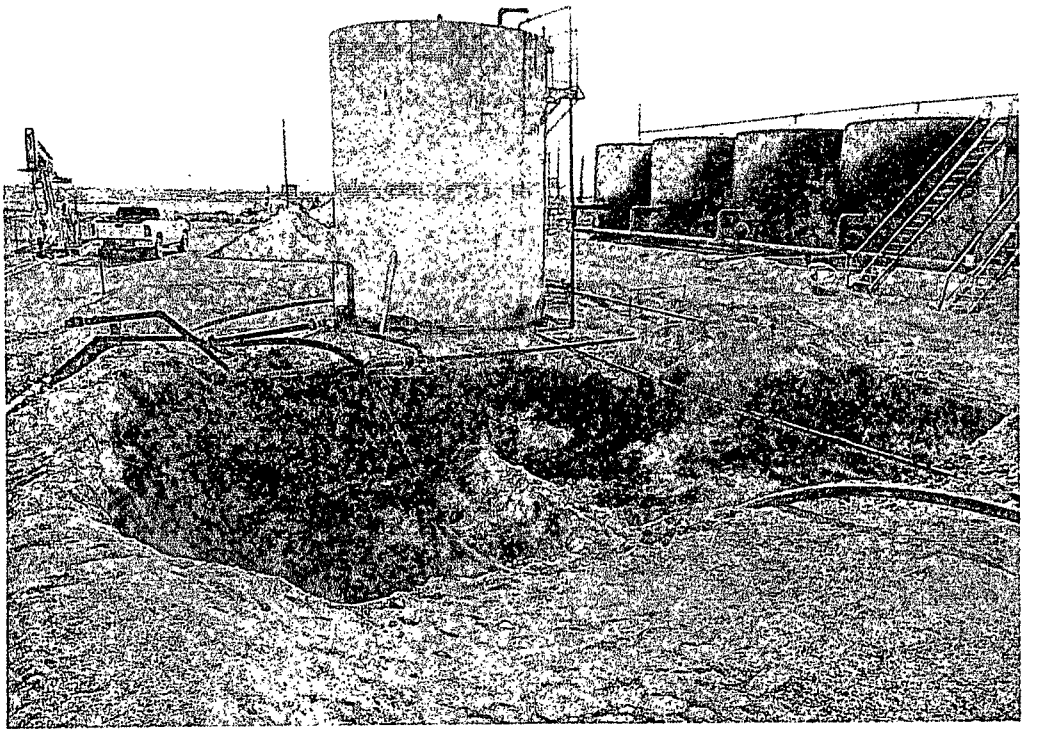
View South – Area of BH-1



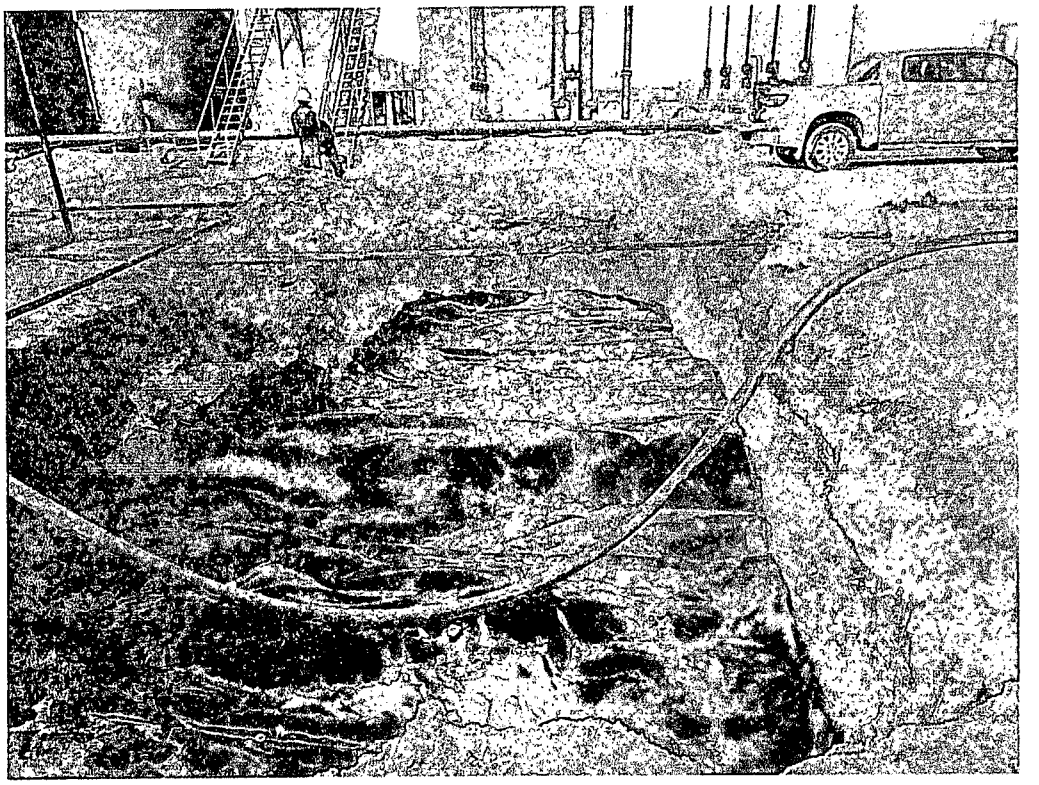
View East – Areas of SB-1

COG Operating LLC
Jenkins B Fed Water Flood
Eddy County, New Mexico

TETRA TECH



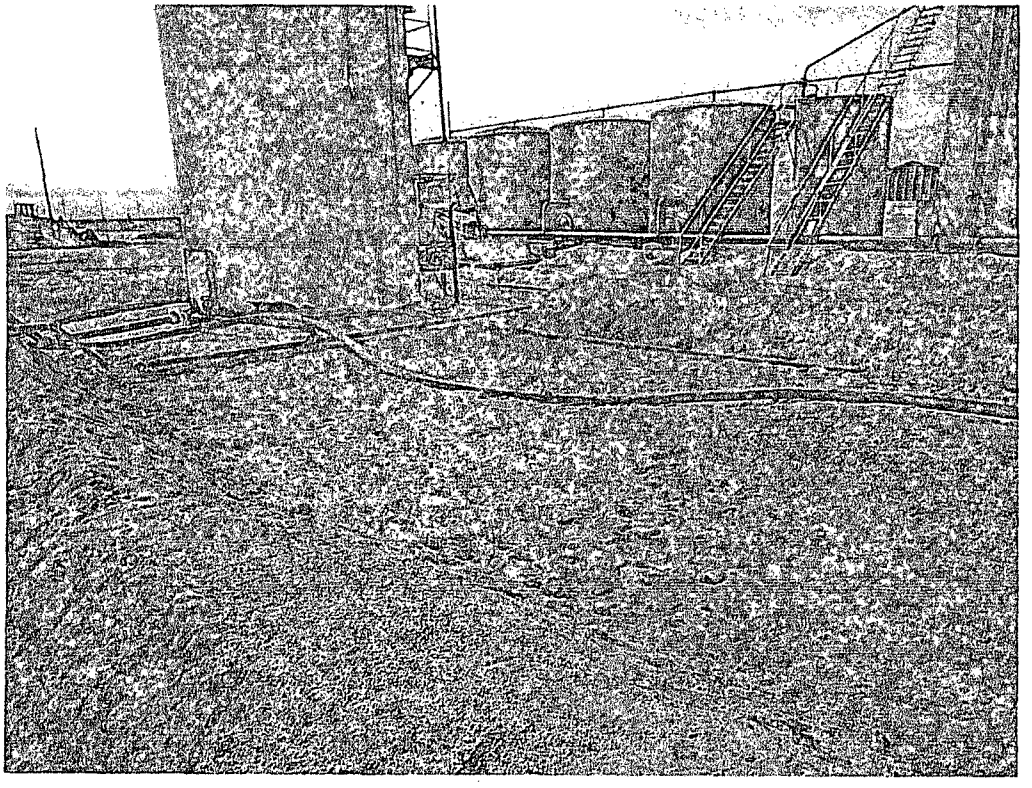
View East – Excavated area



View South – Lined excavated area.

COG Operating LLC
Jenkins B Fed Water Flood
Eddy County, New Mexico

TETRA TECH



View Southeast – Backfilled excavated area

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

RECEIVED
MAR 05 2014
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 Jenkins B Federal Water Flood (Northwest Central)	Facility Type **Tank Battery**

Surface Owner: Federal	Mineral Owner	Lease No. (API #) 30-015-21945 Closest well location

LOCATION OF RELEASE

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

Latitude 32 49.813 **Longitude** 103 59.736

NATURE OF RELEASE

Type of Release: Produced water/ Oil	Volume of Release 3 bbls oil 17 bbls water	Volume Recovered 3 bbls oil 15 bbls water
Source of Release: Skim Tank	Date and Hour of Occurrence 3/23/2012	Date and Hour of Discovery 3/23/2012 11:30 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. N/A	

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

Describe Cause of Problem and Remedial Action Taken.*

Due to a rush of fluid from a new well and a plugged strainer at our Texaco BE #8 Injector the skim tank overflowed. The strainer at the Texaco BE #8 Injector has been cleaned out.

Describe Area Affected and Cleanup Action Taken.*

Initially 20 bbls was released from the skim tank and 18 bbls was recovered with a vacuum truck. The spill area measures 20'x20' around the skim tank. The release was contained on the location. The contaminated area was excavated to approximately 4.0' below surface, a 40 mil plastic liner was installed, and the area was backfilled with clean material.

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: 11-19-13 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

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MAR 05 2014
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 Jenkins Water Flood	Facility Type **Tank Battery**

Surface Owner: Federal	Mineral Owner	Lease No. (API #) 30-015-20972 Closest well location

LOCATION OF RELEASE

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

Latitude 32 49.817 **Longitude** 103 59.765

NATURE OF RELEASE

Type of Release: Oil	Volume of Release 75 bbls	Volume Recovered 70 bbls
Source of Release: Gun Barrel	Date and Hour of Occurrence 6/26/2012	Date and Hour of Discovery 6//26/2013 9:30 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Mike Bratcher - OCD**	
By Whom?	Date and Hour 6/27/2012 9:27 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

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

Describe Cause of Problem and Remedial Action Taken.*

The gun barrel at the Jenkins Water Flood & Tank Battery overflowed due to motor valves that did not open. Electricians were called out to ensure that the problem with the motor valves has been resolved.

Describe Area Affected and Cleanup Action Taken.*

Initially 75 bbls of oil was released from the gun barrel at the facility and 70 bbls was recovered with a vacuum truck. The entire release was contained inside the diked walls of the facility. The contaminated area was excavated to approximately 4.0' below surface, a 40 mil plastic liner was installed, and the area was backfilled with clean material.

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: 11-19-13 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

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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	Jenkins B Federal Water Flood (Northwest Central)	Facility Type	Skim Tank

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-015-21945 closest well location

LOCATION OF RELEASE

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

Latitude 32 49.813 **Longitude** 103 59.736

NATURE OF RELEASE

Type of Release Produced water / Oil	Volume of Release 3bbls oil 17bbls pw	Volume Recovered 3bbls oil 15bbls pw
Source of Release Skim tank	Date and Hour of Occurrence 03/23/2012	Date and Hour of Discovery 03/23/2012 11:30 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.*

Due to a rush of fluid from a new well and a plugged strainer at our Texaco BE #8 Injector the skim tank overflowed. The strainer at the Texaco BE #8 Injector has been cleaned out.

Describe Area Affected and Cleanup Action Taken.*

Initially 20bbls were released from the skim tank and we were able to recover 18bbls with a vacuum truck. The spill area measures 20' x 20' around the skim tank. The release was contained on the location. 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: 04/02/2012 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
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1301 W. Grand Avenue, Artesia, NM 88210
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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	Jenkins Water Flood	Facility Type	Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-015-20972 Closest well location

LOCATION OF RELEASE

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

Latitude 32 49.817 **Longitude** 103 59.765

NATURE OF RELEASE

Type of Release Oil	Volume of Release 75bbls	Volume Recovered 70bbls
Source of Release Gun barrel	Date and Hour of Occurrence 06/26/2012	Date and Hour of Discovery 06/26/2012 9:30 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher-OCD	
By Whom? Michelle Mullins	Date and Hour 06/27/2012 9:27 a.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 gun barrel at the Jenkins Water Flood & Tank Battery overflowed due to motor valves that did not open. Electricians have been called out to ensure that the problem with the motor valves has been resolved.

Describe Area Affected and Cleanup Action Taken.*

Initially 75bbls of oil were released from the gun barrel at the facility and we were able to recover 70bbls with a vacuum truck. The entire release was contained inside the diked walls of the facility. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation 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: 06/26/2012 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG-Jenkins B Fed Water Flood
Eddy County, New Mexico

16 South 29 East

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

16 South 30 East

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

16 South 31 East

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

17 South 29 East

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

17 South 30 East

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

17 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	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 **95**	11	12
18	17	16	15	14	13
19	20	21	22	23	24 **158**
30	29	28	27	26	25
31	32	33	34	35	36

18 South 30 East

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

18 South 31 East

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

New Mexico State Engineers Well Reports

USGS Well Reports

Geology and Groundwater Conditions in Southern Eddy, County, NM

NMOCD - Groundwater Data

Field water level

New Mexico Water and Infrastructure Data System

Appendix C

Summary Report

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

Report Date: May 1, 2012

Work Order: 12042404

Project Location: Eddy Co., NM
Project Name: COG/Jenkins B Federal Water Flood
Project Number: 114-6401364

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
295008	AH-1 0.5' BEB 0-1'	soil	2012-04-20	00:00	2012-04-23
295009	AH-1 0.5' BEB 1-1.5'	soil	2012-04-20	00:00	2012-04-23
295010	AH-1 0.5' BEB 2-2.5'	soil	2012-04-20	00:00	2012-04-23
295011	AH-1 0.5' BEB 3-3.5'	soil	2012-04-20	00:00	2012-04-23
295012	AH-1 0.5' BEB 4-4.5'	soil	2012-04-20	00:00	2012-04-23
295013	AH-1 0.5' BEB 5-5.5'	soil	2012-04-20	00:00	2012-04-23
295014	AH-1 0.5' BEB 6-6.5'	soil	2012-04-20	00:00	2012-04-23
295015	AH-1 0.5' BEB 7-7.5'	soil	2012-04-20	00:00	2012-04-23
295016	AH-1 0.5' BEB 8-8.5'	soil	2012-04-20	00:00	2012-04-23
295017	AH-1 0.5' BEB 9-9.5'	soil	2012-04-20	00:00	2012-04-23
295018	AH-2 0.5' BEB 0-1'	soil	2012-04-20	00:00	2012-04-23
295019	AH-2 0.5' BEB 1-1.5'	soil	2012-04-20	00:00	2012-04-23
295020	AH-2 0.5' BEB 2-2.5'	soil	2012-04-20	00:00	2012-04-23
295021	AH-3 0.5' BEB 0-1'	soil	2012-04-20	00:00	2012-04-23
295022	AH-3 0.5' BEB 1-1.5'	soil	2012-04-20	00:00	2012-04-23
295023	AH-3 0.5' BEB 2-2.5'	soil	2012-04-20	00:00	2012-04-23
295024	AH-3 0.5' BEB 3-3.5'	soil	2012-04-20	00:00	2012-04-23
295025	AH-3 0.5' BEB 4-4.5'	soil	2012-04-20	00:00	2012-04-23

	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)
295008 - AH-1 0.5' BEB 0-1'	<0.0200	**0.0941**	**0.782**	**1.62**	**378** Qs	**166** Qs
295018 - AH-2 0.5' BEB 0-1'	**4.74**	**61.1**	**73.4**	**95.2**	**5970** Qs	**4150** Qs
295019 - AH-2 0.5' BEB 1-1.5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	**4.90** Qr,Qs
295021 - AH-3 0.5' BEB 0-1'	<0.0200	**0.106**	**0.105**	**0.362**	**50.3** Qs	**33.6** Qs

Sample: 295008 - AH-1 0.5' BEB 0-1'

Param	Flag	Result	Units	RL
Chloride		**6670**	mg/Kg	4

Sample: 295009 - AH-1 0.5' BEB 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1080**	mg/Kg	4

Sample: 295010 - AH-1 0.5' BEB 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**159**	mg/Kg	4

Sample: 295011 - AH-1 0.5' BEB 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**606**	mg/Kg	4

Sample: 295012 - AH-1 0.5' BEB 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**987**	mg/Kg	4

Sample: 295013 - AH-1 0.5' BEB 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**1790**	mg/Kg	4

Sample: 295014 - AH-1 0.5' BEB 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**2910**	mg/Kg	4

Sample: 295015 - AH-1 0.5' BEB 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**2980**	mg/Kg	4

Sample: 295016 - AH-1 0.5' BEB 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**4590**	mg/Kg	4

Sample: 295017 - AH-1 0.5' BEB 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**6480**	mg/Kg	4

Sample: 295018 - AH-2 0.5' BEB 0-1'

Param	Flag	Result	Units	RL
Chloride		**6540**	mg/Kg	4

Sample: 295019 - AH-2 0.5' BEB 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**5560**	mg/Kg	4

Sample: 295020 - AH-2 0.5' BEB 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**166**	mg/Kg	4

Sample: 295021 - AH-3 0.5' BEB 0-1'

Param	Flag	Result	Units	RL
Chloride		**6130**	mg/Kg	4

Sample: 295022 - AH-3 0.5' BEB 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**4090**	mg/Kg	4

Sample: 295023 - AH-3 0.5' BEB 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**900**	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: May 1, 2012

Work Order: 12042404

Project Location: Eddy Co., NM
Project Name: COG/Jenkins B Federal Water Flood
Project Number: 114-6401364

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
295008	AH-1 0.5' BEB 0-1'	soil	2012-04-20	00:00	2012-04-23
295009	AH-1 0.5' BEB 1-1.5'	soil	2012-04-20	00:00	2012-04-23
295010	AH-1 0.5' BEB 2-2.5'	soil	2012-04-20	00:00	2012-04-23
295011	AH-1 0.5' BEB 3-3.5'	soil	2012-04-20	00:00	2012-04-23
295012	AH-1 0.5' BEB 4-4.5'	soil	2012-04-20	00:00	2012-04-23
295013	AH-1 0.5' BEB 5-5.5'	soil	2012-04-20	00:00	2012-04-23
295014	AH-1 0.5' BEB 6-6.5'	soil	2012-04-20	00:00	2012-04-23
295015	AH-1 0.5' BEB 7-7.5'	soil	2012-04-20	00:00	2012-04-23
295016	AH-1 0.5' BEB 8-8.5'	soil	2012-04-20	00:00	2012-04-23
295017	AH-1 0.5' BEB 9-9.5'	soil	2012-04-20	00:00	2012-04-23
295018	AH-2 0.5' BEB 0-1'	soil	2012-04-20	00:00	2012-04-23
295019	AH-2 0.5' BEB 1-1.5'	soil	2012-04-20	00:00	2012-04-23
295020	AH-2 0.5' BEB 2-2.5'	soil	2012-04-20	00:00	2012-04-23
295021	AH-3 0.5' BEB 0-1'	soil	2012-04-20	00:00	2012-04-23
295022	AH-3 0.5' BEB 1-1.5'	soil	2012-04-20	00:00	2012-04-23
295023	AH-3 0.5' BEB 2-2.5'	soil	2012-04-20	00:00	2012-04-23
295024	AH-3 0.5' BEB 3-3.5'	soil	2012-04-20	00:00	2012-04-23
295025	AH-3 0.5' BEB 4-4.5'	soil	2012-04-20	00:00	2012-04-23

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 34 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/Jenkins B Federal Water Flood were received by TraceAnalysis, Inc. on 2012-04-23 and assigned to work order 12042404. Samples for work order 12042404 were received intact at a temperature of 3.9 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	76841	2012-04-24 at 10:30	90566	2012-04-24 at 10:23
BTEX	S 8021B	76879	2012-04-25 at 10:55	90611	2012-04-25 at 11:11
Chloride (Titration)	SM 4500-Cl B	76915	2012-04-27 at 09:48	90738	2012-04-30 at 10:14
Chloride (Titration)	SM 4500-Cl B	76915	2012-04-27 at 09:48	90739	2012-05-01 at 10:15
Chloride (Titration)	SM 4500-Cl B	76915	2012-04-27 at 09:48	90740	2012-05-01 at 10:16
TPH DRO - NEW	S 8015 D	76815	2012-04-24 at 13:11	90553	2012-04-24 at 14:58
TPH DRO - NEW	S 8015 D	76854	2012-04-25 at 13:34	90586	2012-04-25 at 13:36
TPH GRO	S 8015 D	76841	2012-04-24 at 10:30	90567	2012-04-24 at 10:51
TPH GRO	S 8015 D	76879	2012-04-25 at 10:55	90612	2012-04-25 at 11:39

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 12042404 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: 295008 - AH-1 0.5' BEB 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	90566	Date Analyzed:	2012-04-24	Analyzed By:	tc
Prep Batch:	76841	Sample Preparation:	2012-04-24	Prepared By:	tc

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene		1	**0.0941**	mg/Kg	1	0.0200
Ethylbenzene		1	**0.782**	mg/Kg	1	0.0200
Xylene		1	**1.62**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.06	mg/Kg	1	2.00	103	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.41	mg/Kg	1	2.00	120	63.6 - 158.9

Sample: 295008 - AH-1 0.5' BEB 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90738	Date Analyzed:	2012-04-30	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**6670**	mg/Kg	10	4.00

Sample: 295008 - AH-1 0.5' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	90553	Date Analyzed:	2012-04-24	Analyzed By:	DA
Prep Batch:	76815	Sample Preparation:	2012-04-24	Prepared By:	DA

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Q8	1	**378**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	166	mg/Kg	1	100	166	49.3 - 157.5

Sample: 295008 - AH-1 0.5' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	90567	Date Analyzed:	2012-04-24	Analyzed By:	tc
Prep Batch:	76841	Sample Preparation:	2012-04-24	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	**166**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.16	mg/Kg	1	2.00	108	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.61	mg/Kg	1	2.00	130	45.1 - 162.2

Sample: 295009 - AH-1 0.5' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90738	Date Analyzed:	2012-04-30	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1080**	mg/Kg	5	4.00

Sample: 295010 - AH-1 0.5' BEB 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90738	Date Analyzed:	2012-04-30	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

continued ...

sample 295010 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**159**	mg/Kg	5	4.00

Sample: 295011 - AH-1 0.5' BEB 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90738	Date Analyzed:	2012-04-30	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**606**	mg/Kg	5	4.00

Sample: 295012 - AH-1 0.5' BEB 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90739	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**987**	mg/Kg	5	4.00

Sample: 295013 - AH-1 0.5' BEB 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90739	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1790**	mg/Kg	10	4.00

Sample: 295014 - AH-1 0.5' BEB 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90739	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2910**	mg/Kg	10	4.00

Sample: 295015 - AH-1 0.5' BEB 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90739	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2980**	mg/Kg	10	4.00

Sample: 295016 - AH-1 0.5' BEB 8-8.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90739	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4590**	mg/Kg	10	4.00

Sample: 295017 - AH-1 0.5' BEB 9-9.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90739	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6480**	mg/Kg	10	4.00

Sample: 295018 - AH-2 0.5' BEB 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	90566	Date Analyzed:	2012-04-24	Analyzed By:	tc
Prep Batch:	76841	Sample Preparation:	2012-04-24	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	**4.74**	mg/Kg	50	0.0200
Toluene		1	**61.1**	mg/Kg	50	0.0200
Ethylbenzene		1	**73.4**	mg/Kg	50	0.0200
Xylene		1	**95.2**	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			47.4	mg/Kg	50	50.0	95	75 - 135.4
4-Bromofluorobenzene (4-BFB)			57.6	mg/Kg	50	50.0	115	63.6 - 158.9

Sample: 295018 - AH-2 0.5' BEB 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90739	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6540**	mg/Kg	10	4.00

Sample: 295018 - AH-2 0.5' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	90553	Date Analyzed:	2012-04-24	Analyzed By:	DA
Prep Batch:	76815	Sample Preparation:	2012-04-24	Prepared By:	DA

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qs	1	**5970**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	571	mg/Kg	5	100	571	49.3 - 157.5

Sample: 295018 - AH-2 0.5' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	90567	Date Analyzed:	2012-04-24	Analyzed By:	tc
Prep Batch:	76841	Sample Preparation:	2012-04-24	Prepared By:	tc

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs	1	**4150**	mg/Kg	50	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			49.6	mg/Kg	50	50.0	99	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			61.0	mg/Kg	50	50.0	122	45.1 - 162.2

Sample: 295019 - AH-2 0.5' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	90611	Date Analyzed:	2012-04-25	Analyzed By:	tc
Prep Batch:	76879	Sample Preparation:	2012-04-25	Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.04	mg/Kg	1	2.00	102	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.97	mg/Kg	1	2.00	98	63.6 - 158.9

Sample: 295019 - AH-2 0.5' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90739	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5560**	mg/Kg	10	4.00

Sample: 295019 - AH-2 0.5' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	90586	Date Analyzed:	2012-04-25	Analyzed By:	DA
Prep Batch:	76854	Sample Preparation:	2012-04-25	Prepared By:	DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			114	mg/Kg	1	100	114	49.3 - 157.5

Sample: 295019 - AH-2 0.5' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	90612	Date Analyzed:	2012-04-25	Analyzed By:	tc
Prep Batch:	76879	Sample Preparation:	2012-04-25	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qr,Qs	1	**4.90**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.12	mg/Kg	1	2.00	106	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.96	mg/Kg	1	2.00	98	45.1 - 162.2

Sample: 295020 - AH-2 0.5' BEB 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90739	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**166**		mg/Kg	5	4.00

Sample: 295021 - AH-3 0.5' BEB 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	90566	Date Analyzed:	2012-04-24	Analyzed By:	tc
Prep Batch:	76841	Sample Preparation:	2012-04-24	Prepared By:	tc

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Benzene	U	1	<0.0200		mg/Kg	1	0.0200
Toluene		1	**0.106**		mg/Kg	1	0.0200
Ethylbenzene		1	**0.105**		mg/Kg	1	0.0200
Xylene		1	**0.362**		mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.20	mg/Kg	1	2.00	110	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.14	mg/Kg	1	2.00	107	63.6 - 158.9

Sample: 295021 - AH-3 0.5' BEB 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90739	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**6130**	mg/Kg	10	4.00

Sample: 295021 - AH-3 0.5' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	90553	Date Analyzed:	2012-04-24	Analyzed By:	DA
Prep Batch:	76815	Sample Preparation:	2012-04-24	Prepared By:	DA

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qs	1	**50.3**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			145	mg/Kg	1	100	145	49.3 - 157.5

Sample: 295021 - AH-3 0.5' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	90567	Date Analyzed:	2012-04-24	Analyzed By:	tc
Prep Batch:	76841	Sample Preparation:	2012-04-24	Prepared By:	tc

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs	1	**33.6**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.34	mg/Kg	1	2.00	117	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.27	mg/Kg	1	2.00	114	45.1 - 162.2

Sample: 295022 - AH-3 0.5' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90740	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4090**	mg/Kg	10	4.00

Sample: 295023 - AH-3 0.5' BEB 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90740	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**900**	mg/Kg	5	4.00

Sample: 295024 - AH-3 0.5' BEB 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90740	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**885**	mg/Kg	10	4.00

Sample: 295025 - AH-3 0.5' BEB 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90740	Date Analyzed:	2012-05-01	Analyzed By:	AR
Prep Batch:	76915	Sample Preparation:	2012-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1810**	mg/Kg	10	4.00

Method Blanks

Method Blank (1) QC Batch: 90553

QC Batch: 90553 | Date Analyzed: 2012-04-24 | Analyzed By: DA
Prep Batch: 76815 | QC Preparation: 2012-04-24 | 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			118	mg/Kg	1	100	118	52 - 140.8

Method Blank (1) QC Batch: 90566

QC Batch: 90566 | Date Analyzed: 2012-04-24 | Analyzed By: tc
Prep Batch: 76841 | QC Preparation: 2012-04-24 | 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)			1.88	mg/Kg	1	2.00	94	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	55.9 - 112.4

Method Blank (1) QC Batch: 90567

QC Batch: 90567 | Date Analyzed: 2012-04-24 | Analyzed By: tc
Prep Batch: 76841 | QC Preparation: 2012-04-24 | 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)			1.96	mg/Kg	1	2.00	98	78.6 - 111
4-Bromofluorobenzene (4-BFB)			1.72	mg/Kg	1	2.00	86	55 - 100

Method Blank (1) QC Batch: 90586

QC Batch: 90586 | Date Analyzed: 2012-04-25 | Analyzed By: DA
Prep Batch: 76854 | QC Preparation: 2012-04-25 | 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			110	mg/Kg	1	100	110	52 - 140.8

Method Blank (1) QC Batch: 90611

QC Batch: 90611 | Date Analyzed: 2012-04-25 | Analyzed By: tc
Prep Batch: 76879 | QC Preparation: 2012-04-25 | 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)			1.61	mg/Kg	1	2.00	80	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.58	mg/Kg	1	2.00	79	55.9 - 112.4

Method Blank (1) QC Batch: 90612

QC Batch: 90612 | Date Analyzed: 2012-04-25 | Analyzed By: tc
Prep Batch: 76879 | QC Preparation: 2012-04-25 | 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)			1.70	mg/Kg	1	2.00	85	78.6 - 111
4-Bromofluorobenzene (4-BFB)			1.52	mg/Kg	1	2.00	76	55 - 100

Method Blank (1) QC Batch: 90738

QC Batch: 90738 | Date Analyzed: 2012-04-30 | Analyzed By: AR
Prep Batch: 76915 | QC Preparation: 2012-04-27 | Prepared By: AR

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

Method Blank (1) QC Batch: 90739

QC Batch: 90739 | Date Analyzed: 2012-05-01 | Analyzed By: AR
Prep Batch: 76915 | QC Preparation: 2012-04-27 | Prepared By: AR

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

Method Blank (1) QC Batch: 90740

QC Batch: 90740 | Date Analyzed: 2012-05-01 | Analyzed By: AR
Prep Batch: 76915 | QC Preparation: 2012-04-27 | 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: 90553 | Date Analyzed: 2012-04-24 | Analyzed By: DA
Prep Batch: 76815 | QC Preparation: 2012-04-24 | Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	242	mg/Kg	1	250	<14.5	97	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	262	mg/Kg	1	250	<14.5	105	62 - 128.3	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
n-Tricosane	117	125	mg/Kg	1	100	117	125	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 90566 | Date Analyzed: 2012-04-24 | Analyzed By: tc
Prep Batch: 76841 | QC Preparation: 2012-04-24 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.38	mg/Kg	1	2.00	<0.00470	119	86.5 - 124.9
Toluene		1	2.32	mg/Kg	1	2.00	<0.00980	116	84.7 - 122.5
Ethylbenzene		1	2.18	mg/Kg	1	2.00	<0.00500	109	79.4 - 118.9
Xylene		1	6.51	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	2.33	mg/Kg	1	2.00	<0.00470	116	86.5 - 124.9	2	20
Toluene		1	2.25	mg/Kg	1	2.00	<0.00980	112	84.7 - 122.5	3	20
Ethylbenzene		1	2.15	mg/Kg	1	2.00	<0.00500	108	79.4 - 118.9	1	20
Xylene		1	6.41	mg/Kg	1	6.00	<0.0170	107	79.5 - 118.9	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)	1.94	2.24	mg/Kg	1	2.00	97	112	73.9 - 127
4-Bromofluorobenzene (4-BFB)	1.44	1.76	mg/Kg	1	2.00	72	88	70.4 - 119.9

Laboratory Control Spike (LCS-1)

QC Batch: 90567 | Date Analyzed: 2012-04-24 | Analyzed By: tc
Prep Batch: 76841 | QC Preparation: 2012-04-24 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	15.6	mg/Kg	1	20.0	<1.22	78	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	16.0	mg/Kg	1	20.0	<1.22	80	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)	1.89	1.95	mg/Kg	1	2.00	94	98	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.80	1.82	mg/Kg	1	2.00	90	91	66.4 - 106.6

Laboratory Control Spike (LCS-1)

QC Batch: 90586 | Date Analyzed: 2012-04-25 | Analyzed By: DA
Prep Batch: 76854 | QC Preparation: 2012-04-25 | Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	261	mg/Kg	1	250	<14.5	104	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	110	115	mg/Kg	1	100	110	115	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 90611 | Date Analyzed: 2012-04-25 | Analyzed By: tc
Prep Batch: 76879 | QC Preparation: 2012-04-25 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene			2.06	mg/Kg	1	2.00	<0.00470	103	86.5 - 124.9
Toluene			2.04	mg/Kg	1	2.00	<0.00980	102	84.7 - 122.5
Ethylbenzene			1.99	mg/Kg	1	2.00	<0.00500	100	79.4 - 118.9
Xylene			5.95	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			2.14	mg/Kg	1	2.00	<0.00470	107	86.5 - 124.9	4	20
Toluene			2.10	mg/Kg	1	2.00	<0.00980	105	84.7 - 122.5	3	20
Ethylbenzene			2.03	mg/Kg	1	2.00	<0.00500	102	79.4 - 118.9	2	20
Xylene			6.06	mg/Kg	1	6.00	<0.0170	101	79.5 - 118.9	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)	1.61	1.88	mg/Kg	1	2.00	80	94	73.9 - 127
4-Bromofluorobenzene (4-BFB)	1.65	1.89	mg/Kg	1	2.00	82	94	70.4 - 119.9

Laboratory Control Spike (LCS-1)

QC Batch: 90612 | Date Analyzed: 2012-04-25 | Analyzed By: tc
Prep Batch: 76879 | QC Preparation: 2012-04-25 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO			17.1	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)	1.91	1.97	mg/Kg	1	2.00	96	98	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.78	1.83	mg/Kg	1	2.00	89	92	66.4 - 106.6

Laboratory Control Spike (LCS-1)

QC Batch: 90738 | Date Analyzed: 2012-04-30 | Analyzed By: AR
Prep Batch: 76915 | QC Preparation: 2012-04-27 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2580	mg/Kg	1	2500	<3.85	103	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			2540	mg/Kg	1	2500	<3.85	102	85 - 115	2	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: 90739 | Date Analyzed: 2012-05-01 | Analyzed By: AR
Prep Batch: 76915 | QC Preparation: 2012-04-27 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2350	mg/Kg	1	2500	<3.85	94	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			2190	mg/Kg	1	2500	<3.85	88	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: 90740 | Date Analyzed: 2012-05-01 | Analyzed By: AR
Prep Batch: 76915 | QC Preparation: 2012-04-27 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2410	mg/Kg	1	2500	<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			2500	mg/Kg	1	2500	<3.85	100	85 - 115	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: 295039

QC Batch: 90553 | Date Analyzed: 2012-04-24 | Analyzed By: DA
Prep Batch: 76815 | QC Preparation: 2012-04-24 | Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	2340	mg/Kg	5	250	2210	52	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	2700	mg/Kg	5	250	2210	196	45.5 - 127	14	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	378	411	mg/Kg	5	100	378	411	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 295021

QC Batch: 90566 | Date Analyzed: 2012-04-24 | Analyzed By: tc
Prep Batch: 76841 | QC Preparation: 2012-04-24 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.39	mg/Kg	1	2.00	<0.00470	120	69.3 - 159.2
Toluene		1	2.42	mg/Kg	1	2.00	0.1064	116	68.7 - 157
Ethylbenzene		1	2.52	mg/Kg	1	2.00	0.1049	121	71.6 - 158.2
Xylene		1	7.76	mg/Kg	1	6.00	0.3622	123	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	2.45	mg/Kg	1	2.00	<0.00470	122	69.3 - 159.2	2	20
Toluene		1	2.49	mg/Kg	1	2.00	0.1064	119	68.7 - 157	3	20
Ethylbenzene		1	2.60	mg/Kg	1	2.00	0.1049	125	71.6 - 158.2	3	20
Xylene		1	7.90	mg/Kg	1	6.00	0.3622	126	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)	2.44	2.20	mg/Kg	1	2	122	110	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	2.44	2.15	mg/Kg	1	2	122	108	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 295018

QC Batch: 90567 | Date Analyzed: 2012-04-24 | Analyzed By: tc
Prep Batch: 76841 | QC Preparation: 2012-04-24 | Prepared By: tc

Param		F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Qs	Qs	1	7400	mg/Kg	50	500	4149.32	650	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	Qs	Qs	1	7620	mg/Kg	50	500	4149.32	694	28.2 - 157.2	3	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)		53.8	52.0	mg/Kg	50	50	108	104	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	Qsr Qsr	70.0	69.2	mg/Kg	50	50	140	138	77.9 - 122.4

Matrix Spike (MS-1) Spiked Sample: 294998

QC Batch: 90586 | Date Analyzed: 2012-04-25 | Analyzed By: DA
Prep Batch: 76854 | QC Preparation: 2012-04-25 | Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	274	mg/Kg	1	250	120	62	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	288	mg/Kg	1	250	120	67	45.5 - 127	5	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	126	121	mg/Kg	1	100	126	121	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 295157

QC Batch: 90611 | Date Analyzed: 2012-04-25 | Analyzed By: tc
Prep Batch: 76879 | QC Preparation: 2012-04-25 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	56.8	mg/Kg	50	50.0	3.918	106	69.3 - 159.2
Toluene		1	108	mg/Kg	50	50.0	45.884	124	68.7 - 157
Ethylbenzene		1	110	mg/Kg	50	50.0	50.3205	119	71.6 - 158.2
Xylene		1	263	mg/Kg	50	150	93.1734	113	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	56.9	mg/Kg	50	50.0	3.918	106	69.3 - 159.2	0	20
Toluene		1	101	mg/Kg	50	50.0	45.884	110	68.7 - 157	7	20
Ethylbenzene		1	102	mg/Kg	50	50.0	50.3205	103	71.6 - 158.2	8	20
Xylene		1	247	mg/Kg	50	150	93.1734	102	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)	40.9	44.3	mg/Kg	50	50	82	89	71.4 - 133.9

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matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	53.2	55.3	mg/Kg	50	50	106	111	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 295158

QC Batch: 90612 | Date Analyzed: 2012-04-25 | Analyzed By: tc
Prep Batch: 76879 | QC Preparation: 2012-04-25 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	6340	mg/Kg	50	500	5925.95	83	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	Qr,Qs	Qr,Qs	7790	mg/Kg	50	500	5925.95	373	28.2 - 157.2	20	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)			51.2	51.0	mg/Kg	50	50	102	102	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	66.2	65.4	mg/Kg	50	50	132	131	77.9 - 122.4

Matrix Spike (MS-1) Spiked Sample: 295011

QC Batch: 90738 | Date Analyzed: 2012-04-30 | Analyzed By: AR
Prep Batch: 76915 | QC Preparation: 2012-04-27 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3100	mg/Kg	5	2500	606	100	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			3190	mg/Kg	5	2500	606	103	79.4 - 120.6	3	20

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

Matrix Spike (MS-1) Spiked Sample: 295021

QC Batch: 90739 | Date Analyzed: 2012-05-01 | Analyzed By: AR
Prep Batch: 76915 | QC Preparation: 2012-04-27 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			8280	mg/Kg	10	2500	6130	86	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			8750	mg/Kg	10	2500	6130	105	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: 295025

QC Batch: 90740 | Date Analyzed: 2012-05-01 | Analyzed By: AR
Prep Batch: 76915 | QC Preparation: 2012-04-27 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			4540	mg/Kg	10	2500	1810	109	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			4330	mg/Kg	10	2500	1810	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.

Calibration Standards

Standard (CCV-2)

QC Batch: 90553 | Date Analyzed: 2012-04-24 | 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	2012-04-24

Standard (CCV-3)

QC Batch: 90553 | Date Analyzed: 2012-04-24 | 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	253	101	80 - 120	2012-04-24

Standard (CCV-1)

QC Batch: 90566 | Date Analyzed: 2012-04-24 | 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	2012-04-24
Toluene		1	mg/kg	0.100	0.107	107	80 - 120	2012-04-24
Ethylbenzene		1	mg/kg	0.100	0.108	108	80 - 120	2012-04-24
Xylene		1	mg/kg	0.300	0.323	108	80 - 120	2012-04-24

Standard (CCV-2)

QC Batch: 90566 | Date Analyzed: 2012-04-24 | 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	0.111	111	80 - 120	2012-04-24
Toluene		1	mg/kg	0.100	0.109	109	80 - 120	2012-04-24
Ethylbenzene		1	mg/kg	0.100	0.105	105	80 - 120	2012-04-24
Xylene		1	mg/kg	0.300	0.317	106	80 - 120	2012-04-24

Standard (CCV-1)

QC Batch: 90567 Date Analyzed: 2012-04-24 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	1.10	110	80 - 120	2012-04-24

Standard (CCV-2)

QC Batch: 90567 Date Analyzed: 2012-04-24 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	1.14	114	80 - 120	2012-04-24

Standard (CCV-2)

QC Batch: 90586 Date Analyzed: 2012-04-25 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	272	109	80 - 120	2012-04-25

Standard (CCV-3)

QC Batch: 90586 Date Analyzed: 2012-04-25 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	250	100	80 - 120	2012-04-25

Standard (CCV-1)

QC Batch: 90611 Date Analyzed: 2012-04-25 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	0.0925	92	80 - 120	2012-04-25
Toluene		1	mg/kg	0.100	0.0912	91	80 - 120	2012-04-25
Ethylbenzene		1	mg/kg	0.100	0.0883	88	80 - 120	2012-04-25
Xylene		1	mg/kg	0.300	0.266	89	80 - 120	2012-04-25

Standard (CCV-2)

QC Batch: 90611 Date Analyzed: 2012-04-25 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	2012-04-25
Toluene		1	mg/kg	0.100	0.105	105	80 - 120	2012-04-25
Ethylbenzene		1	mg/kg	0.100	0.0991	99	80 - 120	2012-04-25
Xylene		1	mg/kg	0.300	0.295	98	80 - 120	2012-04-25

Standard (CCV-1)

QC Batch: 90612 Date Analyzed: 2012-04-25 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	2012-04-25

Standard (CCV-2)

QC Batch: 90612 | Date Analyzed: 2012-04-25 | 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	1.18	118	80 - 120	2012-04-25

Standard (CCV-1)

QC Batch: 90738 | Date Analyzed: 2012-04-30 | 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	2012-04-30

Standard (CCV-2)

QC Batch: 90738 | Date Analyzed: 2012-04-30 | 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	99.0	99	85 - 115	2012-04-30

Standard (CCV-1)

QC Batch: 90739 | Date Analyzed: 2012-05-01 | 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	2012-05-01

Standard (CCV-2)

QC Batch: 90739 | Date Analyzed: 2012-05-01 | 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	2012-05-01

Standard (CCV-1)

QC Batch: 90740 Date Analyzed: 2012-05-01 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	2012-05-01

Standard (CCV-2)

QC Batch: 90740 Date Analyzed: 2012-05-01 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	2012-05-01

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.

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.: 114-640136 4

PROJECT NAME: Jenkins B Federal Water Flood

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
295008	4/20		S		X	AH-1 0.5' BEB 0-1'	1				X		X	X											X				
009						1-1.5'																			X				
010						2-2.5'																			X				
011						3-3.5'																			X				
012						4-4.5'																			X				
013						5-5.5'																			X				
014						6-6.5'																			X				
015						7-7.5'																			X				
016						8-8.5'																			X				
017						9-9.5'																			X				

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature)	Date: 4/12/12 Time: 4:50 pm	RECEIVED BY: (Signature)	Date: 4/23/12 Time: 1650
SAMPLED BY: (Print & Initial) TF RS	Date: 4-20-12 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: TIME:		RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 39° intact

REMARKS: Run deeper sample 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.

Run deeper sample if benzene exceed 10 mg/kg or total BTEX exceeds 50 mg/kg.

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.: 114-6401364

PROJECT NAME: Jenkins B Federal Water Flood

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
018	4/20		S		X	AH-2 0.5' BEB 0-1'	1				X		X	X											X				
019						1-1.5'																			X				
020						2-2.5'																			X				
021						AH-3 0.5' BEB 0-1'							X	X											X				
022						1-1.5'							~~X~~	~~X~~											X				
023						2-2.5'																			X				
024						3-3.5'																			X				
025	↓		↓		↓	4-4.5'	↓				↓														X				

RELINQUISHED BY: (Signature) Date: 4/23/12 Time: 4:50pm
RECEIVED BY: (Signature) Date: 4/23/12 Time: 4:50

SAMPLED BY: (Print & Initial) TF RS Date: 4-20-12 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: 39° 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: June 15, 2012

Work Order: 12060828

Project Location: Eddy Co., NM
Project Name: COG/Jenkins B Federal Water Flood
Project Number: 114-6401364

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
300502	BH-1 @ AH-1 (6 in. BEB) 0-1'	soil	2012-06-06	00:00	2012-06-08
300503	BH-1 @ AH-1 (6 in. BEB) 2-3'	soil	2012-06-06	00:00	2012-06-08
300504	BH-1 @ AH-1 (6 in. BEB) 4-5'	soil	2012-06-06	00:00	2012-06-08
300505	BH-1 @ AH-1 (6 in. BEB) 6-7'	soil	2012-06-06	00:00	2012-06-08
300506	BH-1 @ AH-1 (6 in. BEB) 9-10'	soil	2012-06-06	00:00	2012-06-08
300507	BH-1 @ AH-1 (6 in. BEB) 14-15'	soil	2012-06-06	00:00	2012-06-08
300508	BH-1 @ AH-1 (6 in. BEB) 19-20'	soil	2012-06-06	00:00	2012-06-08
300509	BH-1 @ AH-1 (6 in. BEB) 24-25'	soil	2012-06-06	00:00	2012-06-08
300510	BH-1 @ AH-1 (6 in. BEB) 29-30'	soil	2012-06-06	00:00	2012-06-08
300511	BH-1 @ AH-1 (6 in. BEB) 39-40'	soil	2012-06-06	00:00	2012-06-08
300512	BH-1 @ AH-1 (6 in. BEB) 49-50'	soil	2012-06-06	00:00	2012-06-08
300513	BH-1 @ AH-1 (6 in. BEB) 59-60'	soil	2012-06-06	00:00	2012-06-08
300514	BH-1 @ AH-1 (6 in. BEB) 69-70'	soil	2012-06-06	00:00	2012-06-08
300515	BH-1 @ AH-1 (6 in. BEB) 79-80'	soil	2012-06-06	00:00	2012-06-08
300516	BH-2 @ AH-3 (6 in. BEB) 0-1'	soil	2012-06-06	00:00	2012-06-08
300517	BH-2 @ AH-3 (6 in. BEB) 2-3'	soil	2012-06-06	00:00	2012-06-08
300518	BH-2 @ AH-3 (6 in. BEB) 4-5'	soil	2012-06-06	00:00	2012-06-08
300519	BH-2 @ AH-3 (6 in. BEB) 6-7'	soil	2012-06-06	00:00	2012-06-08
300520	BH-2 @ AH-3 (6 in. BEB) 9-10'	soil	2012-06-06	00:00	2012-06-08
300521	BH-2 @ AH-3 (6 in. BEB) 14-15'	soil	2012-06-06	00:00	2012-06-08
300522	BH-2 @ AH-3 (6 in. BEB) 19-20'	soil	2012-06-06	00:00	2012-06-08
300523	BH-2 @ AH-3 (6 in. BEB) 24-25'	soil	2012-06-06	00:00	2012-06-08
300524	BH-2 @ AH-3 (6 in. BEB) 29-30'	soil	2012-06-06	00:00	2012-06-08
300525	BH-2 @ AH-3 (6 in. BEB) 39-40'	soil	2012-06-06	00:00	2012-06-08
300526	BH-2 @ AH-3 (6 in. BEB) 49-50'	soil	2012-06-06	00:00	2012-06-08
300527	BH-2 @ AH-3 (6 in. BEB) 59-60'	soil	2012-06-06	00:00	2012-06-08
300528	BH-2 @ AH-3 (6 in. BEB) 69-70'	soil	2012-06-06	00:00	2012-06-08
300529	BH-2 @ AH-3 (6 in. BEB) 79-80'	soil	2012-06-06	00:00	2012-06-08

Sample: 300502 - BH-1 @ AH-1 (6 in. BEB) 0-1'

Param	Flag	Result	Units	RL
Chloride		**1740**	mg/Kg	4

Sample: 300503 - BH-1 @ AH-1 (6 in. BEB) 2-3'

Param	Flag	Result	Units	RL
Chloride		**3190**	mg/Kg	4

Sample: 300504 - BH-1 @ AH-1 (6 in. BEB) 4-5'

Param	Flag	Result	Units	RL
Chloride		**780**	mg/Kg	4

Sample: 300505 - BH-1 @ AH-1 (6 in. BEB) 6-7'

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

Sample: 300506 - BH-1 @ AH-1 (6 in. BEB) 9-10'

Param	Flag	Result	Units	RL
Chloride		**2570**	mg/Kg	4

Sample: 300507 - BH-1 @ AH-1 (6 in. BEB) 14-15'

Param	Flag	Result	Units	RL
Chloride		**5890**	mg/Kg	4

Sample: 300508 - BH-1 @ AH-1 (6 in. BEB) 19-20'

Param	Flag	Result	Units	RL
Chloride		**8650**	mg/Kg	4

Sample: 300509 - BH-1 @ AH-1 (6 in. BEB) 24-25'

Param	Flag	Result	Units	RL
Chloride		**7640**	mg/Kg	4

Sample: 300510 - BH-1 @ AH-1 (6 in. BEB) 29-30'

Param	Flag	Result	Units	RL
Chloride		**7190**	mg/Kg	4

Sample: 300511 - BH-1 @ AH-1 (6 in. BEB) 39-40'

Param	Flag	Result	Units	RL
Chloride		**14700**	mg/Kg	4

Sample: 300512 - BH-1 @ AH-1 (6 in. BEB) 49-50'

Param	Flag	Result	Units	RL
Chloride		**9100**	mg/Kg	4

Sample: 300513 - BH-1 @ AH-1 (6 in. BEB) 59-60'

Param	Flag	Result	Units	RL
Chloride		**12000**	mg/Kg	4

Sample: 300514 - BH-1 @ AH-1 (6 in. BEB) 69-70'

Param	Flag	Result	Units	RL
Chloride		**3800**	mg/Kg	4

Sample: 300515 - BH-1 @ AH-1 (6 in. BEB) 79-80'

Param	Flag	Result	Units	RL
Chloride		**5550**	mg/Kg	4

Sample: 300516 - BH-2 @ AH-3 (6 in. BEB) 0-1'

Param	Flag	Result	Units	RL
Chloride		**1730**	mg/Kg	4

Sample: 300517 - BH-2 @ AH-3 (6 in. BEB) 2-3'

Param	Flag	Result	Units	RL
Chloride		**1180**	mg/Kg	4

Sample: 300518 - BH-2 @ AH-3 (6 in. BEB) 4-5'

Param	Flag	Result	Units	RL
Chloride		**2830**	mg/Kg	4

Sample: 300519 - BH-2 @ AH-3 (6 in. BEB) 6-7'

Param	Flag	Result	Units	RL
Chloride		**3290**	mg/Kg	4

Sample: 300520 - BH-2 @ AH-3 (6 in. BEB) 9-10'

Param	Flag	Result	Units	RL
Chloride		**6230**	mg/Kg	4

Sample: 300521 - BH-2 @ AH-3 (6 in. BEB) 14-15'

Param	Flag	Result	Units	RL
Chloride		**6350**	mg/Kg	4

Sample: 300522 - BH-2 @ AH-3 (6 in. BEB) 19-20'

Param	Flag	Result	Units	RL
Chloride		**6890**	mg/Kg	4

Sample: 300523 - BH-2 @ AH-3 (6 in. BEB) 24-25'

Param	Flag	Result	Units	RL
Chloride		**4830**	mg/Kg	4

Sample: 300524 - BH-2 @ AH-3 (6 in. BEB) 29-30'

Param	Flag	Result	Units	RL
Chloride		**6870**	mg/Kg	4

Sample: 300525 - BH-2 @ AH-3 (6 in. BEB) 39-40'

Param	Flag	Result	Units	RL
Chloride		**7860**	mg/Kg	4

Sample: 300526 - BH-2 @ AH-3 (6 in. BEB) 49-50'

Param	Flag	Result	Units	RL
Chloride		**5840**	mg/Kg	4

Sample: 300527 - BH-2 @ AH-3 (6 in. BEB) 59-60'

Param	Flag	Result	Units	RL
Chloride		**8290**	mg/Kg	4

Sample: 300528 - BH-2 @ AH-3 (6 in. BEB) 69-70'

Param	Flag	Result	Units	RL
Chloride		**4680**	mg/Kg	4

Sample: 300529 - BH-2 @ AH-3 (6 in. BEB) 79-80'

Param	Flag	Result	Units	RL
Chloride		**4420**	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: June 15, 2012

Work Order: 12060828

Project Location: Eddy Co., NM
Project Name: COG/Jenkins B Federal Water Flood
Project Number: 114-6401364

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
300502	BH-1 @ AH-1 (6 in. BEB) 0-1'	soil	2012-06-06	00:00	2012-06-08
300503	BH-1 @ AH-1 (6 in. BEB) 2-3'	soil	2012-06-06	00:00	2012-06-08
300504	BH-1 @ AH-1 (6 in. BEB) 4-5'	soil	2012-06-06	00:00	2012-06-08
300505	BH-1 @ AH-1 (6 in. BEB) 6-7'	soil	2012-06-06	00:00	2012-06-08
300506	BH-1 @ AH-1 (6 in. BEB) 9-10'	soil	2012-06-06	00:00	2012-06-08
300507	BH-1 @ AH-1 (6 in. BEB) 14-15'	soil	2012-06-06	00:00	2012-06-08
300508	BH-1 @ AH-1 (6 in. BEB) 19-20'	soil	2012-06-06	00:00	2012-06-08
300509	BH-1 @ AH-1 (6 in. BEB) 24-25'	soil	2012-06-06	00:00	2012-06-08
300510	BH-1 @ AH-1 (6 in. BEB) 29-30'	soil	2012-06-06	00:00	2012-06-08
300511	BH-1 @ AH-1 (6 in. BEB) 39-40'	soil	2012-06-06	00:00	2012-06-08
300512	BH-1 @ AH-1 (6 in. BEB) 49-50'	soil	2012-06-06	00:00	2012-06-08
300513	BH-1 @ AH-1 (6 in. BEB) 59-60'	soil	2012-06-06	00:00	2012-06-08
300514	BH-1 @ AH-1 (6 in. BEB) 69-70'	soil	2012-06-06	00:00	2012-06-08
300515	BH-1 @ AH-1 (6 in. BEB) 79-80'	soil	2012-06-06	00:00	2012-06-08
300516	BH-2 @ AH-3 (6 in. BEB) 0-1'	soil	2012-06-06	00:00	2012-06-08
300517	BH-2 @ AH-3 (6 in. BEB) 2-3'	soil	2012-06-06	00:00	2012-06-08
300518	BH-2 @ AH-3 (6 in. BEB) 4-5'	soil	2012-06-06	00:00	2012-06-08
300519	BH-2 @ AH-3 (6 in. BEB) 6-7'	soil	2012-06-06	00:00	2012-06-08

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
300520	BH-2 @ AH-3 (6 in. BEB) 9-10'	soil	2012-06-06	00:00	2012-06-08
300521	BH-2 @ AH-3 (6 in. BEB) 14-15'	soil	2012-06-06	00:00	2012-06-08
300522	BH-2 @ AH-3 (6 in. BEB) 19-20'	soil	2012-06-06	00:00	2012-06-08
300523	BH-2 @ AH-3 (6 in. BEB) 24-25'	soil	2012-06-06	00:00	2012-06-08
300524	BH-2 @ AH-3 (6 in. BEB) 29-30'	soil	2012-06-06	00:00	2012-06-08
300525	BH-2 @ AH-3 (6 in. BEB) 39-40'	soil	2012-06-06	00:00	2012-06-08
300526	BH-2 @ AH-3 (6 in. BEB) 49-50'	soil	2012-06-06	00:00	2012-06-08
300527	BH-2 @ AH-3 (6 in. BEB) 59-60'	soil	2012-06-06	00:00	2012-06-08
300528	BH-2 @ AH-3 (6 in. BEB) 69-70'	soil	2012-06-06	00:00	2012-06-08
300529	BH-2 @ AH-3 (6 in. BEB) 79-80'	soil	2012-06-06	00:00	2012-06-08

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/Jenkins B Federal Water Flood were received by TraceAnalysis, Inc. on 2012-06-08 and assigned to work order 12060828. Samples for work order 12060828 were received intact at a temperature of 3.5 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	78114	2012-06-12 at 09:13	92103	2012-06-13 at 16:02
Chloride (Titration)	SM 4500-Cl B	78114	2012-06-12 at 09:13	92156	2012-06-14 at 12:12
Chloride (Titration)	SM 4500-Cl B	78114	2012-06-12 at 09:13	92157	2012-06-14 at 12:13
Chloride (Titration)	SM 4500-Cl B	78114	2012-06-12 at 09:13	92158	2012-06-14 at 12:14

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 12060828 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: 300502 - BH-1 @ AH-1 (6 in. BEB) 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92103	Date Analyzed:	2012-06-13	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1740**	mg/Kg	10	4.00

Sample: 300503 - BH-1 @ AH-1 (6 in. BEB) 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92103	Date Analyzed:	2012-06-13	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3190**	mg/Kg	10	4.00

Sample: 300504 - BH-1 @ AH-1 (6 in. BEB) 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92103	Date Analyzed:	2012-06-13	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**780**	mg/Kg	5	4.00

Sample: 300505 - BH-1 @ AH-1 (6 in. BEB) 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92103	Date Analyzed:	2012-06-13	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

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

Sample: 300506 - BH-1 @ AH-1 (6 in. BEB) 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92103	Date Analyzed:	2012-06-13	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2570**	mg/Kg	10	4.00

Sample: 300507 - BH-1 @ AH-1 (6 in. BEB) 14-15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92103	Date Analyzed:	2012-06-13	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5890**	mg/Kg	10	4.00

Sample: 300508 - BH-1 @ AH-1 (6 in. BEB) 19-20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92156	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**8650**	mg/Kg	10	4.00

Sample: 300509 - BH-1 @ AH-1 (6 in. BEB) 24-25'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92156	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7640**	mg/Kg	10	4.00

Sample: 300510 - BH-1 @ AH-1 (6 in. BEB) 29-30'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92156	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7190**	mg/Kg	10	4.00

Sample: 300511 - BH-1 @ AH-1 (6 in. BEB) 39-40'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92156	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**14700**	mg/Kg	10	4.00

Sample: 300512 - BH-1 @ AH-1 (6 in. BEB) 49-50'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92156	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**9100**	mg/Kg	10	4.00

Sample: 300513 - BH-1 @ AH-1 (6 in. BEB) 59-60'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92156	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**12000**	mg/Kg	10	4.00

Sample: 300514 - BH-1 @ AH-1 (6 in. BEB) 69-70'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92156	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3800**	mg/Kg	10	4.00

Sample: 300515 - BH-1 @ AH-1 (6 in. BEB) 79-80'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92156	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5550**	mg/Kg	10	4.00

Sample: 300516 - BH-2 @ AH-3 (6 in. BEB) 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92156	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1730**	mg/Kg	10	4.00

Sample: 300517 - BH-2 @ AH-3 (6 in. BEB) 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92156	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1180**	mg/Kg	10	4.00

Sample: 300518 - BH-2 @ AH-3 (6 in. BEB) 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92157	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2830**	mg/Kg	10	4.00

Sample: 300519 - BH-2 @ AH-3 (6 in. BEB) 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92157	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3290**	mg/Kg	10	4.00

Sample: 300520 - BH-2 @ AH-3 (6 in. BEB) 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92157	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6230**	mg/Kg	10	4.00

Sample: 300521 - BH-2 @ AH-3 (6 in. BEB) 14-15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92157	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6350**	mg/Kg	10	4.00

Sample: 300522 - BH-2 @ AH-3 (6 in. BEB) 19-20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92157	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6890**	mg/Kg	10	4.00

Sample: 300523 - BH-2 @ AH-3 (6 in. BEB) 24-25'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92157	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4830**	mg/Kg	10	4.00

Sample: 300524 - BH-2 @ AH-3 (6 in. BEB) 29-30'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92157	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6870**	mg/Kg	10	4.00

Sample: 300525 - BH-2 @ AH-3 (6 in. BEB) 39-40'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92157	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7860**	mg/Kg	10	4.00

Sample: 300526 - BH-2 @ AH-3 (6 in. BEB) 49-50'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92157	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5840**	mg/Kg	10	4.00

Sample: 300527 - BH-2 @ AH-3 (6 in. BEB) 59-60'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92157	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**8290**	mg/Kg	10	4.00

Sample: 300528 - BH-2 @ AH-3 (6 in. BEB) 69-70'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92158	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4680**	mg/Kg	10	4.00

Sample: 300529 - BH-2 @ AH-3 (6 in. BEB) 79-80'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	92158	Date Analyzed:	2012-06-14	Analyzed By:	AR
Prep Batch:	78114	Sample Preparation:	2012-06-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4420**	mg/Kg	10	4.00

Method Blanks

Method Blank (1) QC Batch: 92103

QC Batch: 92103 | Date Analyzed: 2012-06-13 | Analyzed By: AR
Prep Batch: 78114 | QC Preparation: 2012-06-12 | Prepared By: AR

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

Method Blank (1) QC Batch: 92156

QC Batch: 92156 | Date Analyzed: 2012-06-14 | Analyzed By: AR
Prep Batch: 78114 | QC Preparation: 2012-06-12 | Prepared By: AR

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

Method Blank (1) QC Batch: 92157

QC Batch: 92157 | Date Analyzed: 2012-06-14 | Analyzed By: AR
Prep Batch: 78114 | QC Preparation: 2012-06-12 | Prepared By: AR

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

Method Blank (1) QC Batch: 92158

QC Batch: 92158 | Date Analyzed: 2012-06-14 | Analyzed By: AR
Prep Batch: 78114 | QC Preparation: 2012-06-12 | 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: 92103 | Date Analyzed: 2012-06-13 | Analyzed By: AR
Prep Batch: 78114 | QC Preparation: 2012-06-12 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2540	mg/Kg	1	2500	<3.85	102	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			2680	mg/Kg	1	2500	<3.85	107	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: 92156 | Date Analyzed: 2012-06-14 | Analyzed By: AR
Prep Batch: 78114 | QC Preparation: 2012-06-12 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2460	mg/Kg	1	2500	<3.85	98	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			2570	mg/Kg	1	2500	<3.85	103	85 - 115	4	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: 92157 | Date Analyzed: 2012-06-14 | Analyzed By: AR
Prep Batch: 78114 | QC Preparation: 2012-06-12 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2460	mg/Kg	1	2500	<3.85	98	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			2570	mg/Kg	1	2500	<3.85	103	85 - 115	4	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: 92158 | Date Analyzed: 2012-06-14 | Analyzed By: AR
Prep Batch: 78114 | QC Preparation: 2012-06-12 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2440	mg/Kg	1	2500	<3.85	98	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			2550	mg/Kg	1	2500	<3.85	102	85 - 115	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: 300507

QC Batch: 92103 | Date Analyzed: 2012-06-13 | Analyzed By: AR
Prep Batch: 78114 | QC Preparation: 2012-06-12 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			8570	mg/Kg	10	2500	5890	107	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			8330	mg/Kg	10	2500	5890	98	79.4 - 120.6	3	20

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

Matrix Spike (MS-1) Spiked Sample: 300517

QC Batch: 92156 | Date Analyzed: 2012-06-14 | Analyzed By: AR
Prep Batch: 78114 | QC Preparation: 2012-06-12 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3680	mg/Kg	10	2500	1180	100	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			3880	mg/Kg	10	2500	1180	108	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: 300527

QC Batch: 92157 | Date Analyzed: 2012-06-14 | Analyzed By: AR
Prep Batch: 78114 | QC Preparation: 2012-06-12 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			11000	mg/Kg	10	2500	8290	108	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			11100	mg/Kg	10	2500	8290	112	79.4 - 120.6	1	20

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

Matrix Spike (MS-1) Spiked Sample: 300538

QC Batch: 92158 | Date Analyzed: 2012-06-14 | Analyzed By: AR
Prep Batch: 78114 | QC Preparation: 2012-06-12 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3640	mg/Kg	10	2500	1230	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			3900	mg/Kg	10	2500	1230	107	79.4 - 120.6	7	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 92103 | Date Analyzed: 2012-06-13 | 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	2012-06-13

Standard (CCV-2)

QC Batch: 92103 | Date Analyzed: 2012-06-13 | 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	2012-06-13

Standard (CCV-1)

QC Batch: 92156 | Date Analyzed: 2012-06-14 | 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	2012-06-14

Standard (CCV-2)

QC Batch: 92156 | Date Analyzed: 2012-06-14 | 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	98.9	99	85 - 115	2012-06-14

Standard (CCV-1)

QC Batch: 92157 | Date Analyzed: 2012-06-14 | 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	2012-06-14

Standard (CCV-2)

QC Batch: 92157 | Date Analyzed: 2012-06-14 | 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	98.9	99	85 - 115	2012-06-14

Standard (CCV-1)

QC Batch: 92158 | Date Analyzed: 2012-06-14 | 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	2012-06-14

Standard (CCV-2)

QC Batch: 92158 | Date Analyzed: 2012-06-14 | 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	2012-06-14

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
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.

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6401364
PROJECT NAME: Jenkins B Federal Water Flood, Eddy Co., NM

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	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
300502	6/6		S		X	BH-1 @ AH-1 (6" BED) 0-1'	1				X														X				
503						2-3'	1																		X				
504						4-5'	1																		X				
505						6-7'	1																		X				
506						9-10'	1																		X				
507						14-15'	1																		X				
508						19-20'	1																		X				
509						24-25'	1																		X				
510						29-30'	1																		X				
511						39-40'	1																		X				

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Jeanne Fitch Date: 6-8-12 Time: 0800
SAMPLED BY: (Print & Initial) Kim Date: 6/7/12 Time:

RELINQUISHED BY: (Signature) Jeanne Fitch Date: 6-8-12 Time: 1352
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS AIRBILL #:
HAND DELIVERED (circled) UPS 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: 6-8-12 TIME: 13:52
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.5°C intact
REMARKS: lids labeled diff than label 518-522 lids BH-1 jar label BH-2 - went w/ jar label

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

120626008

Analysis Request of Chain of Custody Record

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.: 114-6401364

PROJECT NAME: Jenkins B Federal Water Flood

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
512	6/6		S		X	BH-1 @ AH-1 (6" BEB) 49-50'	1				X														X				
513						59-60'	1																		X				
514						69-70'	1																		X				
515						79-80'	1																		X				
516						BH-2 @ AH-3 (6" BEB) 0-1'	1																		X				
517						2-3'	1																		X				
518						4-5'	1																		X				
519						6-7'	1																		X				
520						9-10'	1																		X				
521						14-15'	1																		X				

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Jaime Fitch Date: 6-8-12 Time: 0800

SAMPLED BY: (Print & Initial) Kim Date: 6/7/12 Time:

RELINQUISHED BY: (Signature) Jaime Fitch Date: 6-8-12 Time: 1352

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: 6-8-12 TIME: 13:52

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.5° cilad

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.

1206828

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.: 114-6401364

PROJECT NAME: Jenkins B Federal Water Flood
Eddy Co., NM

ANALYSIS REQUEST (Circle or Specify Method No.)

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
522	6/6		S		X	BH-2 @ AH-3 (6" BED) 19-20'	1				X													X				
523						24-25'	1																	X				
524						29-30'	1																	X				
525						39-40'	1																	X				
526						49-50'	1																	X				
527						59-60'	1																	X				
528						69-70'	1																	X				
529						79-80'	1																	X				

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Jeane Fitch Date: 6-8-12 Time: 0900
SAMPLED BY: (Print & Initial) Kim Date: 6/7/12 Time:

RELINQUISHED BY: (Signature) Jeane Fitch Date: 6-8-12 Time: 1552
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS
AIRBILL #:

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

RECEIVING LABORATORY: TRACE
ADDRESS:
CITY: MIDLAND STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: 6.8.12 TIME: 13:52
TETRA TECH CONTACT PERSON: Ike Tavarez
Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.5°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.

Summary Report

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

Report Date: June 28, 2013

Work Order: 13061821

Project Location: Eddy Co., NM
Project Name: COG/Jenkins B Federal Water Flood
Project Number: 114-6401364

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
332532	SB-1 @ AH-1 0-1'	soil	2013-06-12	00:00	2013-06-18
332533	SB-1 @ AH-1 2-3'	soil	2013-06-12	00:00	2013-06-18
332534	SB-1 @ AH-1 4-5'	soil	2013-06-12	00:00	2013-06-18
332535	SB-1 @ AH-1 6-7'	soil	2013-06-12	00:00	2013-06-18
332536	SB-1 @ AH-1 9-10'	soil	2013-06-12	00:00	2013-06-18
332537	SB-1 @ AH-1 19-20'	soil	2013-06-12	00:00	2013-06-18
332538	SB-1 @ AH-1 39-40'	soil	2013-06-12	00:00	2013-06-18
332539	SB-1 @ AH-1 59-60'	soil	2013-06-13	00:00	2013-06-18
332540	SB-1 @ AH-1 79-80'	soil	2013-06-13	00:00	2013-06-18
332541	SB-1 @ AH-1 89-90'	soil	2013-06-13	00:00	2013-06-18
332542	SB-1 @ AH-1 99-100'	soil	2013-06-14	00:00	2013-06-18
332543	SB-1 @ AH-1 104-105'	soil	2013-06-14	00:00	2013-06-18

Sample - Field Code	BTEX Benzene (mg/Kg)	BTEX Toluene (mg/Kg)	BTEX Ethylbenzene (mg/Kg)	BTEX Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
332532 - SB-1 @ AH-1 0-1'	<1.00 Qs	**59.8** Qs	**94.8**	**165**	**8530** Qs	**4900**
332533 - SB-1 @ AH-1 2-3'	<0.0200	<0.0200	<0.0200	<0.0200 Qc	<50.0 Qs	<4.00

Sample: 332532 - SB-1 @ AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**2240**	mg/Kg	4

Sample: 332533 - SB-1 @ AH-1 2-3'

Param	Flag	Result	Units	RL
Chloride		**11700**	mg/Kg	4

Sample: 332534 - SB-1 @ AH-1 4-5'

Param	Flag	Result	Units	RL
Chloride		**5130**	mg/Kg	4

Sample: 332535 - SB-1 @ AH-1 6-7'

Param	Flag	Result	Units	RL
Chloride		**1220**	mg/Kg	4

Sample: 332536 - SB-1 @ AH-1 9-10'

Param	Flag	Result	Units	RL
Chloride		**7920**	mg/Kg	4

Sample: 332537 - SB-1 @ AH-1 19-20'

Param	Flag	Result	Units	RL
Chloride		**9460**	mg/Kg	4

Sample: 332538 - SB-1 @ AH-1 39-40'

Param	Flag	Result	Units	RL
Chloride		**12000**	mg/Kg	4

Sample: 332539 - SB-1 @ AH-1 59-60'

Param	Flag	Result	Units	RL
Chloride		**2440**	mg/Kg	4

Sample: 332540 - SB-1 @ AH-1 79-80'

Param	Flag	Result	Units	RL
Chloride		**6150**	mg/Kg	4

Sample: 332541 - SB-1 @ AH-1 89-90'

Param	Flag	Result	Units	RL
Chloride		**2000**	mg/Kg	4

Sample: 332542 - SB-1 @ AH-1 99-100'

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

Sample: 332543 - SB-1 @ AH-1 104-105'

Param	Flag	Result	Units	RL
Chloride		**92.5**	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: June 28, 2013

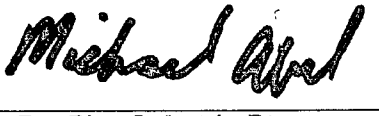
Work Order: 13061821

Project Location: Eddy Co., NM
Project Name: COG/Jenkins B Federal Water Flood
Project Number: 114-6401364

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
332532	SB-1 @ AH-1 0-1'	soil	2013-06-12	00:00	2013-06-18
332533	SB-1 @ AH-1 2-3'	soil	2013-06-12	00:00	2013-06-18
332534	SB-1 @ AH-1 4-5'	soil	2013-06-12	00:00	2013-06-18
332535	SB-1 @ AH-1 6-7'	soil	2013-06-12	00:00	2013-06-18
332536	SB-1 @ AH-1 9-10'	soil	2013-06-12	00:00	2013-06-18
332537	SB-1 @ AH-1 19-20'	soil	2013-06-12	00:00	2013-06-18
332538	SB-1 @ AH-1 39-40'	soil	2013-06-12	00:00	2013-06-18
332539	SB-1 @ AH-1 59-60'	soil	2013-06-13	00:00	2013-06-18
332540	SB-1 @ AH-1 79-80'	soil	2013-06-13	00:00	2013-06-18
332541	SB-1 @ AH-1 89-90'	soil	2013-06-13	00:00	2013-06-18
332542	SB-1 @ AH-1 99-100'	soil	2013-06-14	00:00	2013-06-18
332543	SB-1 @ AH-1 104-105'	soil	2013-06-14	00:00	2013-06-18

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



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

Report Contents

Case Narrative

Samples for project COG/Jenkins B Federal Water Flood were received by TraceAnalysis, Inc. on 2013-06-18 and assigned to work order 13061821. Samples for work order 13061821 were received intact at a temperature of 4.3 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	86863	2013-06-21 at 16:26	102539	2013-06-21 at 16:26
BTEX	S 8021B	86950	2013-06-26 at 16:28	102642	2013-06-26 at 16:28
Chloride (Titration)	SM 4500-Cl B	86840	2013-06-21 at 13:49	102555	2013-06-24 at 12:40
Chloride (Titration)	SM 4500-Cl B	86840	2013-06-21 at 13:49	102556	2013-06-24 at 12:41
TPH DRO - NEW	S 8015 D	86869	2013-06-23 at 22:00	102549	2013-06-24 at 11:02
TPH GRO	S 8015 D	86863	2013-06-21 at 16:26	102540	2013-06-21 at 16:26
TPH GRO	S 8015 D	86950	2013-06-26 at 16:28	102643	2013-06-26 at 16:28

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 13061821 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: 332532 - SB-1 @ AH-1 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	102539	Date Analyzed:	2013-06-21	Analyzed By:	JS
Prep Batch:	86863	Sample Preparation:	2013-06-21	Prepared By:	JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qs	1	<1.00	mg/Kg	50	0.0200
Toluene	Qs	1	**59.8**	mg/Kg	50	0.0200
Ethylbenzene		1	**94.8**	mg/Kg	50	0.0200
Xylene		1	**165**	mg/Kg	50	0.0200

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		4.49	mg/Kg	50	2.00	224	69.6 - 120
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		4.43	mg/Kg	50	2.00	222	69.2 - 120

Sample: 332532 - SB-1 @ AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102555	Date Analyzed:	2013-06-24	Analyzed By:	AR
Prep Batch:	86840	Sample Preparation:	2013-06-21	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2240**	mg/Kg	10	4.00

Sample: 332532 - SB-1 @ AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	102549	Date Analyzed:	2013-06-24	Analyzed By:	CW
Prep Batch:	86869	Sample Preparation:	2013-06-23	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	2	**8530**	mg/Kg	5	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		453	mg/Kg	5	100	453	55.1 - 135.7

Sample: 332532 - SB-1 @ AH-1 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	102540	Date Analyzed:	2013-06-21	Analyzed By:	JS
Prep Batch:	86863	Sample Preparation:	2013-06-21	Prepared By:	JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**4900**	mg/Kg	50	4.00

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		132	mg/Kg	50	2.00	6600	69.6 - 124
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		106	mg/Kg	50	2.00	5300	77.7 - 120

Sample: 332533 - SB-1 @ AH-1 2-3'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	102642	Date Analyzed:	2013-06-26	Analyzed By:	MT
Prep Batch:	86950	Sample Preparation:	2013-06-26	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene		1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Jb,Qc	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.43	mg/Kg	1	2.00	72	69.6 - 120
4-Bromofluorobenzene (4-BFB)			1.89	mg/Kg	1	2.00	94	69.2 - 120

Sample: 332533 - SB-1 @ AH-1 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102555	Date Analyzed:	2013-06-24	Analyzed By:	AR
Prep Batch:	86840	Sample Preparation:	2013-06-21	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**11700**	mg/Kg	10	4.00

Sample: 332533 - SB-1 @ AH-1 2-3'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	102549	Date Analyzed:	2013-06-24	Analyzed By:	CW
Prep Batch:	86869	Sample Preparation:	2013-06-23	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	2	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			86.4	mg/Kg	1	100	86	55.1 - 135.7

Sample: 332533 - SB-1 @ AH-1 2-3'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	102643	Date Analyzed:	2013-06-26	Analyzed By:	MT
Prep Batch:	86950	Sample Preparation:	2013-06-26	Prepared By:	MT

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.74	mg/Kg	1	2.00	87	69.6 - 124
4-Bromofluorobenzene (4-BFB)			2.13	mg/Kg	1	2.00	106	77.7 - 120

Sample: 332534 - SB-1 @ AH-1 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102555	Date Analyzed:	2013-06-24	Analyzed By:	AR
Prep Batch:	86840	Sample Preparation:	2013-06-21	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5130**	mg/Kg	10	4.00

Sample: 332535 - SB-1 @ AH-1 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102555	Date Analyzed:	2013-06-24	Analyzed By:	AR
Prep Batch:	86840	Sample Preparation:	2013-06-21	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1220**	mg/Kg	10	4.00

Sample: 332536 - SB-1 @ AH-1 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102556	Date Analyzed:	2013-06-24	Analyzed By:	AR
Prep Batch:	86840	Sample Preparation:	2013-06-21	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**7920**	mg/Kg	10	4.00

Sample: 332537 - SB-1 @ AH-1 19-20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102556	Date Analyzed:	2013-06-24	Analyzed By:	AR
Prep Batch:	86840	Sample Preparation:	2013-06-21	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**9460**	mg/Kg	10	4.00

Sample: 332538 - SB-1 @ AH-1 39-40'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102556	Date Analyzed:	2013-06-24	Analyzed By:	AR
Prep Batch:	86840	Sample Preparation:	2013-06-21	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**12000**	mg/Kg	10	4.00

Sample: 332539 - SB-1 @ AH-1 59-60'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102556	Date Analyzed:	2013-06-24	Analyzed By:	AR
Prep Batch:	86840	Sample Preparation:	2013-06-21	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2440**	mg/Kg	10	4.00

Sample: 332540 - SB-1 @ AH-1 79-80'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102556	Date Analyzed:	2013-06-24	Analyzed By:	AR
Prep Batch:	86840	Sample Preparation:	2013-06-21	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6150**	mg/Kg	10	4.00

Sample: 332541 - SB-1 @ AH-1 89-90'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102556	Date Analyzed:	2013-06-24	Analyzed By:	AR
Prep Batch:	86840	Sample Preparation:	2013-06-21	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2000**	mg/Kg	10	4.00

Sample: 332542 - SB-1 @ AH-1 99-100'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102556	Date Analyzed:	2013-06-24	Analyzed By:	AR
Prep Batch:	86840	Sample Preparation:	2013-06-21	Prepared By:	AR

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

Sample: 332543 - SB-1 @ AH-1 104-105'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102556	Date Analyzed:	2013-06-24	Analyzed By:	AR
Prep Batch:	86840	Sample Preparation:	2013-06-21	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**92.5**	mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 102539

QC Batch: 102539 | Date Analyzed: 2013-06-21 | Analyzed By: JS
Prep Batch: 86863 | QC Preparation: 2013-06-21 | Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00473	mg/Kg	0.02
Toluene		1	<0.00416	mg/Kg	0.02
Ethylbenzene		1	<0.00511	mg/Kg	0.02
Xylene		1	0.00770	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.72	mg/Kg	1	2.00	86	69.6 - 120
4-Bromofluorobenzene (4-BFB)			1.81	mg/Kg	1	2.00	90	69.2 - 120

Method Blank (1) QC Batch: 102540

QC Batch: 102540 | Date Analyzed: 2013-06-21 | Analyzed By: JS
Prep Batch: 86863 | QC Preparation: 2013-06-21 | Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.230	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.00	mg/Kg	1	2.00	100	69.6 - 124
4-Bromofluorobenzene (4-BFB)			2.02	mg/Kg	1	2.00	101	77.7 - 120

Method Blank (1) QC Batch: 102549

QC Batch: 102549 | Date Analyzed: 2013-06-24 | Analyzed By: CW
Prep Batch: 86869 | QC Preparation: 2013-06-23 | Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		2	13.9	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			87.1	mg/Kg	1	100	87	55.1 - 135.7

Method Blank (1) QC Batch: 102555

QC Batch: 102555 Date Analyzed: 2013-06-24 Analyzed By: AR
Prep Batch: 86840 QC Preparation: 2013-06-21 Prepared By: AR

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

Method Blank (1) QC Batch: 102556

QC Batch: 102556 Date Analyzed: 2013-06-24 Analyzed By: AR
Prep Batch: 86840 QC Preparation: 2013-06-21 Prepared By: AR

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

Method Blank (1) QC Batch: 102642

QC Batch: 102642 Date Analyzed: 2013-06-26 Analyzed By: MT
Prep Batch: 86950 QC Preparation: 2013-06-26 Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00473	mg/Kg	0.02
Toluene		1	<0.00416	mg/Kg	0.02
Ethylbenzene		1	<0.00511	mg/Kg	0.02
Xylene		1	0.00940	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.65	mg/Kg	1	2.00	82	69.6 - 120
4-Bromofluorobenzene (4-BFB)			1.81	mg/Kg	1	2.00	90	69.2 - 120

Method Blank (1) QC Batch: 102643

QC Batch:	102643	Date Analyzed:	2013-06-26	Analyzed By:	MT
Prep Batch:	86950	QC Preparation:	2013-06-26	Prepared By:	MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO			<0.230	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.98	mg/Kg	1	2.00	99	69.6 - 124
4-Bromofluorobenzene (4-BFB)			2.05	mg/Kg	1	2.00	102	77.7 - 120

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 102539 | Date Analyzed: 2013-06-21 | Analyzed By: JS
Prep Batch: 86863 | QC Preparation: 2013-06-21 | Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	Qs	Qs	1	1.48	mg/Kg	1	2.00	<0.00473	74	74.6 - 120
Toluene	Qs	Qs	1	1.52	mg/Kg	1	2.00	<0.00416	76	77.1 - 120
Ethylbenzene			1	1.60	mg/Kg	1	2.00	<0.00511	80	75 - 120
Xylene			1	4.72	mg/Kg	1	6.00	0.0077	79	77 - 120

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	1.54	mg/Kg	1	2.00	<0.00473	77	74.6 - 120	4	20
Toluene		1	1.59	mg/Kg	1	2.00	<0.00416	80	77.1 - 120	4	20
Ethylbenzene		1	1.68	mg/Kg	1	2.00	<0.00511	84	75 - 120	5	20
Xylene		1	4.99	mg/Kg	1	6.00	0.0077	83	77 - 120	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)	1.55	1.63	mg/Kg	1	2.00	78	82	69.6 - 120
4-Bromofluorobenzene (4-BFB)	1.66	1.73	mg/Kg	1	2.00	83	86	69.2 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 102540 | Date Analyzed: 2013-06-21 | Analyzed By: JS
Prep Batch: 86863 | QC Preparation: 2013-06-21 | Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	14.8	mg/Kg	1	20.0	<0.230	74	66.9 - 120

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

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	15.4	mg/Kg	1	20.0	<0.230	77	66.9 - 120	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
Trifluorotoluene (TFT)	1.80	1.85	mg/Kg	1	2.00	90	92	69.6 - 124
4-Bromofluorobenzene (4-BFB)	1.93	2.04	mg/Kg	1	2.00	96	102	77.7 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 102549 | Date Analyzed: 2013-06-24 | Analyzed By: CW
Prep Batch: 86869 | QC Preparation: 2013-06-23 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	216	mg/Kg	1	250	13.9	81	66.9 - 119.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		2	210	mg/Kg	1	250	13.9	78	66.9 - 119.9	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	90.9	88.1	mg/Kg	1	100	91	88	76.8 - 140.2

Laboratory Control Spike (LCS-1)

QC Batch: 102555 | Date Analyzed: 2013-06-24 | Analyzed By: AR
Prep Batch: 86840 | QC Preparation: 2013-06-21 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2690	mg/Kg	1	2500	<3.85	108	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			2610	mg/Kg	1	2500	<3.85	104	85 - 115	3	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 102556 | Date Analyzed: 2013-06-24 | Analyzed By: AR
Prep Batch: 86840 | QC Preparation: 2013-06-21 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2720	mg/Kg	1	2500	<3.85	109	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			2630	mg/Kg	1	2500	<3.85	105	85 - 115	3	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 102642 | Date Analyzed: 2013-06-26 | Analyzed By: MT
Prep Batch: 86950 | QC Preparation: 2013-06-26 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.65	mg/Kg	1	2.00	<0.00473	82	74.6 - 120
Toluene		1	1.72	mg/Kg	1	2.00	<0.00416	86	77.1 - 120
Ethylbenzene		1	1.81	mg/Kg	1	2.00	<0.00511	90	75 - 120
Xylene		1	5.37	mg/Kg	1	6.00	0.0094	89	77 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.56	mg/Kg	1	2.00	<0.00473	78	74.6 - 120	6	20
Toluene		1	1.62	mg/Kg	1	2.00	<0.00416	81	77.1 - 120	6	20
Ethylbenzene		1	1.71	mg/Kg	1	2.00	<0.00511	86	75 - 120	6	20
Xylene		1	5.07	mg/Kg	1	6.00	0.0094	84	77 - 120	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)	1.73	1.64	mg/Kg	1	2.00	86	82	69.6 - 120
4-Bromofluorobenzene (4-BFB)	1.90	1.78	mg/Kg	1	2.00	95	89	69.2 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 102643 | Date Analyzed: 2013-06-26 | Analyzed By: MT
Prep Batch: 86950 | QC Preparation: 2013-06-26 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	13.6	mg/Kg	1	20.0	<0.230	68	66.9 - 120

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	13.5	mg/Kg	1	20.0	<0.230	68	66.9 - 120	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)	1.80	1.59	mg/Kg	1	2.00	90	80	69.6 - 124
4-Bromofluorobenzene (4-BFB)	1.96	1.98	mg/Kg	1	2.00	98	99	77.7 - 120

Matrix Spike (MS-1) Spiked Sample: 332407

QC Batch: 102539 | Date Analyzed: 2013-06-21 | Analyzed By: JS
Prep Batch: 86863 | QC Preparation: 2013-06-21 | Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.74	mg/Kg	1	2.00	<0.00473	87	68.8 - 120
Toluene		1	1.80	mg/Kg	1	2.00	<0.00416	90	71.8 - 122
Ethylbenzene		1	1.91	mg/Kg	1	2.00	<0.00511	96	75 - 130
Xylene		1	5.66	mg/Kg	1	6.00	0.0128	94	75.4 - 129

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	1.80	mg/Kg	1	2.00	<0.00473	90	68.8 - 120	3	20
Toluene		1	1.86	mg/Kg	1	2.00	<0.00416	93	71.8 - 122	3	20
Ethylbenzene		1	1.98	mg/Kg	1	2.00	<0.00511	99	75 - 130	4	20
Xylene		1	5.86	mg/Kg	1	6.00	0.0128	97	75.4 - 129	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)	1.82	1.92	mg/Kg	1	2	91	96	69.6 - 120
4-Bromofluorobenzene (4-BFB)	2.01	2.05	mg/Kg	1	2	100	102	69.2 - 120

Matrix Spike (MS-1) Spiked Sample: 332407

QC Batch: 102540 | Date Analyzed: 2013-06-21 | Analyzed By: JS
Prep Batch: 86863 | QC Preparation: 2013-06-21 | Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	14.0	mg/Kg	1	20.0	0.266	69	38.8 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	14.4	mg/Kg	1	20.0	0.266	71	38.8 - 120	3	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)	2.26	1.91	mg/Kg	1	2	113	96	69.6 - 124
4-Bromofluorobenzene (4-BFB)	2.40	2.40	mg/Kg	1	2	120	120	77.7 - 120

Matrix Spike (MS-1) Spiked Sample: 332532

QC Batch: 102549 | Date Analyzed: 2013-06-24 | Analyzed By: CW
Prep Batch: 86869 | QC Preparation: 2013-06-23 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO Qs	Qs	2	7630	mg/Kg	5	250	8530	-360	36.1 - 147.2

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	Qs	Qs 2	7340	mg/Kg	5	250	8530	-476	36.1 - 147.2	4	20

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

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	Qsr	Qsr	464	484	mg/Kg	5	100	464	484	78.3 - 131.6

Matrix Spike (MS-1) Spiked Sample: 332535

QC Batch: 102555 | Date Analyzed: 2013-06-24 | Analyzed By: AR
Prep Batch: 86840 | QC Preparation: 2013-06-21 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3540	mg/Kg	10	2500	1220	93	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			3900	mg/Kg	10	2500	1220	107	78.9 - 121	10	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: 332624

QC Batch: 102556 | Date Analyzed: 2013-06-24 | Analyzed By: AR
Prep Batch: 86840 | QC Preparation: 2013-06-21 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3920	mg/Kg	5	2500	1380	102	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			3790	mg/Kg	5	2500	1380	96	78.9 - 121	3	20

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

Matrix Spike (MS-1) Spiked Sample: 332533

QC Batch: 102642 | Date Analyzed: 2013-06-26 | Analyzed By: MT
Prep Batch: 86950 | QC Preparation: 2013-06-26 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.74	mg/Kg	1	2.00	<0.00473	87	68.8 - 120
Toluene		1	1.82	mg/Kg	1	2.00	0.0069	91	71.8 - 122
Ethylbenzene		1	1.91	mg/Kg	1	2.00	<0.00511	96	75 - 130
Xylene		1	5.63	mg/Kg	1	6.00	0.0148	94	75.4 - 129

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	1.69	mg/Kg	1	2.00	<0.00473	84	68.8 - 120	3	20
Toluene		1	1.76	mg/Kg	1	2.00	0.0069	88	71.8 - 122	3	20
Ethylbenzene		1	1.86	mg/Kg	1	2.00	<0.00511	93	75 - 130	3	20
Xylene		1	5.48	mg/Kg	1	6.00	0.0148	91	75.4 - 129	3	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)	1.75	1.79	mg/Kg	1	2	88	90	69.6 - 120
4-Bromofluorobenzene (4-BFB)	1.95	1.92	mg/Kg	1	2	98	96	69.2 - 120

Matrix Spike (MS-1) Spiked Sample: 332533

QC Batch: 102643 | Date Analyzed: 2013-06-26 | Analyzed By: MT
Prep Batch: 86950 | QC Preparation: 2013-06-26 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	15.8	mg/Kg	1	20.0	<0.230	79	38.8 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	15.8	mg/Kg	1	20.0	<0.230	79	38.8 - 120	0	20

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

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matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.78	1.68	mg/Kg	1	2	89	84	69.6 - 124
4-Bromofluorobenzene (4-BFB)	2.21	2.20	mg/Kg	1	2	110	110	77.7 - 120

Calibration Standards

Standard (CCV-1)

QC Batch: 102539 | Date Analyzed: 2013-06-21 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0858	86	80 - 120	2013-06-21
Toluene		1	mg/kg	0.100	0.0803	80	80 - 120	2013-06-21
Ethylbenzene		1	mg/kg	0.100	0.0811	81	80 - 120	2013-06-21
Xylene		1	mg/kg	0.300	0.239	80	80 - 120	2013-06-21

Standard (CCV-2)

QC Batch: 102539 | Date Analyzed: 2013-06-21 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0877	88	80 - 120	2013-06-21
Toluene		1	mg/kg	0.100	0.0835	84	80 - 120	2013-06-21
Ethylbenzene		1	mg/kg	0.100	0.0838	84	80 - 120	2013-06-21
Xylene		1	mg/kg	0.300	0.247	82	80 - 120	2013-06-21

Standard (CCV-1)

QC Batch: 102540 | Date Analyzed: 2013-06-21 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.922	92	80 - 120	2013-06-21

Standard (CCV-2)

QC Batch: 102540 | Date Analyzed: 2013-06-21 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.940	94	80 - 120	2013-06-21

Standard (CCV-1)

QC Batch: 102549 Date Analyzed: 2013-06-24 Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	204	82	80 - 120	2013-06-24

Standard (CCV-2)

QC Batch: 102549 Date Analyzed: 2013-06-24 Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	209	84	80 - 120	2013-06-24

Standard (CCV-1)

QC Batch: 102555 Date Analyzed: 2013-06-24 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2013-06-24

Standard (CCV-2)

QC Batch: 102555 Date Analyzed: 2013-06-24 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	2013-06-24

Standard (CCV-1)

QC Batch: 102556 Date Analyzed: 2013-06-24 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	99.3	99	85 - 115	2013-06-24

Standard (CCV-2)

QC Batch: 102556 Date Analyzed: 2013-06-24 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	2013-06-24

Standard (CCV-1)

QC Batch: 102642 Date Analyzed: 2013-06-26 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0904	90	80 - 120	2013-06-26
Toluene		1	mg/kg	0.100	0.0842	84	80 - 120	2013-06-26
Ethylbenzene		1	mg/kg	0.100	0.0843	84	80 - 120	2013-06-26
Xylene		1	mg/kg	0.300	0.249	83	80 - 120	2013-06-26

Standard (CCV-2)

QC Batch: 102642 Date Analyzed: 2013-06-26 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0865	86	80 - 120	2013-06-26
Toluene		1	mg/kg	0.100	0.0814	81	80 - 120	2013-06-26
Ethylbenzene		1	mg/kg	0.100	0.0813	81	80 - 120	2013-06-26
Xylene	Qc	Qc	1	mg/kg	0.300	0.238	79	80 - 120	2013-06-26

Standard (CCV-1)

QC Batch: 102643 Date Analyzed: 2013-06-26 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.887	89	80 - 120	2013-06-26

Standard (CCV-2)

QC Batch: 102643 Date Analyzed: 2013-06-26 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.871	87	80 - 120	2013-06-26

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	T104704219-13-9	Lubbock
2	NELAP	T104704392-12-4	Midland

Standard Flags

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

Attachments

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

1306121

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 2

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-640136d

PROJECT NAME: Jenkins B Federal Water Flood Eddy Co NM

LAB I.D. NUMBER	DATE 2013	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD	TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
332532	6/12		S	X		SB-1 @ AH-1 0-1'	1				X		X	X												X				
533						2-3'																								
534						4-5'																								
535						6-7'																								
536						9-10'																								
537						19-20'																								
538						39-40'																								
539	6/13					59-60'																								
540						79-80'																								
541						89-90'																								

RELINQUISHED BY: (Signature) Date: 6-18-13 Time: 1112
RECEIVED BY: (Signature) Date: 6/18/13 Time: 11:12
SAMPLED BY: (Print & Initial) JF Date: 6-12-13 Time:

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

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

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

SAMPLE CONDITION WHEN RECEIVED: 4.3

REMARKS: Run deeper sample if TPH exceeds 5,000 mg/kg. Run deeper sample if Benzene exceeds 10 mg/kg. Run deeper sample if Total BTEX exceeds 50 mg/kg.

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

Midland - BLL

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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.: 114-640136 4

PROJECT NAME: Jenkins B Federal Water Flood
Eddy Co NM

LAB I.D. NUMBER	DATE 2013	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
542	6/14		S	X		SB-1 @ Att-1 99-100'	1				X	
543	6/14		S	X		104-105'	1				X	

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				
												X				

RELINQUISHED BY: (Signature) Date: 6-18-13 Time: 1112 — RECEIVED BY: (Signature) Date: 6/18/13 Time: 11:12

SAMPLED BY: (Print & Initial) TF Date: 6-14-13 Time:

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

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

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

TETRA TECH CONTACT PERSON: Ike — 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:

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.