SITE INFORMATION

Report Type: Closure Report

General Site Information:		
Site:	EOG - West Brushy 27 Federal #1	
Company:	COG Operating LLC	
Section, Township and Range	Section 11 T-25S R-29E	
Lease Number:		
County:	Eddy County	
GPS:	32.102081° N	103.979668° W
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From the post office in Malaga, NM, travel south on Hwy 285 3.8 miles, turn left on Whitehotn Road and travel 4.0 miles, turn left and travel 1.8 miles, at caliche pit on right turn left and travel 1.5 miles to location.	

Release Data:	
Date Released:	11/30/2010
Type Release:	Produced Water
Source of Contamination:	Flowline failure
Fluid Released:	80 bbls
Fluids Recovered:	0 bbls

Official Communication:			
Name:	Robert McNeill		Ike Tavarez
Company:	COG Operating		Tetra Tech
Address:	One Concho Center		400 N. Big Spring
P.O. Box	600 W. Illnois		Suite 401
City:	Midland, Texas, 79701		Midland, Texas
Phone number:	432-686-3023		432-6284559
Fax:	432--684-7137		
Email:	rmcneill@concho.com		ike.tavarez@tetratech.com

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

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

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MAR 05 2014
NMOCD ARTESIA

TETRA TECH

January 30, 2014

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

Re: Closure Report for the COG Operating LLC., West Brushy 27 Federal #1 Flow Line Operated by EOG Resources, Inc., Section 27, Township 25 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 West Brushy 27 Federal #1 flowline operated by EOG Resources, Inc., Section 27, Township 25 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.10208°, W 103.97966 °. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on November 30, 2010, and released approximately eighty (80) barrels of produced water from a flowline. COG contracted Production Specialty to remove a COG flowline. Production Specialty cut into an active EOG flowline by mistake. To alleviate the problem, Production Specialty repaired the damaged line and returned it back to service.

The spill initiated on the west side of the lease road and the fluids migrated into the road bar ditch and migrated in two areas on the east side of the road, crossing the lease road and impacting the pasture area. The first leg of the spill measured approximately 5' x 300' and pooled in an area approximately 50' x 125'. The second leg of the spill migrated along the lease road approximately 400' before crossing the lease road and impacting an area approximately 10' x 375' with another finger running 5' x 100'. The initial C-141 form is enclosed in Appendix A.

Tetra Tech
4000 North Big Spring, Ste. 401 Midland,TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

Groundwater

No water wells were listed within Section 27. According to the *Geology and Groundwater Resources of Eddy County, New Mexico* (Report 3), one well is located in Section 32, with a reported depth to water of 115' below surface. According to the NMOCD groundwater map, the average depth to groundwater in this area is estimated between 175' to 200' below surface. The water well data report is shown in Appendix 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

Prior to sampling, the NMCRIS complete a site investigation. The site was cleared for remediation activities. A copy of the report from the NMCRIS is shown in Appendix C.

On April 14, 2011, Tetra Tech personnel collected (7) seven surface samples (SS-1 through SS-7), (8) eight hand soil boring (SB-1 through SB-7) and one road (Road-1) sample at the site. Due the dense geology of the area, deeper hand soil borings could not be collected in the subsurface soils.

Based on the dense formation, an air rotary drilling rig was utilized to define vertical extents. On July 6, 2011, Tetra Tech personnel supervised the installation of ten (10) boreholes (BH-1 through BH-10). Samples collected from drilling were placed in laboratory provided containers and submitted for analysis. All the sampling results are summarized in Table 1. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix D. The sample locations are shown on Figure 3 and Figure 4.

Referring to Table 1, all of the submitted samples were below the RRAL for BTEX and TPH. No chloride impacted soils were detected in the areas of SS-5, SS-8, SB-4, SB-5 and SB-6. The remaining areas showed elevated chloride concentrations to the shallow soils which were vertically defined. Chloride concentrations exceeding 5,000 mg/kg were detected in the soils at depths ranging from 1.0' to 3.0' below surface, which significantly declined with depth.

Deeper chloride impact soils were found in the areas of SB-1 (BH-5) and SB-3 (BH-4) and were vertically defined at approximately 7.0' to 9.0' below surface. Chloride spikes were detected in the areas of SB-3 (BH-4) and SB-7 (BH-9) of 22,000 mg/kg at 5-6' and 1,000 mg/kg at 8-9', respectively. These samples appear to be cross-contaminated from the upper soils.

Remedial Activities

On November 20, 2013, Tetra Tech began supervising the excavation of impacted materials as highlighted (green) on Table 1 and shown on Figure 5, as approved in the work plan. All of the excavation depths were achieved except for the areas of BH-3, BH-6 and BH-9. These areas (BH-3, BH-6, and BH-9) showed elevated chloride concentrations at the excavation bottom holes of 1,860 mg/kg, 1,860 mg/kg and 2,210 mg/kg, respectively. Due to dense dolomitic limestone, deeper excavation could be performed these areas and the proposed excavation depths were not achieved. However, as discussed and approved by the BLM, these areas were capped with 6" of clay and added approximately two feet of topsoil. The impacted areas on the lease road were not excavated due to the high traffic in the area.

Approximately 1300 yards of excavated soil was transported offsite for proper disposal and the areas were backfilled with clean material to surface grade.

Conclusion

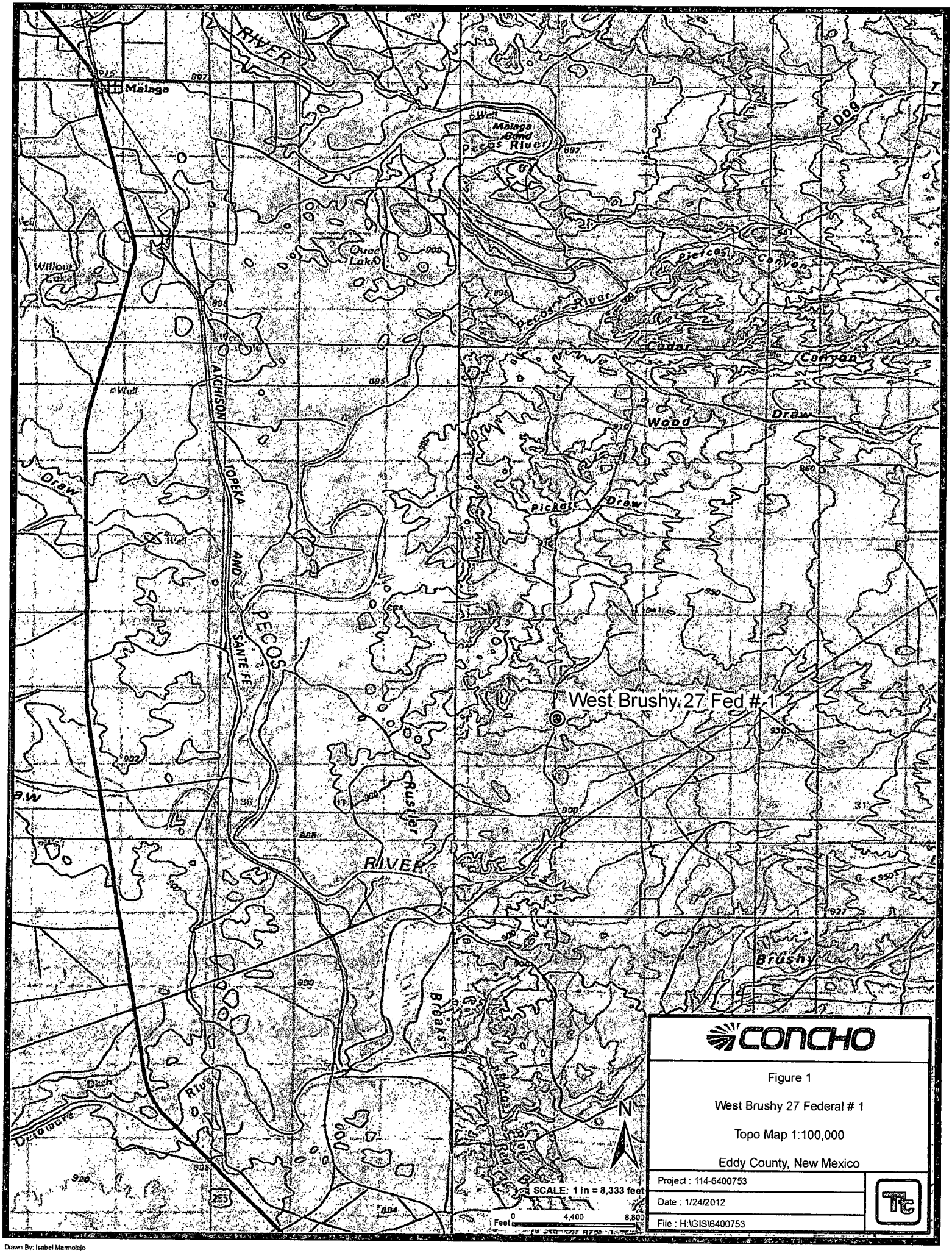
Based on the remedial actions taken, COG requests closure of the site. The Final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

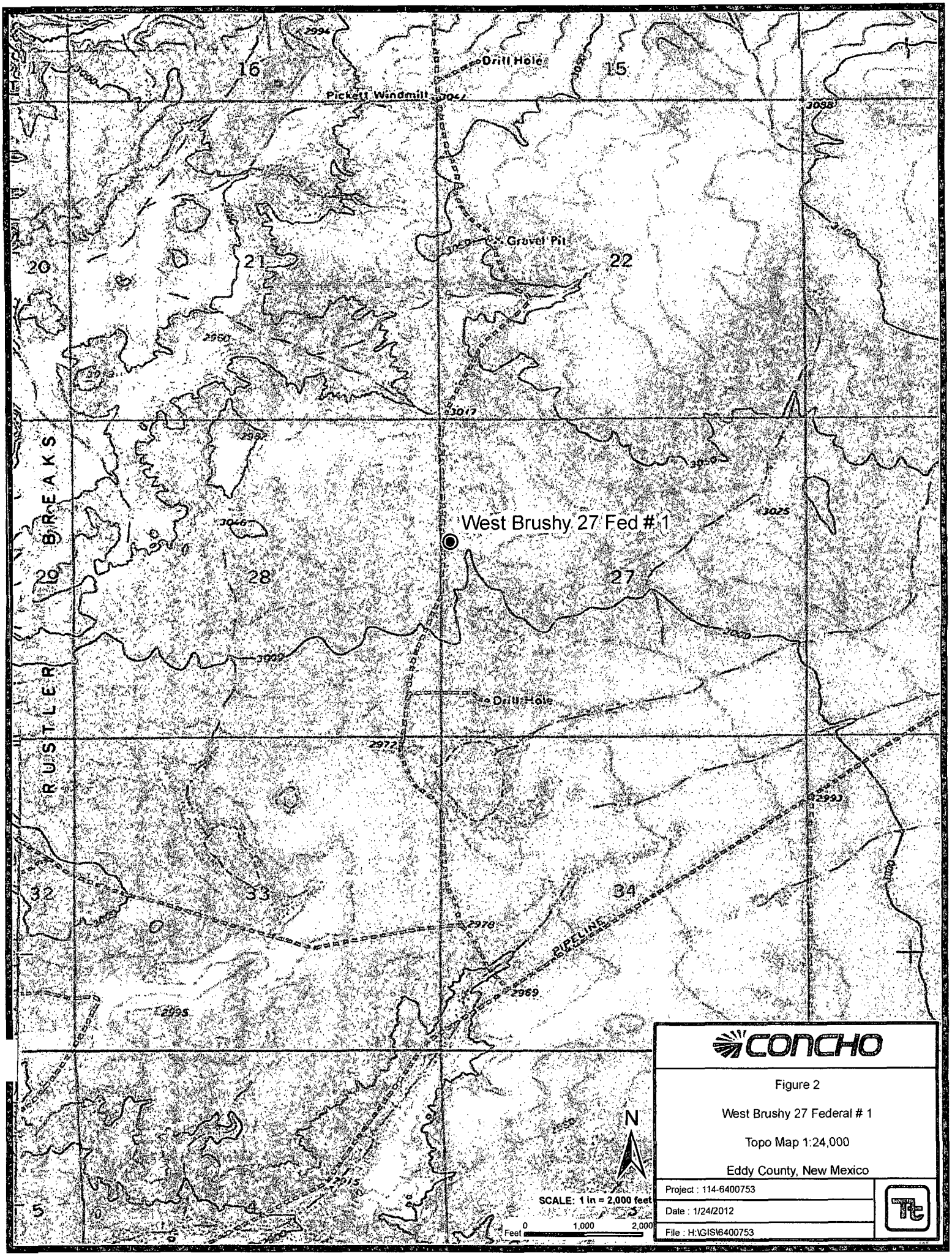
Ike Tavarez
Senior Geologist, PG

cc: Robert McNeill – COG
Mike Burton - BLM

Figures



Drawn By: Isabel Marmolejo



CONCHO

Figure 2

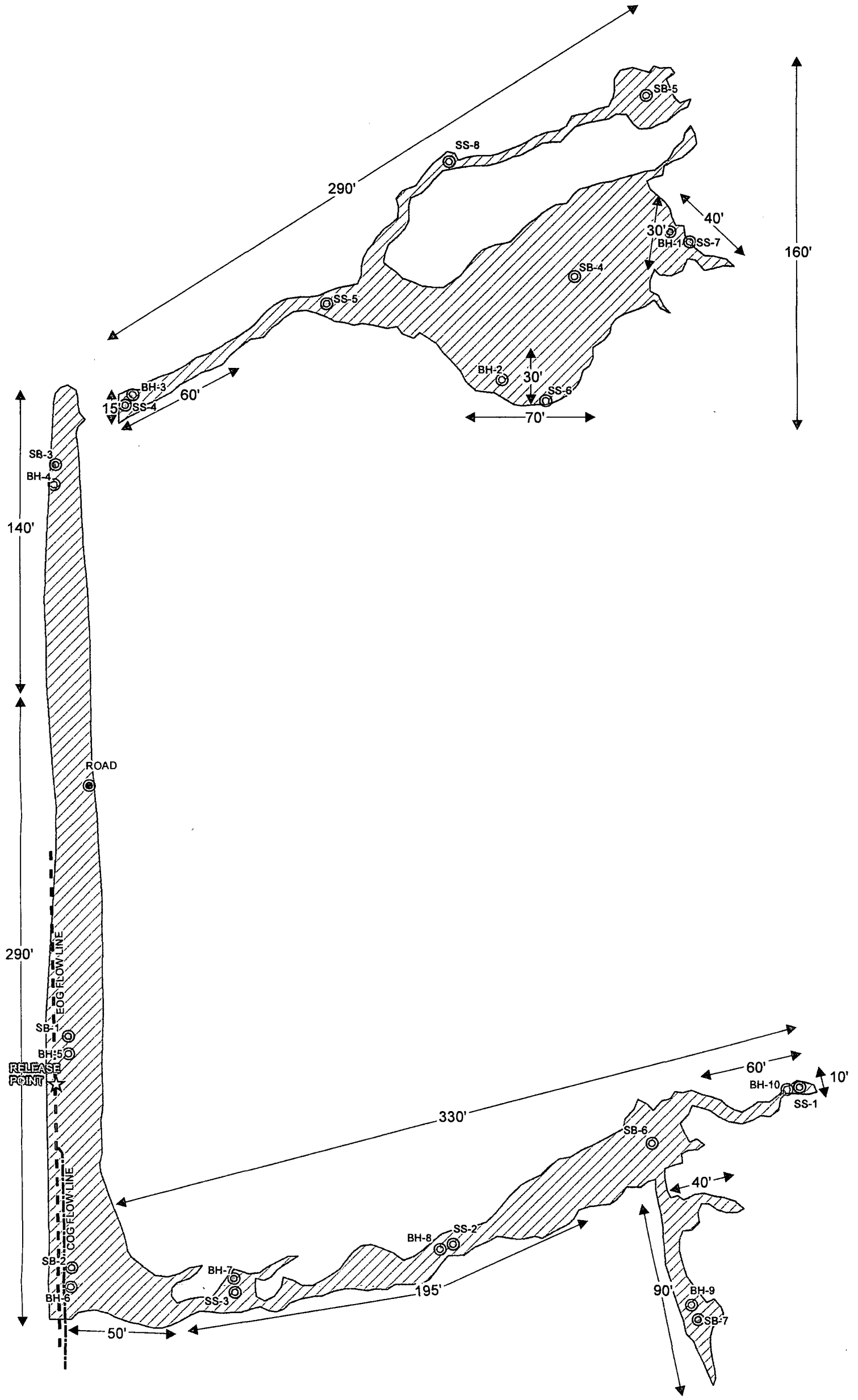
West Brushy 27 Federal # 1

Topo Map 1:24,000

Eddy County, New Mexico

Project : 114-6400753	
Date : 1/24/2012	
File : H:\GIS\6400753	

Drawn By: Isabel Marmolejo



EXPLANATION

- ☆ RELEASE POINT
- ◎ SOIL SAMPLE LOCATIONS
- ◎ SOIL BORE SAMPLE LOCATIONS(AUGER)
- ◎ BORE HOLE SAMPLE LOCATIONS(MECHANICAL)
- ◉ ROAD SAMPLE
- —·— COG FLOW LINE
- – – EOG FLOW LINE
- SPILL AREA

N

1 in = 50 feet

Feet 0 25 50

CONCHO

Figure 3

West Brushy 27 Federal # 1

Spill Assessment Map

Eddy County, New Mexico

Project : 114-6400753

Date : 1/20/2012

File : H:\GIS\6400753

DRAWN BY: ISABEL MARMOLEJO

SB-5
SS-8
290'
SB-4
SS-5
BH-1
SS-7
30'
40'
160'
BH-2
30'
SS-6
70'
BH-3
60'
15'
SS-4
SB-3
BH-4
140'
ROAD
290'
SB-1
BH-5
RELEASE POINT
COG FLOW LINE
330'
SB-6
40'
60'
BH-10
10'
SS-1
BH-8
SS-2
SB-2
BH-7
BH-6
SS-3
195'
90'
BH-9
SB-7
50'

EXPLANATION

- ☆ RELEASE POINT
- ◎ SOIL SAMPLE LOCATIONS
- ◎ SOIL BORE SAMPLE LOCATIONS(AUGER)
- ◎ BORE HOLE SAMPLE LOCATIONS(MECHANICAL)
- ◉ ROAD SAMPLE
- —·— COG FLOW LINE
- – – EOG FLOW LINE
- ▨ SPILL AREA

N

1 in = 50 feet

0 25 50
Feet

CONCHO

Figure 4

West Brushy 27 Federal # 1

Spill Assessment
Aerial Map(Bing Map)

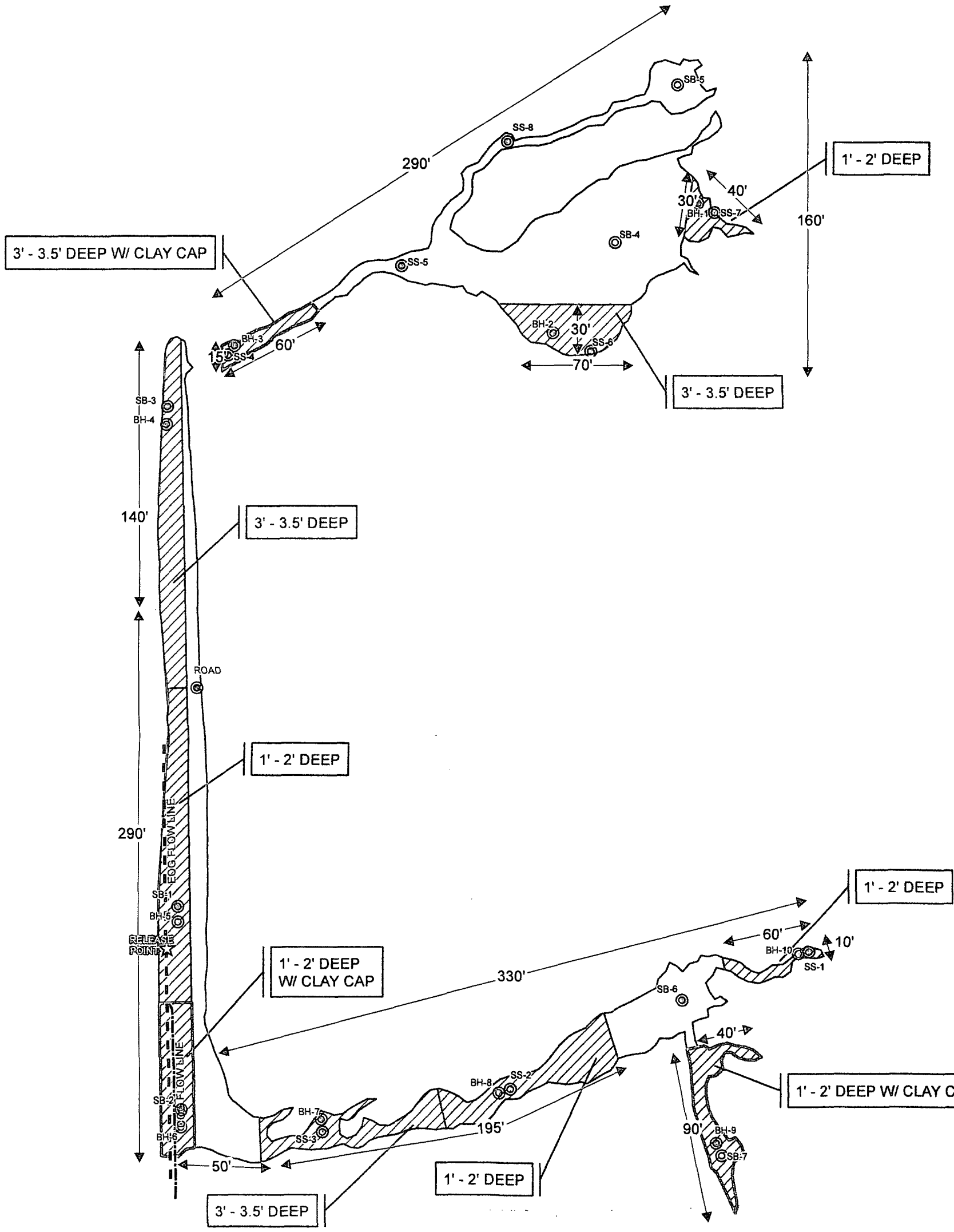
Eddy County, New Mexico

Project : 114-6400753

Date : 1/20/2012

File : H:\GIS\6400753

DRAWN BY: ISABEL MARMOLEJO



EXPLANATION

- ☆ RELEASE POINT
- ◎ SOIL SAMPLE LOCATIONS
- ◎ SOIL BORE SAMPLE LOCATIONS(AUGER)
- ◎ BORE HOLE SAMPLE LOCATIONS(MECHANICAL)
- ◎ ROAD SAMPLE
- —·— COG FLOW LINE
- — — EOG FLOW LINE
- ▨ EXCAVATED AREAS

N

1 in = 58 feet

Feet 0 25 50

CONCHO

Figure 5

West Brushy 27 Federal # 1

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 114-6400753

Date : 1/27/2014

File : H:\GIS\6400753

DRAWN BY: ISABEL MARMOLEJO

Tables

Table 1
EOG
West Brushy Federal #1
Eddy County, New Mexico

Sample ID	Date Sampled	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX	Chloride (mg/kg)
			In-Situ	Removed	DRO	GRO	Total						
SB-5	4/14/2011	Surface	X		<50.0	<2.00	<50.0	-	-	-	-	-	<200
SS-7	4/14/2011	Surface		X	<50.0	<2.00	<50.0						9,550
BH-1	7/6/2011	0-1'		X									1,230
		1-2'	X		-	-	-	-	-	-	-	-	1,320
		2-3'	X		-	-	-	-	-	-	-	-	343
		3-4'	X		-	-	-	-	-	-	-	-	<200
		4-5'	X		-	-	-	-	-	-	-	-	<200
North SW	12/9/2013	0-1'	X		-	-	-	-	-	-	-	-	25.0
South SW		1-2'	X		-	-	-	-	-	-	-	-	377
West SW		2-3'	X		-	-	-	-	-	-	-	-	447
East SW		3-4'	X		-	-	-	-	-	-	-	-	20.0
Bottom Hole		4-5'	X		-	-	-	-	-	-	-	-	457
SS-8	4/14/2011	Surface	X		<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
SB-4	4/14/2011	Surface	X		<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
SS-6	4/14/2011	Surface		X	<50.0	<2.00	<50.0						24,400
BH-2	7/6/2011	0-1'		X									5,110
		1-2'		X									5,250
		2-3'		X									2,760
		3-4'	X		-	-	-	-	-	-	-	-	1,490
		4-5'	X		-	-	-	-	-	-	-	-	<200
		5-6'	X		-	-	-	-	-	-	-	-	870
		6-7'	X		-	-	-	-	-	-	-	-	<200
		7-8'	X		-	-	-	-	-	-	-	-	<200
		8-9'	X										<200
		9-10'	X		-	-	-	-	-	-	-	-	<200
North SW	12/9/2013	0-1'	X		-	-	-	-	-	-	-	-	106
South SW		1-2'	X		-	-	-	-	-	-	-	-	5.00
West SW		2-3'	X		-	-	-	-	-	-	-	-	20.0
East SW		3-4'	X		-	-	-	-	-	-	-	-	40.0
Bottom Hole		4-5'	X		-	-	-	-	-	-	-	-	80.0
SS-5	4/14/2011	Surface	X		<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	355

Table 1
EOG
West Brushy Federal #1
Eddy County, New Mexico

Sample ID	Date Sampled	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX	Chloride (mg/kg)
			In-Situ	Removed	DRO	GRO	Total						
SS-4	4/14/2011	Surface		X	<50.0	<2.00	<50.0	-	-	-	-	-	7,730
BH-3	7/6/2011	0-1'		X	-	-	-	-	-	-	-	-	13,100
		1-2'		X	-	-	-	-	-	-	-	-	38,000
		2-3'		X	-	-	-	-	-	-	-	-	11,700
		3-4'		X	-	-	-	-	-	-	-	-	6,490
		4-5'	X		-	-	-	-	-	-	-	-	2,180
		5-6'	X		-	-	-	-	-	-	-	-	393
		6-7'	X		-	-	-	-	-	-	-	-	587
		7-8'	X		-	-	-	-	-	-	-	-	346
		8-9'	X		-	-	-	-	-	-	-	-	241
North SW	12/9/2013	0-1'	X		-	-	-	-	-	-	-	-	435
South SW		1-2'	X		-	-	-	-	-	-	-	-	60.0
West SW		2-3'	X		-	-	-	-	-	-	-	-	60.0
East SW		3-4'	X		-	-	-	-	-	-	-	-	405
Bottom Hole		4-5'	X		-	-	-	-	-	-	-	-	1,860
SB-3	4/14/2011	Surface		X	<50.0	<2.00	<50.0	-	-	-	-	-	5,610
BH-4	7/6/2011	0-1'		X	-	-	-	-	-	-	-	-	16,200
		1-2'		X	-	-	-	-	-	-	-	-	15,400
		2-3'		X	-	-	-	-	-	-	-	-	11,000
		3-4'	X		-	-	-	-	-	-	-	-	4,670
		4-5'	X		-	-	-	-	-	-	-	-	3,040
		5-6'	X		-	-	-	-	-	-	-	-	22,000
		6-7'	X		-	-	-	-	-	-	-	-	731
		7-8'	X		-	-	-	-	-	-	-	-	1,240
		8-9'	X		-	-	-	-	-	-	-	-	764
		9-10'	X		-	-	-	-	-	-	-	-	<200
		10-11'	X		-	-	-	-	-	-	-	-	260
		11-12'	X		-	-	-	-	-	-	-	-	<200
North SW	12/9/2013	0-1'	X		-	-	-	-	-	-	-	-	115
West SW		2-3'	X		-	-	-	-	-	-	-	-	40.0
East SW		3-4'	X		-	-	-	-	-	-	-	-	380
Bottom Hole		4-5'	X		-	-	-	-	-	-	-	-	25.0

Table 1
EOG
West Brushy Federal #1
Eddy County, New Mexico

Sample ID	Date Sampled	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX	Chloride (mg/kg)
			In-Situ	Removed	DRO	GRO	Total						
SB-1	4/14/2011	Surface		X	<50.0	<2.00	<50.0	<0.0200	0.113	0.128	0.410	0.651	79,700
BH-5	7/6/2011	0-1'		X	-	-	-	-	-	-	-	-	11,300
		1-2'		X	-	-	-	-	-	-	-	-	11,000
		2-3'	X		-	-	-	-	-	-	-	-	29,000
		3-4'	X		-	-	-	-	-	-	-	-	8,720
		4-5'	X		-	-	-	-	-	-	-	-	2,610
		5-6'	X		-	-	-	-	-	-	-	-	1,010
		6-7'	X		-	-	-	-	-	-	-	-	1,940
		7-8'	X		-	-	-	-	-	-	-	-	346
		8-9'	X		-	-	-	-	-	-	-	-	265
		9-10'	X		-	-	-	-	-	-	-	-	369
West SW	12/9/2013	2-3'	X		-	-	-	-	-	-	-	-	165
East SW		3-4'	X		-	-	-	-	-	-	-	-	1,630
Bottom Hole		4-5'	X		-	-	-	-	-	-	-	-	451
SB-2	4/14/2011	Surface		X	<50.0	<2.00	<50.0	-	-	-	-	-	4,610
BH-6	7/7/2011	0-1'		X	-	-	-	-	-	-	-	-	5,340
		1-2'	X		-	-	-	-	-	-	-	-	17,700
		2-3'	X		-	-	-	-	-	-	-	-	11,300
		3-4'	X		-	-	-	-	-	-	-	-	4,930
		4-5'	X		-	-	-	-	-	-	-	-	<200
		5-6'	X		-	-	-	-	-	-	-	-	201
		6-7'	X		-	-	-	-	-	-	-	-	<200
South SW		1-2'	X		-	-	-	-	-	-	-	-	326
West SW		2-3'	X		-	-	-	-	-	-	-	-	206
East SW		3-4'	X		-	-	-	-	-	-	-	-	8,270
Bottom Hole		4-5'	X		-	-	-	-	-	-	-	-	1,860
SS-3	4/14/2011	Surface		X	<50.0	<2.00	<50.0	-	-	-	-	-	40,400
BH-7	7/7/2011	0-1'		X	-	-	-	-	-	-	-	-	13,900
		1-2'		X	-	-	-	-	-	-	-	-	9,260
		2-3'		X	-	-	-	-	-	-	-	-	5,210
		3-4'		X	-	-	-	-	-	-	-	-	2,120
		4-5'	X		-	-	-	-	-	-	-	-	2,150
		5-6'	X		-	-	-	-	-	-	-	-	812
		6-7'	X		-	-	-	-	-	-	-	-	<200
		7-8'	X		-	-	-	-	-	-	-	-	326
		8-9'	X		-	-	-	-	-	-	-	-	1,030
		9-10'	X		-	-	-	-	-	-	-	-	286
		10-11'	X		-	-	-	-	-	-	-	-	441
		11-12'	X		-	-	-	-	-	-	-	-	767
		14-15'	X		-	-	-	-	-	-	-	-	<200
		17-18'	X		-	-	-	-	-	-	-	-	<200

Table 1
EOG
West Brushy Federal #1
Eddy County, New Mexico

Sample ID	Date Sampled	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX	Chloride (mg/kg)
			In-Situ	Removed	DRO	GRO	Total						
North SW	12/9/2013	0-1'	X		-	-	-	-	-	-	-	-	306
South SW		1-2'	X		-	-	-	-	-	-	-	-	65.0
West SW		2-3'	X		-	-	-	-	-	-	-	-	879
Bottom Hole		4-5'	X		-	-	-	-	-	-	-	-	402
SS-2	4/14/2011	Surface		X	<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	75,200
BH-8	7/7/2011	0-1'		X									5,580
		1-2'		X									7,950
		2-3'	X		-	-	-	-	-	-	-	-	4,050
		3-4'	X		-	-	-	-	-	-	-	-	<200
		4-5'	X		-	-	-	-	-	-	-	-	<200
North SW	12/9/2013	0-1'	X		-	-	-	-	-	-	-	-	528
South SW		1-2'	X		-	-	-	-	-	-	-	-	553
Bottom Hole		4-5'	X		-	-	-	-	-	-	-	-	980
SB-6	4/14/2011	Surface	X		<50.0	<2.00	<50.0	-	-	-	-	-	<200
SS-1	4/14/2011	Surface		X	<50.0	<2.00	<50.0						46,700
BH-10	7/7/2011	0-1'		X									<200
		1-2'	X		-	-	-	-	-	-	-	-	<200
North SW	12/9/2013	0-1'	X		-	-	-	-	-	-	-	-	653
South SW		1-2'	X		-	-	-	-	-	-	-	-	1,200
West SW		2-3'	X		-	-	-	-	-	-	-	-	975
Bottom Hole		4-5'	X		-	-	-	-	-	-	-	-	700
SB-7	4/14/2011	Surface		X	<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	12,000
BH-9	7/7/2011	0-1'		X									3,820
		1-2'		X									5,170
		2-3'	X		-	-	-	-	-	-	-	-	6,270
		3-4'	X		-	-	-	-	-	-	-	-	1,000
		4-5'	X		-	-	-	-	-	-	-	-	5,110
		5-6'	X		-	-	-	-	-	-	-	-	4,230
		6-7'	X		-	-	-	-	-	-	-	-	378
		7-8'	X		-	-	-	-	-	-	-	-	278
		8-9'	X		-	-	-	-	-	-	-	-	1,000
		9-10'	X		-	-	-	-	-	-	-	-	209
		10-11'	X		-	-	-	-	-	-	-	-	<200
		11-12'	X		-	-	-	-	-	-	-	-	<200
South SW		1-2'	X		-	-	-	-	-	-	-	-	704
West SW		2-3'	X		-	-	-	-	-	-	-	-	528
East SW		3-4'	X		-	-	-	-	-	-	-	-	653
Bottom Hole		4-5'	X		-	-	-	-	-	-	-	-	2,210
Road	4/14/2011	Surface	X		<50.0	<2.00	<50.0	-	-	-	-	-	7,100

(-) Not Analyzed
Excavation Depths
Clay Cap Location

Photos

COG Operating LLC
West Brushy 27 Federal #1
Eddy County, New Mexico

TETRA TECH

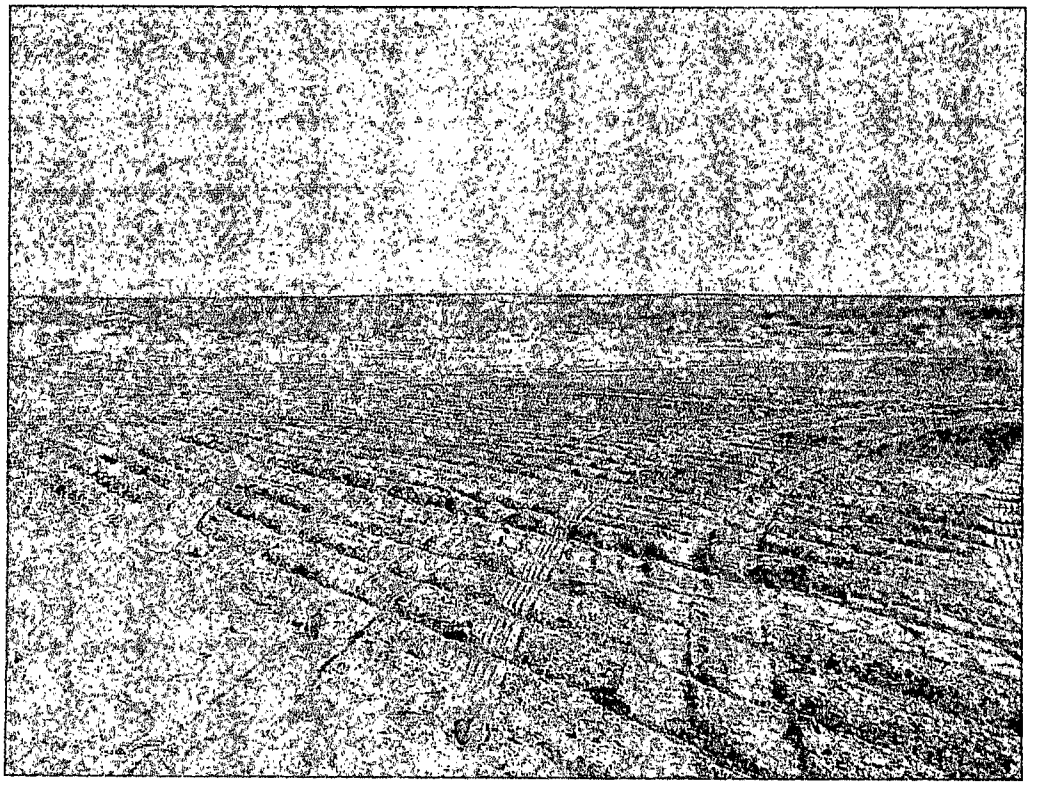
Excavated areas of BH-4, BH-5, and BH-6

Typical excavation area

COG Operating LLC
West Brushy 27 Federal #1
Eddy County, New Mexico

TETRA TECH

Backfilled area of BH-4, BH-5, and BH-6



Typical backfilled 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

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

X Initial Report ☐ Final Report

Name of Company EOG Resources, Inc.	Contact Renee Jarratt
AddressP. O. Box 2267, Midland, TX 79702	Telephone No. 432-686-3684
Facility Name	Facility Type

Surface Owner	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
								Eddy

Latitude_32 06.143_ Longitude_103 58.841_

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 80 bbls	Volume Recovered 0
Source of Release Cut Flowline	Date and Hour of Occurrence 11/30/10 7:00 am	Date and Hour of Discovery 11/30/10 8:30 am
Was Immediate Notice Given? ☐ Yes X No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes X No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
COG contracted Production Specialty to remove their flowline, Production Specialty cut into EOG's line by mistake causing release. Production Specialty has accepted all financial responsibility for the cleanup.

Describe Area Affected and Cleanup Action Taken.*
The release on the lease road measured an approximate area of 16' x 432' with intermittent puddles, the fluid traveled off the lease road in two locations with one measuring approximately 3' x 359' & the other measuring 3' x 320'. COG has been in contact with Petro Tech Environmental for the clean up.

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: Renee Jarratt	OIL CONSERVATION DIVISION	
Printed Name: Renee Jarratt	Approved by District Supervisor:	
Title: Environmental Rep	Approval Date:	Expiration Date:
E-mail Address: renee_jarratt@eogresources.com	Conditions of Approval:	Attached ☐
Date: 12/01/10 Phone: 432-686-3684		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company **EOG Resources, Inc.**	Contact **Renee Jarratt**
Address **P.O. Box 2267, Midland, TX 79702**	Telephone No. **(432) 686-3684**
Facility Name West Brushy 27 Federal #1	Facility Type **Tank Battery**

Surface Owner: Federal	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	11	25S	29E					

Latitude N 32.853001° **Longitude** W 103.959150°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 80 bbls	Volume Recovered 0 bbls
Source of Release: Cut Flowline	Date and Hour of Occurrence 11/30/2010 7:00 am	Date and Hour of Discovery 11/30/2010 8:30 am
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom? Josh Russo	Date and Hour 3/15/10 4:59 p.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

RECEIVED
MAR 05 2014
NMOCD ARTESIA

Describe Cause of Problem and Remedial Action Taken.*

COG contracted Production Specialty to remove their flowline, Production Specialty cut into EOG's line by mistake, causing the release. Production Specialty has accepted all financial responsibility for the cleanup.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected site and collected samples to define spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal and a clay cap was installed in necessary areas. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review.

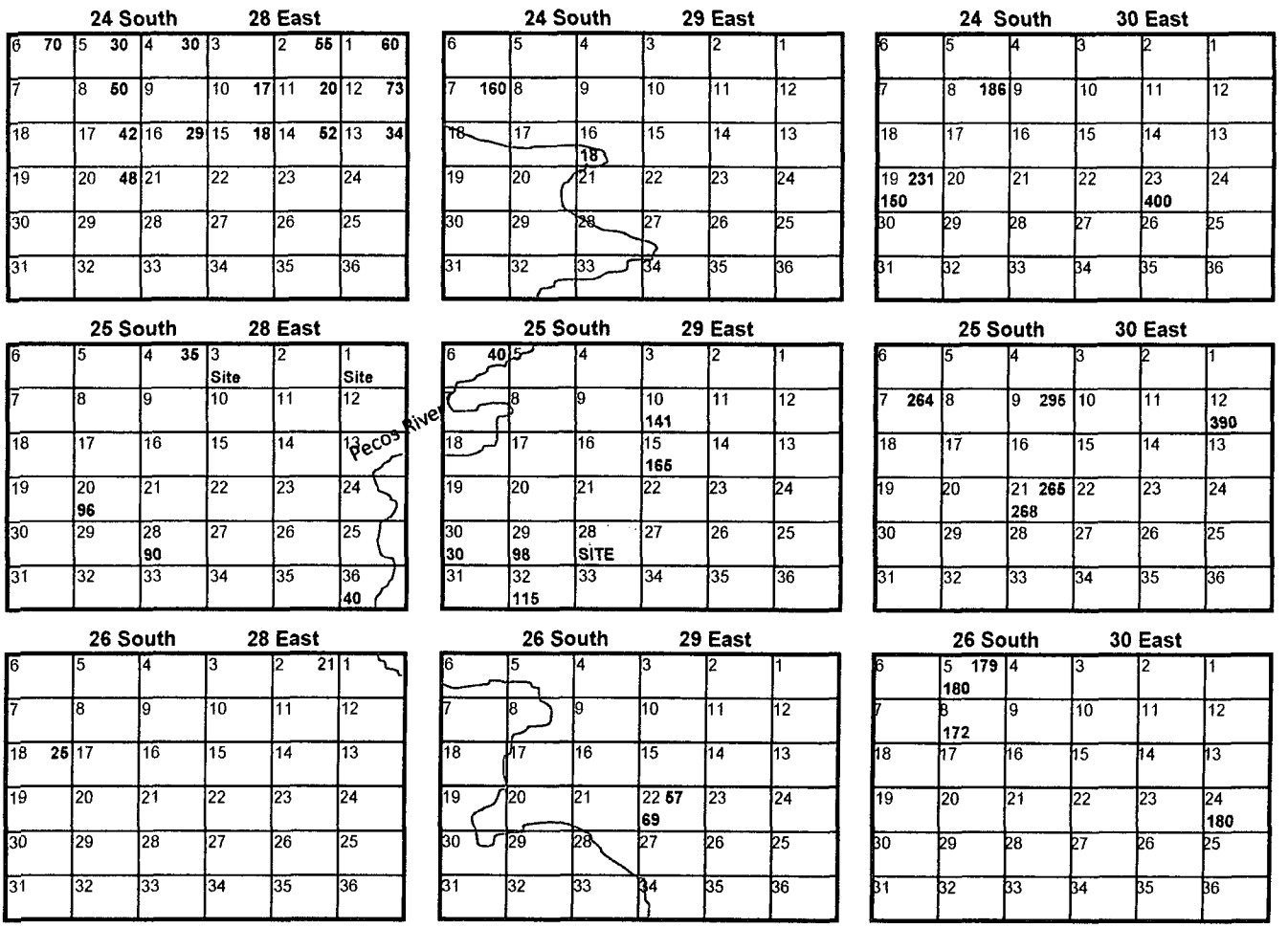
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 1-30-14 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG/EOG - West Brushy 27 Federal #1
Eddy County, New Mexico



- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Site Location - West Brushy 27 Federal #1

Appendix C

NMCRIS INVESTIGATION ABSTRACT FORM (NIAF)

1. NMCRIS Activity No.: 119834	2a. Lead (Sponsoring) Agency: BLM-CFO	2b. Other Permitting Agency(ies):	3. Lead Agency Report No.:

4. Title of Report: A Class III Cultural Resource Inventory Report for the West Brushy 27 Federal 1H-EOG Line Saltwater Spill and Site LA 122,866, Sections 27and 28, T.25S, R.29E, Eddy County, New Mexico.

Author(s) Allen Rorex, Doralene Sanders, and Janice Fletcher

5. Type of Report
☐ Negative ☒ Positive

6. Investigation Type
☐ Research Design ☒ Survey/Inventory ☐ Test Excavation ☐ Excavation ☐ Collections/Non-Field Study
☐ Overview/Lit Review ☐ Monitoring ☐ Ethnographic study ☐ Site specific visit ☐ Other

7. Description of Undertaking (what does the project entail?): Tetra Tech, on behalf of COG Operating, requested a class III cultural resource inventory for a saltwater spill area, resulting from an EOG line cut by COG crews, located in Sections 27 and 28, T.25S, R.29E, Eddy County, New Mexico. An area 650 ft E/W by 900 ft N/S was inventoried for the reclamation area. The impact area is unknown, as it is dependent upon the necessary cleanup operations. The spill area consisted of an area 400 ft wide by 600 ft long. One previously recorded site was encountered and a site update form completed.

8. Dates of Investigation: December 27, 2010 and January 30, 2011

9. Report Date: February 7, 2011

10. Performing Agency/Consultant: SNMAS, Inc.
Principal Investigator: Joe Ben Sanders
Field Supervisor: Allen Rorex
Field Personnel Names: Allen Rorex

11. Performing Agency/Consultant Report No.: SNMAS-10NM-3790

12. Applicable Cultural Resource Permit No(s): 145-2920-10-R

13. Client/Customer (project proponent): COG Operating, LLC
Contact: Ike Tavarez
Address: 550 West Texas Ave, Suite 1300
Midland, Texas 79701
Phone: (432) 682-4559

14. Client/Customer Project No.:

15. Land Ownership Status *(Must be indicated on project map):*

Land Owner	Acres Surveyed	Acres in APE
BLM-CFO	13.43	5.51
TOTALS	13.43	5.51

16 Records Search(es): The records search revealed one previously recorded site (LA 122,866) located within a quarter mile radius of the project area. There are thirteen sites within a mile. There are two previous inventories, listed under BLM report numbers 09-0359 and 02-NM-080-302.

Date(s) of ARMS File Review 12/26/10	Name of Reviewer(s) Doralene Sanders	
Date(s) of NR/SR File Review N/A	Name of Reviewer(s) N/A	
Date(s) of Other Agency File Review 12/27/10	Name of Reviewer(s) Allen Rorex	Agency BLM-CFO

17. Survey Data:

a. Source Graphics ☒ NAD 27 ☒ NAD 83
☒ USGS 7.5' (1:24,000) topo map ☐ Other topo map, Scale:
☒ GPS Unit Accuracy ☐<1.0m ☒ 1-10m ☐ 10-100m ☐>100m

b. USGS 7.5' Topographic Map Name / USGS Quad Code

USGS 7.5' Topographic Map Name	USGS Quad Code
Ross Ranch, NM, TX (1968)	32103-A8

c. County(ies): Eddy

17. Survey Data (continued):

d. Nearest City or Town: Carlsbad, NM

e. Legal Description:

Township (N/S)	Range (E/W)	Section	¼ ¼ ¼
25S	29E	27	NW, SW, SW of the NW
25S	29E	28	NE, SE, SE, of the NE

Projected legal description? Yes [ ] , No [ ]   Unplatted [ ]

f. Other Description (e.g. well pad footages, mile markers, plats, land grant name, etc.): A saltwater spill area measuring approximately 400 ft E/W by 600 ft N/S in size.

18. Survey Field Methods:
Intensity: ☒ 100% coverage ☐ <100% coverage

Configuration: ☒ block survey units 650 ft E/W by 900 ft N/S ☐ linear survey units (l x w):

Scope: ☒ non-selective (all sites recorded) ☐ selective/thematic (selected sites recorded)

Coverage Method: ☒ systematic pedestrian coverage ☐ other method (describe)

Survey Interval (m): 15 Crew Size: 1 Fieldwork Dates: December 27, 2010 and January 30, 2011

Survey Person Hours: 6 Recording Person Hours: 2 Total Hours: 8

19. Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.): The project is located on combination of open ridge / hill top and side slopes, with open to eastern exposure and drainage. Drainage is sheet wash to entrenched, flowing both into a nearby unnamed playa formation, with a draw running out of its southern most end (N to S). Soils are shallow to moderate depth (in playa) tan-brown-gray loamy sandy silts, overlaying caliche substrata and mixed with small lag gravels. Area vegetation is dominated by grasses, mesquite, cat-claw, creosote, wolfberry, Christmas cholla, and snakeweed. The elevation is average 3,000 ft above msl.

20.a. Percent Ground Visibility: 76-99 b. Condition of Survey Area (grazed, bladed, undisturbed, etc.): The survey area has undergone varied affects of wind / water erosion, and effects of two parallel cattle trails which are active.

21. CULTURAL RESOURCE FINDINGS ☒ Yes, See Page 3 ☐ No, Discuss Why:

22. Required Attachments (check all appropriate boxes):
☒ USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn
☒ Copy of NMCRIS Mapserver Map Check
☐ LA Site Forms - new sites *(with sketch map & topographic map)*
☒ LA Site Forms (update) - previously recorded & un-relocated sites *(first 2 pages minimum)*
☐ Historic Cultural Property Inventory Forms
☐ List and Description of Isolates, if applicable
☐ List and Description of Collections, if applicable

23. Other Attachments:
☐ Photographs and Log
☒ Other Attachments
(Describe):
Client provided maps of spill area.

24. I certify the information provided above is correct and accurate and meets all applicable agency standards.

Principal Investigator/Responsible Archaeologist: Allen Rorex Title (if not PI): Field Supervisor

Signature for Allen Rorex: ____________ Date February 7, 2011

25. Reviewing Agency:
Reviewer's Name/Date

Accepted ( ) Rejected ( )

Tribal Consultation (if applicable): ☐ Yes ☐ No

26. SHPO
Reviewer's Name/Date:

HPD Log #:

SHPO File Location:

Date sent to ARMS:

CULTURAL RESOURCE FINDINGS

[fill in appropriate section(s)]

1. NMCRIS Activity No.: 119834	2. Lead (Sponsoring) Agency: BLM-CFO	3. Lead Agency Report No.:

SURVEY RESULTS:

Sites discovered and registered: 0
Sites discovered and NOT registered: 0
Previously recorded sites revisited (*site update form required*): **1**
Previously recorded sites not relocated (*site update form required*): **0**
TOTAL SITES VISITED: 1
Total isolates recorded: 0 **Non-selective isolate recording?** ☒
Total structures recorded (*new and previously recorded, including acequias*): **0**

MANAGEMENT SUMMARY: During the current inventory, one previously recorded site LA 122,866 was encountered and updated. Site LA 122,866 does not meet the criteria of a site, and therefore is recommended as not eligible to the NRHP. Site LA 122,866 will likely be impacted during reclamation, as the spill surrounds this site. It is recommended with BLM approval that the proposed undertaking proceed as planned for the oil spill reclamation.

IF REPORT IS NEGATIVE YOU ARE DONE AT THIS POINT.

SURVEY LA NUMBER LOG

Sites Discovered:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)

Previously recorded revisited sites:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)
122,866	122,866	No, research potential exhausted, does not meet the criteria of a site.

MONITORING LA NUMBER LOG (*site form required*)

Sites Discovered (*site form required*) : **Previously recorded sites** (*Site update form required*):

LA No.	Field/Agency No.	LA No.	Field/Agency No.

Areas outside known nearby site boundaries monitored? Yes ☒, No ☐ If no explain why:

TESTING & EXCAVATION LA NUMBER LOG (*site form required*)

Tested LA number(s)	Excavated LA number(s)

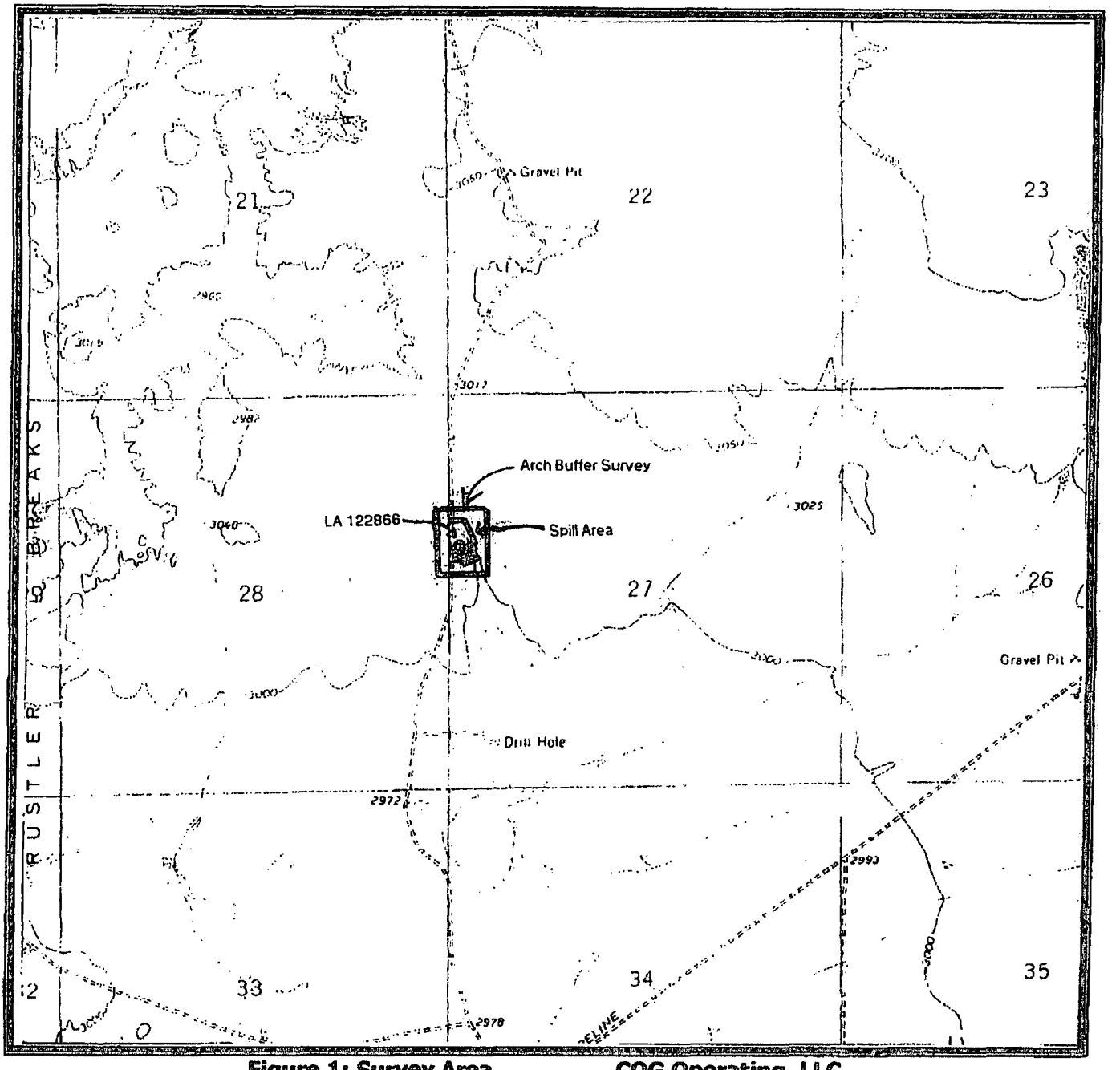
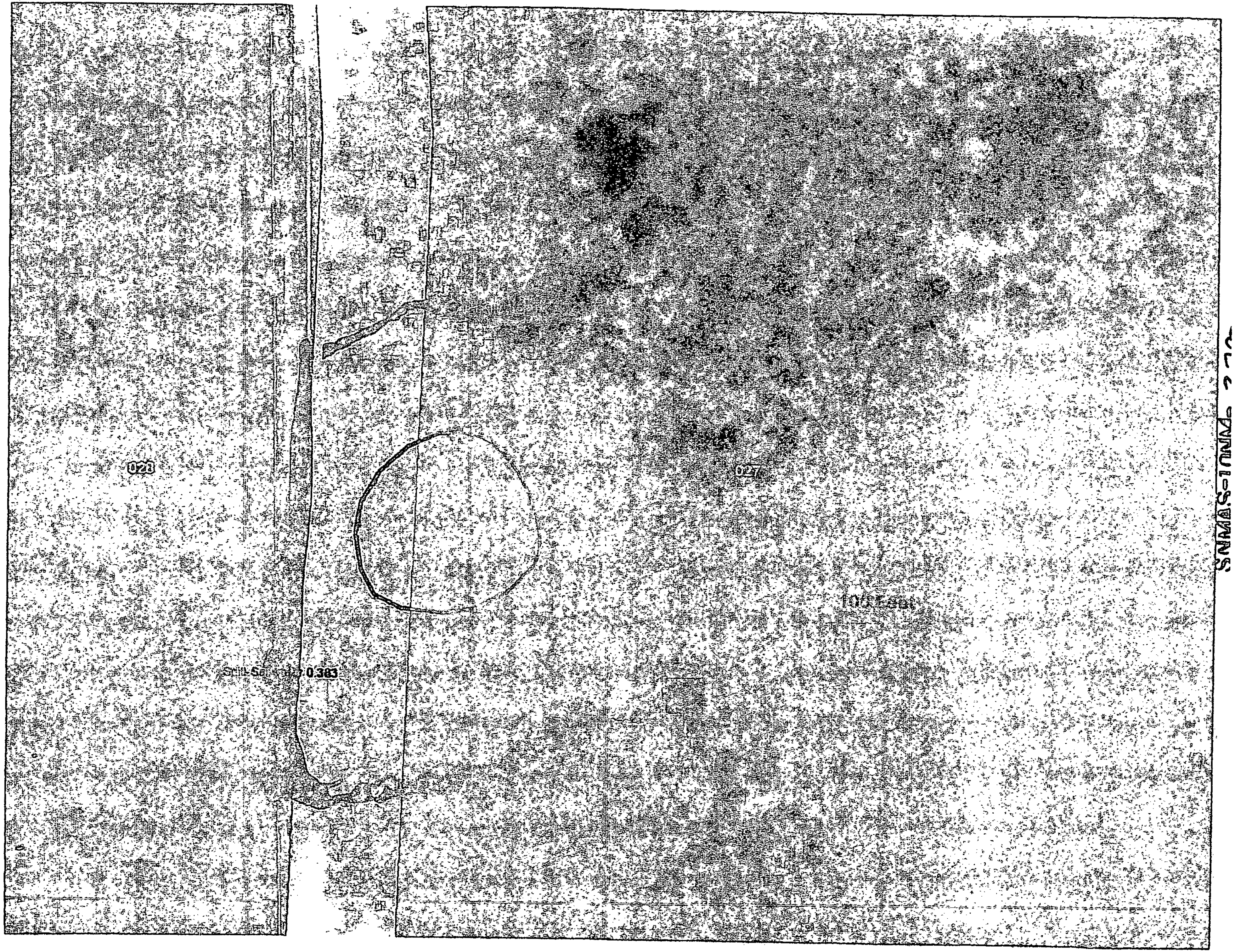
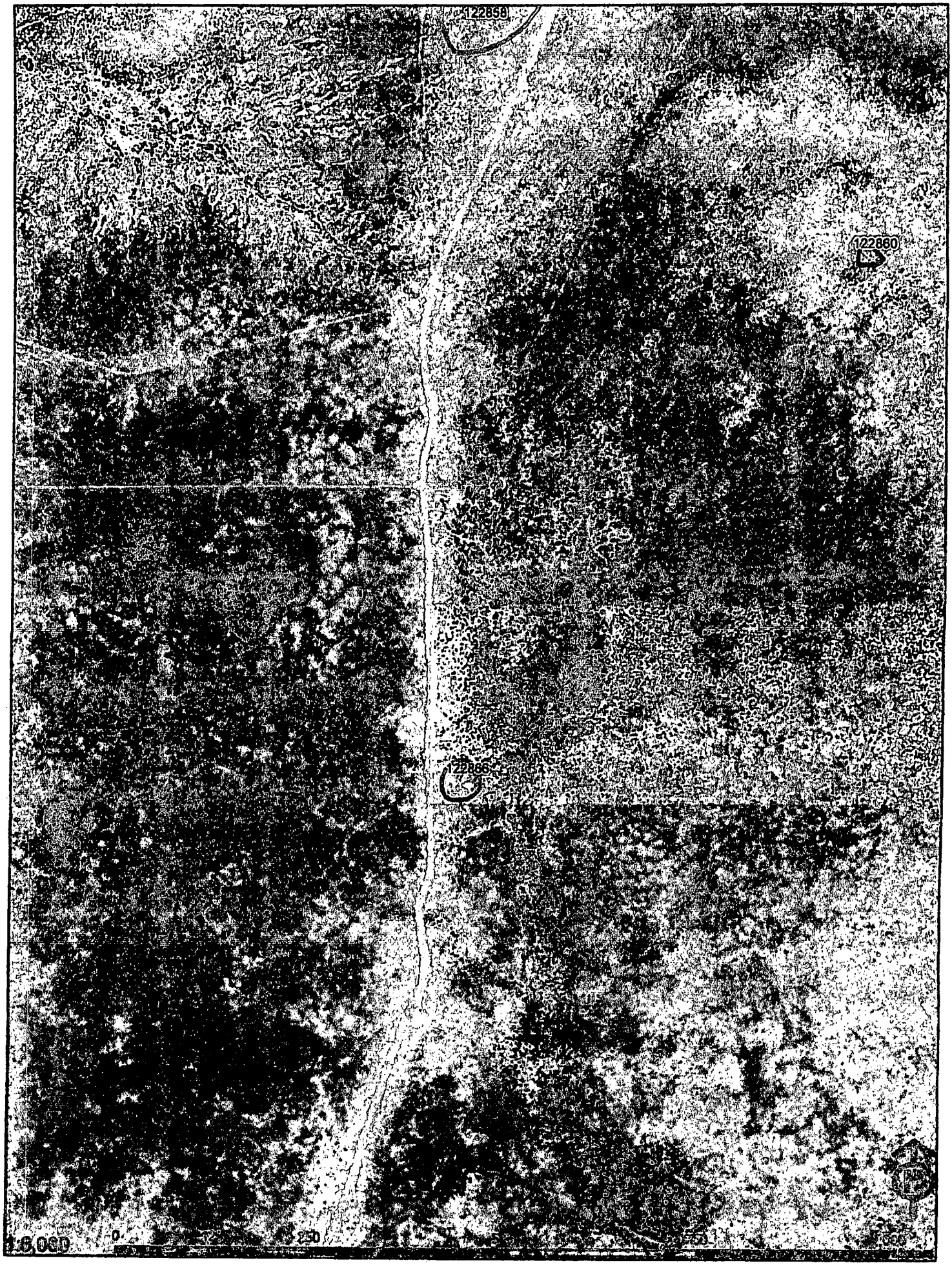


Figure 1: Survey Area **COG Operating, LLC**
The West Brushy 27 Federal 1H-EOG Line Saltwater Spill and Site LA 122,866
Sections 27and 28, T.25S, R.29E
USGS Ross Ranch, NM, TX (1968) 7.5' topo map
Eddy County, New Mexico
Scale 1:24,000

N↑




122858
122860
122866
1:8,000
0
250

Appendix D

Summary Report

James Kennedy
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: January 15, 2014

Work Order: 13123123

Project Location: NM
Project Name: COG/West Brushy 27 Fed #1
Project Number: 112MC05784

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
350350	BH-1 (North Side Wall)	soil	2013-12-09	00:00	2013-12-30
350351	BH-1 (South Side Wall)	soil	2013-12-09	00:00	2013-12-30
350352	BH-1 (West Side Wall)	soil	2013-12-09	00:00	2013-12-30
350353	BH-1 (East Side Wall)	soil	2013-12-09	00:00	2013-12-30
350354	BH-1 (Bottom Hole-1')	soil	2013-12-09	00:00	2013-12-30
350355	BH-2 (North Side Wall)	soil	2013-12-09	00:00	2013-12-30
350356	BH-2 (South Side Wall)	soil	2013-12-09	00:00	2013-12-30
350357	BH-2 (West Side Wall)	soil	2013-12-09	00:00	2013-12-30
350358	BH-2 (East Side Wall)	soil	2013-12-09	00:00	2013-12-30
350359	BH-2 (Bottom Hole-3')	soil	2013-12-09	00:00	2013-12-30
350360	BH-3 (North Side Wall)	soil	2013-12-09	00:00	2013-12-30
350361	BH-3 (South Side Wall)	soil	2013-12-09	00:00	2013-12-30
350362	BH-3 (West Side Wall)	soil	2013-12-09	00:00	2013-12-30
350363	BH-3 (East Side Wall)	soil	2013-12-09	00:00	2013-12-30
350364	BH-3 (Bottom Hole-3.5')	soil	2013-12-09	00:00	2013-12-30
350365	BH-4 (North Side Wall)	soil	2013-12-09	00:00	2013-12-30
350366	BH-4 (West Side Wall)	soil	2013-12-09	00:00	2013-12-30
350367	BH-4 (East Side Wall)	soil	2013-12-09	00:00	2013-12-30
350368	BH-4 (Bottom Hole -3')	soil	2013-12-09	00:00	2013-12-30
350369	BH-5 (West Side Wall)	soil	2013-12-09	00:00	2013-12-30
350370	BH-5 (East Side Wall)	soil	2013-12-09	00:00	2013-12-30
350371	BH-5 (Bottom Hole 1.5')	soil	2013-12-09	00:00	2013-12-30
350372	BH-6 (South Side Wall)	soil	2013-12-09	00:00	2013-12-30
350373	BH-6 (West Side Wall)	soil	2013-12-09	00:00	2013-12-30
350374	BH-6 (East Side Wall)	soil	2013-12-09	00:00	2013-12-30
350375	BH-6 (Bottom Hole -1')	soil	2013-12-09	00:00	2013-12-30
350376	BH-7 (North Side Wall)	soil	2013-12-09	00:00	2013-12-30
350377	BH-7 (South Side Wall)	soil	2013-12-09	00:00	2013-12-30
350378	BH-7 (West Side Wall)	soil	2013-12-09	00:00	2013-12-30
350379	BH-7 (Bottom Hole -3.5')	soil	2013-12-09	00:00	2013-12-30

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
350380	BH-8 (North Side Wall)	soil	2013-12-09	00:00	2013-12-30
350381	BH-8 (South Side Wall)	soil	2013-12-09	00:00	2013-12-30
350382	BH-8 (Bottom Hole-1.5')	soil	2013-12-09	00:00	2013-12-30
350383	BH-9 (South Side Wall)	soil	2013-12-09	00:00	2013-12-30
350384	BH-9 (West Side Wall)	soil	2013-12-09	00:00	2013-12-30
350385	BH-9 (East Side Wall)	soil	2013-12-09	00:00	2013-12-30
350386	BH-9 (Bottom Hole-1.5')	soil	2013-12-09	00:00	2013-12-30
350387	BH-10 (North Side Wall)	soil	2013-12-09	00:00	2013-12-30
350388	BH-10 (South Side Wall)	soil	2013-12-09	00:00	2013-12-30
350389	BH-10 (West Side Wall)	soil	2013-12-09	00:00	2013-12-30
350390	BH-10 (Bottom Hole-1')	soil	2013-12-09	00:00	2013-12-30

Sample: 350350 - BH-1 (North Side Wall)

Param	Flag	Result	Units	RL
Chloride		**25.0**	mg/Kg	5

Sample: 350351 - BH-1 (South Side Wall)

Param	Flag	Result	Units	RL
Chloride		**377**	mg/Kg	5

Sample: 350352 - BH-1 (West Side Wall)

Param	Flag	Result	Units	RL
Chloride		**447**	mg/Kg	5

Sample: 350353 - BH-1 (East Side Wall)

Param	Flag	Result	Units	RL
Chloride		**20.0**	mg/Kg	5

Sample: 350354 - BH-1 (Bottom Hole-1')

Param	Flag	Result	Units	RL
Chloride		**457**	mg/Kg	5

Sample: 350355 - BH-2 (North Side Wall)

Param	Flag	Result	Units	RL
Chloride		**106**	mg/Kg	5

Sample: 350356 - BH-2 (South Side Wall)

Param	Flag	Result	Units	RL
Chloride		**5.00**	mg/Kg	5

Sample: 350357 - BH-2 (West Side Wall)

Param	Flag	Result	Units	RL
Chloride		**20.0**	mg/Kg	5

Sample: 350358 - BH-2 (East Side Wall)

Param	Flag	Result	Units	RL
Chloride		**40.0**	mg/Kg	5

Sample: 350359 - BH-2 (Bottom Hole-3')

Param	Flag	Result	Units	RL
Chloride		**80.0**	mg/Kg	5

Sample: 350360 - BH-3 (North Side Wall)

Param	Flag	Result	Units	RL
Chloride		**435**	mg/Kg	5

Sample: 350361 - BH-3 (South Side Wall)

Param	Flag	Result	Units	RL
Chloride		**60.0**	mg/Kg	5

Sample: 350362 - BH-3 (West Side Wall)

Param	Flag	Result	Units	RL
Chloride		**60.0**	mg/Kg	5

Sample: 350363 - BH-3 (East Side Wall)

Param	Flag	Result	Units	RL
Chloride		**405**	mg/Kg	5

Sample: 350364 - BH-3 (Bottom Hole-3.5')

Param	Flag	Result	Units	RL
Chloride		**1860**	mg/Kg	5

Sample: 350365 - BH-4 (North Side Wall)

Param	Flag	Result	Units	RL
Chloride		**115**	mg/Kg	5

Sample: 350366 - BH-4 (West Side Wall)

Param	Flag	Result	Units	RL
Chloride		**40.0**	mg/Kg	5

Sample: 350367 - BH-4 (East Side Wall)

Param	Flag	Result	Units	RL
Chloride		**380**	mg/Kg	5

Sample: 350368 - BH-4 (Bottom Hole -3')

Param	Flag	Result	Units	RL
Chloride		**25.0**	mg/Kg	5

Sample: 350369 - BH-5 (West Side Wall)

Param	Flag	Result	Units	RL
Chloride		**165**	mg/Kg	5

Sample: 350370 - BH-5 (East Side Wall)

Param	Flag	Result	Units	RL
Chloride		**1630**	mg/Kg	5

Sample: 350371 - BH-5 (Bottom Hole 1.5')

Param	Flag	Result	Units	RL
Chloride		**451**	mg/Kg	5

Sample: 350372 - BH-6 (South Side Wall)

Param	Flag	Result	Units	RL
Chloride		**326**	mg/Kg	5

Sample: 350373 - BH-6 (West Side Wall)

Param	Flag	Result	Units	RL
Chloride		**206**	mg/Kg	5

Sample: 350374 - BH-6 (East Side Wall)

Param	Flag	Result	Units	RL
Chloride		**8270**	mg/Kg	5

Sample: 350375 - BH-6 (Bottom Hole -1')

Param	Flag	Result	Units	RL
Chloride		**1860**	mg/Kg	5

Sample: 350376 - BH-7 (North Side Wall)

Param	Flag	Result	Units	RL
Chloride		**306**	mg/Kg	5

Sample: 350377 - BH-7 (South Side Wall)

Param	Flag	Result	Units	RL
Chloride		**65.0**	mg/Kg	5

Sample: 350378 - BH-7 (West Side Wall)

Param	Flag	Result	Units	RL
Chloride		**879**	mg/Kg	5

Sample: 350379 - BH-7 (Bottom Hole -3.5')

Param	Flag	Result	Units	RL
Chloride		**402**	mg/Kg	5

Sample: 350380 - BH-8 (North Side Wall)

Param	Flag	Result	Units	RL
Chloride		**528**	mg/Kg	5

Sample: 350381 - BH-8 (South Side Wall)

Param	Flag	Result	Units	RL
Chloride		**553**	mg/Kg	5

Sample: 350382 - BH-8 (Bottom Hole-1.5')

Param	Flag	Result	Units	RL
Chloride		**980**	mg/Kg	5

Sample: 350383 - BH-9 (South Side Wall)

Param	Flag	Result	Units	RL
Chloride		**704**	mg/Kg	5

Sample: 350384 - BH-9 (West Side Wall)

Param	Flag	Result	Units	RL
Chloride		**528**	mg/Kg	5

Sample: 350385 - BH-9 (East Side Wall)

Param	Flag	Result	Units	RL
Chloride		**653**	mg/Kg	5

Sample: 350386 - BH-9 (Bottom Hole-1.5')

Param	Flag	Result	Units	RL
Chloride		**2210**	mg/Kg	5

Sample: 350387 - BH-10 (North Side Wall)

Param	Flag	Result	Units	RL
Chloride		**653**	mg/Kg	5

Sample: 350388 - BH-10 (South Side Wall)

Param	Flag	Result	Units	RL
Chloride		**1200**	mg/Kg	5

Sample: 350389 - BH-10 (West Side Wall)

Param	Flag	Result	Units	RL
Chloride		**975**	mg/Kg	5

Sample: 350390 - BH-10 (Bottom Hole-1')

Param	Flag	Result	Units	RL
Chloride		**700**	mg/Kg	5

Summary Report

Aaron Hale
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: May 5, 2011

Work Order: 11041531

Project Name: EOG/West Brushy Federal #1
Project Number: 114-6400753

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
263917	SB-1	soil	2011-04-14	00:00	2011-04-15
263918	SB-2	soil	2011-04-14	00:00	2011-04-15
263919	SB-3	soil	2011-04-14	00:00	2011-04-15
263920	SB-4	soil	2011-04-14	00:00	2011-04-15
263921	SB-5	soil	2011-04-14	00:00	2011-04-15
263922	SB-6	soil	2011-04-14	00:00	2011-04-15
263923	SB-7	soil	2011-04-14	00:00	2011-04-15
263924	SS-1	soil	2011-04-14	00:00	2011-04-15
263925	SS-2	soil	2011-04-14	00:00	2011-04-15
263926	SS-3	soil	2011-04-14	00:00	2011-04-15
263927	SS-4	soil	2011-04-14	00:00	2011-04-15
263928	SS-5	soil	2011-04-14	00:00	2011-04-15
263929	SS-6	soil	2011-04-14	00:00	2011-04-15
263930	SS-7	soil	2011-04-14	00:00	2011-04-15
263931	SS-8	soil	2011-04-14	00:00	2011-04-15
263932	Road	soil	2011-04-14	00:00	2011-04-15

	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)
263917 - SB-1	<0.0200	**0.113**	**0.128**	**0.410**	<50.0	<2.00
263918 - SB-2					<50.0	<2.00
263919 - SB-3					<50.0	<2.00
263920 - SB-4	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
263921 - SB-5					<50.0	<2.00
263922 - SB-6					<50.0	<2.00
263923 - SB-7	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
263924 - SS-1					<50.0	<2.00
263925 - SS-2	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
263926 - SS-3					<50.0	<2.00

continued ...

... continued

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)
263927 - SS-4					<50.0	<2.00
263928 - SS-5	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
263929 - SS-6					<50.0	<2.00
263930 - SS-7					<50.0	<2.00
263931 - SS-8	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
263932 - Road					<50.0	<2.00

Sample: 263917 - SB-1

Param	Flag	Result	Units	RL
Chloride		**79700**	mg/Kg	4

Sample: 263918 - SB-2

Param	Flag	Result	Units	RL
Chloride		**4610**	mg/Kg	4

Sample: 263919 - SB-3

Param	Flag	Result	Units	RL
Chloride		**5610**	mg/Kg	4

Sample: 263920 - SB-4

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

Sample: 263921 - SB-5

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

Sample: 263922 - SB-6

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

Sample: 263923 - SB-7

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

Sample: 263924 - SS-1

Param	Flag	Result	Units	RL
Chloride		**46700**	mg/Kg	4

Sample: 263925 - SS-2

Param	Flag	Result	Units	RL
Chloride		**75200**	mg/Kg	4

Sample: 263926 - SS-3

Param	Flag	Result	Units	RL
Chloride		**40400**	mg/Kg	4

Sample: 263927 - SS-4

Param	Flag	Result	Units	RL
Chloride		**7730**	mg/Kg	4

Sample: 263928 - SS-5

Param	Flag	Result	Units	RL
Chloride		**355**	mg/Kg	4

Sample: 263929 - SS-6

Param	Flag	Result	Units	RL
Chloride		**24400**	mg/Kg	4

Sample: 263930 - SS-7

Param	Flag	Result	Units	RL
Chloride		**9550**	mg/Kg	4

Sample: 263931 - SS-8

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

Sample: 263932 - Road

Param	Flag	Result	Units	RL
Chloride		**7100**	mg/Kg	4

TRACEANALYSIS, INC.

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6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Aaron Hale
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: May 5, 2011

Work Order: 11041531

Project Name: EOG/West Brushy Federal #1
Project Number: 114-6400753

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
263917	SB-1	soil	2011-04-14	00:00	2011-04-15
263918	SB-2	soil	2011-04-14	00:00	2011-04-15
263919	SB-3	soil	2011-04-14	00:00	2011-04-15
263920	SB-4	soil	2011-04-14	00:00	2011-04-15
263921	SB-5	soil	2011-04-14	00:00	2011-04-15
263922	SB-6	soil	2011-04-14	00:00	2011-04-15
263923	SB-7	soil	2011-04-14	00:00	2011-04-15
263924	SS-1	soil	2011-04-14	00:00	2011-04-15
263925	SS-2	soil	2011-04-14	00:00	2011-04-15
263926	SS-3	soil	2011-04-14	00:00	2011-04-15
263927	SS-4	soil	2011-04-14	00:00	2011-04-15
263928	SS-5	soil	2011-04-14	00:00	2011-04-15
263929	SS-6	soil	2011-04-14	00:00	2011-04-15
263930	SS-7	soil	2011-04-14	00:00	2011-04-15
263931	SS-8	soil	2011-04-14	00:00	2011-04-15
263932	Road	soil	2011-04-14	00:00	2011-04-15

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 36 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 EOG/West Brushy Federal #1 were received by TraceAnalysis, Inc. on 2011-04-15 and assigned to work order 11041531. Samples for work order 11041531 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	68299	2011-04-19 at 08:37	80468	2011-04-19 at 08:37
Chloride (Titration)	SM 4500-Cl B	68435	2011-04-25 at 11:20	80667	2011-04-26 at 15:43
Chloride (Titration)	SM 4500-Cl B	68435	2011-04-25 at 11:20	80668	2011-04-26 at 15:44
TPH DRO - NEW	S 8015 D	68305	2011-04-19 at 09:37	80475	2011-04-19 at 09:37
TPH GRO	S 8015 D	68299	2011-04-19 at 08:37	80469	2011-04-19 at 08:37

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 11041531 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: 263917 - SB-1

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	80468	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene		1	<0.0200	mg/Kg	1	0.0200
Toluene		1	**0.113**	mg/Kg	1	0.0200
Ethylbenzene		1	**0.128**	mg/Kg	1	0.0200
Xylene		1	**0.410**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.59	mg/Kg	1	2.00	130	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1	2.59	mg/Kg	1	2.00	130	38.4 - 157

Sample: 263917 - SB-1

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80667	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**79700**	mg/Kg	100	4.00

Sample: 263917 - SB-1

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	85.5	mg/Kg	1	100	86	70 - 130

Sample: 263917 - SB-1

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.54	mg/Kg	1	2.00	127	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.30	mg/Kg	1	2.00	115	42 - 159

Sample: 263918 - SB-2

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80667	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4610**	mg/Kg	100	4.00

Sample: 263918 - SB-2

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	91.9	mg/Kg	1	100	92	70 - 130

Sample: 263918 - SB-2

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.44	mg/Kg	1	2.00	122	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.24	mg/Kg	1	2.00	112	42 - 159

Sample: 263919 - SB-3

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80667	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5610**	mg/Kg	100	4.00

Sample: 263919 - SB-3

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	98.6	mg/Kg	1	100	99	70 - 130

Sample: 263919 - SB-3

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.47	mg/Kg	1	2.00	124	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.32	mg/Kg	1	2.00	116	42 - 159

Sample: 263920 - SB-4

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	80468	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.51	mg/Kg	1	2.00	126	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1	2.63	mg/Kg	1	2.00	132	38.4 - 157

Sample: 263920 - SB-4

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80667	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

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

Sample: 263920 - SB-4

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	92.2	mg/Kg	1	100	92	70 - 130

Sample: 263920 - SB-4

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.50	mg/Kg	1	2.00	125	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.34	mg/Kg	1	2.00	117	42 - 159

Sample: 263921 - SB-5

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80667	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

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

Sample: 263921 - SB-5

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	92.6	mg/Kg	1	100	93	70 - 130

Sample: 263921 - SB-5

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.16	mg/Kg	1	2.00	108	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.08	mg/Kg	1	2.00	104	42 - 159

Sample: 263922 - SB-6

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80667	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

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

Sample: 263922 - SB-6

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	94.9	mg/Kg	1	100	95	70 - 130

Sample: 263922 - SB-6

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.26	mg/Kg	1	2.00	113	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.17	mg/Kg	1	2.00	108	42 - 159

Sample: 263923 - SB-7

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	80468	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.55	mg/Kg	1	2.00	128	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1	2.69	mg/Kg	1	2.00	134	38.4 - 157

Sample: 263923 - SB-7

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80668	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**12000**	mg/Kg	100	4.00

Sample: 263923 - SB-7

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	87.4	mg/Kg	1	100	87	70 - 130

Sample: 263923 - SB-7

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.54	mg/Kg	1	2.00	127	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.39	mg/Kg	1	2.00	120	42 - 159

Sample: 263924 - SS-1

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80668	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
Chloride				**46700**	mg/Kg	100	4.00

Sample: 263924 - SS-1

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	82.3	mg/Kg	1	100	82	70 - 130

Sample: 263924 - SS-1

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.31	mg/Kg	1	2.00	116	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.19	mg/Kg	1	2.00	110	42 - 159

Sample: 263925 - SS-2

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	80468	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.45	mg/Kg	1	2.00	122	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1	2.55	mg/Kg	1	2.00	128	38.4 - 157

Sample: 263925 - SS-2

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80668	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

continued ...

sample 263925 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**75200**	mg/Kg	100	4.00

Sample: 263925 - SS-2

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		ı	90.3	mg/Kg	1	100	90	70 - 130

Sample: 263925 - SS-2

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		ı	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		ı	2.44	mg/Kg	1	2.00	122	48.5 - 152
4-Bromofluorobenzene (4-BFB)		ı	2.26	mg/Kg	1	2.00	113	42 - 159

Sample: 263926 - SS-3

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80668	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**40400**	mg/Kg	100	4.00

Sample: 263926 - SS-3

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	91.3	mg/Kg	1	100	91	70 - 130

Sample: 263926 - SS-3

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.32	mg/Kg	1	2.00	116	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.16	mg/Kg	1	2.00	108	42 - 159

Sample: 263927 - SS-4

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80668	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7730**	mg/Kg	100	4.00

Sample: 263927 - SS-4

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	87.8	mg/Kg	1	100	88	70 - 130

Sample: 263927 - SS-4

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.41	mg/Kg	1	2.00	120	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.22	mg/Kg	1	2.00	111	42 - 159

Sample: 263928 - SS-5

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	80468	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.30	mg/Kg	1	2.00	115	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1	2.39	mg/Kg	1	2.00	120	38.4 - 157

Sample: 263928 - SS-5

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80668	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**355**	mg/Kg	50	4.00

Sample: 263928 - SS-5

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	86.0	mg/Kg	1	100	86	70 - 130

Sample: 263928 - SS-5

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.28	mg/Kg	1	2.00	114	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.14	mg/Kg	1	2.00	107	42 - 159

Sample: 263929 - SS-6

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80668	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
Chloride				**24400**	mg/Kg	100	4.00

Sample: 263929 - SS-6

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	84.9	mg/Kg	1	100	85	70 - 130

Sample: 263929 - SS-6

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.01	mg/Kg	1	2.00	100	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	1.89	mg/Kg	1	2.00	94	42 - 159

Sample: 263930 - SS-7

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80668	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**9550**	mg/Kg	100	4.00

Sample: 263930 - SS-7

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	86.1	mg/Kg	1	100	86	70 - 130

Sample: 263930 - SS-7

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	1.93	mg/Kg	1	2.00	96	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	1.83	mg/Kg	1	2.00	92	42 - 159

Sample: 263931 - SS-8

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	80468	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.25	mg/Kg	1	2.00	112	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1	2.36	mg/Kg	1	2.00	118	38.4 - 157

Sample: 263931 - SS-8

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80668	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

continued ...

sample 263931 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

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

Sample: 263931 - SS-8

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	92.6	mg/Kg	1	100	93	70 - 130

Sample: 263931 - SS-8

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.24	mg/Kg	1	2.00	112	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.10	mg/Kg	1	2.00	105	42 - 159

Sample: 263932 - Road

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80668	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7100**	mg/Kg	100	4.00

Sample: 263932 - Road

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80475	Date Analyzed:	2011-04-19	Analyzed By:	kg
Prep Batch:	68305	Sample Preparation:	2011-04-19	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		1	91.8	mg/Kg	1	100	92	70 - 130

Sample: 263932 - Road

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80469	Date Analyzed:	2011-04-19	Analyzed By:	ME
Prep Batch:	68299	Sample Preparation:	2011-04-19	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.06	mg/Kg	1	2.00	103	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	1.93	mg/Kg	1	2.00	96	42 - 159

Method Blanks

Method Blank (1) QC Batch: 80468

QC Batch: 80468 | Date Analyzed: 2011-04-19 | Analyzed By: ME
Prep Batch: 68299 | QC Preparation: 2011-04-19 | Prepared By: ME

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.0118	mg/Kg	0.02
Toluene		1	<0.00600	mg/Kg	0.02
Ethylbenzene		1	<0.00850	mg/Kg	0.02
Xylene		1	<0.00613	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	1.89	mg/Kg	1	2.00	94	66.6 - 122
4-Bromofluorobenzene (4-BFB)		1	1.89	mg/Kg	1	2.00	94	55.4 - 124

Method Blank (1) QC Batch: 80469

QC Batch: 80469 | Date Analyzed: 2011-04-19 | Analyzed By: ME
Prep Batch: 68299 | QC Preparation: 2011-04-19 | Prepared By: ME

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.753	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	1.89	mg/Kg	1	2.00	94	67.6 - 150
4-Bromofluorobenzene (4-BFB)		1	1.72	mg/Kg	1	2.00	86	52.4 - 130

Method Blank (1) QC Batch: 80475

QC Batch: 80475 | Date Analyzed: 2011-04-19 | Analyzed By: kg
Prep Batch: 68305 | QC Preparation: 2011-04-19 | Prepared By: kg

Parameter	Flag	Cert	MDL Result	Units	RL
DRO			<15.7	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			94.5	mg/Kg	1	100	94	70 - 130

Method Blank (1) QC Batch: 80667

QC Batch:	80667	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	QC Preparation:	2011-04-25	Prepared By:	AR

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

Method Blank (1) QC Batch: 80668

QC Batch:	80668	Date Analyzed:	2011-04-26	Analyzed By:	AR
Prep Batch:	68435	QC Preparation:	2011-04-25	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: 80468
Prep Batch: 68299
Date Analyzed: 2011-04-19
QC Preparation: 2011-04-19
Analyzed By: ME
Prepared By: ME

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.82	mg/Kg	1	2.00	<0.0118	91	81.9 - 108
Toluene		1	1.95	mg/Kg	1	2.00	<0.00600	98	81.9 - 110
Ethylbenzene		1	1.98	mg/Kg	1	2.00	<0.00850	99	78.4 - 115
Xylene		1	5.93	mg/Kg	1	6.00	<0.00613	99	79.1 - 116

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	1.86	mg/Kg	1	2.00	<0.0118	93	81.9 - 108	2	20
Toluene		1	2.00	mg/Kg	1	2.00	<0.00600	100	81.9 - 110	2	20
Ethylbenzene		1	2.04	mg/Kg	1	2.00	<0.00850	102	78.4 - 115	3	20
Xylene		1	6.12	mg/Kg	1	6.00	<0.00613	102	79.1 - 116	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
Trifluorotoluene (TFT)		1	1.95	1.90	mg/Kg	1	2.00	98	95	70.2 - 114
4-Bromofluorobenzene (4-BFB)		1	2.06	2.04	mg/Kg	1	2.00	103	102	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 80469
Prep Batch: 68299
Date Analyzed: 2011-04-19
QC Preparation: 2011-04-19
Analyzed By: ME
Prepared By: ME

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	15.7	mg/Kg	1	20.0	<0.753	78	60.9 - 95.4

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
GRO		1	16.2	mg/Kg	1	20.0	<0.753	81	60.9 - 95.4	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
Trifluorotoluene (TFT)	1	1.93	1.93	mg/Kg	1	2.00	96	96	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1	1.86	1.87	mg/Kg	1	2.00	93	94	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 80475 | Date Analyzed: 2011-04-19 | Analyzed By: kg
Prep Batch: 68305 | QC Preparation: 2011-04-19 | Prepared By: kg

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	286	mg/Kg	1	250	<15.7	114	47.5 - 144.1

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	276	mg/Kg	1	250	<15.7	110	47.5 - 144.1	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	1	109	106	mg/Kg	1	100	109	106	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 80667 | Date Analyzed: 2011-04-26 | Analyzed By: AR
Prep Batch: 68435 | QC Preparation: 2011-04-25 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.7	mg/Kg	1	100	<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			105	mg/Kg	1	100	<3.85	105	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: 80668 | Date Analyzed: 2011-04-26 | Analyzed By: AR
Prep Batch: 68435 | QC Preparation: 2011-04-25 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.6	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			101	mg/Kg	1	100	<3.85	101	85 - 115	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: 263861

QC Batch: 80468 | Date Analyzed: 2011-04-19 | Analyzed By: ME
Prep Batch: 68299 | QC Preparation: 2011-04-19 | Prepared By: ME

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	8.84	mg/Kg	10	10.0	<0.118	88	80.5 - 112
Toluene		1	9.80	mg/Kg	10	10.0	0.7488	90	82.4 - 113
Ethylbenzene		1	10.4	mg/Kg	10	10.0	1.0878	93	83.9 - 114
Xylene		1	32.2	mg/Kg	10	30.0	4.6603	92	84 - 114

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	9.24	mg/Kg	10	10.0	<0.118	92	80.5 - 112	4	20
Toluene		1	10.2	mg/Kg	10	10.0	0.7488	94	82.4 - 113	4	20
Ethylbenzene		1	10.8	mg/Kg	10	10.0	1.0878	97	83.9 - 114	4	20
Xylene		1	33.2	mg/Kg	10	30.0	4.6603	95	84 - 114	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	11.7	11.2	mg/Kg	10	10	117	112	41.3 - 117
4-Bromofluorobenzene (4-BFB)	1	12.6	12.1	mg/Kg	10	10	126	121	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 263932

QC Batch: 80469 | Date Analyzed: 2011-04-19 | Analyzed By: ME
Prep Batch: 68299 | QC Preparation: 2011-04-19 | Prepared By: ME

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.3	mg/Kg	1	20.0	<0.753	86	61.8 - 114

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	16.9	mg/Kg	1	20.0	<0.753	84	61.8 - 114	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)	1	2.46	2.35	mg/Kg	1	2	123	118	50 - 162
4-Bromofluorobenzene (4-BFB)	1	2.39	2.31	mg/Kg	1	2	120	116	50 - 162

Matrix Spike (MS-1) Spiked Sample: 263932

QC Batch: 80475 | Date Analyzed: 2011-04-19 | Analyzed By: kg
Prep Batch: 68305 | QC Preparation: 2011-04-19 | Prepared By: kg

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	239	mg/Kg	1	250	<15.7	96	11.7 - 152.3

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	225	mg/Kg	1	250	<15.7	90	11.7 - 152.3	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	100	98.9	mg/Kg	1	100	100	99	70 - 130

Matrix Spike (MS-1) Spiked Sample: 263922

QC Batch: 80667 | Date Analyzed: 2011-04-26 | Analyzed By: AR
Prep Batch: 68435 | QC Preparation: 2011-04-25 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			9550	mg/Kg	100	10000	<385	96	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			9900	mg/Kg	100	10000	<385	99	80 - 120	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: 263932

QC Batch: 80668 | Date Analyzed: 2011-04-26 | Analyzed By: AR
Prep Batch: 68435 | QC Preparation: 2011-04-25 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			18200	mg/Kg	100	10000	7100	111	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			17800	mg/Kg	100	10000	7100	107	80 - 120	2	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 80468 | Date Analyzed: 2011-04-19 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0920	92	80 - 120	2011-04-19
Toluene		1	mg/Kg	0.100	0.0985	98	80 - 120	2011-04-19
Ethylbenzene		1	mg/Kg	0.100	0.0995	100	80 - 120	2011-04-19
Xylene		1	mg/Kg	0.300	0.298	99	80 - 120	2011-04-19

Standard (CCV-2)

QC Batch: 80468 | Date Analyzed: 2011-04-19 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0933	93	80 - 120	2011-04-19
Toluene		1	mg/Kg	0.100	0.0999	100	80 - 120	2011-04-19
Ethylbenzene		1	mg/Kg	0.100	0.101	101	80 - 120	2011-04-19
Xylene		1	mg/Kg	0.300	0.302	101	80 - 120	2011-04-19

Standard (CCV-3)

QC Batch: 80468 | Date Analyzed: 2011-04-19 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0912	91	80 - 120	2011-04-19
Toluene		1	mg/Kg	0.100	0.0970	97	80 - 120	2011-04-19
Ethylbenzene		1	mg/Kg	0.100	0.0975	98	80 - 120	2011-04-19
Xylene		1	mg/Kg	0.300	0.293	98	80 - 120	2011-04-19

Standard (CCV-1)

QC Batch: 80469 | Date Analyzed: 2011-04-19 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.01	101	80 - 120	2011-04-19

Standard (CCV-2)

QC Batch: 80469 | Date Analyzed: 2011-04-19 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.962	96	80 - 120	2011-04-19

Standard (CCV-3)

QC Batch: 80469 | Date Analyzed: 2011-04-19 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.00	100	80 - 120	2011-04-19

Standard (CCV-1)

QC Batch: 80475 | Date Analyzed: 2011-04-19 | Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	208	83	80 - 120	2011-04-19

Standard (CCV-2)

QC Batch: 80475 | Date Analyzed: 2011-04-19 | Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		,	mg/Kg	250	240	96	80 - 120	2011-04-19

Standard (CCV-3)

QC Batch: 80475 Date Analyzed: 2011-04-19 Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		,	mg/Kg	250	299	120	80 - 120	2011-04-19

Standard (CCV-4)

QC Batch: 80475 Date Analyzed: 2011-04-19 Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		,	mg/Kg	250	246	98	80 - 120	2011-04-19

Standard (ICV-1)

QC Batch: 80667 Date Analyzed: 2011-04-26 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	106	106	85 - 115	2011-04-26

Standard (CCV-1)

QC Batch: 80667 Date Analyzed: 2011-04-26 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	94.4	94	85 - 115	2011-04-26

Standard (ICV-1)

QC Batch: 80668 Date Analyzed: 2011-04-26 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	92.4	92	85 - 115	2011-04-26

Standard (CCV-1)

QC Batch: 80668 Date Analyzed: 2011-04-26 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	108	108	85 - 115	2011-04-26

Appendix

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	T104704392-10-TX	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.

xwo #: 1104531

Analysis Request of Chain of Custody Record

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

PAGE: 1 OF: 2

CLIENT NAME: EOG

SITE MANAGER: Aaron Hale

PROJECT NO.: 114-6400753

PROJECT NAME: West Brushy 27 Federal #1

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH TX1005 (Ext. to C35)	TPH 8015 MOD.	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
263917	4/14		S		X	SB-1	1				X		X	X	X										•	X				
918						SB-2																			•					
919						SB-3																			•					
920						SB-4							X												•					
921						SB-5																			•					
922						SB-6																			•					
923						SB-7							X												•					
924						SS-1																			•					
925						SS-2							X												•					
926	↓		↓		↓	SS-3	↓				↓			↓	↓										•	↓				

RELINQUISHED BY: (Signature) — Date: 4-15-11 Time: 15:20
RECEIVED BY: (Signature) — Date: 4/15/11 Time: 15:20
SAMPLED BY: (Print & Initial) TF — Date: 4-14-11 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: Aaron Hale — Results by:

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

SAMPLE CONDITION WHEN RECEIVED: 3.9°C intact

REMARKS: Run highest 6 TPH for BTEX X All tests-Midland

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

EWO #: 11041531

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:	SITE MANAGER:
EOG	Aaron Hale

PROJECT NO.:	PROJECT NAME:
114-64D0753	West Bowsby 27 Federal #1

LAB I.D. NUMBER	DATE 2011	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
26327	4/14		S		X	SS-4	1				X			X										X				
928	↓		↓		↓	SS-5	↓				↓		X	↓										↓				
929						SS-6																						
930						SS-7																						
931						SS-8							X															
932						Rad																						

RELINQUISHED BY: (Signature)	Date: 4-15-11 Time: 15:20	RECEIVED BY: (Signature)	Date: 4/15/11 Time: 15:20
SAMPLED BY: (Print & Initial) TF	Date: 4-14-11 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: Aaron Hale	Results by: RUSH Charges Authorized: Yes No		
RECEIVING LABORATORY: Trace ADDRESS: CITY: Midland STATE: TX ZIP: CONTACT: PHONE:	RECEIVED BY: (Signature) DATE: TIME:		
SAMPLE CONDITION WHEN RECEIVED: 39° cintact	REMARKS: Run highest 6 TPH for BTEX		

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

Aaron Hale
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: July 19, 2011

Work Order: 11070825

Project Name: Production Spec./W. Brushy 27 Fed. #1
Project Number: 114-6400753

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
271514	BH-1 0-1'	soil	2011-07-06	00:00	2011-07-08
271515	BH-1 1-2'	soil	2011-07-06	00:00	2011-07-08
271516	BH-1 2-3'	soil	2011-07-06	00:00	2011-07-08
271517	BH-1 3-4'	soil	2011-07-06	00:00	2011-07-08
271518	BH-1 4-5'	soil	2011-07-06	00:00	2011-07-08
271519	BH-2 0-1'	soil	2011-07-06	00:00	2011-07-08
271520	BH-2 1-2'	soil	2011-07-06	00:00	2011-07-08
271521	BH-2 2-3'	soil	2011-07-06	00:00	2011-07-08
271522	BH-2 3-4'	soil	2011-07-06	00:00	2011-07-08
271523	BH-2 4-5'	soil	2011-07-06	00:00	2011-07-08
271524	BH-2 5-6'	soil	2011-07-06	00:00	2011-07-08
271525	BH-2 6-7'	soil	2011-07-06	00:00	2011-07-08
271526	BH-2 7-8'	soil	2011-07-06	00:00	2011-07-08
271527	BH-2 9-10'	soil	2011-07-06	00:00	2011-07-08
271528	BH-3 0-1'	soil	2011-07-06	00:00	2011-07-08
271529	BH-3 1-2'	soil	2011-07-06	00:00	2011-07-08
271530	BH-3 2-3'	soil	2011-07-06	00:00	2011-07-08
271531	BH-3 3-4'	soil	2011-07-06	00:00	2011-07-08
271532	BH-3 4-5'	soil	2011-07-06	00:00	2011-07-08
271533	BH-3 5-6'	soil	2011-07-06	00:00	2011-07-08
271534	BH-3 6-7'	soil	2011-07-06	00:00	2011-07-08
271535	BH-3 7-8'	soil	2011-07-06	00:00	2011-07-08
271536	BH-3 8-9'	soil	2011-07-06	00:00	2011-07-08
271537	BH-4 0-1'	soil	2011-07-06	00:00	2011-07-08
271538	BH-4 1-2'	soil	2011-07-06	00:00	2011-07-08
271539	BH-4 2-3'	soil	2011-07-06	00:00	2011-07-08
271540	BH-4 3-4'	soil	2011-07-06	00:00	2011-07-08
271541	BH-4 4-5'	soil	2011-07-06	00:00	2011-07-08
271542	BH-4 5-6'	soil	2011-07-06	00:00	2011-07-08
271543	BH-4 6-7'	soil	2011-07-06	00:00	2011-07-08
271544	BH-4 7-8'	soil	2011-07-06	00:00	2011-07-08

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
271545	BH-4 8-9'	soil	2011-07-06	00:00	2011-07-08
271546	BH-4 9-10'	soil	2011-07-06	00:00	2011-07-08
271547	BH-4 10-11'	soil	2011-07-06	00:00	2011-07-08
271548	BH-4 11-12'	soil	2011-07-06	00:00	2011-07-08
271549	BH-5 0-1'	soil	2011-07-06	00:00	2011-07-08
271550	BH-5 1-2'	soil	2011-07-06	00:00	2011-07-08
271551	BH-5 2-3'	soil	2011-07-06	00:00	2011-07-08
271552	BH-5 3-4'	soil	2011-07-06	00:00	2011-07-08
271553	BH-5 4-5'	soil	2011-07-06	00:00	2011-07-08
271554	BH-5 5-6'	soil	2011-07-06	00:00	2011-07-08
271555	BH-5 6-7'	soil	2011-07-06	00:00	2011-07-08
271556	BH-5 7-8'	soil	2011-07-06	00:00	2011-07-08
271557	BH-5 8-9'	soil	2011-07-06	00:00	2011-07-08
271558	BH-5 9-10'	soil	2011-07-06	00:00	2011-07-08
271559	BH-6 0-1'	soil	2011-07-07	00:00	2011-07-08
271560	BH-6 1-2'	soil	2011-07-07	00:00	2011-07-08
271561	BH-6 2-3'	soil	2011-07-07	00:00	2011-07-08
271562	BH-6 3-4'	soil	2011-07-07	00:00	2011-07-08
271563	BH-6 4-5'	soil	2011-07-07	00:00	2011-07-08
271564	BH-6 5-6'	soil	2011-07-07	00:00	2011-07-08
271565	BH-6 6-7'	soil	2011-07-07	00:00	2011-07-08
271566	BH-7 0-1'	soil	2011-07-07	00:00	2011-07-08
271567	BH-7 1-2'	soil	2011-07-07	00:00	2011-07-08
271568	BH-7 2-3'	soil	2011-07-07	00:00	2011-07-08
271569	BH-7 3-4'	soil	2011-07-07	00:00	2011-07-08
271570	BH-7 4-5'	soil	2011-07-07	00:00	2011-07-08
271571	BH-7 5-6'	soil	2011-07-07	00:00	2011-07-08
271572	BH-7 6-7'	soil	2011-07-07	00:00	2011-07-08
271573	BH-7 7-8'	soil	2011-07-07	00:00	2011-07-08
271574	BH-7 8-9'	soil	2011-07-07	00:00	2011-07-08
271575	BH-7 9-10'	soil	2011-07-07	00:00	2011-07-08
271576	BH-7 10-11'	soil	2011-07-07	00:00	2011-07-08
271577	BH-7 11-12'	soil	2011-07-07	00:00	2011-07-08
271578	BH-7 14-15'	soil	2011-07-07	00:00	2011-07-08
271579	BH-7 17-18'	soil	2011-07-07	00:00	2011-07-08
271580	BH-8 0-1'	soil	2011-07-07	00:00	2011-07-08
271581	BH-8 1-2'	soil	2011-07-07	00:00	2011-07-08
271582	BH-8 2-3'	soil	2011-07-07	00:00	2011-07-08
271583	BH-8 3-4'	soil	2011-07-07	00:00	2011-07-08
271584	BH-8 4-5'	soil	2011-07-07	00:00	2011-07-08
271585	BH-9 0-1'	soil	2011-07-07	00:00	2011-07-08
271586	BH-9 1-2'	soil	2011-07-07	00:00	2011-07-08
271587	BH-9 2-3'	soil	2011-07-07	00:00	2011-07-08
271588	BH-9 3-4'	soil	2011-07-07	00:00	2011-07-08
271589	BH-9 4-5'	soil	2011-07-07	00:00	2011-07-08
271590	BH-9 5-6'	soil	2011-07-07	00:00	2011-07-08
271591	BH-9 6-7'	soil	2011-07-07	00:00	2011-07-08
271592	BH-9 7-8'	soil	2011-07-07	00:00	2011-07-08
271593	BH-9 8-9'	soil	2011-07-07	00:00	2011-07-08

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
271594	BH-10 0-1'	soil	2011-07-07	00:00	2011-07-08
271595	BH-10 1-2'	soil	2011-07-07	00:00	2011-07-08
271596	BH-2 8-9'	soil	2011-07-06	00:00	2011-07-08
271597	BH-9 9-10'	soil	2011-07-07	00:00	2011-07-08
271598	BH-9 10-11'	soil	2011-07-07	00:00	2011-07-08
271599	BH-9 11-12'	soil	2011-07-07	00:00	2011-07-08

Sample: 271514 - BH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**1230**	mg/Kg	4

Sample: 271515 - BH-1 1-2'

Param	Flag	Result	Units	RL
Chloride		**1320**	mg/Kg	4

Sample: 271516 - BH-1 2-3'

Param	Flag	Result	Units	RL
Chloride		**343**	mg/Kg	4

Sample: 271517 - BH-1 3-4'

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

Sample: 271518 - BH-1 4-5'

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

Sample: 271519 - BH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**5110**	mg/Kg	4

Sample: 271520 - BH-2 1-2'

Param	Flag	Result	Units	RL
Chloride		**5250**	mg/Kg	4

Sample: 271521 - BH-2 2-3'

Param	Flag	Result	Units	RL
Chloride		**2760**	mg/Kg	4

Sample: 271522 - BH-2 3-4'

Param	Flag	Result	Units	RL
Chloride		**1490**	mg/Kg	4

Sample: 271523 - BH-2 4-5'

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

Sample: 271524 - BH-2 5-6'

Param	Flag	Result	Units	RL
Chloride		**870**	mg/Kg	4

Sample: 271525 - BH-2 6-7'

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

Sample: 271526 - BH-2 7-8'

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

Sample: 271527 - BH-2 9-10'

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

Sample: 271528 - BH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**13100**	mg/Kg	4

Sample: 271529 - BH-3 1-2'

Param	Flag	Result	Units	RL
Chloride		**38000**	mg/Kg	4

Sample: 271530 - BH-3 2-3'

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

Sample: 271531 - BH-3 3-4'

Param	Flag	Result	Units	RL
Chloride		**6490**	mg/Kg	4

Sample: 271532 - BH-3 4-5'

Param	Flag	Result	Units	RL
Chloride		**2180**	mg/Kg	4

Sample: 271533 - BH-3 5-6'

Param	Flag	Result	Units	RL
Chloride		**393**	mg/Kg	4

Sample: 271534 - BH-3 6-7'

Param	Flag	Result	Units	RL
Chloride		**587**	mg/Kg	4

Sample: 271535 - BH-3 7-8'

Param	Flag	Result	Units	RL
Chloride		**346**	mg/Kg	4

Sample: 271536 - BH-3 8-9'

Param	Flag	Result	Units	RL
Chloride		**241**	mg/Kg	4

Sample: 271537 - BH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**16200**	mg/Kg	4

Sample: 271538 - BH-4 1-2'

Param	Flag	Result	Units	RL
Chloride		**15400**	mg/Kg	4

Sample: 271539 - BH-4 2-3'

Param	Flag	Result	Units	RL
Chloride		**11000**	mg/Kg	4

Sample: 271540 - BH-4 3-4'

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

Sample: 271541 - BH-4 4-5'

Param	Flag	Result	Units	RL
Chloride		**3040**	mg/Kg	4

Sample: 271542 - BH-4 5-6'

Param	Flag	Result	Units	RL
Chloride		**22000**	mg/Kg	4

Sample: 271543 - BH-4 6-7'

Param	Flag	Result	Units	RL
Chloride		**731**	mg/Kg	4

Sample: 271544 - BH-4 7-8'

Param	Flag	Result	Units	RL
Chloride		**1240**	mg/Kg	4

Sample: 271545 - BH-4 8-9'

Param	Flag	Result	Units	RL
Chloride		**764**	mg/Kg	4

Sample: 271546 - BH-4 9-10'

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

Sample: 271547 - BH-4 10-11'

Param	Flag	Result	Units	RL
Chloride		**260**	mg/Kg	4

Sample: 271548 - BH-4 11-12'

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

Sample: 271549 - BH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		**11300**	mg/Kg	4

Sample: 271550 - BH-5 1-2'

Param	Flag	Result	Units	RL
Chloride		**11000**	mg/Kg	4

Sample: 271551 - BH-5 2-3'

Param	Flag	Result	Units	RL
Chloride		**29000**	mg/Kg	4

Sample: 271552 - BH-5 3-4'

Param	Flag	Result	Units	RL
Chloride		**8720**	mg/Kg	4

Sample: 271553 - BH-5 4-5'

Param	Flag	Result	Units	RL
Chloride		**2610**	mg/Kg	4

Sample: 271554 - BH-5 5-6'

Param	Flag	Result	Units	RL
Chloride		**1010**	mg/Kg	4

Sample: 271555 - BH-5 6-7'

Param	Flag	Result	Units	RL
Chloride		**1940**	mg/Kg	4

Sample: 271556 - BH-5 7-8'

Param	Flag	Result	Units	RL
Chloride		**346**	mg/Kg	4

Sample: 271557 - BH-5 8-9'

Param	Flag	Result	Units	RL
Chloride		**265**	mg/Kg	4

Sample: 271558 - BH-5 9-10'

Param	Flag	Result	Units	RL
Chloride		**369**	mg/Kg	4

Sample: 271559 - BH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		**5340**	mg/Kg	4

Sample: 271560 - BH-6 1-2'

Param	Flag	Result	Units	RL
Chloride		**17700**	mg/Kg	4

Sample: 271561 - BH-6 2-3'

Param	Flag	Result	Units	RL
Chloride		**11300**	mg/Kg	4

Sample: 271562 - BH-6 3-4'

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

Sample: 271563 - BH-6 4-5'

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

Sample: 271564 - BH-6 5-6'

Param	Flag	Result	Units	RL
Chloride		**201**	mg/Kg	4

Sample: 271565 - BH-6 6-7'

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

Sample: 271566 - BH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		**13900**	mg/Kg	4

Sample: 271567 - BH-7 1-2'

Param	Flag	Result	Units	RL
Chloride		**9260**	mg/Kg	4

Sample: 271568 - BH-7 2-3'

Param	Flag	Result	Units	RL
Chloride		**5210**	mg/Kg	4

Sample: 271569 - BH-7 3-4'

Param	Flag	Result	Units	RL
Chloride		**2120**	mg/Kg	4

Sample: 271570 - BH-7 4-5'

Param	Flag	Result	Units	RL
Chloride		**2150**	mg/Kg	4

Sample: 271571 - BH-7 5-6'

Param	Flag	Result	Units	RL
Chloride		**812**	mg/Kg	4

Sample: 271572 - BH-7 6-7'

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

Sample: 271573 - BH-7 7-8'

Param	Flag	Result	Units	RL
Chloride		**326**	mg/Kg	4

Sample: 271574 - BH-7 8-9'

Param	Flag	Result	Units	RL
Chloride		**1030**	mg/Kg	4

Sample: 271575 - BH-7 9-10'

Param	Flag	Result	Units	RL
Chloride		**286**	mg/Kg	4

Sample: 271576 - BH-7 10-11'

Param	Flag	Result	Units	RL
Chloride		**441**	mg/Kg	4

Sample: 271577 - BH-7 11-12'

Param	Flag	Result	Units	RL
Chloride		**767**	mg/Kg	4

Sample: 271578 - BH-7 14-15'

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

Sample: 271579 - BH-7 17-18'

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

Sample: 271580 - BH-8 0-1'

Param	Flag	Result	Units	RL
Chloride		**5580**	mg/Kg	4

Sample: 271581 - BH-8 1-2'

Param	Flag	Result	Units	RL
Chloride		**7950**	mg/Kg	4

Sample: 271582 - BH-8 2-3'

Param	Flag	Result	Units	RL
Chloride		**4050**	mg/Kg	4

Sample: 271583 - BH-8 3-4'

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

Sample: 271584 - BH-8 4-5'

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

Sample: 271585 - BH-9 0-1'

Param	Flag	Result	Units	RL
Chloride		**3820**	mg/Kg	4

Sample: 271586 - BH-9 1-2'

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

Sample: 271587 - BH-9 2-3'

Param	Flag	Result	Units	RL
Chloride		**6270**	mg/Kg	4

Sample: 271588 - BH-9 3-4'

Param	Flag	Result	Units	RL
Chloride		**1000**	mg/Kg	4

Sample: 271589 - BH-9 4-5'

Param	Flag	Result	Units	RL
Chloride		**5110**	mg/Kg	4

Sample: 271590 - BH-9 5-6'

Param	Flag	Result	Units	RL
Chloride		**4230**	mg/Kg	4

Sample: 271591 - BH-9 6-7'

Param	Flag	Result	Units	RL
Chloride		**378**	mg/Kg	4

Sample: 271592 - BH-9 7-8'

Param	Flag	Result	Units	RL
Chloride		**278**	mg/Kg	4

Sample: 271593 - BH-9 8-9'

Param	Flag	Result	Units	RL
Chloride		**1000**	mg/Kg	4

Sample: 271594 - BH-10 0-1'

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

Sample: 271595 - BH-10 1-2'

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

Sample: 271596 - BH-2 8-9'

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

Sample: 271597 - BH-9 9-10'

Param	Flag	Result	Units	RL
Chloride		**209**	mg/Kg	4

Sample: 271598 - BH-9 10-11'

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

Sample: 271599 - BH-9 11-12'

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

TRACEANALYSIS, INC.

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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Aaron Hale
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: July 19, 2011

Work Order: 11070825

Project Name: Production Spec./W. Brushy 27 Fed. #1
Project Number: 114-6400753

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
271514	BH-1 0-1'	soil	2011-07-06	00:00	2011-07-08
271515	BH-1 1-2'	soil	2011-07-06	00:00	2011-07-08
271516	BH-1 2-3'	soil	2011-07-06	00:00	2011-07-08
271517	BH-1 3-4'	soil	2011-07-06	00:00	2011-07-08
271518	BH-1 4-5'	soil	2011-07-06	00:00	2011-07-08
271519	BH-2 0-1'	soil	2011-07-06	00:00	2011-07-08
271520	BH-2 1-2'	soil	2011-07-06	00:00	2011-07-08
271521	BH-2 2-3'	soil	2011-07-06	00:00	2011-07-08
271522	BH-2 3-4'	soil	2011-07-06	00:00	2011-07-08
271523	BH-2 4-5'	soil	2011-07-06	00:00	2011-07-08
271524	BH-2 5-6'	soil	2011-07-06	00:00	2011-07-08
271525	BH-2 6-7'	soil	2011-07-06	00:00	2011-07-08
271526	BH-2 7-8'	soil	2011-07-06	00:00	2011-07-08
271527	BH-2 9-10'	soil	2011-07-06	00:00	2011-07-08
271528	BH-3 0-1'	soil	2011-07-06	00:00	2011-07-08
271529	BH-3 1-2'	soil	2011-07-06	00:00	2011-07-08
271530	BH-3 2-3'	soil	2011-07-06	00:00	2011-07-08
271531	BH-3 3-4'	soil	2011-07-06	00:00	2011-07-08
271532	BH-3 4-5'	soil	2011-07-06	00:00	2011-07-08

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
271533	BH-3 5-6'	soil	2011-07-06	00:00	2011-07-08
271534	BH-3 6-7'	soil	2011-07-06	00:00	2011-07-08
271535	BH-3 7-8'	soil	2011-07-06	00:00	2011-07-08
271536	BH-3 8-9'	soil	2011-07-06	00:00	2011-07-08
271537	BH-4 0-1'	soil	2011-07-06	00:00	2011-07-08
271538	BH-4 1-2'	soil	2011-07-06	00:00	2011-07-08
271539	BH-4 2-3'	soil	2011-07-06	00:00	2011-07-08
271540	BH-4 3-4'	soil	2011-07-06	00:00	2011-07-08
271541	BH-4 4-5'	soil	2011-07-06	00:00	2011-07-08
271542	BH-4 5-6'	soil	2011-07-06	00:00	2011-07-08
271543	BH-4 6-7'	soil	2011-07-06	00:00	2011-07-08
271544	BH-4 7-8'	soil	2011-07-06	00:00	2011-07-08
271545	BH-4 8-9'	soil	2011-07-06	00:00	2011-07-08
271546	BH-4 9-10'	soil	2011-07-06	00:00	2011-07-08
271547	BH-4 10-11'	soil	2011-07-06	00:00	2011-07-08
271548	BH-4 11-12'	soil	2011-07-06	00:00	2011-07-08
271549	BH-5 0-1'	soil	2011-07-06	00:00	2011-07-08
271550	BH-5 1-2'	soil	2011-07-06	00:00	2011-07-08
271551	BH-5 2-3'	soil	2011-07-06	00:00	2011-07-08
271552	BH-5 3-4'	soil	2011-07-06	00:00	2011-07-08
271553	BH-5 4-5'	soil	2011-07-06	00:00	2011-07-08
271554	BH-5 5-6'	soil	2011-07-06	00:00	2011-07-08
271555	BH-5 6-7'	soil	2011-07-06	00:00	2011-07-08
271556	BH-5 7-8'	soil	2011-07-06	00:00	2011-07-08
271557	BH-5 8-9'	soil	2011-07-06	00:00	2011-07-08
271558	BH-5 9-10'	soil	2011-07-06	00:00	2011-07-08
271559	BH-6 0-1'	soil	2011-07-07	00:00	2011-07-08
271560	BH-6 1-2'	soil	2011-07-07	00:00	2011-07-08
271561	BH-6 2-3'	soil	2011-07-07	00:00	2011-07-08
271562	BH-6 3-4'	soil	2011-07-07	00:00	2011-07-08
271563	BH-6 4-5'	soil	2011-07-07	00:00	2011-07-08
271564	BH-6 5-6'	soil	2011-07-07	00:00	2011-07-08
271565	BH-6 6-7'	soil	2011-07-07	00:00	2011-07-08
271566	BH-7 0-1'	soil	2011-07-07	00:00	2011-07-08
271567	BH-7 1-2'	soil	2011-07-07	00:00	2011-07-08
271568	BH-7 2-3'	soil	2011-07-07	00:00	2011-07-08
271569	BH-7 3-4'	soil	2011-07-07	00:00	2011-07-08
271570	BH-7 4-5'	soil	2011-07-07	00:00	2011-07-08
271571	BH-7 5-6'	soil	2011-07-07	00:00	2011-07-08
271572	BH-7 6-7'	soil	2011-07-07	00:00	2011-07-08
271573	BH-7 7-8'	soil	2011-07-07	00:00	2011-07-08
271574	BH-7 8-9'	soil	2011-07-07	00:00	2011-07-08
271575	BH-7 9-10'	soil	2011-07-07	00:00	2011-07-08
271576	BH-7 10-11'	soil	2011-07-07	00:00	2011-07-08
271577	BH-7 11-12'	soil	2011-07-07	00:00	2011-07-08
271578	BH-7 14-15'	soil	2011-07-07	00:00	2011-07-08

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
271579	BH-7 17-18'	soil	2011-07-07	00:00	2011-07-08
271580	BH-8 0-1'	soil	2011-07-07	00:00	2011-07-08
271581	BH-8 1-2'	soil	2011-07-07	00:00	2011-07-08
271582	BH-8 2-3'	soil	2011-07-07	00:00	2011-07-08
271583	BH-8 3-4'	soil	2011-07-07	00:00	2011-07-08
271584	BH-8 4-5'	soil	2011-07-07	00:00	2011-07-08
271585	BH-9 0-1'	soil	2011-07-07	00:00	2011-07-08
271586	BH-9 1-2'	soil	2011-07-07	00:00	2011-07-08
271587	BH-9 2-3'	soil	2011-07-07	00:00	2011-07-08
271588	BH-9 3-4'	soil	2011-07-07	00:00	2011-07-08
271589	BH-9 4-5'	soil	2011-07-07	00:00	2011-07-08
271590	BH-9 5-6'	soil	2011-07-07	00:00	2011-07-08
271591	BH-9 6-7'	soil	2011-07-07	00:00	2011-07-08
271592	BH-9 7-8'	soil	2011-07-07	00:00	2011-07-08
271593	BH-9 8-9'	soil	2011-07-07	00:00	2011-07-08
271594	BH-10 0-1'	soil	2011-07-07	00:00	2011-07-08
271595	BH-10 1-2'	soil	2011-07-07	00:00	2011-07-08
271596	BH-2 8-9'	soil	2011-07-06	00:00	2011-07-08
271597	BH-9 9-10'	soil	2011-07-07	00:00	2011-07-08
271598	BH-9 10-11'	soil	2011-07-07	00:00	2011-07-08
271599	BH-9 11-12'	soil	2011-07-07	00:00	2011-07-08

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.

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

Report Contents

Case Narrative

Samples for project Production Spec./W. Brushy 27 Fed. #1 were received by TraceAnalysis, Inc. on 2011-07-08 and assigned to work order 11070825. Samples for work order 11070825 were received intact at a temperature of 7.2 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	70469	2011-07-12 at 08:43	83005	2011-07-13 at 15:17
Chloride (Titration)	SM 4500-Cl B	70469	2011-07-12 at 08:43	83006	2011-07-13 at 15:18
Chloride (Titration)	SM 4500-Cl B	70469	2011-07-12 at 08:43	83007	2011-07-13 at 15:19
Chloride (Titration)	SM 4500-Cl B	70469	2011-07-12 at 08:43	83008	2011-07-13 at 15:19
Chloride (Titration)	SM 4500-Cl B	70469	2011-07-12 at 08:43	83129	2011-07-18 at 15:08
Chloride (Titration)	SM 4500-Cl B	70469	2011-07-12 at 08:43	83131	2011-07-18 at 15:10
Chloride (Titration)	SM 4500-Cl B	70605	2011-07-16 at 12:00	83124	2011-07-18 at 15:03
Chloride (Titration)	SM 4500-Cl B	70605	2011-07-16 at 12:00	83126	2011-07-18 at 15:06
Chloride (Titration)	SM 4500-Cl B	70605	2011-07-16 at 12:00	83127	2011-07-18 at 15:07

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 11070825 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.

Samples were received on ice.

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: 271514 - BH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83005	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1230**	mg/Kg	100	4.00

Sample: 271515 - BH-1 1-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83005	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1320**	mg/Kg	100	4.00

Sample: 271516 - BH-1 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83005	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**343**	mg/Kg	50	4.00

Sample: 271517 - BH-1 3-4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83005	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

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

Sample: 271518 - BH-1 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83005	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

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

Sample: 271519 - BH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83005	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5110**	mg/Kg	100	4.00

Sample: 271520 - BH-2 1-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83006	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5250**	mg/Kg	100	4.00

Sample: 271521 - BH-2 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83006	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2760**	mg/Kg	100	4.00

Sample: 271522 - BH-2 3-4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83006	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1490**	mg/Kg	100	4.00

Sample: 271523 - BH-2 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83006	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

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

Sample: 271524 - BH-2 5-6'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83006	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**870**	mg/Kg	100	4.00

Sample: 271525 - BH-2 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83006	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

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

Sample: 271526 - BH-2 7-8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83006	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

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

Sample: 271527 - BH-2 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83006	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

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

Sample: 271528 - BH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83006	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**13100**	mg/Kg	100	4.00

Sample: 271529 - BH-3 1-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83006	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**38000**	mg/Kg	100	4.00

Sample: 271530 - BH-3 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83007	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**11700**	mg/Kg	100	4.00

Sample: 271531 - BH-3 3-4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83007	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6490**	mg/Kg	100	4.00

Sample: 271532 - BH-3 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83007	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2180**	mg/Kg	100	4.00

Sample: 271533 - BH-3 5-6'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83007	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**393**	mg/Kg	50	4.00

Sample: 271534 - BH-3 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83007	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**587**	mg/Kg	50	4.00

Sample: 271535 - BH-3 7-8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83007	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**346**	mg/Kg	50	4.00

Sample: 271536 - BH-3 8-9'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83007	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**241**	mg/Kg	50	4.00

Sample: 271537 - BH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83007	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**16200**	mg/Kg	100	4.00

Sample: 271538 - BH-4 1-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83007	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**15400**	mg/Kg	100	4.00

Sample: 271539 - BH-4 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83007	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**11000**	mg/Kg	100	4.00

Sample: 271540 - BH-4 3-4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83008	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4670**	mg/Kg	100	4.00

Sample: 271541 - BH-4 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83008	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3040**	mg/Kg	100	4.00

Sample: 271542 - BH-4 5-6'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83008	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**22000**	mg/Kg	100	4.00

Sample: 271543 - BH-4 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83008	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**731**	mg/Kg	100	4.00

Sample: 271544 - BH-4 7-8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83008	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1240**	mg/Kg	100	4.00

Sample: 271545 - BH-4 8-9'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83008	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**764**	mg/Kg	100	4.00

Sample: 271546 - BH-4 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83008	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

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

Sample: 271547 - BH-4 10-11'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83008	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**260**	mg/Kg	50	4.00

Sample: 271548 - BH-4 11-12'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83008	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

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

Sample: 271549 - BH-5 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83008	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**11300**	mg/Kg	100	4.00

Sample: 271550 - BH-5 1-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83129	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**11000**	mg/Kg	100	4.00

Sample: 271551 - BH-5 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83129	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**29000**	mg/Kg	100	4.00

Sample: 271552 - BH-5 3-4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83129	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**8720**	mg/Kg	100	4.00

Sample: 271553 - BH-5 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83129	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2610**	mg/Kg	100	4.00

Sample: 271554 - BH-5 5-6'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83129	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1010**	mg/Kg	100	4.00

Sample: 271555 - BH-5 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83129	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1940**	mg/Kg	100	4.00

Sample: 271556 - BH-5 7-8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83129	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**346**	mg/Kg	50	4.00

Sample: 271557 - BH-5 8-9'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83129	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**265**	mg/Kg	50	4.00

Sample: 271558 - BH-5 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83129	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**369**	mg/Kg	50	4.00

Sample: 271559 - BH-6 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83129	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5340**	mg/Kg	100	4.00

Sample: 271560 - BH-6 1-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83131	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**17700**	mg/Kg	100	4.00

Sample: 271561 - BH-6 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83131	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**11300**	mg/Kg	100	4.00

Sample: 271562 - BH-6 3-4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83131	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

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

Sample: 271563 - BH-6 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83131	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

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

Sample: 271564 - BH-6 5-6'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83131	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**201**	mg/Kg	50	4.00

Sample: 271565 - BH-6 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83131	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

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

Sample: 271566 - BH-7 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83131	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**13900**	mg/Kg	100	4.00

Sample: 271567 - BH-7 1-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83131	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**9260**	mg/Kg	100	4.00

Sample: 271568 - BH-7 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83131	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5210**	mg/Kg	100	4.00

Sample: 271569 - BH-7 3-4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83131	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2120**	mg/Kg	100	4.00

Sample: 271570 - BH-7 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83124	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2150**	mg/Kg	100	4.00

Sample: 271571 - BH-7 5-6'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83124	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**812**	mg/Kg	100	4.00

Sample: 271572 - BH-7 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83124	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

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

Sample: 271573 - BH-7 7-8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83124	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**326**	mg/Kg	50	4.00

Sample: 271574 - BH-7 8-9'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83124	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1030**	mg/Kg	100	4.00

Sample: 271575 - BH-7 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83124	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**286**	mg/Kg	50	4.00

Sample: 271576 - BH-7 10-11'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83124	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**441**	mg/Kg	50	4.00

Sample: 271577 - BH-7 11-12'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83124	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**767**	mg/Kg	50	4.00

Sample: 271578 - BH-7 14-15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83124	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

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

Sample: 271579 - BH-7 17-18'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83124	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

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

Sample: 271580 - BH-8 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83126	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5580**	mg/Kg	100	4.00

Sample: 271581 - BH-8 1-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83126	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7950**	mg/Kg	100	4.00

Sample: 271582 - BH-8 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83126	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4050**	mg/Kg	100	4.00

Sample: 271583 - BH-8 3-4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83126	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

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

Sample: 271584 - BH-8 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83126	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

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

Sample: 271585 - BH-9 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83126	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3820**	mg/Kg	100	4.00

Sample: 271586 - BH-9 1-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83126	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5170**	mg/Kg	100	4.00

Sample: 271587 - BH-9 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83126	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6270**	mg/Kg	100	4.00

Sample: 271588 - BH-9 3-4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83126	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1000**	mg/Kg	100	4.00

Sample: 271589 - BH-9 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83126	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5110**	mg/Kg	100	4.00

Sample: 271590 - BH-9 5-6'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83127	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4230**	mg/Kg	100	4.00

Sample: 271591 - BH-9 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83127	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**378**	mg/Kg	50	4.00

Sample: 271592 - BH-9 7-8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83127	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**278**	mg/Kg	50	4.00

Sample: 271593 - BH-9 8-9'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83127	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1000**	mg/Kg	100	4.00

Sample: 271594 - BH-10 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83127	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

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

Sample: 271595 - BH-10 1-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83127	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

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

Sample: 271596 - BH-2 8-9'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83127	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

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

Sample: 271597 - BH-9 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83127	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**209**	mg/Kg	50	4.00

Sample: 271598 - BH-9 10-11'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83127	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

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

Sample: 271599 - BH-9 11-12'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83127	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	Sample Preparation:	2011-07-18	Prepared By:	AR

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

Method Blanks

Method Blank (1) QC Batch: 83005

QC Batch: 83005 Date Analyzed: 2011-07-13 Analyzed By: AR
Prep Batch: 70469 QC Preparation: 2011-07-12 Prepared By: AR

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

Method Blank (1) QC Batch: 83006

QC Batch: 83006 Date Analyzed: 2011-07-13 Analyzed By: AR
Prep Batch: 70469 QC Preparation: 2011-07-12 Prepared By: AR

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

Method Blank (1) QC Batch: 83007

QC Batch: 83007 Date Analyzed: 2011-07-13 Analyzed By: AR
Prep Batch: 70469 QC Preparation: 2011-07-12 Prepared By: AR

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

Method Blank (1) QC Batch: 83008

QC Batch: 83008 Date Analyzed: 2011-07-13 Analyzed By: AR
Prep Batch: 70469 QC Preparation: 2011-07-12 Prepared By: AR

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

Method Blank (1) QC Batch: 83124

QC Batch:	83124	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	QC Preparation:	2011-07-16	Prepared By:	AR

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

Method Blank (1) QC Batch: 83126

QC Batch:	83126	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	QC Preparation:	2011-07-16	Prepared By:	AR

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

Method Blank (1) QC Batch: 83127

QC Batch:	83127	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70605	QC Preparation:	2011-07-16	Prepared By:	AR

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

Method Blank (1) QC Batch: 83129

QC Batch:	83129	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	QC Preparation:	2011-07-12	Prepared By:	AR

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

Method Blank (1) QC Batch: 83131

QC Batch:	83131	Date Analyzed:	2011-07-18	Analyzed By:	AR
Prep Batch:	70469	QC Preparation:	2011-07-12	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: 83005
Prep Batch: 70469
Date Analyzed: 2011-07-13
QC Preparation: 2011-07-12
Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.5	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			102	mg/Kg	1	100	<3.85	102	85 - 115	6	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 83006
Prep Batch: 70469
Date Analyzed: 2011-07-13
QC Preparation: 2011-07-12
Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.0	mg/Kg	1	100	<3.85	97	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			102	mg/Kg	1	100	<3.85	102	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: 83007
Prep Batch: 70469
Date Analyzed: 2011-07-13
QC Preparation: 2011-07-12
Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.0	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			103	mg/Kg	1	100	<3.85	103	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: 83008
Prep Batch: 70469
Date Analyzed: 2011-07-13
QC Preparation: 2011-07-12
Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.2	mg/Kg	1	100	<3.85	97	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			105	mg/Kg	1	100	<3.85	105	85 - 115	8	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 83124
Prep Batch: 70605
Date Analyzed: 2011-07-18
QC Preparation: 2011-07-16
Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.0	mg/Kg	1	100	<3.85	95	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			106	mg/Kg	1	100	<3.85	106	85 - 115	11	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: 83126 | Date Analyzed: 2011-07-18 | Analyzed By: AR
Prep Batch: 70605 | QC Preparation: 2011-07-16 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.7	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			103	mg/Kg	1	100	<3.85	103	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: 83127 | Date Analyzed: 2011-07-18 | Analyzed By: AR
Prep Batch: 70605 | QC Preparation: 2011-07-16 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.9	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			103	mg/Kg	1	100	<3.85	103	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: 83129 | Date Analyzed: 2011-07-18 | Analyzed By: AR
Prep Batch: 70469 | QC Preparation: 2011-07-12 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.2	mg/Kg	1	100	<3.85	95	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			100	mg/Kg	1	100	<3.85	100	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: 83131 | Date Analyzed: 2011-07-18 | Analyzed By: AR
Prep Batch: 70469 | QC Preparation: 2011-07-12 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.8	mg/Kg	1	100	<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			106	mg/Kg	1	100	<3.85	106	85 - 115	8	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: 271519

QC Batch: 83005 | Date Analyzed: 2011-07-13 | Analyzed By: AR
Prep Batch: 70469 | QC Preparation: 2011-07-12 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			14700	mg/Kg	100	10000	5110	96	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			15000	mg/Kg	100	10000	5110	99	80 - 120	2	20

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

Matrix Spike (MS-1) Spiked Sample: 271529

QC Batch: 83006 | Date Analyzed: 2011-07-13 | Analyzed By: AR
Prep Batch: 70469 | QC Preparation: 2011-07-12 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			48700	mg/Kg	100	10000	38000	107	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			49100	mg/Kg	100	10000	38000	111	80 - 120	1	20

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

Matrix Spike (MS-1) Spiked Sample: 271539

QC Batch: 83007 | Date Analyzed: 2011-07-13 | Analyzed By: AR
Prep Batch: 70469 | QC Preparation: 2011-07-12 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			21600	mg/Kg	100	10000	11000	106	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			21800	mg/Kg	100	10000	11000	108	80 - 120	1	20

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

Matrix Spike (MS-1) Spiked Sample: 271549

QC Batch: 83008 | Date Analyzed: 2011-07-13 | Analyzed By: AR
Prep Batch: 70469 | QC Preparation: 2011-07-12 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			21600	mg/Kg	100	10000	11300	103	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			21900	mg/Kg	100	10000	11300	106	80 - 120	1	20

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

Matrix Spike (MS-1) Spiked Sample: 271579

QC Batch: 83124 | Date Analyzed: 2011-07-18 | Analyzed By: AR
Prep Batch: 70605 | QC Preparation: 2011-07-16 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			11100	mg/Kg	100	10000	2120	90	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			11600	mg/Kg	100	10000	2120	95	80 - 120	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: 271589

QC Batch: 83126 | Date Analyzed: 2011-07-18 | Analyzed By: AR
Prep Batch: 70605 | QC Preparation: 2011-07-16 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			15100	mg/Kg	100	10000	5110	100	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			15500	mg/Kg	100	10000	5110	104	80 - 120	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: 271599

QC Batch: 83127 | Date Analyzed: 2011-07-18 | Analyzed By: AR
Prep Batch: 70605 | QC Preparation: 2011-07-16 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10000	mg/Kg	100	10000	<385	100	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10400	mg/Kg	100	10000	<385	104	80 - 120	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: 271559

QC Batch: 83129 | Date Analyzed: 2011-07-18 | Analyzed By: AR
Prep Batch: 70469 | QC Preparation: 2011-07-12 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			14200	mg/Kg	100	10000	5340	89	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			14400	mg/Kg	100	10000	5340	91	80 - 120	1	20

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

Matrix Spike (MS-1) Spiked Sample: 271569

QC Batch: 83131 | Date Analyzed: 2011-07-18 | Analyzed By: AR
Prep Batch: 70469 | QC Preparation: 2011-07-12 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			13800	mg/Kg	100	10000	2120	117	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			14000	mg/Kg	100	10000	2120	119	80 - 120	1	20

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

Calibration Standards

Standard (ICV-1)

QC Batch: 83005 | Date Analyzed: 2011-07-13 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2011-07-13

Standard (CCV-1)

QC Batch: 83005 | Date Analyzed: 2011-07-13 | 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	99.4	99	85 - 115	2011-07-13

Standard (ICV-1)

QC Batch: 83006 | Date Analyzed: 2011-07-13 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.5	98	85 - 115	2011-07-13

Standard (CCV-1)

QC Batch: 83006 | Date Analyzed: 2011-07-13 | 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	102	102	85 - 115	2011-07-13

Standard (ICV-1)

QC Batch: 83007 | Date Analyzed: 2011-07-13 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.5	100	85 - 115	2011-07-13

Standard (CCV-1)

QC Batch: 83007 | Date Analyzed: 2011-07-13 | 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	101	101	85 - 115	2011-07-13

Standard (ICV-1)

QC Batch: 83008 | Date Analyzed: 2011-07-13 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2011-07-13

Standard (CCV-1)

QC Batch: 83008 | Date Analyzed: 2011-07-13 | 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	2011-07-13

Standard (ICV-1)

QC Batch: 83124 | Date Analyzed: 2011-07-18 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	90.8	91	85 - 115	2011-07-18

Standard (CCV-1)

QC Batch: 83124 Date Analyzed: 2011-07-18 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	109	109	85 - 115	2011-07-18

Standard (ICV-1)

QC Batch: 83126 Date Analyzed: 2011-07-18 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.5	100	85 - 115	2011-07-18

Standard (CCV-1)

QC Batch: 83126 Date Analyzed: 2011-07-18 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	2011-07-18

Standard (ICV-1)

QC Batch: 83127 Date Analyzed: 2011-07-18 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2011-07-18

Standard (CCV-1)

QC Batch: 83127 Date Analyzed: 2011-07-18 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	2011-07-18

Standard (ICV-1)

QC Batch: 83129 Date Analyzed: 2011-07-18 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	107	107	85 - 115	2011-07-18

Standard (CCV-1)

QC Batch: 83129 Date Analyzed: 2011-07-18 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	92.8	93	85 - 115	2011-07-18

Standard (ICV-1)

QC Batch: 83131 Date Analyzed: 2011-07-18 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	107	107	85 - 115	2011-07-18

Standard (CCV-1)

QC Batch: 83131 Date Analyzed: 2011-07-18 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	93.5	94	85 - 115	2011-07-18

Appendix

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.

XTO #: 110708 25

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 9

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

CLIENT NAME: Production Specialty

SITE MANAGER: Aaron Hale

PROJECT NO.: 114-6400753

PROJECT NAME: West Brushy 27 Fed #1

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
27574	7/6		S		X	BH-1 0-1'	1				X	
575						1-2'	1				X	
576						2-3'	1				X	
577						3-4'	1				X	
578						4-5'	1				X	
579						BH-2 0-1'	1				X	
580						1-2'	1				X	
581						2-3'	1				X	
582						3-4'	1				X	
583						4-5'	1				X	

ANALYSIS REQUEST (Circle or Specify Method No.)

BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
												X				
												X				
												X				
												X				
												X				
												X				
												X				
												X				
												X				
												X				

RELINQUISHED BY: (Signature) — Date: 7-8-11 Time: 1525

RECEIVED BY: (Signature) — Date: 7/8/11 Time: 15:30

SAMPLED BY: (Print & Initial) Kim — Date: 7/6/11 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: Aaron Hale

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: 7.2°C intact

REMARKS: All tests Midland

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

Analysis Request of Chain of Custody Record

WO #: 11070825

PAGE: 2 OF: 9

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: Production Specialty

SITE MANAGER: Aaron Hale

PROJECT NO.: 114-6400753

PROJECT NAME: West Brushy 27 Fed #1

LAB I.D. NUMBER	DATE 2011	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
271524	7/6		S		X	BH-2 5-6'	1				X													X				
525						6-7'	1				X													X				
526						7-8'	1				X													X				
527						9-10'	1				X													X				
528						BH-3 0-1'	1				X													X				
529						1-2'	1				X													X				
530						2-3'	1				X													X				
531						3-4'	1				X													X				
532						4-5'	1				X													X				
533						5-6'	1				X													X				

RELINQUISHED BY: (Signature) — Date: 7-8-11 Time: 1525

RECEIVED BY: (Signature) — Date: 7/8/11 Time: 15:30

SAMPLED BY: (Print & Initial) Kim — Date: 7/6/11 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: Aaron Hale

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 7.2 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.

xwo #: 11070825

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: Production Specialty
SITE MANAGER: Aaron Hale
PROJECT NO.: 114-6400753
PROJECT NAME: West Brushy 27 Fed #1

LAB I.D. NUMBER	DATE 2011	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
271534	7/6		S		X	BH-3 6-7'	1				X													X				
535						7-8'	1				X													X				
536						8-9'	1				X													X				
537						BH-4 0-1'	1				X													X				
538						1-2'	1				X													X				
539						2-3'	1				X													X				
540						3-4'	1				X													X				
541						4-5'	1				X													X				
542						5-6'	1				X													X				
543						6-7'	1				X													X				

RELINQUISHED BY: (Signature) Date: 7-8-11 Time: 1525
RECEIVED BY: (Signature) Date: 7/8/11 Time: 16:30
SAMPLED BY: (Print & Initial) Kim Date: 7/6/11 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: Aaron Hale

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 7.2°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.

Xenco #: 110708 25

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: Production Specialty
SITE MANAGER: Aaron Hale
PROJECT NO.: 114-6400753
PROJECT NAME: West Brushy 27 Fed #1

LAB I.D. NUMBER	DATE 2011	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
271544	7/6		S		X	BH-4 7-8'	1				X													X				
545						8-9'	1				X													X				
546						9-10'	1				X													X				
547						10-11'	1				X													X				
548						11-12'	1				X													X				
549						BH-5 0-1'	1				X													X				
550						1-2'	1				X													X				
551						2-3'	1				X													X				
552						3-4'	1				X													X				
553						4-5'	1				X													X				

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 7-07-11 Time: 1525
RECEIVED BY: (Signature) Date: 7/8/11 Time: 15:30
SAMPLED BY: (Print & Initial) Kim Date: 7/6/11 Time:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX HAND DELIVERED BUS 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: Aaron Hale

Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 7.2°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.

AWD #: 1107080825

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: Production Specialty

SITE MANAGER: Aaron Hale

PROJECT NO.: 114-6400753

PROJECT NAME: West Brushy 27 Fed #1

LAB I.D. NUMBER	DATE 2011	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
271554	7/6		S		X	BH-5 5-6'	1				X													X				
555	"		"		"	6-7'	1				X													X				
556	"		"		"	7-8'	1				X													X				
557	"		"		"	8-9'	1				X													X				
558	7/6		"		"	9-10'	1				X													X				
559	7/7		"		"	BH-6 0-1'	1				X													X				
560	"		"		"	1-2'	1				X													X				
561	"		"		"	2-3'	1				X													X				
562	"		"		"	3-4'	1				X													X				
563	"		"		"	4-5'	1				X													X				

RELINQUISHED BY: (Signature) Date: 7-8-11 Time: 1525

RECEIVED BY: (Signature) Date: 7/8/11 Time: 15:30

SAMPLED BY: (Print & Initial) Kim Date: 7/6/11 Time:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

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

AIRBILL #:

OTHER:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

TETRA TECH CONTACT PERSON: Aaron Hale

Results by:

RECEIVING LABORATORY: TRACE

ADDRESS:

CITY: MIDLAND STATE: TX ZIP:

CONTACT: PHONE: DATE: TIME:

RECEIVED BY: (Signature)

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 7.2°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.

Xwo #: 11070825

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: Production Specialty
SITE MANAGER: Aaron Hale
PROJECT NO.: 114-6400753
PROJECT NAME: West Brushy 27 Fed #1

LAB I.D. NUMBER	DATE 2011	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
271564	7/7		S		X	BH-6 5-6'	1				X													X				
565						6-7'	1				X													X				
566						BH-7 0-1'	1				X													X				
567						1-2'	1				X													X				
568						2-3'	1				X													X				
569						3-4'	1				X													X				
570						4-5'	1				X													X				
571						5-6'	1				X													X				
572						6-7'	1				X													X				
573						7-8'	1				X													X				

RELINQUISHED BY: (Signature) Date: 7-8-11 Time: 1525
RECEIVED BY: (Signature) Date: 7/8/11 Time: 15:30
SAMPLED BY: (Print & Initial) Kim Date: 7/7/11 Time:

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

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
TETRA TECH CONTACT PERSON: Aaron Hale
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: +.2°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.

* WO #: 11070825

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: Production Specialty
SITE MANAGER: Aaron Hale
PROJECT NO.: 114-640 0753
PROJECT NAME: West Brushy 27 Fed #1

LAB I.D. NUMBER	DATE 2011	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
27574	7/7		S		X	BH-7 8-9'	1				X													X				
575						9-10'	1				X													X				
576						10-11'	1				X													X				
577						11-12'	1				X													X				
578						14-15'	1				X													X				
579						17-18'	1				X													X				
580						BH-8 0-1'	1				X													X				
581						1-2'	1				X													X				
582						2-3'	1				X													X				
583						3-4'	1				X													X				

RELINQUISHED BY: (Signature) — Date: 7/8/11 Time: 1325
RECEIVED BY: (Signature) — Date: 7/8/11 Time: 15:30
SAMPLED BY: (Print & Initial) Kim — Date: 7/7/11 Time:

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

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
TETRA TECH CONTACT PERSON: Aaron Hale
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: 7.2°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.

X WO #: 110708825

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: Production Specialty
SITE MANAGER: Aaron Hale
PROJECT NO.: 114-6400753
PROJECT NAME: West Brushy 27 Fed #1

LAB I.D. NUMBER	DATE 2011	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
27584	7/7		S		X	BH-8 4-5'	1				X													X				
585						BH-9 0-1'	1				X													X				
586						1-2'	1				X													X				
587						2-3'	1				X													X				
588						3-4'	1				X													X				
589						4-5'	1				X													X				
590						5-6'	1				X													X				
591						6-7'	1				X													X				
592						7-8'	1				X													X				
593						8-9'	1				X													X				

ANALYSIS REQUEST
(Circle or Specify Method No.)

RELINQUISHED BY: (Signature) — Date: 7-8-11 Time: 1525 — RECEIVED BY: (Signature) — Date: 7/8/11 Time: 15:30
SAMPLED BY: (Print & Initial) Kim — Date: 7/7/11 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: Aaron Hale — 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: 7.2c 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.

X WO #: 11070825

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: Production Specialty
SITE MANAGER: Aaron Hale
PROJECT NO.: 114640753
PROJECT NAME: West Brushy 27 Fed #1

LAB I.D. NUMBER	DATE 2011	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. 8240/8260/824	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
271594	7/7		S		X	BH-10 0-1'	1				X													X				
595						1-2'	1				X													X				
596	7/6					BH-2 8-9'	D.																	X				
597	7/7					BH-9 9-10'																		X				
598	1					BH-9 10-11'																		X				
599	1					BH-9 11-12'																		X				

Per Kim & Aaron Hale.

RELINQUISHED BY: (Signature) Date: 7-8-11 Time: 1523
RECEIVED BY: (Signature) Date: 7/8/11 Time: 15:30
SAMPLED BY: (Print & Initial) Kim Date: 7/7/11 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: Aaron Hale
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: 7.2°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.