5 N. French Dr., Hobbs, NM 88240 strict II 01 W. Grand Avenue, Artesia, NM 88210 istrict III 000 Rio Brazos Road, Aztec, NM 87410 District IV

#### State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr.

Form C-141 Revised October 10, 2003

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

#### 1220 S. St. Francis Dr., Santa Fe, NM 87505 Santa Fe, NM 87505 **Release Notification and Corrective Action OPERATOR** Initial Report Final Report Name of Company COG Operating LLC Contact Pat Ellis Address 550 W. Texas, Suite 1300 Midland, Texas 79701 Telephone No. (432) 230-0077 Facility Name Dogwood Federal Facility Type Tank Battery Surface Owner Federal Mineral Owner Lease No. 30-015-32927 NMNM-94594 LOCATION OF RELEASE Unit Letter Feet from the North/South Line | Feet from the Section Township County Range East/West Line F 25 17-S 27-E Eddy Latitude N 32.80598° Longitude W 104.23523° NATURE OF RELEASE Type of Release: Volume of Release Volume Recovered Produced Water 10 bbis 8 bbls Source of Release Date and Hour of Occurrence Date and Hour of Discovery Water Tank 3/1/2011 3/1/2011 3:30 pm Was Immediate Notice Given? If YES, To Whom? Yes No Not Required By Whom? Date and Hour Was a Watercourse Reached? If YES, Volume Impacting the Watercourse. ☐ Yes ☒ No If a Watercourse was Impacted, Describe Fully.\* N/A Describe Cause of Problem and Remedial Action Taken.\* Water haulers failed to pick up after the well turned back on. Describe Area Affected and Cleanup Action Taken.\* Tetra Tech inspected and collected samples to define spills extent. Soil exceeding the RRAL and elevated chlorides were removed and hauled to Controlled Recovery, Inc., Hobbs, NM for disposal. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review. I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local lays and/or regulations. OIL CONSERVATION DIVISION Accepted for record Signature: NMOCD Approved by District Supervisor: Printed Name: Ike Tavarez (agent for COG) Title: Project Manager Approval Date: **Expiration Date:** E-mail Address: ike.tavarez@tetratech.com Attached Site abandonment Date: / - 8 - 12 Phone: (432) 682-4559

Attach Additional Sheets If Necessary

Form C-141

Revised October 10, 2003

District I 1625 N. French Dr., Hobbs, NM 88240 District II 1301 W. Grand Avenue, Artesia, NM 88210 District III
1000 Dio Brazos Road, Aztec, NM 87410

#### State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division

Submit 2 Copies to appropriate

(2)	District IV 1220 Soul	th St. Francis Dr. Fe, NM 87505	with Rule 116 on back side of form
機構	Release Notification	on and Corrective Actio	n
要 "	Name of Company COG Operating LLC Address 550 W. Texas, Suite 1300 Midland, Texas 79701 Facility Name Dogwood Federal	OPERATOR Contact Pat Ellis Telephone No. (432) 230-0077 Facility Type Tank Battery	☐ Initial Report ☑ Final Repo
		Tuesday Type Zumi Duttery	Lease No. 30-015-32927 NMNM-94594
		N OF RELEASE  h/South Line   Feet from the   East	/West Line County Eddy
		° Longitude W 104.23523° COF RELEASE	
	Type of Release: Produced Water Source of Release Water Tank	Volume of Release 105 bbls Date and Hour of Occurrence 1/3/2012	Volume Recovered 100 bbls Date and Hour of Discovery 1/3/2012 8:00 am
	Was Immediate Notice Given?  ☐ Yes ☐ No ☐ Not Required	If YES, To Whom?	707002 000 um
	By Whom? Josh Russo  Was a Watercourse Reached?  ☐ Yes ☒ No	Date and Hour 1/4/2012 10:54 am  If YES, Volume Impacting the Wat N/A	
	If a Watercourse was Impacted, Describe Fully.*  N/A		
	Describe Cause of Problem and Remedial Action Taken.*  Wells were turned off due to problems with water haulers and when the w	rells were turned back on the water hav	alers were not notified in time
	Describe Area Affected and Cleanup Action Taken.*  Tetra Tech inspected and collected samples to define spills extent. Soil ex Controlled Recovery, Inc. for proper disposal. The site was then brought	cceeding the RRAL and elevated chlor up to surface grade with clean backfill	rides were removed and hauled to
	report and submitted to NMOCD for review.		
	I hereby certify that the information given above is true and complete to the regulations all operators are required to report and/or file certain release not public health or the environment. The acceptance of a C-141 report by the should their operations have failed to adequately investigate and remediate or the environment. In addition, NMOCD acceptance of a C-141 report defederal, state, or local laws and/or regulations.	otifications and perform corrective acti NMOCD marked as "Final Report" de contamination that pose a threat to gr	ions for releases which may endanger loes not relieve the operator of liability round water, surface water, human health
SWAY.		OIL CONSERV	ATION DIVISION
	Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor:	Accepted for record NIMOCD
	Title: Project Manager /	Approval Date: F	Expiration Date:
	E-mail Address: ike.tavarez@tetratech.com  Date: 6-8-12 Phone: (432) 682-4559	Conditions of Approval:	Attached 🗆
	Attach Additional Sheets If Necessary  Released to Imaging: 4/11/2023 9:01:49 AM	Clean up deferre	nent

SITE	INF	ORM	ATIC	N
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	Report	Туре: С	Closure F	Report
oneral Site Information	2015年18月1日日本公司第1	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	<b>"我们的一个一个</b>	But I street at

Site:	Dogwood Federal Tank Battery
Company:	COG Operating LLC
Section, Township and Range	Unit F - Section 25 - Township 17 South - Range 27 Ea

ast 30-015-32927 Lease Number:

**Eddy County** County: GPS: 32 48.352 104 14.115

Surface Owner: Federal Mineral Owner:

From the intersection of Hwy 82 and Hwy 360, travel west on 82 4.3 miles, turn left on CR-225 Directions: and travel 0.3 miles, turn left and travel 0.1 miles to location.

Release Data:	Spill #1	Spill #2
Date Released:	3/1/2011	1/3/2012
Type Release:	Produced Water	Produced Water
Source of Contamination:	Water tank ran over	Water tank ran over
Fluid Released:	10 bbls	105 bbls
Fluids Recovered:	8 bbls	100 bbls

#### Official Communication:

>100 ft.

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

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

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	

Accepta	ble:Soil≀RRAL∞(n	ng/kg)
Benzene	Total BTEX	TPH
10	50	5,000



RECEIVED
SEP 0 6 2012
NMOCD ARTESIA

June 8, 2012

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., Dogwood Federal Tank Battery, Unit F, Section 25, Township 17 South, Range 27 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess two spills from the Dogwood Federal Tank Battery, Unit F, Section 25, Township 17 South, Range 27 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32° 48.352, W 104° 14.115. The site location is shown on Figures 1 and 2.

#### Background

#### Spill #1

According to the State of New Mexico C-141 Initial Report, the leak was discovered on March 1, 2011, and approximately 10 barrels of produced fluids were released when a transporter failed to make a water pickup, allowing a water tank to overflow. Eight (8) barrels of standing fluids were recovered. The spill impacted an area north and east of the facility and measured approximately 8' x 60' and 8' x 20'. The entire spill was contained within the facility firewalls. The initial C-141 form is enclosed in Appendix A.

#### Spill #2

On January 3, 2012, a second spill occurred at the facility and released 105 barrels of produced water due to a water tank over flow. The second spill overlapped and encompassed the first spill footprint. Approximately 100 barrels of standing fluids were recovered. The entire spill was contained within the facility firewalls impacting an area of approximately 95' x 30'. The initial C-141 form is enclosed in Appendix A.

Tel 432.682.4559

Tetra Tech

1910 North Big Spring, Midland.TX 79705

Fax 432.682.3946 www.tetratech.com

## TE TETRA TECH

#### Groundwater

No water wells were listed within Section 25. According to the NMOCD groundwater map, the average depth to groundwater in this area is 125' to 150' below surface. The groundwater well report data is included 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

#### Spill #1

On March 25, 2011, Tetra Tech personnel inspected and sampled the spill areas. Three auger holes (AH-1, AH-2, and AH-3) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, auger hole (AH-1) samples were below the RRAL for TPH and BTEX. AH-2 and AH-3 exceeded the RRAL at 0-1' for total BTEX, with concentrations of 172 mg/kg and 158 mg/kg, respectively. AH-3 was defined at 1-1.5' below surface.

The chloride impact areas at AH-2 and AH-3 were not vertically defined. Auger hole (AH-2) showed a chloride concentration of 9,780 mg/kg at 0-1', which declined to 252 mg/kg at 3.0' below surface. However, chloride increased to 2,330 mg/kg 5.0' below surface. The area of AH-3 also showed chloride concentrations of 7,720 mg/kg at 0-1', which declined to 2,140 mg/kg at 4.0' below surface.

In order to define the extents of impact in the areas of AH-2 and AH-3, deeper samples were collected utilizing an air rotary drilling rig. On June 27, 2011, Tetra Tech personnel supervised the installation of two soil bores (SB-1 and SB-2). Due to the limited access of the site, the facility berm was removed to gain access for the drilling rig. Samples were collected to a depth of 20' and submitted for

# TETRA TECH

laboratory analysis. The sampling results are summarized in Table 1. The soil bore locations are shown on Figure 3. Referring to Table 1, SB-1 showed a shallow chloride impact 0-1' to the soils and SB-2 showed no impact the soils.

#### Spill #2

On January 19, 2012, Tetra Tech personnel inspected and sampled the spill areas. Four auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 2. The spill area and auger hole locations are shown on Figure 4.

Referring to Table 2, all the submitted samples were below the RRAL for TPH and BTEX. Auger holes (AH-1, AH-2 and AH-3) showed a shallow chloride impact to the soils and the areas were vertically defined. The area of AH-4 was not vertically defined and showed a chloride concentration of 4,050 mg/kg at 0-1'. Deeper samples could not be collected due to the dense caliche formation.

#### **Remediation Activities**

On April 2012, Tetra Tech personnel supervised the excavation of the spill as outlined in the approved work plan. The excavated areas and depths are shown on Figure 5. Approximately 170 yards<sup>3</sup> was removed and hauled to CRI for proper disposal. The excavations were backfilled with clean material.

During a site inspection, the BLM requested samples from an impacted area south of the tank battery, which measured 10' x 40'. The south area is shown on Figure 5. Due to a shallow dense caliche layer, a soil boring was installed to define the extents. On April 19, 2012, Tetra Tech personnel supervised the installation of one soil boring (SB-3) to a depth of 10.0' below surface.

Referring to Table 3, a shallow chloride impact was detected in the subsurface soils, with elevated chloride were detected at 0-1' of 11,300 mg/kg and 2-3' of 9,030 mg/kg. The deeper samples showed a significant decline at 4-5' below surface. Based on the results, the area was excavated to a depth of approximately 3.0' to 4.0' below surface.

As recommended in the work plan, a backhoe trench (Trench #1) was installed in the area of AH-4 (spill #2) to define the extents of the chloride impact. The sampling results are shown on Table 4. Referring to Table 4, the samples at 3.0' and 4.0' below surface showed chloride concentrations declining below reporting limit (<20.0 mg/kg).

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Once excavated, a total of eight (8) confirmation samples (CS-1 through CS-8) were collected from excavation bottoms and sidewalls. The confirmation sampling results are summarized on Table 4. Referring to Table 4, all confirmation samples showed chloride concentrations to be less than 250 mg/kg, with the exceptions of CS-2 (west wall), CS-3 (bottom, north wall and south wall), CS-4 (east wall and south wall), and CS-5 (east wall). The chloride impact soils were not removed due to facility tank, equipment or piping in the area and the remaining impact would be deferred until abandonment.

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

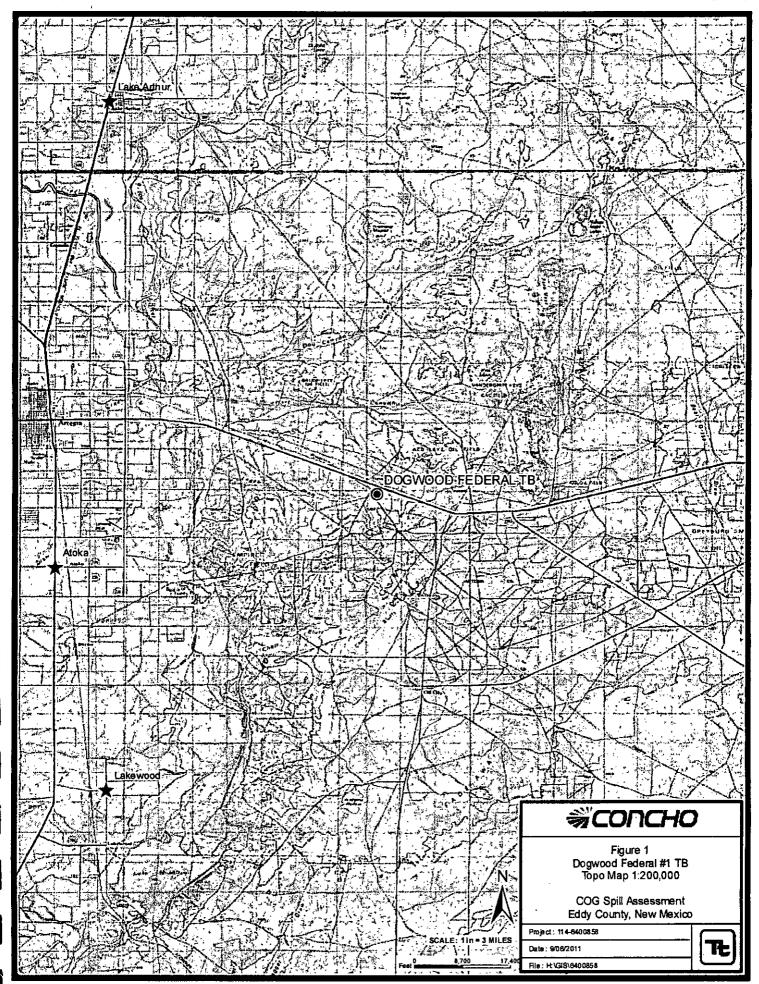
Respectfully submitted,

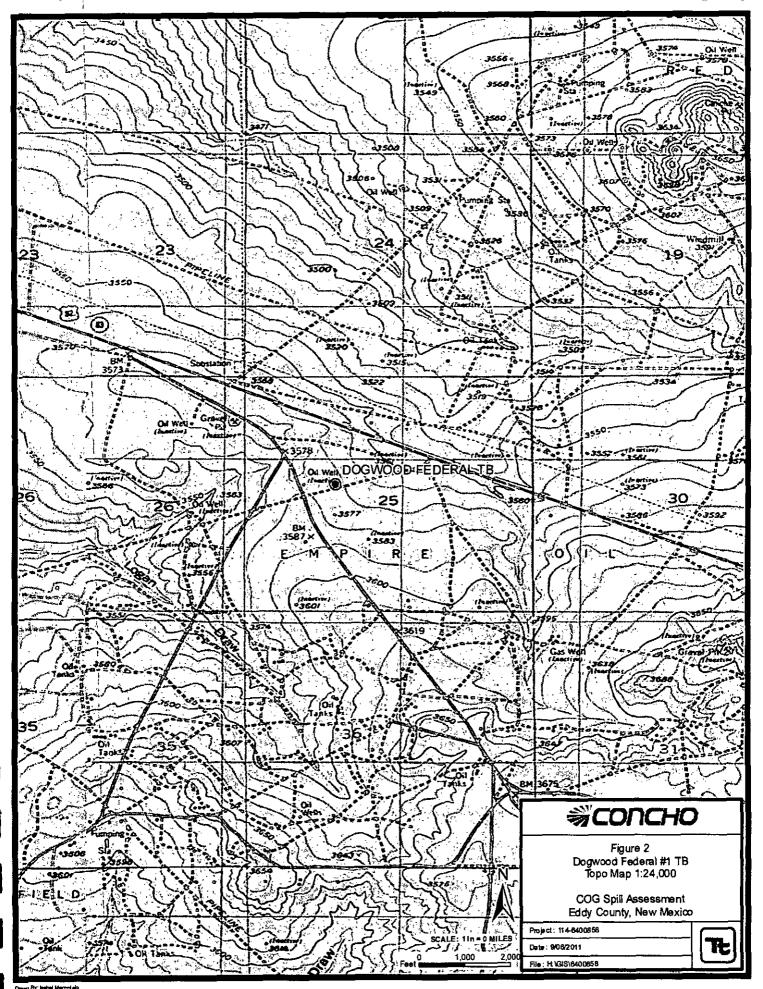
TETRA TECH

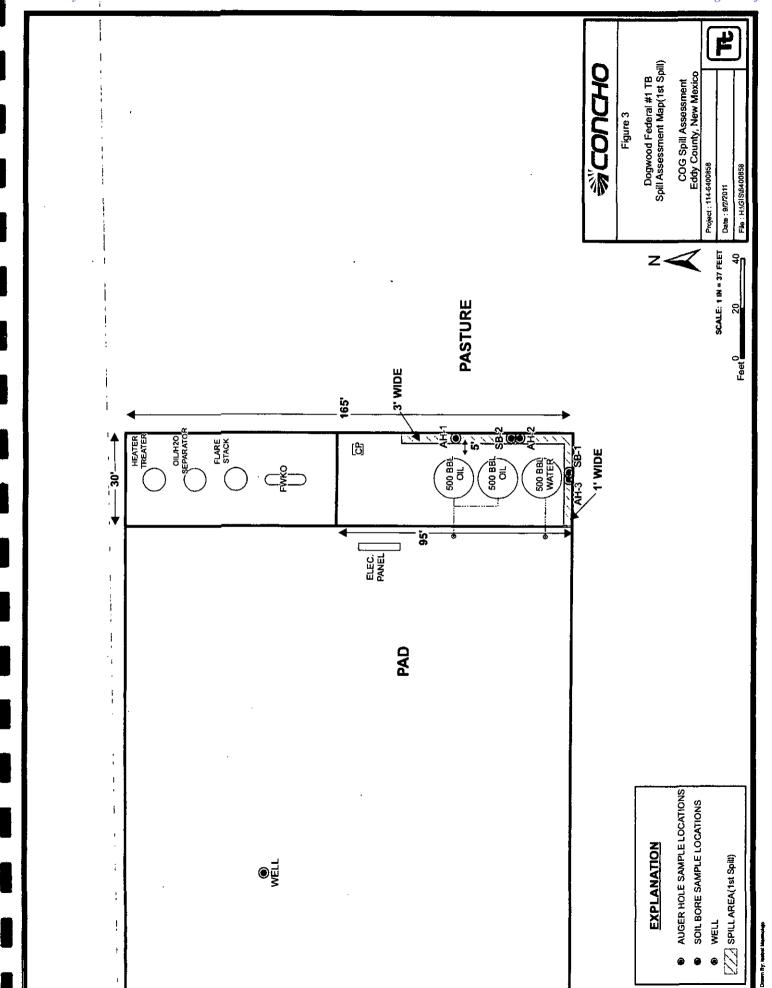
Ike Tavarez, PG Project Manager

cc: Pat Ellis - COG
Terry Gregston - BLM

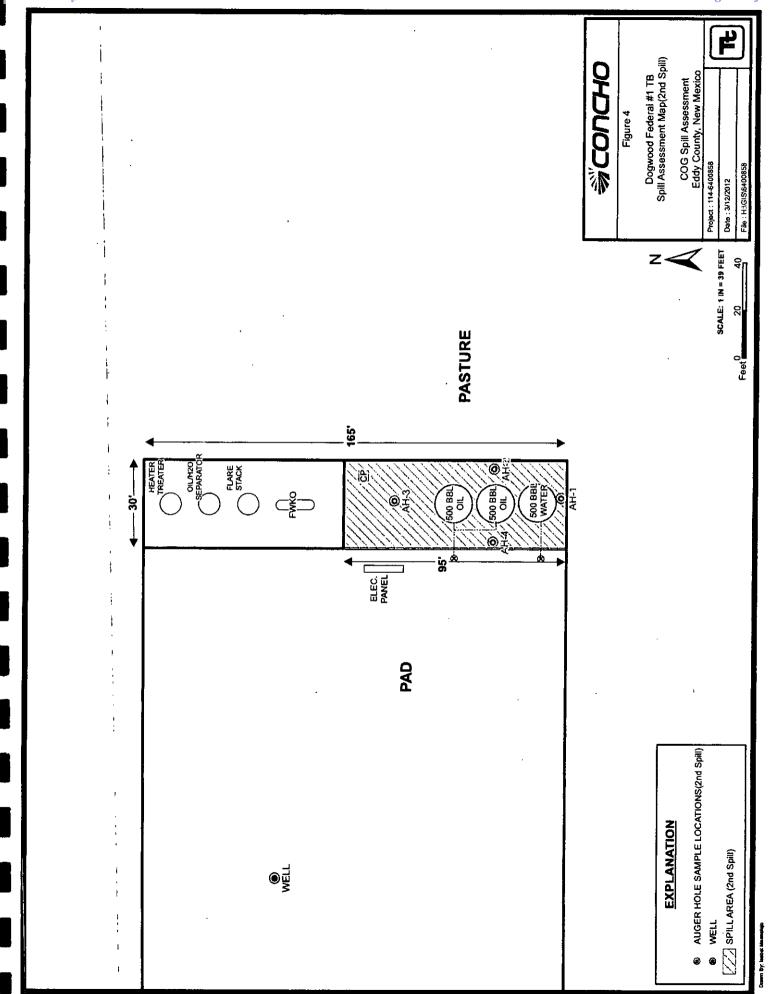
Figures



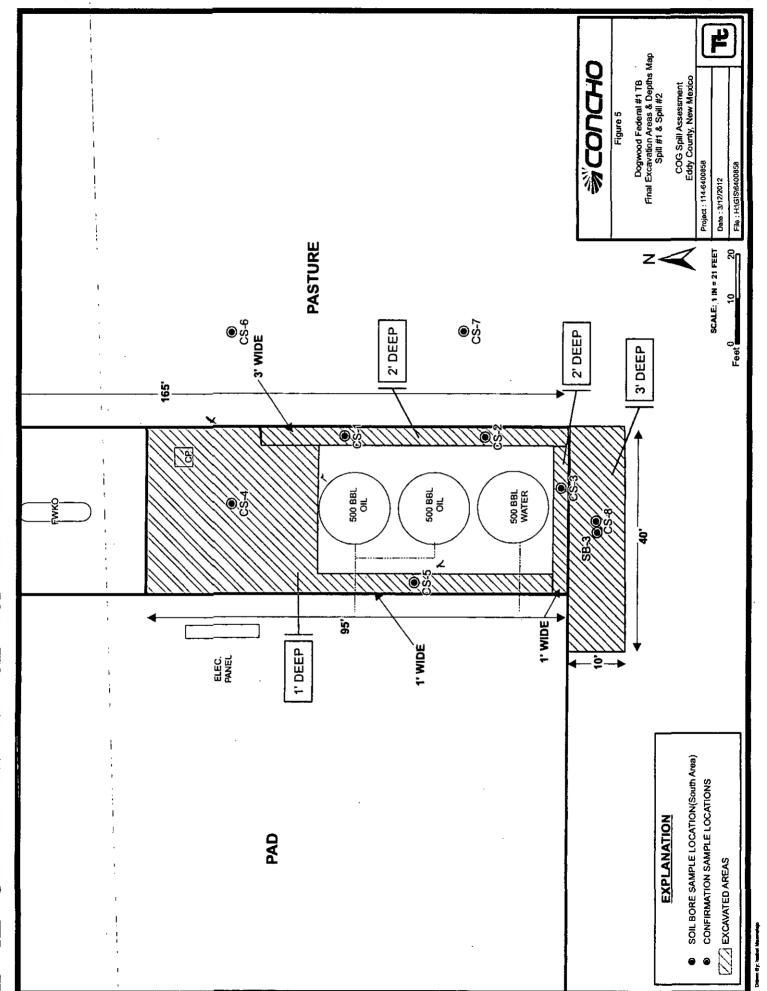




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Tables

# Table 1 COG Operating LLC. DOGWOOD FEDERAL #1 TANK BATTERY - SPILL #1

	 	Chloride	(mg/kg)	<200	<200	<200	205	214	<200	9,780	3,430	1;750	252	370	2,330	255	320	390	<200	<200	343	218
	\ \ \	Total	(mg/kg)	<0.0200	4	•	,	'	•	172	•	r	,	ı	•		,	•	ı	•	-	-
j	   	Xylene	(mg/kg)	<0.0200		,	-	1	'	82.1 <sup>4</sup>	***	P= #	,	1	-		1	4	1	,	ŧ	1
		Ethlybenzene	(mg/kg)	<0.0200	1	4	1	ı	ı	40.6		<b>\$</b>	1	•	-	•	•		1	ı	J	ı
	- SPILL #1	Toluene	(mg/kg)	<0.0200	-	•	-	,	ı	45.5	-	-	•	•	-	•	ı	1	-	ı	1	r
		Benzene	(mg/kg)	<0.0200	•	•	-	,		3.54	-		•	-	•	-	ı	-	-	-	-	,
	Table 1 G Operating LLC. AL #1 TANK BATTERY County, New Mexico	g)	Total	<50.0	1	-	,	,	•	2,262	, :-	•	,	-	-		•	-	1	•	•	•
	Table 1 G Operating LLC. AL #1 TANK BATT County, New Mexi	TPH (mg/kg)	DRO	<50.0	•	-	-	-	•	672	1		-	-		,	-	•	,	,	1	•
•	COG C ERAL :	1	GRO	<2.00	-	-		1	_	1,590	1		1	1	٠	•	-	•	•	•	1	-
	CO DOGWOOD FEDER Eddy	Soil Status	Removed							×	×	×										
	GWO	Soil	In-Situ	×	×	×	×	×	×			,	×	×	×	×	×	×	×	×	×	×
1	<b>)</b>	0									*					4	4	4	4	4	4	4
	1	Sample	Depth (ft)	0-0.5	1,	2.	S	-4	5.	0-0.5	-	7	ص	-4	2,	0-1	ۍ ش	52	7.	10,	15'	20'
l		Sample	Date	3/25/2011	=	=	=	=	=	3/25/2011	=	=	=	#	=	6/27/2011						
R	eleased to Imaging:	Sample	<u>Q</u>	AH-1	1:49	AM	,			AH-2						SB-2						

Table 1

COG Operating LLC.

DOGWOOD FEDERAL #1 TANK BATTERY - SPILL #1
Eddy County, New Mexico

Sample	Sample	Sample		Soil S	Soil Status		TPH (mg/kg)	(6)	Benzene	Toluene	Ethivbenzene	Xvlene	Total	Chloride
<u>.</u>		Depth (ft)	BEB	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	BTEX (mg/kg)	(mg/kg)
AH-3	3/24/2011	0-0.5			×	1,820	1,160	2,980	60.9	45.2	36.5	6.69	158	7,720
	=	1,	,		X	15.6	<50.0	15.6	<0.0200	0.166	<0.0200	0.443	609.0	3,780
	=	2'			·X		ı							2,490
	=	3,		×		,	-	,			1	•		5,060
	=	- 4		×		ı	,				1	,		2,140
SB-1	6/27/2011	0-1-	m		×			2	-	1			•	3,700
		3,	ñ	×		,	•	•	•	ŧ	•	ı	•	325
		5.	ю	×		1		,	•	ı	ı	1	•	<200
:		7'	က	×		1	•	•	•	r	ı	1	,	<200
		10'	3.	×		,	ı	,	•	•	1	'	,	<200
		15'	3,	X		•	,	,		1		-		<200
		20,	3,	×		'	,	•	1					<200

Not Analyzed 1 Below Excavated Bottom BEB

Excavation Depth

DOGWOOD FEDERAL #1 TANK BATTERY -Spill #2 COG Operating LLC. Table 2

Eddy County, New Mexico

Sample	Sample Date	Sample	Soil	Soil Status	F	TPH (mg/kg)	g)	Benzene	Toluene	Ethlybenzene	Xylene	Total	Chloride
₽	Sample Date	Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-1	1/19/2012	0-1		×	974	1,010	1,984	<0.100	1.02	4.49	21.5	127.01	1,400
		1-1.5		×	-	,	•	•	•	,	1	ا ا	1,200
	=	2-2.5		×	ı		3.		•			₹ <b>1</b>	1,240
	В	3-3.5	×		1	,		•	1	1	1	1	314
	=	3.5-4	X		•	ı	f			1	1		380
AH-2	1/19/2012	0-1		×	3.77	<50.0	3.77	.<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	4 190
	±	1-1.5	×			•	-	,					435
	u	2-2.5	×			,	-	•		,	•		<200
	п	3-3.5	×		•	,	,	6	-	,	,		<200
	Ħ	3.5-4	×		Ī	-	,	•	,	-	•	ı	<200
		:   <del>-</del>											
AH-3	1/19/2012	0-1	ų.'	×	5.65	<50.0	5.65	<0.0200	<0.0200	<0.0200	<0.0200	-<0.0200 -<	7,220
	=	1-1.5	×		,	,		-	-	1	-		410
	=	2-2.5	×		,	-	•	•	•	•	-	•	<200
		3-3.5	×		-	-		,		\$	-		<200
	В	4-4.5	×		-	,	,			1			<200
	=	5-5.5	×		'	1	_	-	-			-	<200
AH-4	1/19/2012	0-1	,	×	4.47	<50.0	4.47	<0.0200	<0.0200	<0.0200	<0.0200	{ }	4.050
												-	2221.

Not Analyzed  $\widehat{\mathbb{T}}$  **Excavation Depth** 

COG Operating LLC. Table 3

DOGWOOD FEDERAL #1 TANK BATTERY (Area South of Tank Battery)

Eddy County, New Mexico

Sample	Sample	Sample	Soil (	Soil Status		TPH (mg/kg)	g)	Benzene	Toluene	Ethlybenzene	Xvlene	Total	Chloride
ΙĎ	Date	Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg) (mg/kg) (mg/kg) (mg/kg)	(mg/kg)	BTEX (mg/kg)	(mg/kg)
SB-3	4/19/2012	0-1,		×	ı	•				•	•	'	11,300
		2-3'		×	-	1	•			•		-	9,030
		4-5'	×		•	•		•	,	-	•	1	199
		.2-9	×		-	•	'	•	•	1	ı	•	125
		-8	X		•	ı		'					134
		-6	×		•		•	•	•	ı			218
		10,	×		-	•	-	•		1	,	,	59.4

Not Analyzed

Excavation Depth

DOGWOOD FEDERAL #1 TANK BATTERY COG Operating LLC. Table 4

Eddy County, New Mexico

		Sample	Soil Star	status		TPH (ma/ka)		Pontono	Tollingson	E + h ( - th c m = 0 = 0	V.402.0	Total	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Sample ID	Sample Date	Depth (ft)	In-Situ		GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	BTEX (mg/kg)	(mg/kg)
CS-1 Bottom Hole	4/19/2012	2	X		-	,	,	,		-	'	,	<20.0
CS-1 East Sidewall	=	-	×			'	   	-		•	•		24.4
CS-1 West Sidewall	F	•	×		,	,	ŧ	,	_		ŧ		156
CS-2 Bottom Hole	4/19/2012	2	×		•	•	,	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	161
CS-2 East Sidewall	=	,	×		_	•	•	•	1	•	1		215
CS-2 West Sidewall	=	1	×		,	,	•	,	-	3	-	-	5,830
CS-3 Bottom Hole	4/19/2012	2	×		•	ı	•	•	_		l .	1	3,170
CS-3 North Sidewall	2	3	×		•	•	•	•	-	•	-	,	6,950
CS-3 South Sidewall	=	•	×		-	1	•	•	'	1	,		3,640
		ŀ											
CS-4 Bottom Hole	4/19/2012	-	×		-	-	•	•	•		,		268
CS-4 North Sidewall	s	,	×		ļ	1	•	,	•	1	'	,	234
CS-4 East Sidewall	æ	•	×		•	-	-	•	•	•	•	,	7,840
CS-4 South Sidewall	в	١	×		_	-	•	•	•	•		,	3,170
CS-4 West Sidewall	=	•	×		•	-	_	•	•	•	•		<20.0
CS-5 Bottom Hole	4/19/2012	2	×		•	ı	•	•	-	-	F	•	<20.0
CS-5 East Sidewall	E.	•	×		-	-	•	•	•	•	-		4,410
CS-5 West Sidewall	=	,	×		•	-	_	-	•	•	1	,	64.6
CS-6	4/19/2012	1-0	×		,		1	,	1	•	1	1	189
CS-7	4/19/2012	1-0	×			-				,		-	34.8

Table 4
COG Operating LLC.
DOGWOOD FEDERAL #1 TANK BATTERY

Eddy County, New Mexico

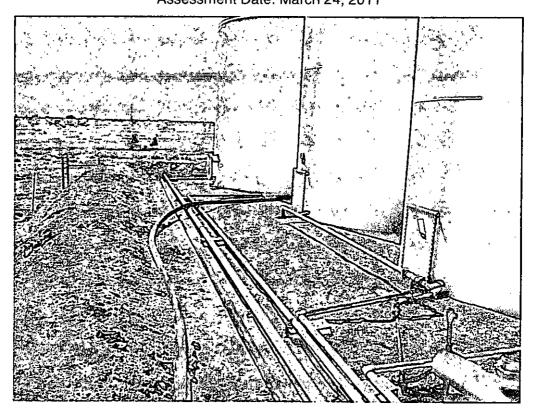
Sample IU Sa		Sample	Soil 9	Soil Status	I	TPH (mg/kg)	) (e	Benzene	Toluene	Ethlybenzene	Xylene	Total	Chloride
	Sample Date	Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg) (mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	BTEX (mg/kg)	(mg/kg)
CS-8 Bottom Hole 4,	4/20/2012	3	×		,	1	1	-	1	,	,	-	<20.0
CS-8 North Sidewall	=	1	X			,	-	-	í	•	ŗ	•	69.7
CS-8 East Sidewall	±	-	×			,	,	•	,	1		,	139
CS-8 South Sidewall	£		×			•	'	,	•	•	•	•	184
CS-8 West Sidewall	=	-	×			t i		_	-	•	•	•	169
Trench #1 4	4/19/2012	3	X		1	-	-		,	1	•	-	<20.0
Trench #1 4	4/19/2012	4	×		,	ı	,	3	1	ı	ı	1	<20.0

(--) Not Analyzed

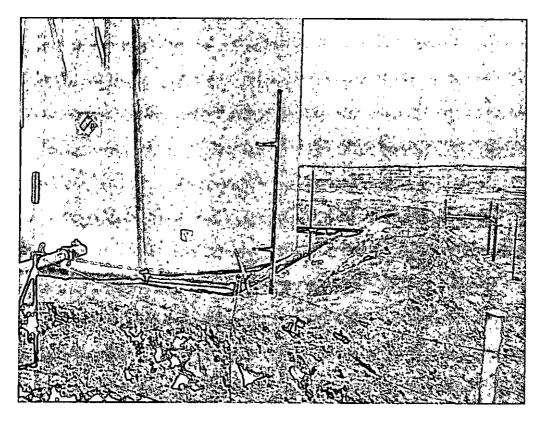
**Photos** 



TETRATE



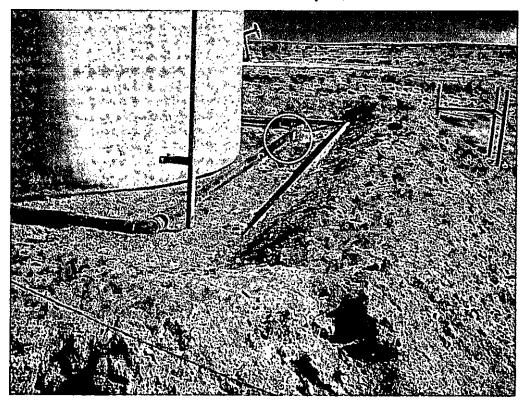
View south along backside of facility near AH-1 and AH-2



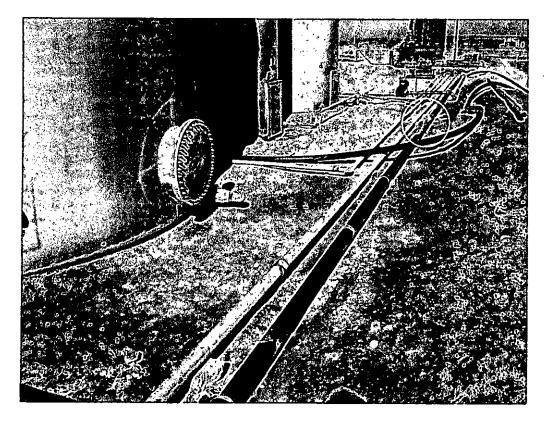
View east along southern edge of facility near AH-3







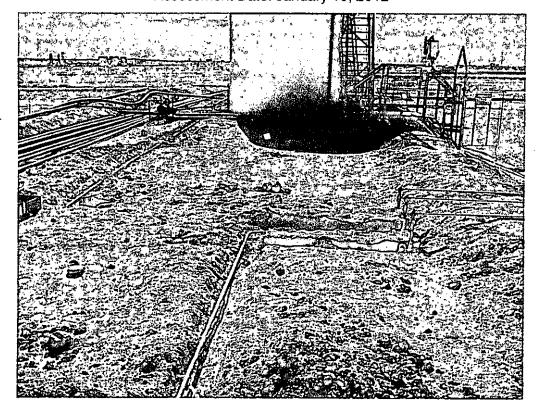
Southern edge of facility near AH-1



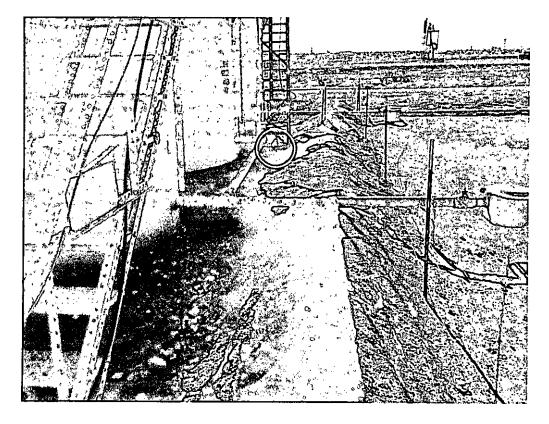
Backside of facility along eastern edge near AH-2







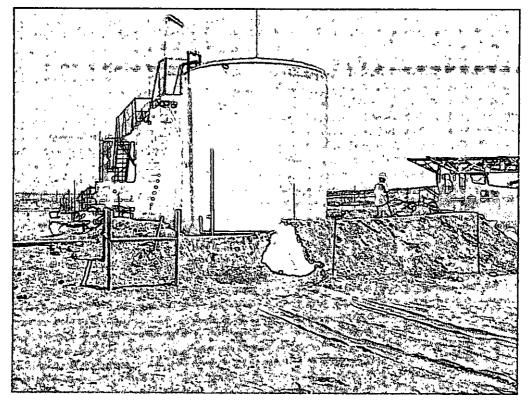
View south near AH-3 north of tanks



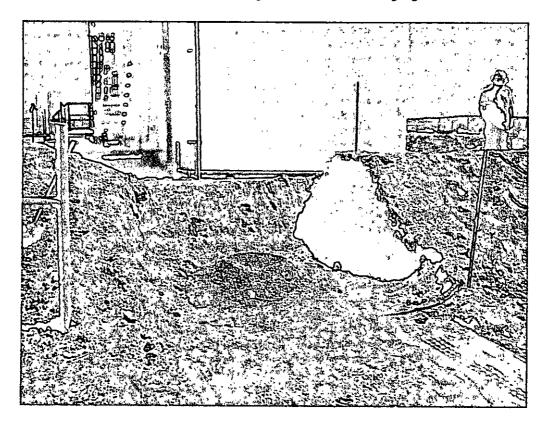
Front side of facility along western edge near AH-4



TETRA TECH

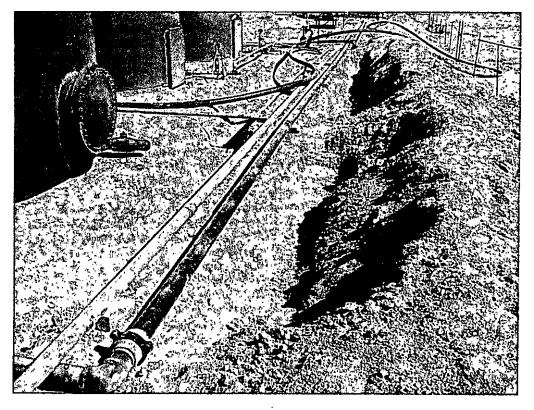


Removed berm to gain assess for drilling rig

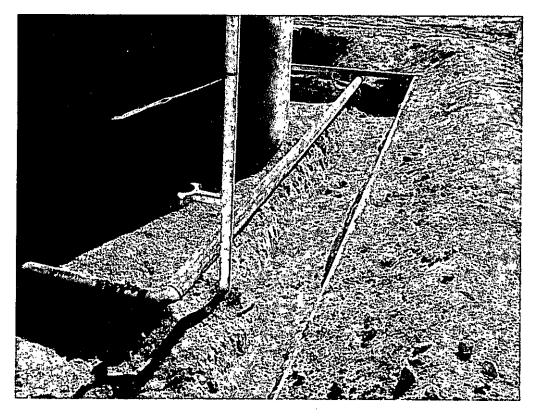


.SB-1 installed near AH-3

COG Operating LLC
Dogwood Federal (Spill #1)
Eddy County, New Mexico
Excavation Photos



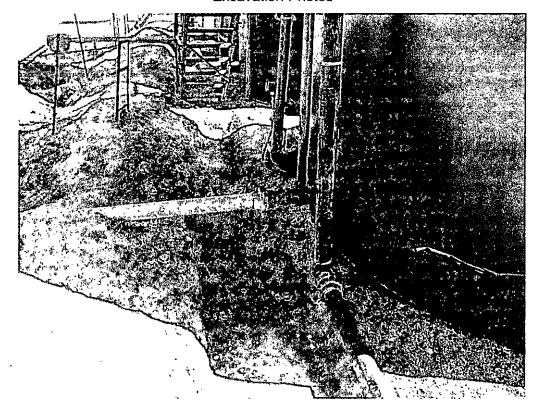
Backside of tank battery excavation depth approximately 1.0-2.0' bgs



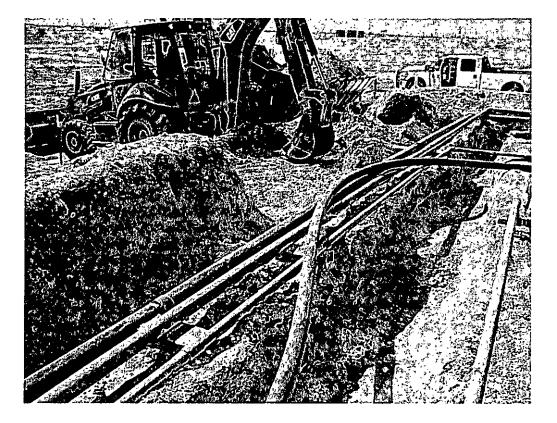
South end of tank battery excavation depth approximately 1.0' bgs







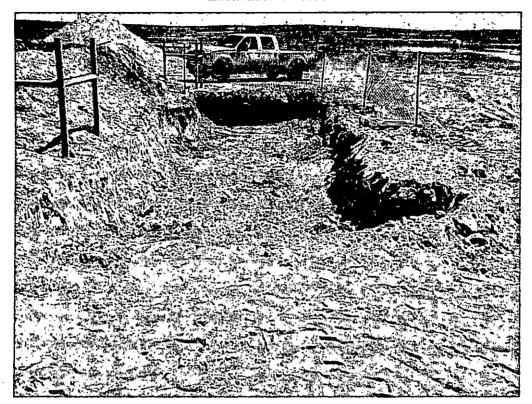
Backside of tank battery excavation depth approximately 1.0' bgs



South end of tank battery excavation depth approximately 1.0' bgs

# TETRA TECH

# COG Operating LLC Dogwood Federal (Additional Area) Eddy County, New Mexico Excavation Photos



Additional area south of the tank battery excavated 2.0' bgs

Appendix A

Spul +1

District 1
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 IY
1220 C 9: 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

220 S. St. Francis Dr., Santa Fe, NM			wa r	e, NM 875			
	Reles	se Notific	catio	n and C	orrective A	ction	
				OPERA'	гor	<b>\Sigma</b>	Initial Report
	<b>G OPERATING</b>			Contact	P	at Ellis	
	Suite 100, Midl		1	Telephone l		230-0077	
Pacility Name D	Dogwood Federa	<u> </u>		Facility Type	e Tan	k Battery	
Surface Owner Federal		Mineral C	Owner			Lei	se No. (API#) 30-015-32927
<u></u>							NMNM-94594
ì		LOCA	ATIO	N OF RE	LEASE		
Unit Letter   Section   Towns		Feet from the		/South Line	Feet from the	East/West L	ne County
F.   25   175	S 27E						Eddy
			<u> </u>	_		<u></u>	
ť		Latitude 32	48.351	Longit	ide 104 14.115		
•		NAT	URE	OF REL	EASE		
Type of Release Produced water	<b>a</b>				Release 10bbls		me Recovered Sbbls
Source of Release Water tank				Date and f	lour of Occurrenc		and Hour of Discovery /2011 3:30 p.m.
Was Immediate Notice Given?				If YES, To		V3/U1	CART 3'90 PHF
;	☐ Yes 🖾 🗎	No 🛛 Not Re	equired				
By Whom?				Date and I			
Was a Watercourse Reached?	☐ Yes Ø	No		If YES, Vo	lume Impacting t	he Watercours	a.
l .		·					
f a Watercourse was Impacted, I	Describe Fully.*						•
Describe Cause of Problem and I	Remedial Action T	aken.*				<del></del>	···
Mater bestam Gillad to what up u	unter after the wall	himsel had	de am				•
Water haulers failed to pick up w	Wich after mo won	Was unitied out	A UD.				
Describe Area Affected and Clea	nup Action Taker	.*.	-				
nitially 10bbls was released from	n the uniter tank a	nd we were able	e la reco				
				wer Khirle wit	h a varrums mick	The entire re	
acility berm walls and it measure	e and area of 3° x.	50°. Ali standi:	ng fluid	has been rem	oved and contami	nation has been	n dug out. Tetra Tech will sample
acility berm walls and it measure he spill site area to delineste any	e and area of 3° x . y possible contami	50°. Ali standi:	ng fluid	has been rem	oved and contami	nation has been	n dug out. Teirs Tech will sample
acility berm walls and it measure	e and area of 3° x . y possible contami	50°. Ali standi:	ng fluid	has been rem	oved and contami	nation has been	n dug out. Tetra Tech will sample
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acility berm walls and it measure he spill site area to delineste any rior to any significant remediation hereby certify that the information egulations all operators are requi	re and area of 3° x y possible contami- ion work. lon given above is ired to report and/	50'. All standination from the true and complor file certain re	ng fluid release lete to ti	has been rem and we will p he best of my obifications an	oved and contami resent a remediati knowledge and un d perform correct	nation has been con work plan ( derstand that p ive actions for	n dug out. Tetra Tech will sample to the NMOCD / BLM for approve sursuant to NMOCD rules and releases which may endanger
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acility berm walls and it measure the spill site area to delinests any rior to any significant remediation thereby certify that the informational are required to the environment. In addition, lederal, state, or local laws and/or ignature:  rinted Name:  HS	e and area of 3° x y possible contami ion work.  ion given above is ired to report and/ . The acceptance of d to adequately in NMOCD acceptant r regulations.  Josh Russo  SE Coordinator  Quenchoresources.	50°. All standination from the true and complor file certain reof a C-141 repovestigate and reace of a C-141 r	ng fluid release lete to the sease n rt by the mediat report d	has been remeand we will put the best of my totifications are NMOCD me e contaminations not relieve	oved and contaminated as remediated the content of	nation has been to work plan to idensiand that prove actions for ports does not at to ground we exponsibility for ERVATIO	n dug out. Tetra Tech will sample to the NMOCD / BLM for approve the NMOCD rules and releases which may endenger relieve the operator of liability ater, surface water, human health or compliance with any other

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 IY

#### State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Spil + 2.

Form C-141 Revised October 10, 2003

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

1220 5. 5t. FR	rucis ru." 24m	T. L.C. (J.W. 9120)		Sa	<u>anta F</u>	e, NM 875	505				side of four
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	( !					OPERA'		Σ Σ	a Tariti	al Report	Final Repos
Name of C	Company	COG OP	ERATIN	GLLC .		Contact		nt Ellis	A Myret	ar resport	I mai repor
Address				dland, TX 7970	)1	Telephone l		230-0077			
Facility No	ame	Dogw	ood Fede	ral		Facility Typ	e Tani	k Battery			
Surface O	wner Fed	eral		Mineral (	Owner				Lease N	No. (API)	30-015-32927
0										• •	M-94594
				- LOCA		N OF RE	LEASE				
Unit Letter F	Section 25	Township 17S	Range 27E	Feet from the	North	South Line	Feet from the	East/We:	st Line	County	Eddy
				Latitude 32	48.245	Longita	ade 104 14.115				
		<u></u>		NAT	URE	OF REL			<u> </u>		
	ease Produc						Release 105bbls lour of Occurrence			lecovered	
20nice of k	CICASC WAR	ar tank				01/03/2012				Hour of Dis 2 8:00 a.r	
Was Immed	liate Notice (					If YES, To	Whom?				
	j.	×	Yes L	No 🔲 Not Re	equired	ļ		Mike Bra	tcher-O( 109-BLN		
								Terry Gre			
By Whom?							lour 01/04/2012				
Was a Wate	rcourse Read		Yes 🛭	No		If YES, Vo	lume impacting ti	he Waterco	ontec"		
If a Waterco	ourse was Im	pacted, Descr	ibe Fully.*						_		
Describe Ca	use of Probl	em and Remo	dial Action	Taken.*							
Wolls were	turned off du	e to problems	with wate	r haulers and who	en the w	elis were turn	ed back on the wa	iter haulen	s were n	ot notified i	n time.
Describe Ar	ea Affected	and Cleanup A	ction Tak	en.*			·				
latelle tod	hklaaa				.lteb		t. All washington.		_!   !		t Oak - # - Alte-
Tetra Tech v	vill sample t	he spill site an significant re	en to delin	eate any possible	contami	nation from t	k. All of the fluic he release and we	was cond will prese	nt the N	MOCD/BLI	is of the facility. M with a work plan
I hereby cert	ify that the i	nformation gi	ven above	is true and compl	ete to th	e best of my	knowledge and un	iderstand t	hat purs	uent to NM	OCD rules and
regulations	all operators	are required to	report an	d/or file certain re	elease no	xifications an	d perform correct	ive actions	for rele	ases which	may endanger
should their	or me envi onerations b	onment, Inc ave failed to a	acceptano decustely	e of a C-141 repo investigate and re	er by the enediate	: NIMUCU MS : contaminario	irked as "Final Re	port" does	not rein d water	eve the oper	stor of liability ter, human health
or the enviro	onment. In a	ddition, NMO	CD accept	ance of a C-141	report de	es not relieve	the operator of n	esponsibili	ty for co	mpliance w	ith any other
federal, state	or local lay	vs and/or regu	lations.	····							
		7 1		<b>→</b>			OIL CONS	ERVA	TION.	DIVISIO	<u>'N</u>
Signature:											
Printed Nam	e:	iosh	Russo		1	Approved by	District Superviso	г:			
Title:			ordinator			Approval Date	·	Exp	iration [	Date:	i
E-mail Addr	ess:	jrusso@concl		s.com		Conditions of				Attached	П
Date: 01	/16/2012	Phone	437-	212-2390	1					Auscue0	

District 1
1625 N. French Dr., Hohbs, 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

	ļ		Rele	ease Notifi	catio	on and Co	orrective A	ction			
	1					OPERA?	ГOR	☐ Initia	al Report	$\boxtimes$	Final Report
Name of Co	ompany C	COG Opera	ting LLC			Contact Pa	t Ellis		-		
Address 55	0 W. Texa	as, Suite 130	00 Midla	nd, Texas 7970	)1	Telephone N	No. (432) 230-0	077			
Facility Na	ne Dogwe	ood Federal				Facility Typ	e Tank Batte	ry			
Surface Ow	ner Feder	al		Mineral (	Owner				No. 30-015	-3292	:7
		1						NMNM	1-94394		
This Laws	C:	7 1. '	L D			N OF REI					····
Unit Letter F	Section 25	Township 17-S	Range 27-E	Feet from the	Nor	th/South Line	Feet from the	East/West Line		Cour Edd	•
			]	Latitude N 32.	80598	3° Longitud	e W 104.2352	3°			
	,			NAT	ruri	E OF RELI	EASE				
Type of Rele Produced Wa		,,,				Volume of 10 bbls	Release	Volume R 8 bbls	Recovered		
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Water Tank Was Immedia		Sinan 9				3/1/2011	Wh 9	3/1/2011	3:30 pm		<del></del>
was illinedia	ate Notice C		Yes 🗵	No 🛛 Not R	equire	i If YES, To	wnom?				
By Whom?						Date and H					
Was a Water	course Reac		Yes 🗵	No		If YES, Vo	lume Impacting t	he Watercourse.			
If a Watercou	: irse was Im			=			· · · · · · · · · · · · · · · · · · ·				B
N/A	,	•	Ť								
Describe Cau	se of Proble	em and Reme	dial Action	n Taken.*							
Water haulers	s failed to p	ick up after th	e well turi	ned back on.							
Describe Are	a Affected a	and Cleanup A	Action Tak	en.*							
Totra Took in	spected and	t pallogted son	nnlas ta de	ofina smille automa	Coll.	augandina tha E	DAI and alaunta	ad ablasidas usas es	and and	Laulas	1 40
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report and su								٠.			
I hereby certi	fy that the i	nformation gi	ven above	is true and comp	lete to	the best of my	knowledge and u	nderstand that purs	uant to NM	OCD r	ules and
								tive actions for rele			
								eport" does not relie			
								eat to ground water, esponsibility for co			
federal, state,				tance of a C-141	героге	does not reneve	c nic operator or r	esponsibility for ec	лириансс w	iui anj	, other
		1	X			· · · · · · · · · · · · · · · · · · ·	OIL CONS	SERVATION	DIVISIO	N	
Signatura			<i>/</i> /		,					_	
Signature: /	-/	<u> </u>	/			A	District Commission				
Printed Name	: Ike Tavar	ez (agent for	COG)			Approved by	District Superviso	or:			
Title: Project	Manager				-	Approval Date	e:	Expiration I	Date:		
E-mail Addre	ss: ike.tava	rez@tetratech	.com			Conditions of	Approval:		Attached		
Date: /	8-17	2	Phone:	(432) 682-4559						•	

Attach Additional Sheets If Necessary

Form C-141

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

#### State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe. NM 87505 Revised October 10, 2003 Submit 2 Copies to appropriate

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

#### 1220 S. St. Francis Dr., Santa Fe, NM 87505 Santa Fe, NM 87505 Release Notification and Corrective Action. **OPERATOR** Initial Report Name of Company COG Operating LLC Contact Pat Ellis Address 550 W. Texas, Suite 1300 Midland, Texas 79701 Telephone No. (432) 230-0077 Facility Name Dogwood Federal Facility Type Tank Battery Surface Owner Federal Mineral Owner Lease No. 30-015-32927 NMNM-94594 LOCATION OF RELEASE Unit Letter Section Township Range Feet from the North/South Line Feet from the East/West Line County F 17-S 27-E Eddy Latitude N 32.80598° Longitude W 104.23523° NATURE OF RELEASE Type of Release: Volume of Release Volume Recovered Produced Water 105 bbls 100 bbls Source of Release Date and Hour of Discovery Date and Hour of Occurrence Water Tank 1/3/2012 1/3/2012 8:00 am Was Immediate Notice Given? If YES, To Whom? Mike Bratcher - OCD Jim Amos - BLM Terry Gregston - BLM By Whom? Josh Russo Date and Hour 1/4/2012 10:54 am Was a Watercourse Reached? If YES, Volume Impacting the Watercourse. Yes No N/A If a Watercourse was Impacted, Describe Fully.\* N/A Describe Cause of Problem and Remedial Action Taken.\* Wells were turned off due to problems with water haulers and when the wells were turned back on the water haulers were not notified in time Describe Area Affected and Cleanup Action Taken.\* Tetra Tech inspected and collected samples to define spills extent. Soil exceeding the RRAL and elevated chlorides were removed and hauled to Controlled Recovery, Inc. for proper disposal. The 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.-OIL CONSERVATION DIVISION Signature: 4 Approved by District Supervisor: Printed Name: Ike Tavarez (agent for COG) Approval Date: Title: Project Manager **Expiration Date:** Conditions of Approval: E-mail Address: ike.tavarez@tetratech.com Attached Date: 6-8-12 Phone: (432) 682-4559

Appendix B

# Water Well Data Average Depth to Groundwater (ft) COG - Dogwood Federal #1 Eddy County, New Mexico

		South		26 Eas				South		7 East				South		28 East	_
	5	4	3	2	1	6	5	4	3	2	1	6	5	4	3	2	1
	8 '	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	1
_	17	16	15	14	13	18	17	16	15	14	13	18	17	16	15	14	1
	20	21	22	23	24	19	20	21	22	23	24	19	20	21	22	23	-
	29	28	27	26	25	30	29	28	27	26	25	30	29	61 28	27	26	- 2
-	32	33	34	35	36	31	32	33	<b>70</b> 34	35	36	31	32	33	34	35	3
	_ <del></del>	South	<del></del>	26 East				South	<u>.                                    </u>	7.5004		L		Courth	<u> </u>	0.54	
_	5 ;	4	3	26 Easi	1	6	5	J4	3	7 East	11	6	17	South  4	3	8 East	1
					<u> </u>		30					<u> </u>					
Ar	8 tesia	9	10	11	12	7 14	8	9	10	11 <b>54</b> 50	12	J <sup>7</sup>	8	9	10	11	1
	17	16	15	14	13	18	17	18	15	14	13	18	17	16	15	14	1
	20	21	22	23	24	<b>86</b> 19	<b>283</b>	<b>194</b> 21	22	23	24	19	20	21	22	23	2
	29 ;	28	27	26	25	30	29	28	27	40 26	25	30	29	28	<b>79</b> 27	26	2
		. 1		ł			29	-			SITE.	30	29	20	21		1
	32	33	34	35	36	31	32 120	33	34	35	36	31	32	33	34 <b>53</b>	35	3
	18 5	South		26 East	:			South	2	7 East	· <del>• · · · · · · · · · · · · · · · · · ·</del>	<u> </u>	18	South		8 East	
	5	4	3	2	1	6	5	4	3	2	1	в	5	4	3	2	1
-	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	1:
	17	16	15	14	13	18	17	16	15	14	13	18	17	16	15	14	1:
-	20	21	22	23	24	19	20	21	22	23	24	19	20	21	22	23	2
	29	28	27	26	25	30	29	28	27	26	25	30	29	28	27	26	2
	32	33	34	35	36	31	32	33	34	35	36	31	32	33	34	35	30
	- 1	i		i	1 1					1			1	1	1	65	- [

Field water level

New Mexico Water and Infrastructure Data System

SITE - Dogwood Federal

Appendix C

Work Order: 11032820

Page Number: 1 of 4

# **Summary Report**

Ike Tavarez Tetra Tech

1910 N. Big Spring Street

Midland, TX 79705

Report Date: April 6, 2011

Work Order: 11032820

Project Location: Eddy Co., NM.

Project Name: COG/Dogwood Fed. #1 TB

Project Number: 114-6400858

1			Date	$\operatorname{Time}$	Date
Sample	Description	Matrix	Taken	Taken	Received
261891	AH-1 0-0.5°	soil	2011-03-25	00:00	2011-03-28
261892	AH-1 1'	soil	2011-03-25	00:00	2011-03-28
261893	AH-1 2'	soil	2011-03-25	00:00	2011-03-28
261894	AH-1 3'	soil	2011-03-25	00:00	2011-03-28
261895	AH-1 4'	soil	2011-03-25	00:00	2011-03-28
261896	AH-1 5'	soil	2011-03-25	00:00	2011-03-28
261897	AH-2 0-0.5°	soil	2011-03-25	00:00	2011-03-28
261898	AH-2 1'	soil	2011-03-25	00:00	2011-03-28
261899	AH-2 2'	soil	2011-03-25	00:00	2011-03-28
261900	AH-2 3'	soil	2011-03-25	00:00	2011-03-28
261901	AH-2 4'	soil	2011-03-25	00:00	2011-03-28
261902	AH-2 5'	soil	2011-03-25	00:00	2011-03-28
261903	AH-3 0-0.5'	soil	2011-03-25	00:00	2011-03-28
261904	AH-3 1'	soil	2011-03-25	00:00	2011-03-28
261905	AH-3 2'	soil	2011-03-25	00:00	2011-03-28
261906	AH-3 3'	soil	2011-03-25	00:00	2011-03-28
261907	AH-3 4'	soil	2011-03-25	00:00	2011-03-28

			BTEX	TPH DRO - NEW	TPH GRO	
1 . 1	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
261891 - AH-1 0-0.5'	< 0.0200	< 0.0200	< 0.0200	< 0.0200	<50.0	< 2.00
261897 - AH-2 0-0.5'	3.54	45.5	40.6	82.1	672	1590
261898 - AH-2 1'	< 0.0200	< 0.0200	< 0.0200	0.379	<50.0	9.87
261899 - AH-2 2'	< 0.0200	< 0.0200	< 0.0200	0.441	<50.0	36.8
261903 - AH-3 0-0.5'	6.09	45.2	36.5	69.9	1160	1820
261904 - AH-3 1'	< 0.0200	0.166	< 0.0200	0.443	< 50.0	15.6

Sample: 261891 - AH-1 0-0.5'

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This is only a summary. Please, refer to the complete report package for quality control data.

Report Date: April 6, 2011		Work Order: 11032820	Page Number: 2 of 4		
· ·					
Param	Flag	Result	Units	RL	
Chloride		<200	mg/Kg	4.00	
Sample: 261892	- AH-1 1'				
Param	Flag	Result	${ m Unit} s$	R.L	
Chloride		<200	mg/Kg	4.00	
<b>\</b>				,	
Sample: 261893	- AH-1 2'				
Param	Flag	Result	Units	RL	
Chloride		<200	mg/Kg	4.00	
ı					
Sample: 261894	- AH-1 3'				
	T*11.	Result	Units	RL	
Param	Flag	1003016	Omes	- · · ·	
Param Chloride		205	mg/Kg		
Chloride Sample: <b>261895</b> Paranı		205 Result	mg/Kg Units	4.00 RL	
Chloride	- AH-1 4'	205	mg/Kg	4.00	
Chloride Sample: <b>26</b> 1895 Param Chloride	- AH-1 4'	205 Result	mg/Kg Units	4.00 RL	
Chloride  Sample: 261895  Param Chloride  Sample: 261896	- AH-1 4'	205 Result	mg/Kg Units	4.00 RL 4.00	
Chloride  Sample: 261895  Param Chloride  Sample: 261896	- AH-1 4' Flag - AH-1 5'	205 Result 214	mg/Kg Units mg/Kg	4.00 RL	
Chloride Sample: 261895 Parani Chloride	- AH-1 4' Flag - AH-1 5'	Result 214 Result	mg/Kg Units mg/Kg Units	4.00 RL 4.00	
Chloride  Sample: 261895  Param Chloride  Sample: 261896  Param Chloride	- AH-1 4' Flag - AH-1 5' Flag	Result 214  Result <a href="#">2205</a>	mg/Kg Units mg/Kg Units	4.00 RL 4.00	
Chloride  Sample: 261895  Param Chloride  Sample: 261896  Param Chloride	- AH-1 4' Flag - AH-1 5' Flag	Result 214  Result <a href="#">2205</a>	mg/Kg Units mg/Kg Units	RL 4.00	
Chloride  Sample: 261895  Param Chloride  Sample: 261896  Param Chloride	- AH-1 4' Flag - AH-1 5' Flag	Result 214  Result <200	Units mg/Kg  Units mg/Kg  Units mg/Kg	4.00 RL 4.00	
Chloride  Sample: 261895  Param Chloride  Sample: 261896  Param Chloride  Sample: 261897  Param Chloride	- AH-1 4' Flag - AH-1 5' Flag	Result 214  Result <200  Result	Units mg/Kg  Units mg/Kg  Units mg/Kg	RL 4.00  RL 4.00	
Chloride  Sample: 261895  Param Chloride  Sample: 261896  Param Chloride  Sample: 261897	- AH-1 4' Flag  - AH-1 5' Flag  - AH-2 0-0.5' Flag	Result 214  Result <200  Result	Units mg/Kg  Units mg/Kg  Units mg/Kg	RL 4.00  RL 4.00	
Chloride  Sample: 261895  Param Chloride  Sample: 261896  Param Chloride  Sample: 261897  Param Chloride	- AH-1 4' Flag  - AH-1 5' Flag  - AH-2 0-0.5' Flag	Result 214  Result <200  Result	Units mg/Kg  Units mg/Kg  Units mg/Kg	RL 4.00  RL 4.00	

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This is only a summary. Please, refer to the complete report package for quality control data.

Deport Data, April 6, 9011		April 6, 2011 Work Order: 11032820		
Report Date: April 6, 2011		Work Order: 11032820	rage	Number: 3 of 4
! Sample: 261899 - AF	H-2 2'			
Param	Flag	Result	Units	RI
Chloride		1750	mg/Kg	4.00
i				
í				
Sample: 261900 - AF	I-2 3'			
Param	Flag	Result	Units	RI
Chloride		252	nig/Kg	4.00
1				
1				
Sample: 261901 - AF	I-2 4'			
Param	Flag	Result	Units	RL
Chloride	i	370	mg/Kg	4.00
Sample: 261902 - AF Param Chloride	H-2 5'	Result 2330	Units mg/Kg	RL 4.00
t .	<del> </del>	2000	mg/Kg	4.(0)
Sample: 261903 - AH	I-3 0-0.5'			
Param	Flag	Result	Units	RL
Chloride	· · · · · · · · · · · · · · · · · · ·	7720	mg/Kg	4.00
Sample: 261904 - AH	I-3 1'			
Parani	Flag	Result	Units	RL
Chloride		3780	mg/Kg	4.00
ı				
Sample: 261905 - AH	ſ-3 2'			
Param	Flag	Result	Units	RL
Chloride	······	2490	mg/Kg	4.00
, !				
Sample: 261906 - AH	[-3 3'			
Param	Flag	Result	Units	RL
Chloride		5060	mg/Kg	4,00

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Work Order: 11032820

Page Number: 4 of 4

Sample: 261907 - AH-3 4'

Param	Flag	Result	Units	RL
Chloride		2140	nig/Kg	4.00

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This is only a summary. Please, refer to the complete report package for quality control data.



6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1

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Ft. Worth, Texas 76132 6015 Harris Parkway, Suite 110

E-Mail: lab@traceanalysis.com

## Certifications

WBENC: 237019 HUB:

1752439743100-86536

DBE: VN 20657

**NCTRCA** WFWB38444Y0909

# **NELAP Certifications**

Lubbock: T104704219-08-TX

LELAP-02003

Kansas E-10317

El Paso: T104704221-08-TX

LELAP-02002

T104704392-08-TX Midland:

# Analytical and Quality Control Report

Ike Tavarez

Tetra Tech

1910 N. Big Spring Street

Midland, TX, 79705

Report Date: April 6, 2011

Work Order:

11032820

Project Location: Eddy Co., NM

Project Name:

COG/Dogwood Fed. #1 TB

Project Number:

114-6400858

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

	,		•	Date	Time	Ďate
Sample		Description	Matrix	Taken	Taken	Received
261891		AH-1 0-0.5'	soil	2011-03-25	00:00	2011-03-28
261892		AH-1 1'.	soil	2011-03-25	00:00	2011-03-28
261893		AH-1 2'	soil	2011-03-25	00:00	2011-03-28
261894		AH-1 3'	soil	2011-03-25	00:00	2011-03-28
261895		AH-1 4'	soil	2011-03-25	00:00	2011-03-28
261896	•	AH-1 5'	soil	2011-03-25	00:00	2011-03-28
261897		AH-2 0-0.5'	soil	2011-03-25	00:00	2011-03-28
261898	:	AH-2 1'	soil	2011-03-25	00:00	2011-03-28
261899	i	AH-2 2'	soil	2011-03-25	00:00	2011-03-28
261900		AH-2 3'	soil	2011-03-25	00:00	2011-03-28

1

•			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
261901	AH-2 4'	soil	2011-03-25	00:00	2011-03-28
261902	AH-2 5'	soil	2011-03-25	00:00	2011-03-28
261903	AH-3 0-0.5°	soil	2011-03-25	00:00	2011-03-28
261904	AH-3 1'	soil	2011-03-25	00:00	2011-03-28
261905	AH-3 2'	soil	2011-03-25	00:00	2011-03-28
261906	AH-3 3'	soil	2011-03-25	00:00	2011-03-28
261907	· AH-3 4'	. soil	2011-03-25	00:00	2011-03-28

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 30 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael april

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

#### Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

## Case Narrative

Samples for project COG/Dogwood Fed. #1 TB were received by TraceAnalysis, Inc. on 2011-03-28 and assigned to work order 11032820. Samples for work order 11032820 were received intact at a temperature of 3.6 C.

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

		$\operatorname{Prep}$	$\operatorname{Prep}$	QC	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	67886	2011-04-01 at 11:35	80015	2011-04-02 at 14:30
BTEX	S 8021 $B$	67957	2011-04-05 at 07:54	80090	2011-04-05 at 07:54
Chloride (Titration)	SM 4500-Cl B	67767	2011-03-29 at 13:28	79935	2011-03-31 at 13:28
Chloride (Titration)	SM 4500-Cl B	67767	2011-03-29 at 13:28	79936	2011-03-31 at 13:29
TPH DRO - NEW	S 8015 D	67823	2011-03-30 at 10:06	79924	2011-03-30 at 10:06
TPH DRO - NEW	S 8015 D	67893	2011-04-01 at 09:28	80023	2011-04-01 at 09:28
TPH DRO - NEW	S 8015 D	67966	2011-04-05 at 09:23	80098	2011-04-05 at 09:23
TPH GRO	S 8015 D	67886	2011-04-01 at 11:35	80016	2011-04-02 at 14:30
TPH GRO	S 8015 D	67957	2011-04-05 at 07:54	80091	2011-04-05 at 07:54

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 11032820 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.

114-6400858

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 4 of 30

Eddy Co., NM

# **Analytical Report**

Sample: 261891 - AH-1 0-0.5'

Laboratory:

Midland

Analysis: QC Batch: Prep Batch:

BTEX 80015 67886

Analytical Method: Date Analyzed:

S 8021B

2011-04-02 Sample Preparation: 2011-04-01 Prep Method: S 5035

Analyzed By: ME Prepared By: ME

RL

		2123			
Parameter	Flag	Result	Units	Dilution ·	RL
Benzene		< 0.0200	mg/Kg	1	0.0200
Toluene		< 0.0200	mg/Kg	1	0.0200
Ethylbenzene		< 0.0200	mg/Kg	1	0.0200
Xylene		< 0.0200	mg/Kg	1	0.0200

;	•				Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		2.48	mg/Kg	1	2.00	124	52.8 - 137
4-Bromofluorobenzene (4-BFB)		2.32	mg/Kg	1	2.00	116	38.4 - 157

Sample: 261891 - AH-1 0-0.5'

Laboratory:

Midland

Analysis: QC Batch: Chloride (Titration)

79935

Analytical Method: Date Analyzed: Sample Preparation: SM 4500-Cl B 2011-03-31

2011-03-29

Prep Method: N/A Analyzed By: AR Prepared By: AR.

Prep Batch: 67767

•		m RL			
Parameter'	Flag	Result	Units	Dílution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 261891 - AH-1 0-0.5'

Laboratory:

Midland

Analysis: QC Batch:

TPH DRO - NEW 79924

Analytical Method: Date Analyzed:

S 8015 D 2011-03-30 Prep Method: N/A Analyzed By: kg

Prep Batch: 67823

Sample Preparation: 2011-03-30

Prepared By: kg

RL

Flag Parameter Result Units RLDilution DRO < 50.0 mg/Kg 50.0

114-6400858

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 5 of 30

Eddy Co., NM

•					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane		118	mg/Kg	1	100	118	70 - 130

Sample: 261891 - AH-1 0-0.5'

Laboratory:

**GRO** 

Midland

Analysis: TPH GRO QC Batch: ( 80016 Prep Batch: 67886

Analytical Method: S 8015 D Date Analyzed: 2011-04-02 Sample Preparation: 2011-04-01 Prep Method: S 5035 Analyzed By: MEPrepared By: ME

RL

2.00

RLResult Parameter Flag

Units Dilution < 2.00 mg/Kg

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.61	mg/Kg	$\overline{1}$	2.00	130	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.20	mg/Kg	1	2.00	110	42 - 159

Sample: 261892 - AH-1 1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 79935 Prep Batch: 67767 Analytical Method: SM 4500-Cl B Date Analyzed: 2011-03-31 Sample Preparation: 2011-03-29

Prep Method: N/A Analyzed By: ARPrepared By: AR.

Parameter Flag Result Units Dilution RLChloride <200 mg/Kg 4.00

RL

RL

Sample: 261893 - AH-1 2'

Laboratory: Midland

Prep Batch:

Analysis: + QC Batch:

Chloride (Titration) 79935 67767

Analytical Method: SM 4500-Cl B Date Analyzed: 2011-03-31 2011-03-29 Sample Preparation:

Prep Method: N/A Analyzed By: AR. Prepared By: AR.

Result Dilution RLParameter Flag Units Chloride 1 <200 mg/Kg 50 4.00

114-6400858	e: April 6, 2011	Work Order: 110 COG/Dogwood Fed		Page Number: Eddy C	
Sample: 26	1894 - AH-1 3'				
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 79935 67767	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-03-31 2011-03-29	Prep Method: Analyzed By: Prepared By:	N/A AR AR
;		m RL			
Parameter .	Flag	Result	Units	Dilution	RI
Chloride ·		205	mg/Kg	50	4.00
-	31895 - AH-1 4'				
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 79935 67767	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-03-31 2011-03-29	Prep Method: Analyzed By: Prepared By:	N/A AR AR
, ,	Flag	RL Result	Units	Dilution	RI
Parameter.	±0		•		
		214	mig/Kg	50	4.00
Sample: 26 Laboratory: Analysis: QC Batch: Prep Batch:	1896 - AH-1 5' Midland Chloride (Titration) 79935	Analytical Method: Date Analyzed: Sample Preparation: RL Result	mg/Kg  SM 4500-Cl B 2011-03-31 2011-03-29  Units	50  Prep Method: Analyzed By: Prepared By: Dilution	N/A AR AR
Sample: 26 Laboratory: Analysis: QC Batch: Prep Batch:	1896 - AH-1 5' Midland Chloride (Titration) 79935 67767	Analytical Method: Date Analyzed: Sample Preparation: RL Result	SM 4500-Cl B 2011-03-31 2011-03-29	50 Prep Method: Analyzed By: Prepared By:	N/A AR AR
Sample: 26 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride  Sample: 26 Laboratory:	Midland Chloride (Titration) 79935 67767  Flag  1897 - AH-2 0-0.5' Midland	Analytical Method: Date Analyzed: Sample Preparation: RL Result <200	SM 4500-Cl B 2011-03-31 2011-03-29 Units mg/Kg	50  Prep Method: Analyzed By: Prepared By:  Dilution 50	N/A AR AR AR
Chloride   Sample: 26 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride  Sample: 26 Laboratory: Analysis:	Midland Chloride (Titration) 79935 67767  Flag  1897 - AH-2 0-0.5' Midland BTEX	Analytical Method: Date Analyzed: Sample Preparation: RL Result <200	SM 4500-Cl B 2011-03-31 2011-03-29  Units mg/Kg	Frep Method: Analyzed By: Prepared By: Dilution 50  Prep Method:	N/A AR AR 4.00
Sample: 26 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride  Sample: 26 Laboratory:	Midland Chloride (Titration) 79935 67767  Flag  1897 - AH-2 0-0.5' Midland	Analytical Method: Date Analyzed: Sample Preparation: RL Result <200  Analytical Method: S & Date Analyzed: 201	SM 4500-Cl B 2011-03-31 2011-03-29 Units mg/Kg	Prep Method: Analyzed By: Prepared By: Dilution 50  Prep Method: S Analyzed By:	N/A AR AR AR
Sample: 26 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride  Sample: 26 Laboratory: Analysis: QC Batch:	Midland Chloride (Titration) 79935 67767  Flag  1897 - AH-2 0-0.5' Midland BTEX 80015	Analytical Method: Date Analyzed: Sample Preparation: RL Result <200  Analytical Method: S 80 Date Analyzed: 201	SM 4500-Cl B 2011-03-31 2011-03-29 Units mg/Kg	Prep Method: Analyzed By: Prepared By:  Dilution 50  Prep Method: S Analyzed By:	4.00 N/A AR AR. RI 4.00
Sample: 26 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride  Sample: 26 Laboratory: Analysis: QC Batch:	Midland Chloride (Titration) 79935 67767  Flag  1897 - AH-2 0-0.5' Midland BTEX 80015	Analytical Method: Date Analyzed: Sample Preparation: RL Result <200  Analytical Method: S 8 Date Analyzed: 201 Sample Preparation: 201	SM 4500-Cl B 2011-03-31 2011-03-29 Units mg/Kg	Prep Method: Analyzed By: Prepared By:  Dilution 50  Prep Method: S Analyzed By:	4.00 N/A AR AR. RI 4.00

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 7 of 30 Eddy Co., NM

sample 261897 continued . . .

		RL		and a decision of	
Parameter	$\mathbf{Flag}$	Result	Units	Dilution	$_{ m L}$
Toluene	1	45.5	mg/Kg	10	0.0200
Ethylbenzene		40.6	mg/Kg	10	0.0200
Xylene		82.1	mg/Kg	10	0.0200

					$_{ m Spike}$	Percent	Recovery
Surrogate	$\operatorname{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		10.8	mg/Kg	10	10.0	108	52.8 - 137
4-Bromoffuorobenzene (4-BFB)	2	22.6	mg/Kg	10	10.0	226	38.4 - 157

Sample: '261897 - AH-2 0-0.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 79935 Prep Batch: 67767 Analytical Method: SM 4500-Cl B Date Analyzed: 2011-03-31

Sample Preparation: 2011-03-29 Prep Method: N/A Analyzed By: AR. Prepared By: AR.

RLResult RLParameter Flag Units Dilution 9780 Chloride mg/Kg 100 4.00

Sample: 261897 - AH-2 0-0.5'

Laboratory:

Midland

Analysis: TPH DRO - NEW QC Batch: 79924 Prep Batch: 67823

Analytical Method: S 8015 D Date Analyzed: 2011-03-30 Sample Preparation: 2011-03-30 Prep Method: N/A Analyzed By: kg Prepared By: kg

RLRLParameter Result Units Dilution Flag 50.0  $\overline{672}$ DRO mg/Kg

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	3	174	mg/Kg	1	100	174	70 - 130

Sample: 261897 - AH-2 0-0.5'

Laboratory: Midland

Analysis: | TPH GRO QC Batch: 80016 Prep Batch: 67886

Analytical Method: S 8015 D Date Analyzed: 2011-04-02 Sample Preparation: 2011-04-01 Prep Method: S 5035 Analyzed By: ME Prepared By: ME

<sup>&</sup>lt;sup>1</sup>Estimated concentration value greater than standard range.

<sup>&</sup>lt;sup>2</sup>High surrogate recovery due to peak interference. <sup>3</sup>High surrogate recovery due to peak interference.

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Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 8 of 30 Eddy Co., NM

	ag	RL Result		Units	<u>,</u>	Dilution	RL
GRO		1590		mg/Kg		10	2.00
Surrogate <sup>†</sup>	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT) 4-Bromoffuorobenzene (4-BF		11.6 33.3	mg/Kg mg/Kg	10 10	10.0 10.0	116 333	48.5 - 152 42 - 159

#### Sample: 261898 - AH-2 1'

Laboratory: Midland Analysis: BTEX QC Batch: 80090 Prep Batch: 67957

Analytical Method: S 8021B Date Analyzed: 2011-04-05 Sample Preparation: 2011-04-05

Prep Method: S 5035 Analyzed By: MEPrepared By: ME

i		RL			
Parameter	Flag	Result	Units	Dilution	RL
Benzene	<del></del>	< 0.0200	mg/Kg	1	0.0200
Toluene	•	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene		< 0.0200	mg/Kg	1	0.0200
Xylene		0.379	mg/Kg	1	0.0200

1					Spike	Percent	Recovery
Surrogate;	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorot  olivere (TFT)	5	2.85	mg/Kg	1	2.00	142	52.8 - 137
4-Bromoffuorobenzene (4-BFB)		3.12	mg/Kg	1	2.00	156	38.4 - 157

#### Sample: 261898 - AH-2 1'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 79935 Prep Batch: 67767

SM 4500-Cl B Analytical Method: Date Analyzed: 2011-03-31 Sample Preparation: 2011-03-29

Prep Method: N/A Analyzed By: AR. Prepared By: AR

RLParameter' Flag Result Units Dilution RLChloride | 3430 100 mg/Kg 4.00

<sup>&</sup>lt;sup>4</sup>High surrogate recovery due to peak interference.

<sup>&</sup>lt;sup>5</sup>High surrogate recovery due to peak interference.

Report Date: April 6, 2011 Work Order: 11032820 Page Number: 9 of 30 114-6400858 COG/Dogwood Fed. #1 TB Eddy Co., NM Sample: 261898 - AH-2 1' Laboratory: Midland Analysis: TPH DRO - NEW Analytical Method: Prep Method: S 8015 D N/AQC Batch: 80098 Date Analyzed: 2011-04-05 Analyzed By: kg Prep Batch: 67966 2011-04-05 Sample Preparation: Prepared By: kg RLParameter Flag Result Units RLDilution DRO < 50.0 50.0 mg/Kg Spike Percent Recovery Flag Surrogate Result Units Dilution Amount Recovery Limits n-Tricosane 77.6100 70 - 130 mg/Kg 1 78 Sample: 261898 - AH-2 1' Midland Laboratory: TPH GRO Analysis: Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 80091 Date Analyzed: 2011-04-05 Analyzed By: ME Prep Batch: 67957 Sample Preparation: 2011-04-05 Prepared By: ME RLFlag Result Parameter; Units Dilution RL9.87GRO mg/Kg 1 2.00Recovery Spike Percent Surrogate Flag Result Units Dilution Amount Recovery Limits Trifluorotoluene (TFT) 2.90 48.5 - 152 mg/Kg 1 2.00 145 4-Bromofluorobenzene (4-BFB) 2.90 mg/Kg 1 2.00 145 42 - 159 Sample: 261899 - AH-2 2' Laboratory: Midland Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035

•		m RL			
Parameter	Flag	Result	Units	Dilution	RL
Benzene	<del></del>	< 0.0200	mg/Kg	1	0.0200
Toluene		< 0.0200	mg/Kg	1	0.0200
Ethylbenzene	•	< 0.0200	mg/Kg	1	0.0200
Xylene		0.441	mg/Kg	1	0.0200

2011-04-05

2011-04-05

Analyzed By:

Prepared By:

ME

ME

Date Analyzed:

Sample Preparation:

80090

67957

QC Batch:

Prep Batch:

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 10 of 30 Eddy Co., NM

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.73	mg/Kg	1	2.00	136	52.8 - 137
4-Bromofluorobenzene (4-BFB)		3.00	mg/Kg	11	2.00	150	38.4 - 157

Sample: 261899 - AH-2 2'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 79935 Prep Batch: 67767 Analytical Method: SM 4500-Cl B Date Analyzed: 2011-03-31

2011-03-29

Prep Method: N/A Analyzed By: AR Prepared By: AR

Sample Preparation:

Sample: 261899 - AH-2 2'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 80098 Prep Batch: 67966 Analytical Method: S 8015 D Date Analyzed: 2011-04-05 Sample Preparation: 2011-04-05 Prep Method: N/A
Analyzed By: kg
Prepared By: kg

 RL

 Parameter
 Flag
 Result
 Units
 Dilution
 RL

 DRO
 <50.0</td>
 mg/Kg
 1
 50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		79.4	ıng/Kg	1	100	79	70 - 130

Sample: 261899 - AH-2 2'

Laboratory: Midland

Analysis: | TPH GRO QC Batch: 80091 Prep Batch: 67957 Analytical Method: S 8015 D
Date Analyzed: 2011-04-05
Sample Preparation: 2011-04-05

Prep Method: S 5035 Analyzed By: ME Prepared By: ME

RL

4.00

Report Date: April 6, 2011 Work Order: 11032820 Page Number: 11 of 30 114-6400858 COG/Dogwood Fed. #1 TB Eddy Co., NM Spike Percent Recovery Surrogate Flag Result Units Dilution Amount Recovery Limits Triffuorotoluene (TFT) 2.61mg/Kg 1 2.00130 48.5 - 152 4-Bromofluorobenzene (4-BFB) 2.732.00 136 42 - 159 mg/Kg 1 Sample: 261900 - AH-2 3' Laboratory: Midland Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/AQC Batch: 79935 Date Analyzed: AR. 2011-03-31 Analyzed By: Prep Batch: 67767 Sample Preparation: 2011-03-29 Prepared By: ARRL Parameter Flag Result Units Dilution RLChloride .  $\overline{252}$ mg/Kg 4.00 Sample: 261901 - AH-2 4' Laboratory: Midland Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 79936 Date Analyzed: Analyzed By: AR2011-03-31 Prep Batch: Sample Preparation: 67767 2011-03-29 Prepared By: ARRL Flag Result Parameter Units Dilution RLChloride 370 mg/Kg 50 4.00 Sample: 261902 - AH-2 5' Midland Laboratory: Analysis: 1 Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 79936 Date Analyzed: Analyzed By: 2011-03-31 ARPrep Batch: 67767 Sample Preparation: 2011-03-29 Prepared By: AR

RL

Units

mg/Kg

Dilution

100

Result

2330

Flag

Parameter<sub>i</sub>

Chloride :

;							
Report Date: April 6, 2011 114-6400858			k Order: Dogwood l	11032820 Fed. #1 TB			uber: 12 of Eddy Co., N
Sample: 261903 - AH-3 0-0.5'							
i Laboratory: Midland							
Analysis: BTEX		Analytical M	elethod:	S 8021B		Prep Met	hod: S 50
QC Batch: 80015		Date Analy:		2011-04-02		Analyzed	
Prep Batch: 67886		Sample Pre		2011-04-01		Prepared	**
·		RL				•	J
Parameter Flag		Result		Units		Dilution	· R
Benzene i		6.09		mg/Kg		50	0.020
Toluene '		45.2		mg/Kg		50	0.020
Ethylbenzene		36.5		mg/Kg		50	0.020
Xylene <sup>1</sup>		69.9		mg/Kg		50	0.020
					Spike	Percent	Recover
Surrogate	Flag	Result	Units	Dilution			Limits
Trifluorotoluene (TFT)		51.9	mg/Kg	50	50.0	104	52.8 - 13
4-Bromofluorobenzene (4-BFB)		65.9	mg/Kg	50	50.0	132	38.4 - 15
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936		Date A	ical Metho nalyzed: Preparat	2011-03	3-31	Prep M Analyze Prepare	ed By: AR
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936		Date A	nalyzed:	2011-03	3-31	Analyze	ed By: AR
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767		Date A Sample	nalyzed:	2011-03	3-31	Analyze	ed By: AR
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767  Parameter Flag		Date A Sample RL	nalyzed:	2011-03 ion: 2011-03	3-31	Analyze Prepare	ed By: AR ed By: AR
Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767		Date A Sample RL Result	nalyzed:	2011-03 ion: 2011-03 Units	3-31	Analyze Prepare  Dilution	ed By: AR ed By: AR
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767  Parameter Flag Chloride    Sample: 261903 - AH-3 0-0.5' Laboratory: Midland		Date A Sample RL Result 7720	nalyzed: Preparat	2011-03 ion: 2011-03 Units mg/Kg	3-31	Analyze Prepare  Dilution  100	ed By: AR Al By: AR  R  4.0
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767  Parameter Flag Chloride    Sample: 261903 - AH-3 0-0.5' Laboratory: Midland		Date A Sample RL Result 7720	nalyzed: Preparat	2011-03 ion: 2011-03 Units mg/Kg	3-31	Analyze Prepare  Dilution	ed By: AR Al By: AR  R  4.0
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767  Parameter Flag Chloride  Sample: 261903 - AH-3 0-0.5' Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924		Date A Sample RL Result 7720 Analy Date A	nalyzed: Preparat tical Meth	2011-03 ion: 2011-03  Units  mg/Kg  od: S 8015 2011-0	3-31 3-29	Analyze Prepare  Dilution  100	ed By: AR A By: AR A.0
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767  Parameter Flag Chloride  Sample: 261903 - AH-3 0-0.5' Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924		Date A Sample RL Result 7720 Analy Date A	nalyzed: Preparat	2011-03 ion: 2011-03  Units  mg/Kg  od: S 8015 2011-0	3-31 3-29 5 D 3-30	Analyze Prepare  Dilution 100  Prep M	ethod: N/Ad By: kg
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767  Parameter Flag Chloride  Sample: 261903 - AH-3 0-0.5' Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924		RL Result 7720  Analy Date A Sample	nalyzed: Preparat tical Meth	2011-03 ion: 2011-03  Units  mg/Kg  od: S 8015 2011-0	3-31 3-29 5 D 3-30	Analyze Prepare  Dilution 100  Prep M Analyze	ed By: AR  R  4.0  ethod: N/A  d By: kg
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767  Parameter Flag Chloride (  Sample: 261903 - AH-3 0-0.5' Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924 Prep Batch: 67823		RL Result 7720  Analy Date A Sample	nalyzed: Preparat tical Meth	2011-03 ion: 2011-03  Units  mg/Kg  od: S 8015 2011-0 tion: 2011-0	3-31 3-29 5 D 3-30	Analyze Prepare  Dilution  100  Prep M Analyze Prepare	ethod: N/Ad By: kg d By: kg
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767  Parameter Flag Chloride    Sample: 261903 - AH-3 0-0.5' Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924 Prep Batch: 67823  Parameter Flag  Parameter Flag		Date A Sample RL Result 7720  Analy Date A Sample RL Result	nalyzed: Preparat tical Meth	2011-03 ion: 2011-03  Units  mg/Kg  od: S 8015 2011-0 tion: 2011-0	3-31 3-29 5 D 3-30	Analyze Prepare  Dilution  100  Prep M Analyze Prepare	ethod: N/A d By: kg d By: kg R
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767  Parameter Flag Chloride    Sample: 261903 - AH-3 0-0.5' Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924 Prep Batch: 67823  Parameter Flag		RL Result 7720  Analy Date A Sample	nalyzed: Preparat tical Meth	2011-03 ion: 2011-03  Units  mg/Kg  od: S 8015 2011-0 tion: 2011-0	3-31 3-29 5 D 3-30	Analyze Prepare  Dilution  100  Prep M Analyze Prepare	ethod: N/Ad By: kg d By: kg
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767  Parameter Flag Chloride (  Sample: 261903 - AH-3 0-0.5' Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924 Prep Batch: 67823		Date A Sample RL Result 7720  Analy Date A Sample RL Result	nalyzed: Preparat tical Meth	2011-03 ion: 2011-03  Units  mg/Kg  od: S 8015 2011-0 tion: 2011-0	3-31 3-29 5 D 3-30	Analyze Prepare  Dilution  100  Prep M Analyze Prepare	ethod: N/A d By: kg d By: kg R
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767  Parameter Flag Chloride    Sample: 261903 - AH-3 0-0.5'  Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924 Prep Batch: 67823  Parameter Flag DRO		Date A Sample RL Result 7720  Analy Date A Sample RL Result	nalyzed: Preparat tical Meth Analyzed: Prepara	2011-03 ion: 2011-03  Units  mg/Kg  od: S 8015 2011-0 tion: 2011-0  Units  mg/Kg	3-31 3-29 5 D 3-30 3-30	Analyze Prepare  Dilution  100  Prep M Analyze Prepare  Dilution  1	ethod: N/A ethod: N/A d By: kg d By: kg  R. 50.

<sup>&</sup>lt;sup>6</sup>High surrogate recovery due to peak interference.

114-6400858

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 13 of 30

Eddy Co., NM

Sample: 261903 - AH-3 0-0.5'

Laboratory: Midland

TPH GRO Analysis: QC Batch: 80016 Prep Batch: 67886

Analytical Method: Date Analyzed:

Sample Preparation:

S 8015 D 2011-04-02 2011-04-01

Prep Method: S 5035 Analyzed By: ME

50.0

Prepared By: ME

42 - 159

RL

89.8

Parameter	Flag	Result		$_{ m Units}$	Dilution		RL	
GRO		1820		mg/Kg		50	2.00	
					Spike	Percent	Recovery	
Surrogate:	Flag	Result	$\mathbf{U}\mathbf{nits}$	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)		54.8	mg/Kg	50	50.0	110	48.5 - 152	

mg/Kg

Sample: 261904 - AH-3 1'

4-Bromofluorobenzene (4-BFB)

Laboratory:

Midland

Analysis: BTEX QC Batch: 80015 Prep Batch: 67886

Analytical Method: S 8021B Date Analyzed:

Sample Preparation:

2011-04-02 2011-04-01

50

Prep Method: S 5035

Analyzed By: ME

180

Prepared By: ME

1		RL			
Parameter	$\mathbf{Flag}$	Result	Units	Dilution	RL
Benzene		< 0.0200	mg/Kg	1	0.0200
Toluene		0.166	mg/Kg	1	0.0200
Ethylbenzene		< 0.0200	mg/Kg	1	0.0200
Xylene		0.443	mg/Kg	1	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.44	mg/Kg	1	2.00	122	52.8 - 137
4-Bromofluorobenzene (4-BFB)		2.49	mg/Kg	1	2.00	124	38.4 - 157

Sample: 261904 - AH-3 1'

Laboratory:

Midland

Analysis: Chloride (Titration) QC Batch: 79936 Prep Batch: 67767

Analytical Method: Date Analyzed:

SM 4500-Cl B 2011-03-31

Prep Method: N/A Analyzed By: AR

Sample Preparation: 2011-03-29 Prepared By: AR.

RL

Result Parameter Flag Units Dilution RLChloride 1 3780 mg/Kg 100 4.00

<sup>&</sup>lt;sup>7</sup>High surrogate recovery due to peak interference.

114-6400858	:: April 6, 2011			rk Order: 110 Dogwood Fed		· .	Page Number: 14 of 30 Eddy Co., NM		
Sample: 26	1904 - AH-3 1'								
Laboratory: Analysis:   QC Batch: Prep Batch:	Midland TPH DRO - NE <sup>9</sup> 80023 67893 -	W <sub>.</sub>	Date	ytical Methoc Analyzed: de Preparatic	2011-04-	01	Prep M Analyze Prepare	ed By: kg	
Parameter!	Flag		RL Result		Units		Dilution	R	
DRO	rag		<50.0		mg/Kg		1	50	
Summerate	Eleve	Danult	Tiesten	D:1:		Spike	Percent	Recover	
Surrogate n-Tricosane	Flag	Result 109	Units nig/Kg	Diluti 1		nount 100	Recovery 109	Limits 70 - 13	
II- II ICOGGIA.		10.5	mg/mg			100	10,7	10 - 10	
Analysis:   QC Batch:	1904 - AH-3 1' Midland TPH GRO 80016 67886		Analytical Date Analy Sample Pr	yzed:	S 8015 D 2011-04-02 2011-04-01		Prep Met Analyzed Prepared	By: ME	
Analysis:   QC Batch: Prep Batch:	Midland TPH GRO 80016 67886		Date Analy Sample Pro- RL	yzed:	2011-04-02 2011-04-01	-	Analyzed Prepared	By: ME By: ME	
Analysis: PQC Batch: Prep Batch: Prap Batch:	Midland TPH GRO 80016		Date Anal Sample Pr RL Result	yzed:	2011-04-02 2011-04-01 Units		Analyzed Prepared Dilution	By: ME By: ME	
Analysis: QC Batch: Prep Batch: Parameter GRO	Midland TPH GRO 80016 67886		Date Analy Sample Property RL Result 15.6	yzed: 2 eparation: 2	2011-04-02 2011-04-01 Units mg/Kg	Spike	Analyzed Prepared  Dilution  1  Percent	By: ME By: ME  R  2.0	
Laboratory: Analysis: QC Batch: Prep Batch: Parameter GRO Surrogate Triffuorotolue	Midland TPH GRO 80016 67886 Flag	Flag	Date Analy Sample Property RL Result 15.6	yzed: Separation:	2011-04-02 2011-04-01 Units mg/Kg	Amount	Analyzed Prepared  Dilution  1  Percent Recovery	By: ME By: ME  R 2.0  Recover Limits	
Analysis:   QC Batch: Prep Batch: Parameter GRO Surrogate Trifluorotolue	Midland TPH GRO 80016 67886 Flag	Flag	Date Analy Sample Property RL Result 15.6	yzed: 2 eparation: 2	2011-04-02 2011-04-01 Units mg/Kg	•	Analyzed Prepared  Dilution  1  Percent	By: ME By: ME  R  2.0	
Analysis: QC Batch: Prep Batch: Pranmeter GRO  Surrogate Trifluorotolue 4-Bromofluor	Midland TPH GRO 80016 67886  Flag ene (TFT) cobenzene (4-BFB)  1905 - AH-3 2'  Midland Chloride (Titratic 79936 67767	Flag	RESULT  2.53 2.66  Analyt Date A Sample RL	yzed: 2 eparation: 2  Units mg/Kg	2011-04-02 2011-04-01 Units mg/Kg Dilution 1 1 SM 4500- 2011-03-3 1: 2011-03-2	Amount. 2.00 2.00	Analyzed Prepared  Dilution  1  Percent Recovery  126 133  Prep M Analyzed	Recover Limits 48.5 - 15 42 - 159  Method: N/.	
Analysis:  QC Batch: Prep Batch: Prep Batch:  Parameter GRO  Surrogate Trifluorotolue 4-Bromofluor  Sample: 26: Laboratory: Analysis: QC Batch:	Midland TPH GRO 80016 67886  Flag ene (TFT) cobenzene (4-BFB)  1905 - AH-3 2'  Midland Chloride (Titratic 79936	Flag	Date Analys Sample Property RL Result 15.6  Result 2.53 2.66  Analyt Date A Sample Sample	yzed: Separation: 2  Units  mg/Kg  mg/Kg  mg/Kg	2011-04-02 2011-04-01 Units mg/Kg Dilution 1 1 SM 4500- 2011-03-3	Amount. 2.00 2.00	Analyzed Prepared  Dilution  1  Percent Recovery  126 133  Prep M Analyze	By: ME   By: ME     R     2.0	

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Report Date: 114-6400858	April 6, 2011	L	Work Orde COG/Dogwo	er: 110328 <b>20</b> od Fed. #1 T	rB	Page I	Number: 15 of Eddy Co., N
   Sample:   <b>26</b> 1	1906 - AH-3	3'					
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Tit 79936 67767	tration)	Analytical M Date Analyze Sample Prepa	ed: <b>201</b> 3	4500-Cl B 1-03-31 1-03-29	Ana	o Method: N/ lyzed By: AR oared By: AR
i Parameter	]	Flag	RL Result	Unit	s	Dilution	R
Chloride ;			5060	mg/K	g	100	4.0
Sample: 261 Laboratory: Analysis: QC Batch: Prep Batch:	1907 - AH-3 Midland Chloride (Tit 79936 67767		Analytical M Date Analyze Sample Prepa	ed: 2011	4500-Cl B 1-03-31 1-03-29	Anal	Method: N/. lyzed By: AR ared By: AR
!			RL				
Parameter Chloride		Flag	Result 2140	Unit mg/K		Dilution 100	R. 4.0
Method Bla QC Batch: Prep Batch:	79924 67823	QC Batch: 79924	Date Analyzed: QC Preparation	2011-03-30 : 2011-03-30			alyzed By: kg
Parameter		Flag		IDL sult		Units	RJ
DRO		Flag		15.7		mg/Kg	50
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recover Limits
n-Tricosane	riag	121	mg/Kg	1	100	121	70 - 130
Method Bla QC Batch: Prep Batch:	nk (1)	C Batch: 79935	Date Analyzed: QC Preparation:	2011-03-31 2011-03-29 IDL		Prej	lyzed By: AR pared By: AR
		Elec-	P <sub>o</sub>	sult		Units	Rl
Parameter Chloride '		Flag		3.85		mg/Kg	4

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 16 of 30

Eddy Co., NM  $\,$ 

Method Blank (1)

. QC Batch: 79936

QC Batch: 79936 Prep Batch: 67767 Date Analyzed: 2011-03-31 QC Preparation: 2011-03-29 Analyzed By: AR Prepared By: AR

MDL

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

Method Blank (1)

QC Batch: 80015

QC Batch: 80015 Prep Batch: 67886 Date Analyzed: 2011-04-02 QC Preparation: 2011-04-01 Analyzed By: ME

Prepared By: ME

MDL

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

)					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.78	mg/Kg	1	2.00	89	66.6 - 122
4-Bromofluorobenzene (4-BFB)		1.73	nig/Kg	1	2.00	86	55.4 - 124

Method/Blank (1)

QC Batch: 80016

QC Batch: 80016 Prep Batch: 67886 Date Analyzed: 2011-04-02 QC Preparation: 2011-04-01

Analyzed By: ME Prepared By: ME

MDL

Surrogate	Flag	Result	Units	Dilution	${f Spike} \ {f Amount}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.88	mg/Kg	1	2.00	94	67.6 - 150
4-Bromofluorobenzene (4-BFB)		1.66	mg/Kg	1	2.00	83	52.4 - 130

Method Blank (1)

QC Batch: 80023

QC Batch: 80023 Prep Batch: 67893 Date Analyzed: 2011-04-01 QC Preparation: 2011-04-01 Analyzed By: kg Prepared By: kg

11/15/02/04/12/71

114-6400858

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 17 of 30

Eddy Co., NM

Parameter		Flag		MDL Result	τ	RL	
DRO				<15.7	111	g/Kg	50
Surrogate,	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		130	mg/Kg	1	100	130	70 - 130

Method Blank (1) QC Batch: 80090

QC Batch: 80090 Prep Batch: 67957

Date Analyzed:

Date Analyzed: 2011-04-05 QC Preparation: 2011-04-05 Analyzed By: ME

Prepared By: ME

1		MDL		
Parameter	$\operatorname{Flag}$	Result	${ m Units}$	RL
Benzene		< 0.0118	mg/Kg	0.02
Toluene		< 0.00600	mg/Kg	0.02
Ethylbenzene		< 0.00850	mg/Kg	0.02
Xylene		< 0.00613	$_{ m mg/Kg}$	0.02

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	_	1.90	mg/Kg	1	2.00	95	66.6 - 122
4-Bromofluorobenzene (4-BFB)		2.04	mg/Kg	1	2.00	102	55.4 - 124

Method Blank (1) QC Batch: 80091

QC Batch: 80091 Prep Batch: 67957 Date Analyzed: 2011-04-05 QC Preparation: 2011-04-05

Analyzed By: ME Prepared By: ME

Surrogate	Flag	Result	Units	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.85	mg/Kg	1	2.00	92	67.6 - 150
4-Bromofluorobenzene (4-BFB)		1.81	mg/Kg	1	2.00	90	52.4 - 130

Method Blank (1) QC Batch: 80098

QC Batch: 80098 Prep Batch: 67966 Date Analyzed: 2011-04-05 QC Preparation: 2011-04-05 Analyzed By: kg Prepared By: kg

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 18 of 30

Eddy Co., NM

ļ.		MDL
Parameter	Flag	Result
DDO :		-1F 7

Units RLmg/Kg 50

					Spike	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane		85.3	mg/Kg	1	100	85	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 67823

79924

Date Analyzed:

2011-03-30

Analyzed By: kg

Prepared By: kg

ſ	LCS			Spike	Matrix		Rec.
Param	Result	$_{ m Units}$	Dil.	Amount	Result	Rec.	Limit
DRO !	256	mg/Kg	1	250	<15.7	102	47.5 - 144.1

QC Preparation: 2011-03-30

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

I f	LCSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	$_{ m Limit}$	RPD	Limit
DRO	261	mg/Kg	1	250	<15.7	104	47.5 - 144.1	2	20

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

† !	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	126	122	mg/Kg	1	100	126	122	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 67767

79935

Date Analyzed:

2011-03-31 QC Preparation: 2011-03-29

Analyzed By: AR Prepared By: AR

LCS Spike Matrix Rec. Result Param Units Dil. Amount Result Rec. Limit Chloride 97.1 mg/Kg 100 <3.85 97 85 - 115

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride :	103	mg/Kg	1	100	<3.85	103	85 - 115	6	20

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 19 of 30 Eddy Co., NM

Laboratory Control Spike (LCS-1)

QC Batch: 79936 Prep Batch: 67767 Date Analyzed: 2011-03-31 QC Preparation: 2011-03-29 Analyzed By: AR Prepared By: AR

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit 96.8 97 85 - 115 Chloride . mg/Kg 100 < 3.85

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

LCSD RPD Spike Rec. Matrix Param Result Units Dil. Amount Result Rec. Limit RPD Limit 104 Chloride mg/Kg  $\overline{100}$ <3.85 85 - 115 20 104

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: 80015 Prep Batch: 67886 Date Analyzed: 2011-04-02 QC Preparation: 2011-04-01 Analyzed By: ME Prepared By: ME

LCS Spike Matrix Rec. Result Units Param Dil. Amount Result Rec. Limit 1.70 Benzene I mg/Kg 85 81.9 - 108 1 2.00 < 0.0118 Toluene 1.76 mg/Kg 2.00 81.9 - 1071 < 0.00600 88 Ethylbenzene 1.91 mg/Kg 1 2.00 < 0.00850 96 78.4 - 107 79.1 - 107 Xylene 5.75mg/Kg 1 6.00< 0.00613 96

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	1.76	mg/Kg	1	2.00	< 0.0118	88	81.9 - 108	4	20
Toluene	1.81	$_{ m mg}/{ m Kg}$	1	2.00	< 0.00600	90	81.9 - 107	3	20
Ethylbenzene	1.96	mg/Kg	1	2.00	< 0.00850	98	78.4 - 107	3	20
Xylene	5.89	mg/Kg	1	6.00	< 0.00613	98	79.1 - 107	2	20

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

·	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	$\mathbf{U}$ nits	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.74	1.51	mg/Kg	1	2.00	87	76	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1.84	1.59	mg/Kg	_ 1	2.00	92	80	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 80016 Prep Batch: 67886 Date Analyzed: 2011-04-02 QC Preparation: 2011-04-01

Analyzed By: ME Prepared By: ME

Report Date: April 6, 2011 114-6400858			Order: 11032 gwood Fed. :			P	age Ni		20 of 30 Co., NM
Param	LCS Resul	t _ Unit		Spike Amount	Mat Res	nlt	Rec.		Rec. Limit
GRO ;	17.7			20.0	<0.		88	60	.9 - 95.4
Percent recovery is based on the	spike result. J	RPD is base	d on the spik	e and spike c	luplicate	result.			•
	LCSD		Spike	Matrix		Rec	<u>.</u> .		RPD
Param	Result		Dil. Amour		Rec.	Limi		RPD	Limit
GRO		-01 0	1 20.0	< 0.753	84	60.9 - 9	95.4	5	20
Percent recovery is based on the	spike result. I	RPD is base	d on the spik	e and spike d	luplicate	result.			
1	LCS	LCSD		S	pike	LCS	LCSI	)	Rec.
Surrogate	Result	t Result	Units		iount	Rec.	Rec.		Limit
Trifluorotoluene (TFT)	2.03	1.68	mg/Kg		.00	102	84		1.9 - 142
4-Bromofluorobenzene (4-BFB)	1.93	1.60	mg/Kg	1 2	.00	96	80	68	3.2 - 132
Laboratory Control Spike (Le QC Batch: 80023 Prep Batch: 67893	CS-1)	Date Analy QC Prepara						lyzed I pared B	•
Parama	LCS	. II.:	. nu	Spike	Matr		D		Rec.
Param DRO i	Resultable 282	t Units mg/K		Amount 250	Resu <15.		Rec. 113		imit - 144.1
Percent recovery is based on the s								21.0	
1 create recovery is based on the s	•	ii D ia Daaci	•	c and spike d	upmate				
i i	LCSD	71 to T	Spike	Matrix		Rec.		DND	RPD
Param '	Result 278	Units D	$\frac{1}{1}$ Amount $\frac{1}{250}$	Result <15.7	Rec. 111	Limit 47.5 - 14		RPD 1	Limit 20
							14.1		
Percent recovery is based on the s	ъргке гезип. т	tro is based	u on the spik	е апо ѕріке о	присале :	resun.			
LCS	LCSD			Spike	LC		LCSD		Rec.
Surrogate, Result n-Tricosane 126	Result 124	Units mg/Kg	Dil.	Amount	Re		Rec. 124		Limit 70 - 130
Laboratory Control Spike (LO QC Batch: 80090 Prep Batch: 67957	CS-1)	nig/Kg Date Analyz QC Preparat	ed: 2011-0		12	u	Analy	zed By red By	: ME
<b>P</b>	LCS	TT 1	T 17	Spike	Mat		D		Rec.
Param ! Benzene	Result			Amount	Rest		Rec. 106		Limit .9 - 108
Toluene	$\frac{2.13}{2.14}$	mg/K	•	2.00 2.00	<0.00		100		.9 - 108 .9 - 107
Ethylbenzene	2.12	mg/K		2.00	<0.00		106		.4 - 107

continued ...

114-6400858

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 21 of 30

Eddy Co., NM

control spikes continued ...

	$_{ m LCS}$			$\operatorname{Spike}$	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	${ m Rec.}$	Limit
Xylene ;	6.40	mg/Kg	1	6.00	< 0.00613	107	79.1 - 107

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

!	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	$\mathbf{U}_{\mathbf{nits}}$	Dil.	Amount	Result	Rec.	Limit	RPD	$\mathbf{Limit}$
Benzene	2.09	mg/Kg	1	2.00	< 0.0118	104	81.9 - 108	2	20
Toluene (	2.13	mg/Kg	1	2.00	< 0.00600	106	81.9 - 107	0	20
Ethylbenzene	2.02	mg/Kg	1	2.00	< 0.00850	101	78.4 - 107	5	20
Xylene	6.38	mg/Kg	1	6.00	< 0.00613	106_	79.1 - 107	0	20

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

Surrogate	$rac{ ext{LCS}}{ ext{Result}}$	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.12	2.03	mg/Kg	1	2.00	106	102	70.2 - 114
4-Bromoffuorobenzene (4-BFB)	2.41	2.29	mg/Kg	1	2.00	120	114	69.8 - 121

#### Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:

80091 67957 Date Analyzed:

2011-04-05

QC Preparation: 2011-04-05

Analyzed By: ME

Prepared By: ME

i	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO ,	16.8	mg/Kg	1	20.0	< 0.753	84	60.9 - 95.4

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

	LCSD			Spike	Matrix		Rec.	•	RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
$\overline{\mathrm{GRO}}$	17.2	mg/Kg	1	20.0	< 0.753	86	60.9 - 95.4	2	20

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

1	LCS	LCSD			$\operatorname{Spike}$	LCS	$_{ m LCSD}$	${ m Rec.}$
Surrogate!	Result	Result	$\mathbf{U}_{\mathbf{nits}}$	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.99	2.03	mg/Kg	1	2.00	100	102	61.9 - 142
4-Bromofluorobenzene (4-BFB)	2.05	2.11	nıg/Kg	1	2.00	102	106	68.2 - 132

#### Laboratory Control Spike (LCS-1)

QC Batch: 80098 Prep Batch: 67966 Date Analyzed: QC Preparation: 2011-04-05

2011-04-05

Analyzed By: Prepared By:

Work Order: 11032820 Report Date: April 6, 2011 Page Number: 22 of 30 114-6400858 COG/Dogwood Fed. #1 TB Eddy Co., NM LCS Matrix Rec. Spike Result Limit Param Units Dil. Amount Result Rec. DRO 244 47.5 - 144.1 mg/Kg 250 < 15.798 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. LCSD RPD Spike Matrix Rec. Param Result Units RPD Dil. Amount Result Rec. Limit Limit  $\overline{\text{DRO}}$ 250 mg/Kg 250< 15.7100 47.5 - 144.1 2  $\overline{20}$ Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. LCSD LCS LCSD Spike LCS Rec. Surrogate Result Result Units Dil. Amount Rec. Rec. Limit n-Tricosane 87.2 85.9 86 70 - 130 mg/Kg 100 87 1 Matrix Spike (MS-1) Spiked Sample: 261939 QC Batch: 79924 Date Analyzed: 2011-03-30 Analyzed By: kg Prep Batch: 67823 QC Preparation: 2011-03-30 Prepared By: MS Spike Matrix Rec. Param Result Units Dil. Result Rec. Limit Amount 242 11.7 - 152.3 DRO <15.7 97 mg/Kg 250 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. MSD Spike RPD Matrix Rec. Param Result Units Dil. Amount Limit RPD Limit Result Rec. DRO 233 mg/Kg 250< 15.793 11.7 - 152.320 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. **MSD** MS **MSD** Spike MS Rec. Surrogate Result Result Units Dil. Amount Rec. Rec. Limit 121 126 121 126 70 - 130 n-Tricosane mg/Kg . 1  $\overline{100}$ Matrix Spike (MS-1) Spiked Sample: 261900 QC Batch: 79935 Date Analyzed: 2011-03-31 Analyzed By: Prep Batch: 67767 QC Preparation: Prepared By: AR2011-03-29 MS Rec. Spike Matrix Param Result Units Dil. Result Limit Amount Rec. 10300  $\overline{100}$ 80 - 120 Chloride | 100 10000 <385 mg/Kg Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 23 of 30 Eddy Co., NM

MSD RPD Spike Matrix Rec. Result Param Result Units Dil. Limit Amount Rec. RPD Limit Chloride | 10600 mg/Kg 100 10000 <385 103 80 - 120  $\overline{3}$ 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: 261910

QC Batch: 79936 Prep Batch: 67767 Data A

Date Analyzed: 2011-03-31 QC Preparation: 2011-03-29

Analyzed By: AR

Prepared By: AR

:	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	9960	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.

İ	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	10200	mg/Kg	100	10000	<385	102	80 - 120	2	20

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

Matrix Spike (MS-1)

Spiked Sample: 261925

QC Batch: 80015 Prep Batch: 67886 Date Analyzed: 2011-04-02

Analyzed By: ME Prepared By: ME

QC Preparation: 2011-04-01 Prepared By:

Param		$rac{MS}{Result}$	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	 8	1.61	mg/Kg	1	2.00	< 0.0118	80	80.5 - 112
Toluene :	9	1.70	mg/Kg	1	2.00	0.1724	76	82.4 - 113
Ethylbenzene		. 1.72	mg/Kg	1	2.00	< 0.00850	86	83.9 - 114
Xylene	10	5.25	mg/Kg	1	6.00	0.552	78	84 - 114

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene !	1.74	mg/Kg	1	2.00	< 0.0118	87	80.5 - 112	8	20
Toluene	1.88	mg/Kg	1	2.00	0.1724	85	82.4 - 113	10	20
Ethylbenzene	1.96	mg/Kg	1	2.00	< 0.00850	98	83.9 - 114	13	20
Xylene	5.97	mg/Kg	1	6.00	0.552	90	84 - 114	13	20

<sup>&</sup>lt;sup>8</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>&</sup>lt;sup>9</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>10</sup> Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 24 of 30 Eddy Co., NM

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	$\mathbf{Units}$	Dil.	Amount	Rec.	Rec.	$_{ m Limit}$
Trifluorotoluene (TFT)	1.87	2.28	mg/Kg	1	2	94	114	41.3 - 117
4-Bromofluorobenzene (4-BFB)	2.12	2.41	mg/Kg	1	2	106	120	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 261891

QC Batch: 80

80016 Date Analyz

Date Analyzed: 2011-04-02

Analyzed By: ME

Prep Batch: 67886

QC Preparation: 2011-04-01

Prepared By: ME

	1	MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	i	19.5	mg/Kg	1	20.0	< 0.753	98	61.8 - 114

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

! :	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	21.1	mg/Kg	1	20.0	< 0.753	106	61.8 - 114	8	20

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

1	MS	$_{ m MSD}$			Spike	MS	MSD	Rec.
Surrogate	$\operatorname{Result}$	Result	${ m Units}$	Dil.	Amount	${ m Rec.}$	Rec.	${f Limit}$
Trifluorotoluene (TFT)	2.44	2.49	mg/Kg	1	2	122	124	50 - 162
4-Bromofluorobenzene (4-BFB)	2.29	2.35	mg/Kg	1	2	114	118	50 - 162

Matrix Spike (MS-1) Spiked Sample: 261916

QC Batch:

80023

Date Analyzed:

2011-04-01

Analyzed By: kg Prepared By: kg

Prep Batch: 67893

QC Preparation: 2011-04-01

MSSpike Matrix Rec. Result Limit Param Units Dil. Amount Result Rec. 285 DRO mg/Kg 250 <15.7 114 11.7 - 152.3

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

,	MSD			Spike	Matrix		Rec.		RPD
Param ,	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO i	275	mg/Kg	1	250	<15.7	110	11.7 - 152.3	4	20

<u> </u>	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	117	119	mg/Kg	1	100	117	119	70 - 130

114-6400858

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 25 of 30

Eddy Co., NM

Matrix Spike (MS-1)

Spiked Sample: 261899

QC Batch: Prep Batch:

80090 67957

Date Analyzed: QC Preparation:

2011-04-05 2011-04-05 Analyzed By: ME

Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	. 2.14	mg/Kg	1	2.00	< 0.0118	107	80.5 - 112
Toluene	2.19	mg/Kg	1	2.00	< 0.00600	110	82.4 - 113
Ethylbenzene	2.22	mg/Kg	1	2.00	< 0.00850	111	83.9 - 114
Xylene	6.98	mg/Kg	1	6.00	0.4411	109	84 - 114

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

1	MSD			Spike	Matrix		Rec.		RPD
Param ¦	Result	${ m Units}$	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$	RPD	$\operatorname{Limit}$
Benzene	2.15	mg/Kg	1	2.00	< 0.0118	108	80.5 - 112	0	20
Toluene	2.21	mg/Kg	1	2.00	< 0.00600	110	82.4 - 113	1	20
Ethylbenzene	2.28	mg/Kg	1	2.00	< 0.00850	114	83.9 - 114	3	20
Xylene	7.16	mg/Kg	1	6.00	0.4411	112	84 - 114	2	20

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

		MS	MSD			Spike	MS	MSD	Rec.
Surrogate		Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	11	2.16	2.58	mg/Kg	1	2	108	129	41.3 - 117
4-Bromofluorobenzene (4-BFB)	12	2.58	3.18	mg/Kg	1	2	129	159	35.5 - 129

Matrix Spike (MS-1)

Spiked Sample: 262521

QC Batch: 80091 Prep Batch: 67957 Date Analyzed:

2011-04-05

Analyzed By: ME

QC Preparation: 2011-04-05 Prepared By: ME

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO .	18.1	mg/Kg	1	20.0	< 0.753	90	61.8 - 114

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

	M	SD			Spike	Matrix		Rec.		RPD
Param	Re	sult U	Inits 1	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	19	9.8 m	g/Kg	1	20.0	< 0.753	99	61.8 - 114	9	20

<sup>&</sup>lt;sup>11</sup>High surrogate recovery due to peak interference.

<sup>&</sup>lt;sup>12</sup>High surrogate recovery due to peak interference.

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 26 of 30 Eddy Co., NM

Surrogate -	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Triffuorotoluene (TFT)	2.50	2.45	mg/Kg	1	2	125	122	50 - 162
4-Bromofluorobenzene (4-BFB)	2.45	2.38	mg/Kg	1	2	122	119	50 - 162

Matrix Spike (MS-1) Spik

Spiked Sample: 262521

QC Batch:

80098

Date Analyzed:

2011-04-05

Analyzed By: kg

Prep Batch: 67966

QC Preparation: 2011-04-05

Prepared By: kg

ļ	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
$\overline{ m DRO}$	330	mg/Kg	1	250	<15.7	132	11.7 - 152.3

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

	MSD			$\operatorname{Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	$\operatorname{Limit}$
DRO	355	mg/Kg	1	250	<15.7	142	11.7 - 152.3	7	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate Surrogate	Result	Result	$\mathbf{Units}$	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	90.7	95.3	mg/Kg	1	100	91	95	70 - 130

Standard (CCV-1)

QC Batch: 79924

Date Analyzed: 2011-03-30

Analyzed By: kg

Param DRO	!	Flag	Units mg/Kg	Conc. 250	Conc. 258	Recovery 103	Limits 80 - 120	Analyzed 2011-03-30
	į			True	Found	Percent	Recovery	Date
•	}			CCVs	CCVs	CCVs	Percent	
	•			$CCV_{c}$	CCVo	CCVa	Dargant	

Standard (CCV-2)

QC Batch: 79924

Date Analyzed: 2011-03-30

Analyzed By: kg

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc	Recovery	$\mathbf{L}$ imits	Analyzed
DRO	i	nig/Kg	250	258	103	80 - 120	2011-03-30

Standard (ICV-1)

QC Batch: + 79935

Date Analyzed: 2011-03-31

Analyzed By: AR.

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Report Date 114-640085	te: April 6, 2011 8			Order: 110328 ogwood Fed. #		Page N	umber: 27 of 30 Eddy Co., NN
 	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride <sub>1</sub>	riag	mg/Kg	100	98.3	98	85 - 115	2011-03-31
Standard	(CCV-1)						
QC Batch:	79935		Date Analy	zed: 2011-03-	-31	Anal	yzed By: AR
1			CCVs	CCVs	CCVs	Percent	
l			True	Found	Percent	Recovery	Date
Param 1	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride <sub>1</sub>		mg/Kg	100	102	102	85 - 115	2011-03-31
Standard QC Batch:	(ICV-1) 79936		Date Analy	zed: 2011-03-	31	Anal	yzed By: AR
			ICVs	ICVs	ICVs	Percent	
			$\operatorname{True}$	Found	Percent	Recovery	. Date
Param !	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride 1		mg/Kg	100	102	102	85 - 115	2011-03-31
Standard . QC Batch:	,		Date Analy	zed: 2011-03-	31	Anal	yzed By: AR
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent -	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	97.9	98	85 - 115	2011-03-31
Standard	ì						
QC Batch:	180015		Date Analy	zed: 2011-04-	02	Analy	yzed By: ME
	1		CCVs	CCVs	$_{ m CCVs}$	Percent	
D	· .	TT +-	True	Found	Percent	Recovery	Date
Param	¦ Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0871	87	80 - 120	2011-04-02
Toluene	.!	mg/Kg mg/Kg	0.100	0.0894	89	80 - 120	2011-04-02
	16	mg/Kg	0.100	0.0981	98	80 - 120	2011-04-02
Ethylbenzer Xylene	i.	mg/Kg	0.300	0.294	98	80 - 120	2011-04-0

Work Order: 11032820 COG/Dogwood Fed. #1 TB Page Number: 28 of 30 Eddy Co., NM

#### Standard (CCV-2)

QC Batch: 80015

Date Analyzed: 2011-04-02

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene (		mg/Kg	0.100	0.0885	88	80 - 120	2011-04-02
Toluene		$_{ m mg/Kg}$	0.100	0.0908	91	80 - 120	2011-04-02
Ethylbenzene		mg/Kg	0.100	0.0974	97	80 - 120	2011-04-02
Xylene _	<del></del>	mg/Kg	0.300	0.294	98	80 - 120	2011-04-02

#### Standard (CCV-3)

QC Batch: 80015

Date Analyzed: 2011-04-02

Analyzed By: ME

ı İ			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	$\operatorname{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0872	87	80 - 120	2011-04-02
Toluene		$_{ m mg/Kg}$	0.100	0.0887	89	80 - 120	2011-04-02
Ethylbenzene		mg/Kg	0.100	0.0935	94	80 - 120	2011-04-02
Xylene		mg/Kg	0.300	0.282	94	80 - 120	2011-04-02

### Standard (CCV-1)

QC Batch: | 80016

Date Analyzed: 2011-04-02

Analyzed By: ME

	1			CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	$\mathbf{Date}$
Param	1	Flag	$\mathbf{U}_{\mathbf{nits}}$	Conc.	Conc.	Recovery	Limits	Analyzed
GRO	ļ		mg/Kg	1.00	1.05	105	80 - 120	2011-04-02

## Standard (CCV-2)

QC Batch: '80016

Date Analyzed: 2011-04-02

Analyzed By: ME

	I		CCVs	CCVs	CCVs	Percent	•
	i		True	Found	Percent	Recovery	Date
Param	Flag	$\mathbf{U}_{\mathbf{nits}}$	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.20	120	80 - 120	2011-04-02

#### Standard (CCV-3)

QC Batch: 80016

Date Analyzed: 2011-04-02

Analyzed By: ME

Report D 114-64008	ate: April 6, 2011 58	I		t Order: 110328 logwood Fed. #		Page N	Jumber: 29 of 30 Eddy Co., NM
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO I		mg/Kg	1.00	1.15	115	80 - 120	2011-04-02
Standard	I (CCV-2)						
QC Batch	: 80023		Date Anal	yzed: 2011-04	-01	Ana	alyzed By: kg
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO	· · · · · · · · · · · · · · · · · · ·	mg/Kg	250	262	105	80 - 120	2011-04-01
Standard QC Batch	(CCV-3)	•	Data Anal	yzed: 2011-04	01	Δ.,,,	alyzed By: kg
CO Datel	i					Alle	alyzed By: kg
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	298	119	80 - 120	2011-04-01
Standard QC Batch	(CCV-1)		Date Analy	zed: 2011-04-	05	Anal	yzed By: ME
	!		CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.115	115	80 - 120	2011-04-05
Toluene	ì	mg/Kg	0.100	0.115	115	80 - 120	2011-04-05
Ethylbenze	ene !	mg/Kg	$0.100 \\ 0.300$	$0.115 \\ 0.347$	115	80 - 120	2011-04-05
Xylene	1	mg/Kg	0.500	0.047	116	80 - 120	2011-04-05
Standard	(CCV-2)						
QC Batch:	: <sup>'</sup> 80090		Date Analy	zed: 2011-04-	05	Analy	yzed By: ME
	1		CCVs	CCVs	CCVs	Percent	
D	<u></u>	•	True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene	i	mg/Kg	0.100	0.102	102	80 - 120	2011-04-05
Toluene	***	mg/Kg	0.100	0.103	103	80 - 120	2011-04-05
Ethylbenze	sue ;	mg/Kg	0.100	0.102	102	80 - 120	2011-04-05

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Report Da 114-640085	te: April 6, 2011 8			Order: 110328 ogwood Fed. #		Page N	umber: 30 of 3 Eddy Co., NN
standard[co	$ntinued \dots$		O1 048 5				
ļ			$\mathrm{CCVs}$	CCVs	$_{ m CCVs}$	Percent	_
Danana	T21	11	True	Found	Percent	Recovery	Date
Param Xylene	Flag	Units mg/Kg	Conc. 0.300	Conc.	Recovery	Limits	Analyzed
Aylene		mg/ ng	0.300	0.308	103	80 - 120	2011-04-05
Standard	(CCV-1)						
QC Batch:	80091		Date Analyz	zed: 2011-04-	05	Anal	yzed By: ME
1			CCVs	CCVs	CCVs	Percent	
•			True	Found	Percent	Recovery	Date
Param 1	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.05	105	80 - 120	2011-04-05
QC Batch:	80091 Flag	Units	CCVs True Conc.	ccd: 2011-04- CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	yzed By: ME Date Analyzed
GRO	·	mg/Kg	1.00	1.07	107	80 - 120	2011-04-05
Standard	``			1 2011 04	0.5		
QC Batch:	าชยบยช 		Date Analy	zed: 2011-04-	-Və	Ana	lyzed By: kg
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO	, 1 1108	mg/Kg	250	251	100	80 - 120	2011-04-05
Standard QC Batch:				zed: 2011-04-			lyzed By: kg
	1		CCVs	$CCV_{S}$	CCVs	Percent	
			True	Found	Percent	Recovery	Date
			~	~			
Param DRO	Flag_	Units mg/Kg	$\operatorname{Conc}$ .	Conc.	Recovery	${f Limits}$	Analyzed

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Analysis Reduest of Chain of Custody Record	
	ANALYSIS REQUEST (Circle or Specify Method No.)
TETRATECH	- °
1910 N. Big Spring St.	
(432) 682-4559 • Fax (432) 682-3946	Pd 1/2
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PEMARKS:	
Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech	- Project Manager retains Pink copy - Accounting receives Gold copy.

Work Order: 11070111

Page Number: 1 of 3

### **Summary Report**

Ike Tavarez Tetra Tech

1910 N. Big Spring Street

Midland, TX 79705

Report Date: July 12, 2011

Work Order: 11070111

Project Location: Eddy Co., NM

Project Name: COG/Dogwood Fed. #1 TB

Project Number: 114-6400858

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
270978	SB-1 0-1 (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270979	SB-1 3' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270980	SB-1 5' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270981	SB-1 7' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270982	SB-1 10' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270983	SB-1 15' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270984	SB-1 20' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270987	SB-2 0-1' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270988	SB-2 3' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270989	SB-2 5' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270990	SB-2 7' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270991	SB-2 10' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270992	SB-2 15' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270993	SB-2 20' (4' BEB)	soil	2011-06-27	00:00	2011-06-30

Sample: 270978 - SB-1 0-1 (3' BEB)

 Param
 Flag
 Result
 Units
 RL

 Chloride
 3700
 mg/Kg
 4

Sample: 270979 - SB-1 3' (3' BEB)

 Param
 Flag
 Result
 Units
 RL

 Chloride
 325
 ng/Kg
 4

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This is only a summary. Please, refer to the complete report package for quality control data.

Report Date: July 12, 2011		Work Order: 11070111	Page 1	Page Number: 2 of	
1			- <u>-</u>		
Sample: 270980 ·	· SB-1 5' (3' BEB)				
Param	Flag	Result	Units	. RI	
Chloride		<200	mg/Kg		
1			·		
Sample: 270981 -	- SB-1 7' (3' BEB)				
Param	Flag	Result	Units	RI	
Chloride		<200	mg/Kg		
	· SB-1 10' (3' BEB)				
Param	Flag	Result	Units	RI	
Chloride	1 105	<200	mg/Kg	111	
Sample: <b>27</b> 0983 -	- SB-1 15' (3' BEB)				
Param .	Flag	Result	Units	RI	
Chloride		<200	mg/Kg	4	
Sample: 270984 - Param Chloride	SB-1 20' (3' BEB)	Result <200	Units mg/Kg	RL 4	
Sample: 270987 -	· SB-2 0-1' (4' BEB)				
Param	Flag	Result	Units	RL	
Chloride		255	mg/Kg	4	
Sample: 270988 -	SB-2 3' (4' BEB)				
_		Result	Units	RL	
Param	SB-2 3' (4' BEB) Flag	Result 320	Units ing/Kg		
Param Chloride	Flag				
Param Chloride				RL 4 RL	

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This is only a summary. Please, refer to the complete report package for quality control data.

Report Date: July 12, 2011		Work Order: 11070111	Page 1	Number: 3 of 3
1				
Sample: 270990	· SB-2 7' (4' BEB)			
Parain	Flag	Result	Units	RL
Chloride	· · · · · · · · · · · · · · · · · · ·	<200	mg/Kg	4
,	· · · · · · · · · · · · · · · · · · ·			
·				
Sample: 270991 -	SB-2 10' (4' BEB)			
Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 270992 - SB-2 15' (4' BEB)

Param	Flag	Result	Units	RL
Chloride		343	mg/Kg	4

Sample: 270993 - SB-2 20' (4' BEB)

Param	Flag	Result	Units	RL
Chloride		218	nig/Kg	4

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This is only a summary. Please, refer to the complete report package for quality control data.



\$701 Abordeen Avenue, Sunn 9 700 East Sonset Boad, Suite E

5002 Basin Street, Suite Af 6015 Harris Parkway, Suite 119 Ft. Worth, Texas 76132

El Peso, fexas 79922 888 • 596 • 3443 Midland, Texas 79703

BBB • 794 • 1296 915 \* 585 \* 3443 432 \* 689 \* 6301

817 • 201 • 5260

FAX 906 • 294 • 1299 TAX 915 • 985 • 4044 FAX 432 • 689 • 6813

E-Mail: lab@traceanalysic.com

### Certifications

HUB NCTRCA DBE **NELAP** DoD LELAP Kansas Oklahoma ISO 17025

## Analytical and Quality Control Report

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

Report Date: July 12, 2011

Work Order: 11070111

Project Location: Eddy Co., NM

Project Name:

COG/Dogwood Fed. #1 TB

Project Number: 114-6400858

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	$\mathbf{Time}$	Date
Sample	Description	Matrix	Taken	Taken	Received
270978	SB-1 0-1 (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270979	SB-1 3' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270980	SB-1 5' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270981	SB-1 7' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270982	SB-1 10' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270983	SB-1 15' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270984	SB-1 20' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270987 '	SB-2 0-1' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270988 '	SB-2 3' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270989	SB-2 5' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270990	SB-2 7' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270991	SB-2 10' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270992	SB-2 15' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270993	SB-2 20' (4' BEB)	soil	2011-06-27	00:00	2011-06-30

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

This report consists of a total of 14 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

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# Report Contents

Case Narrative	•
Analytical Report	1
Sample 270978 (SB-1 0-1 (3' BEB))	
Sample 270979 (SB-1 3' (3' BEB))	
Sample 270980 (SB-1 5' (3' BEB))	
Sample 270981 (SB-1 7' (3' BEB))	
Sample 270982 (SB-1 10' (3' BEB))	
Sample 270983 (SB-1 15' (3' BEB))	
Sample 270984 (SB-1 20' (3' BEB))	
Sample 270987 (SB-2 0-1' (4' BEB))	
Sample 270988 (SB-2 3' (4' BEB))	
Sample 270989 (SB-2 5' (4' BEB))	
Sample 270990 (SB-2 7' (4' BEB))	
Sample 270991 (SB-2 10' (4' BEB))	
Sample 270992 (SB-2 15' (4' BEB))	
Sample 270993 (SB-2 20' (4' BEB))	
Method Blanks	4.6
QC Batch 82929 - Method Blank (1)	10
QC Batch 82930 - Method Blank (1)	
QC Batch 62950 - Method Blank (1)	1
Laboratory Control Spikes	1
QC Batch 82929 - LCS (1)	1
QC Batch 82930 - LCS (1)	
QC Batch 82929 - MS (1)	
QC Batch 82930 - MS (1)	
•	
Calibration Standards	13
QC Batch 82929 - ICV (1)	13
QC Batch 82929 - CCV (1)	
QC Batch 82930 - ICV (1)	
QC Batch 82930 - CCV (1)	
Appendix	14
Laboratory Certifications	_
Standard Flags	
Attachments	
	1

### Case Narrative

Samples for project COG/Dogwood Fed. #1 TB were received by TraceAnalysis, Inc. on 2011-06-30 and assigned to work order 11070111. Samples for work order 11070111 were received intact at a temperature of 8.0 C.

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

		Prep	Prep	$_{ m QC}$	Analysis
Test	Method	$\operatorname{Batch}$	Date	Batch	Date
Chloride (Titration)	SM 4500-Cl B	70311	2011-07-06 at 08:36	82929	2011-07-11 at 14:06
Chloride (Titration)	SM 4500-CI B	70311	2011-07-06 at 08:36	82930	2011-07-11 at 14:07

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 11070111 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.

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 5 of 14 Eddy Co., NM

# **Analytical Report**

Sample: 270978 - SB-1 0-1 (3' BEB)

Laboratory: Midland

Analysis: QC Batch: Prep Batch: Chloride (Titration)

82929 70311

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B

2011-07-11 2011-07-06 Prep Method: N/A Analyzed By: AR

Prepared By:

RL

Cert Result Parameter 3700 Chloride

Units mg/Kg Dilution RL4.00 100

Sample: 270979 - SB-1 3' (3' BEB)

Laboratory:

Midland

Analysis:

Chloride (Titration)

QC Batch: 82929 Prep Batch: 70311

Analytical Method: Date Analyzed:

SM 4500-Cl B 2011-07-11

Prep Method: N/A Analyzed By: AR. Prepared By:

Sample Preparation: 2011-07-06

			1717			
Parameter	Flag	Cert	Result	Units	Dilution	
Chloride			325	nig/Kg	50	,

Sample: 270980 - SB-1 5' (3' BEB)

Laboratory:

Midland

Analysis: QC Batch: 82929

Chloride (Titration)

Analytical Method: Date Analyzed:

SM 4500-Cl B

Analyzed By:

Prep Method: N/A AR

AR

RL4.00

Prep Batch: 70311 Sample Preparation:

2011-07-11 2011-07-06

Prepared By: AR.

RL

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

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 6 of 14 Eddy Co., NM

Sample: 270981 - SB-1 7' (3' BEB)

Laboratory:

Midland

Analysis: QC Batch: Chloride (Titration)

82929

Analytical Method: SM 4500-Cl B

2011-07-11

Prep Method: N/A Analyzed By: AR

Prep Batch: 70311

Date Analyzed: Sample Preparation: 2011-07-06

Prepared By: AR

RL

Parameter Chloride

Flag

Result <200

Units mg/Kg Dilution RL50 4.00

Sample: 270982 - SB-1 10' (3' BEB)

Laboratory:

Midland

Analysis: Chloride (Titration)

QC Batch: Prep Batch:

82929 70311

Analytical Method: Date Analyzed: Sample Preparation:

Cert

SM 4500-Cl B 2011-07-11

2011-07-06

Prep Method: N/A

Analyzed By: ARPrepared By: AR.

RL

Parameter Flag Chloride

Cert Result <200

Units mg/Kg

Units

mg/Kg

Dilution

RL4.00

RL

4.00

Sample: 270983 - SB-1 15' (3' BEB)

Laboratory:

Midland

Analysis:

Chloride (Titration)

QC Batch: 82929 70311

Analytical Method: Date Analyzed:

SM 4500-Cl B 2011-07-11

Prep Method: N/A ARAnalyzed By:

Prep Batch:

Chloride

Sample Preparation: 2011-07-06

<200

Prepared By:

Dilution

50

Parameter Flag

RLCert Result AR.

Sample: 270984 - SB-1 20' (3' BEB)

Laboratory: Midland

Analysis:

Chloride (Titration)

QC Batch: 82929 Prep Batch: 70311

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B

2011-07-11 2011-07-06 Prep Method: N/A Analyzed By: AR

Prepared By: AR

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 7 of 14

Eddy Co., NM

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

Sample: 270987 - SB-2 0-1' (4' BEB)

Laboratory:

Midland

Analysis:

Chloride (Titration) Analytical Method: Date Analyzed:

SM 4500-Cl B 2011-07-11

Prep Method: N/A Analyzed By: AR

QC Batch: 82929 Prep Batch: 70311

Sample Preparation: 2011-07-06 Prepared By: AR

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			255	mg/Kg	50	4.00

Sample: 270988 - SB-2 3' (4' BEB)

Laboratory:

Midland

Chloride (Titration) Analysis: QC Batch: 82929 70311 Prep Batch:

Analytical Method: Date Analyzed:

SM 4500-Cl B 2011-07-11 Sample Preparation: 2011-07-06

Prep Method: N/A Analyzed By: ARPrepared By: AR

RLCert Result Dilution RLParameter Flag Units 320 mg/Kg 50 4.00Chloride

Sample: 270989 - SB-2 5' (4' BEB)

Laboratory:

Midland

Chloride (Titration) Analysis: QC Batch: 82929 Prep Batch: 70311

Analytical Method: Date Analyzed:

SM 4500-Cl B 2011-07-11 2011-07-06 Sample Preparation:

Prep Method: N/A Analyzed By: AR

AR

RL

4.00

Prepared By:

RLParameter Flag Cert Result Units Dilution 390 50 Chloride mg/Kg

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 8 of 14 Eddy Co., NM

Sample: 270990 - SB-2 7' (4' BEB)

Laboratory:

Midland

Chloride (Titration) Analysis:

QC Batch: 82930 70311 Prep Batch:

Analytical Method: Date Analyzed:

SM 4500-Cl B 2011-07-11

Prep Method: N/A Analyzed By: AR

Sample Preparation: 2011-07-06 Prepared By: AR

RL

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

Sample: 270991 - SB-2 10' (4' BEB)

Laboratory:

Midland

Chloride (Titration) Analysis: QC Batch:

82930 Prep Batch: 70311

Analytical Method:

SM 4500-Cl B Date Analyzed: 2011-07-11 Sample Preparation: 2011-07-06

Prep Method: N/A

Analyzed By: ARPrepared By: AR

RLCert Flag Result Units Dilution RLParameter <200 50 4.00 Chloride mg/Kg

Sample: 270992 - SB-2 15' (4' BEB)

Laboratory:

Midland

Chloride (Titration) Analysis: QC Batch: 82930 70311 Prep Batch:

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2011-07-11 2011-07-06

Prep Method: N/A Analyzed By: AR

AR

Prepared By:

RLParameter Flag Cert Result Units Dilution RLChloride 343 mg/Kg 50 4.00

Sample: 270993 - SB-2 20' (4' BEB)

Laboratory:

Midland

Analysis:

Chloride (Titration)

QC Batch: 82930 Prep Batch: 70311

Analytical Method: SM 4500-Cl B Date Analyzed:

2011-07-11 Sample Preparation: 2011-07-06 Prep Method: N/A Analyzed By: AR Prepared By: AR

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 9 of 14

Eddy Co., NM

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

114 - 6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 10 of 14 Eddy Co., NM

Method Blanks

Method Blank (1)

QC Batch: 82929

QC Batch: Prep Batch: 70311

82929

Date Analyzed: 2011-07-11 QC Preparation: 2011-07-06 Analyzed By: AR

Prepared By: AR

Flag Parameter Cert

Chloride

Result <3.85

MDL

Units mg/Kg RL4

Method Blank (1)

QC Batch: 82930

QC Batch: 82930 Date Analyzed:

2011-07-11

Analyzed By: AR

Prep Batch: 70311

QC Preparation: 2011-07-06 Prepared By: AR

MDL

Parameter Flag Chloride

Cert Result

<3.85

Units

mg/Kg

RL

Released to Imaging: 4/11/2023 9:01:49 AM

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 11 of 14

Eddy Co., NM

# Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch:

Date Analyzed:

2011-07-11

Analyzed By: AR

Prep Batch: 70311

QC Preparation: 2011-07-06

Prepared By: AR

Param

LCS C

Spike Dil. Amount

<3.85

Spike

100

< 3.85

Matrix

Rec. Limit

Chloride

Result 95.8

Units mg/Kg

Dil.

Result 100 <3.85

Rec.

85 - 115

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

Param Chloride

LCSD Result Units 102 ıng/Kg

Spike Amount 100

Rec. Matrix Result Rec. Limit 102

85 - 115

RPD R.P.D

Limit 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:

Date Analyzed:

2011-07-11

Analyzed By: AR

Rec.

Prep Batch: 70311

QC Preparation:

2011-07-06

Prepared By:

Param

LCS F C Result 95.3 Chloride

Units

mg/Kg

Matrix Result Amount <3.85

Rec.

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

Param Chloride

LCSD FC Result

Units Dil. mg/Kg 1

Spike Amount 100

Dil.

Matrix Result Rec.

106

Rec.

Limit

85 - 115

RPD RPD Limit

20

Limit

85 - 115

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

106

Matrix Spike (MS-1)

Spiked Sample: 270989

QC Batch:

82929

Date Analyzed:

2011-07-11

Analyzed By: AR

Prep Batch: 70311

QC Preparation:

2011-07-06

Prepared By: AR

11

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 12 of 14

Eddy Co., NM

,			MS			Spike	Matrix		Rec.
Param	F	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			10300	mg/Kg	100	10000	390	99	80 - 120

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

1			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			10700	mg/Kg	100	10000	390	103	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: 271199

QC Batch:

82930

Date Analyzed:

2011-07-11

Analyzed By: AR

Prep Batch: 70311

QC Preparation: 2011-07-06

Prepared By: AR

				MS			Spike	Matrix		Rec.
Param	•	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride				11400	mg/Kg	100	10000	963	104	80 - 120

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

•			MSD			Spike	Matrix		Rcc.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			11700	mg/Kg	100	10000	963	107	80 - 120	3	20

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

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 13 of 14

Eddy Co., NM

# Calibration Standards

Standard (ICV-1)

QC Batch: 82929

Date Analyzed: 2011-07-11

Analyzed By: AR

				ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	99.5	100	85 - 115	2011-07-11

Standard (CCV-1)

QC Batch: 82929

Date Analyzed: 2011-07-11

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2011-07-11

Standard (ICV-1)

QC Batch: 82930

Date Analyzed: 2011-07-11

Analyzed By: AR

				ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	96.5	96	85 - 115	2011-07-11

Standard (CCV-1)

QC Batch: 82930

Date Analyzed: 2011-07-11

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
!				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	104	104	85 - 115	2011-07-11

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 14 of 14 Eddy Co., NM

# Appendix

### **Laboratory Certifications**

	Certifying	Certification	Laboratory
C	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
_	ḤUВ	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 <sub>1</sub>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.

TETRATECH   1910 N. Big Spring St.   1910 N.	TETRA TECH   Middle Spring St.   Middle Spring St.   Middle Middle Spring St.   Middle Middle Spring St.   Middle Middle Spring St.   Middle Middle Spring St.   Middle Middle Spring St.   Middle Middle Spring St.   Middle Middle Spring St.   Middle Middle Spring St.   Middle Middle Spring St.   Middle Middle Spring St.   Middle Middle Spring St.   Middle Middle Spring St.   Middle M	]	1	1		r					PAGE	<u> </u>	-	Ŕ	4	١.
TETRA TECH   1910 N. Big Spring St.   1910 N	TETRA TECH   Milliand, Texas 79705   Milliand, Texas	Analys		¥	ď	<u> </u>	lest of Chain of Custody Record			ANA	LYSIS R	EQUES	۱,			
TETRA TECH   1910 N ENG   191	TETRAL FECH   Middle   Middl								9	ircle a	Specify	Metho	d No.)	}	ŀ	
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1	St.   St.				- }			Cq C	CQ /	177				H' LD		
Second   S	Second   Colon   Col	CLIENT NAME:					Tarace	IXT BB 8/						d 'suc		
State   Demitted   State   S	SAMPLE IDENTIFICATION   Name	PROJECT NO.:	58		§8	ک ٿيا	Fedmel TB	.dom a	69		loV.lr		(tIA)			
S S S - 1 O - 1 (3 B E B)	SB-1 0-1 (3:BEB)	LAB I.D. DATE NUMBER 201	TIME				SAMPLE IDENTIFICATION  NUMBER OF FILTERED (PCL HU03	108 H9T 07\$8 HA9 steM AADR	TCLP Volati	HCI	GC.MS Sen	Срюйде	Alpha Beta			
S	S	T		1		×	SB-1 0-1,					×				
ST ST SEB	SG 2 (3' BEB)	97.6										×				
SB CB	15	ogb	-				<i>(3,</i>					×				
15' (3' BEB)	15' (3' BEB)	186					)					X				
SB 2 0-1 (4' BEB)	SB 2 0-1 (4' BEB)	<b>८३</b> ७	_				(3.					×				
25' (3' BEB)	SB-2 0-1 (4' BEB)	683					(3,					×				
SB 2 0-1 (4' BCB)	25' (3' BEB)	hgb	ļ 				(3:			_		×				
SB 2 0-1 (4' BFB)   Time: 10.45   Sample Br. (Print & Initial)   Fine: 10.45   Time:	SB 2 0-1 (4° BFB)	0,85					(3.									
SB-2 O-1 (4' BEB)	SB-2 0-1 (4' BKB)	<b>%</b> b					)									
Date:   6 JCJ   Received BY: (Signature)   Date:   C/C S S ANN-LE SHIPPED BY: (Circle)   ATRILL #:   Time:   C/C S S ANN-LE SHIPPED BY: (Circle)   ATRILL #:   Time:	Date:   Color   Date:   Color   Colo	787					1-0					×				
Time:   Time	Date: Time:	RELINGUISMED BY (Signer	1	[]	11	1 /	6 1271 RECEIVED BY: (SKinature)	Sample Sample	D BY: (Pr	int & Initia	¥	Ž	8 4	9 2	143	#
Date: Time: TeceIVED BY: (Signature) Date: Time: Time: Time: Tetra tech Courtact Person: Receive BY: (Signature) Time: Time: Time: Time: Time: Receive BY: (Signature) Time: T	Date: Time: Time: The RECEIVED BY: (Signature) Time: Time: Time: The Country FERSON: Time: Time: Time: Time: Time: Time: Time: The Country FERSON: Time: Time: Time: Time: Time: Time: Time: Time: Time: The Country Ferson: Time: Time: Time: The Country Ferson: Time: The Country Ferson: Time: The Country Ferson: The Country Fer	RELINQUISHED BY: (Signat	(auri	1	1		THE SAMED BY: (SIGNIBATE)	SAMPLE	SHIPPE	D BY: (Cin	(음 왕		AIRBI	 *   d		
PHONE: ZIP: DATE: TIME: NO. 10 1. 1	PHONE: ZIP: DATE: TIME: TIME: Yes Accounting receives Gold copy.	RELINOUISHED BY: (Signat	ture)		1		RECEIVED BY: (Signature)	TEITHA I	100 100 100 100 100 100 100 100 100 100	VIACT PE	PS:			Results	) Š	
MINING. DOCKS MINING. OF	REMARKS.  X A LASTS MICHOLOGICAL COPY to Tetra Tach - Project Manager retains Plnk copy - Accounting receives Gold copy.	HECEIVING LABORATORY: ADDRESS:	STATE	1		GNOT	RECEIVED BY: (Signature) ZIP: DAYE:	1	¥	( <u>-ģ</u>	20/11	d	<u> </u>	Authoria Yes	harges red:	1 -
	Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Plnk copy -	SAMPLE CONDITION WHE	N RECEIVED				REMARKS: LOCKZ MIN 10					:				

Report Date: January 26, 2012

Work Order: 12012001

Page Number: 1 of 4

### **Summary Report**

Ike Tavarez

Tetra Tech

1910 N. Big Spring Street

Midland, TX 79705

Report Date: January 26, 2012

Work Order: 12012001

Project Location: Eddy Co., NM

Project Name: COG/Dogwood Fed. #1 TB

Project Number: 114-6400858

i i			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
286929	AH-1 ()-1'	soil	2012-01-19	00:00	2012-01-19
286930	AH-1 1-1.51	soil	2012-01-19	00:00	2012-01-19
286931	AH-1 2-2.5'	soil	2012-01-19	00:00	2012-01-19
286932	AH-1 3-3.5'	soil	2012-01-19	00:00	2012-01-19
286933	AH-1 3.5-4'	soil '	2012-01-19	00:00	2012-01-19
286934	AH-2 0-1'	soil	2012-01-19	00:00	2012-01-19
286935	AH-2 1-1.5'	soil	2012-01-19	00:00	2012-01-19
286936	AH-2 2-2.5'	soil	2012-01-19	00:00	2012-01-19
286937	AH-2 3-3.5'	soil	2012-01-19	00:00	2012-01-19
286938	AH-2 3.5-4'	soil	2012-01-19	00:00	2012-01-19
286939	AH-3 0-1'	soil	2012-01-19	00:00	2012-01-19
286940	AH-3 1-1.5'	soil	2012-01-19	00:00	2012-01-19
286941	AH-3 2-2.5'	soil	2012-01-19	00:00	2012-01-19
286942	AH-3 3-3.5'	soil	2012-01-19	00:00	2012-01-19
286943	AH-3 4-4.5'	soil	2012-01-19	00:00	2012-01-19
286944	AH-3 5-5.5'	soil	2012-01-19	00:00	2012-01-19
286945	AH-4 0-1'	soil	2012-01-19	00:00	2012-01-19

			BTEX	TPH DRO - NEW	TPH GRO	
1 ;	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
286929 - AH-1 0-1'	< 0.100	1.02	4.49	21.5	1010	974
286934 - AH-2 0-1	< 0.0200	< 0.0200	< 0.0200	< 0.0200	< 50.0	3.77
286939 - AH-3 0-1'	< 0.0200	< 0.0200	< 0.0200	< 0.0200	<50.0	5.65
286945 - AH-4 0-1'	< 0.0200	< 0.0200	< 0.0200	< 0.0200	< 50.0	4.47

Sample: 286929 - AH-1 0-1'

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296 This is only a summary. Please, refer to the complete report package for quality control data.

Report Date: January 26, 2012		Work Order: 12012001	Page I	Page Number: 2 of 4		
į.						
Param	Flag	Result	Units	RL		
Chloride		1400	mg/Kg	4		
•						
Sample: 286930	- AH-1 1-1.5'					
Param	Flag	Result	Units	RL		
Chloride		1200	mg/Kg	4		
Sample: 286931	- AH-1 2-2.5'					
Param	Flag	Result	Units	RL		
Chloride		1240	mg/Kg	4		
,						
Sample: 286932	- AH-1 3-3.5'					
Param	Flag	Result	Units	RL		
Chloride		314	mg/Kg	4		
Sample: 286933	- AH-1 3.5-4 <sup>3</sup>					
Parain	Flag	Result	Units	RL		
Chloride		380	mg/Kg	4		
<del></del>						
Sample: 286934	- AH-2 0-1'					
Param	- <b>AH-2</b> 0-1' Flag	Result	Units	RL		
Param		Result <b>4190</b>	Units mg/Kg	RL 4		
Param Chloride	Flag	<del>-</del>				
Param Chloride Sample: 286935	Flag	<del>-</del>				
Sample: 286934 Param Chloride Sample: 286935 Param Chloride	Flag - AH-2 1-1.5'	4190	mg/Kg	4		
Param Chloride Sample: 286935 Param Chloride	Flag - AH-2 1-1.5' Flag	4190 Result	mg/Kg Units	4 RL		
Param Chloride Sample: 286935	Flag - AH-2 1-1.5' Flag	4190 Result	mg/Kg Units	4 RL		

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Report Date: January 26, 2012		Work Order: 12012001	Page Number: 3 of 4		
	···				
Sample: 286937	- AH-2 3-3.5'				
Param_	Flag	Result	Units	RL	
Chloride		<200	nig/Kg	4	
1					
Sample: 286938	- AH-2 3.5-4'				
Param	Flag	Result	Units	RL	
Chloride		<200	mg/Kg	4	
Sample: 286939 -	- AH-3 0-1'				
Param	Flag	Result	Units	RL	
Chloride		7220	mg/Kg	4	
Sample: 286940 Param Chloride	- AH-3 1-1.5'	Result 410	Units mg/Kg	RL 4	
Param	- AH-3 2-2.5' Flag	Result	Units		
Sample: 286941 - Param Chloride		Result <200	Units mg/Kg		
Param					
Param Chloride	Flag				
Param Chloride Sample: 286942	Flag - AH-3 3-3.5'	<200		4	
Param Chloride	Flag		mg/Kg	4 RL	
Param Chloride  Sample: 286942  Param Chloride	Flag - AH-3 3-3.5'	<200 Result	mg/Kg Units	4 RL	
Param Chloride Sample: 286942 Param Chloride	Flag - AH-3 3-3.5' Flag	<200 Result	mg/Kg Units	4 RL	
Param Chloride  Sample: 286942  Param Chloride	Flag - AH-3 3-3.5' Flag	<200 Result	mg/Kg Units	4 RL	
Param Chloride Sample: 286942 Param Chloride	Flag - AH-3 3-3.5' Flag - AH-3 4-4.5'	<200 Result	mg/Kg Units	RL 4	
Param Chloride  Sample: 286942  Param Chloride  Sample: 286943	Flag - AH-3 3-3.5' Flag	<200  Result  <200	mg/Kg Units mg/Kg	RL 4	
Param Chloride  Sample: 286942  Param Chloride  Sample: 286943	Flag - AH-3 3-3.5' Flag - AH-3 4-4.5'	<200    Result   <200	mg/Kg  Units  mg/Kg  Units	RL 4 RL	
Param Chloride  Sample: 286942  Param Chloride  Sample: 286943  Param Chloride	Flag - AH-3 3-3.5' Flag - AH-3 4-4.5' Flag	<200    Result   <200	mg/Kg  Units  mg/Kg  Units	RL 4	
Param Chloride  Sample: 286942  Param Chloride  Sample: 286943	Flag - AH-3 3-3.5' Flag - AH-3 4-4.5' Flag	<200    Result   <200	mg/Kg  Units  mg/Kg  Units	RL 4 RL 4	

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This is only a summary. Please, refer to the complete report package for quality control data.

Report Date: January 26, 2012

Work Order: 12012001

Page Number: 4 of 4

Sample: 286945 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		4050	mg/Kg	4

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### Analytical and Quality Control Report

Ike Tavarez

Tetra Tech

1910 N. Big Spring Street Midland, TX, 79705

FAX 915 • 585 • 4944

Report Date: July 12, 2011

Work Order:

PROGRAMMENT CONTRACTOR OF THE PROGRAMMENT OF THE PR

11070111 CORD CORT CORT CORE CORE CORE CORE CORE CORE

Project Location: Eddy Co., NM

Project Name: COG/Dogwood Fed. #1 TB

Project Number: 114-6400858

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
270978	SB-1 0-1 (3' BEB)	soil '	2011-06-27	00:00	2011-06-30
270979	SB-1 3' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270980	SB-1 5' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270981	SB-1 7' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270982	SB-1 10' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270983	SB-1 15' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270984	SB-1 20' (3' BEB)	soil	2011-06-27	00:00	2011-06-30
270987	SB-2 0-1' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270988	SB-2 3' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270989	SB-2 5' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270990	SB-2 7' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270991	SB-2 10' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270992	SB-2 15' (4' BEB)	soil	2011-06-27	00:00	2011-06-30
270993	SB-2 20' (4' BEB)	soil	2011-06-27	00:00	2011-06-30

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

This report consists of a total of 14 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

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

# Report Contents

Case Narrative	
Analytical Report	
Sample 270978 (SB-1 0-1 (3' BEB))	
Sample 270979 (SB-1 3' (3' BEB))	
Sample 270980 (SB-1 5' (3' BEB))	
Sample 270981 (SB-1 7' (3' BEB))	
Sample 270982 (SB-1 10' (3' BEB))	
Sample 270983 (SB-1 15' (3' BEB))	
Sample 270984 (SB-1 20' (3' BEB))	
Sample 270987 (SB-2 0-1' (4' BEB))	
Sample 270988 (SB-2 3' (4' BEB))	
Sample 270989 (SB-2 5' (4' BEB))	
Sample 270990 (SB-2 7' (4' BEB))	
Sample 270991 (SB-2 10' (4' BEB))	
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Method Blanks	10
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QC Batch 82929 - LCS (1)	
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QC Batch 82930 - MS (1)	1:
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Calibration Standards	13
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QC Batch 82929 - ICV (1)	
QC Batch 82929 - ICV (1)	1;
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QC Batch 82929 - ICV (1)  QC Batch 82929 - CCV (1)  QC Batch 82930 - ICV (1)  QC Batch 82930 - CCV (1)	1; 1; 1;
QC Batch 82929 - ICV (1)	1; 1; 1; 14
QC Batch 82929 - ICV (1)  QC Batch 82929 - CCV (1)  QC Batch 82930 - ICV (1)  QC Batch 82930 - CCV (1)	1; 1; 1; 14 14

### Case Narrative

Samples for project COG/Dogwood Fed. #1 TB were received by TraceAnalysis, Inc. on 2011-06-30 and assigned to work order 11070111. Samples for work order 11070111 were received intact at a temperature of 8.0 C.

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

ı		Prep	Prep	$_{ m QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
Chloride (Titration)	SM 4500-Cl B	70311	2011-07-06 at 08:36	82929	2011-07-11 at 14:06
Chloride (Titration)	SM 4500-Cl B	70311	2011-07-06 at 08:36	82930	2011-07-11 at 14:07

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 11070111 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.

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 5 of 14

Eddy Co., NM

# Analytical Report

Sample: 270978 - SB-1 0-1 (3' BEB)

Laboratory:

Midland

Analysis: Chloride (Titration)

QC Batch: 82929

Analytical Method: Date Analyzed:

SM 4500-Cl B 2011-07-11

Prep Method: N/A Analyzed By:

Prep Batch:

70311

Sample Preparation: 2011-07-06 Prepared By:

RL

Parameter Flag Cert Result Chloride 3700

Flag

Units mg/Kg Dilution 100

RL4.00

Sample: 270979 - SB-1 3' (3' BEB)

Laboratory:

Midland

Analysis: QC Batch: Chloride (Titration)

Analytical Method: Date Analyzed:

SM 4500-Cl B

Prep Method: N/A Analyzed By: AR.

Parameter

Chloride

82929

Sample Preparation:

2011-07-11 2011-07-06

Prepared By:

Prep Batch: 70311

RL

325

Cert Result

Dilution

50

RL

4.00

Sample: 270980 - SB-1 5' (3' BEB)

Laboratory: Analysis:

Midland

Chloride (Titration)

Analytical Method:

SM 4500-Cl B

Prep Method: N/A

QC Batch: Prep Batch: 82929

Date Analyzed: Sample Preparation:

Cert

2011-07-11 2011-07-06 Analyzed By: AR

70311

50

Units

mg/Kg

Prepared By:

Parameter Flag Chloride

RLResult <200

Units mg/Kg Dilution

RL4.00

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 6 of 14

Eddy Co., NM

Sample: 270981 - SB-1 7' (3' BEB)

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 82929 Prep Batch: 70311

Analytical Method: SM 4500-Cl B Date Analyzed: 2011-07-11 2011-07-06 Sample Preparation:

Prep Method: N/A Analyzed By: AR. Prepared By: AR.

RL

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

Sample: 270982 - SB-1 10' (3' BEB)

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 82929 Prep Batch: 70311 Analytical Method: SM 4500-Cl B Date Analyzed:

2011-07-11 Sample Preparation: 2011-07-06 Prep Method: N/A . Analyzed By: AR

AR.

Prepared By:

RL

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

Sample: 270983 - SB-1 15' (3' BEB)

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 82929 Prep Batch: 70311

ï

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2011-07-11 2011-07-06

Prep Method: N/A Analyzed By: AR Prepared By: AR.

RLParameter Flag Cert Result

<200

Dilution RL

Units 50 4.00Chloride mg/Kg

Sample: 270984 - SB-1 20' (3' BEB)

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 82929 Prep Batch: 70311

Analytical Method: SM 4500-Cl B Date Analyzed: 2011-07-11 Sample Preparation: 2011-07-06

Prep Method: N/A AR. Analyzed By: Prepared By: AR

Report Date 114-6400858	: July 12, 2011		Order: 1107 ogwood Fed.	Page Number: 7 of 14 Eddy Co., NM			
 			RL				
Parameter -	Flag	Cert	Result	Units	Dilution	RL	
Chloride			<200	mg/Kg	50	4.00	
1							
1							
İ							
Sample: 27	0987 - SB-2 0-1' (4' BEB)						
Laboratory:	Midland						
Analysis:	Chloride (Titration)		al Method:	SM 4500-Cl B	Prep Method:	N/A	
QC Batch:	82929	Date An		2011-07-11	Analyzed By:	AR	
Prep Batch:	70311	Sample l	Preparation:	2011-07-06	Prepared By:	AR.	
!			RL				
Parameter	Flag	Cert	Result	Units	· Dilution	RL	
Chloride	20		255	mg/Kg	50	4.00	
- ,	0988 - SB-2 3' (4' BEB)						
Laboratory: Analysis: QC Batch:	Midland Chloride (Titration) 82929	Date An		SM 4500-Cl B 2011-07-11 2011-07-06	Prep Method: Analyzed By: Prepared By:	AR	
Laboratory: Analysis: QC Batch:	Midland Chloride (Titration)	Date An	alyzed: Preparation:				
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 82929 70311	Date An Sample l	alyzed: Preparation: RL	2011-07-11 2011-07-06	Analyzed By: Prepared By:	AR AR	
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 82929	Date An	alyzed: Preparation: RL Result	2011-07-11 2011-07-06 Units	Analyzed By: Prepared By: Dilution	AR AR RL	
Sample: 276 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride	Midland Chloride (Titration) 82929 70311	Date An Sample l	alyzed: Preparation: RL	2011-07-11 2011-07-06	Analyzed By: Prepared By:		
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 82929 70311	Date An Sample l	alyzed: Preparation: RL Result	2011-07-11 2011-07-06 Units	Analyzed By: Prepared By: Dilution	AR AR RL	
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 82929 70311	Date An Sample l	alyzed: Preparation: RL Result	2011-07-11 2011-07-06 Units	Analyzed By: Prepared By: Dilution	AR AR RL	
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride	Midland Chloride (Titration) 82929 70311 Flag	Date An Sample l	alyzed: Preparation: RL Result	2011-07-11 2011-07-06 Units	Analyzed By: Prepared By: Dilution	AR AR RL	
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride  Sample: 270	Midland Chloride (Titration) 82929 70311 Flag 0989 - SB-2 5' (4' BEB)	Date An Sample l	alyzed: Preparation: RL Result	2011-07-11 2011-07-06 Units	Analyzed By: Prepared By: Dilution	AR AR RL	
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride  Sample: 270 Laboratory:	Midland Chloride (Titration) 82929 70311  Flag  0989 - SB-2 5' (4' BEB) Midland	Date An Sample I Cert	alyzed: Preparation: RL Result 320	2011-07-11 2011-07-06 Units mg/Kg	Analyzed By: Prepared By:  Dilution  50	AR AR RL 4.00	
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride  Sample: 270 Laboratory: Analysis:	Midland Chloride (Titration) 82929 70311  Flag  0989 - SB-2 5' (4' BEB)  Midland Chloride (Titration)	Date An Sample I	alyzed: Preparation: RL Result 320  al Method:	2011-07-11 2011-07-06 Units mg/Kg	Analyzed By: Prepared By:  Dilution  50  Prep Method:	AR AR RL 4.00	
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride  Sample: 27 Laboratory: Analysis: QC Batch:	Midland Chloride (Titration) 82929 70311  Flag  0989 - SB-2 5' (4' BEB) Midland	Date An Sample I  Cert  Analytic Date An	alyzed: Preparation: RL Result 320  al Method:	2011-07-11 2011-07-06 Units mg/Kg	Analyzed By: Prepared By:  Dilution  50	AR AR RI 4.00	
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride  Sample: 27  Laboratory: Analysis: QC Batch:	Midland Chloride (Titration) 82929 70311  Flag  0989 - SB-2 5' (4' BEB)  Midland Chloride (Titration) 82929	Date An Sample I  Cert  Analytic Date An	alyzed: Preparation: RL Result 320  al Method: alyzed: Preparation:	2011-07-11 2011-07-06 Units mg/Kg  SM 4500-Cl B 2011-07-11	Analyzed By: Prepared By:  Dilution  50  Prep Method: Analyzed By:	AR AR RI 4.00	
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride	Midland Chloride (Titration) 82929 70311  Flag  0989 - SB-2 5' (4' BEB)  Midland Chloride (Titration) 82929	Date An Sample I  Cert  Analytic Date An	alyzed: Preparation: RL Result 320  al Method: alyzed:	2011-07-11 2011-07-06 Units mg/Kg  SM 4500-Cl B 2011-07-11	Analyzed By: Prepared By:  Dilution  50  Prep Method: Analyzed By:	AR AR RL 4.00	

Report Date 114-6400858	: July 12, 2011	Work Order: 1107 COG/Dogwood Fed.		Page Number: 8 of 14 Eddy Co., NM			
Sample: 27	0990 - SB-2 7' (4' BEB)						
Laboratory; Analysis: QC Batch: Prep Batch;	Midland Chloride (Titration) 82930 70311	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-07-11 2011-07-06	Prep Method: Analyzed By: Prepared By:	N/A AR AR		
Parameter	Flag	RL Cert Result	Units	Dilution	RL		
Chloride	1.108	<200	mg/Kg	50	4.00		
Sample: 27 Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 82930 70311	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-07-11 2011-07-06	Prep Method: Analyzed By: Prepared By:	N/A AR. AR		
i		RL					
Parameter	Flag	Cert Result	Units mg/Kg	Dilution 50	R.L 4.00		
Laboratory:	0992 - SB-2 15' (4' BEB) Midland						
Analysis: QC Batch: Prep Batch:	Chloride (Titration) 82930 70311	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-07-11 2011-07-06	Prep Method: Analyzed By: Prepared By:	N/A AR AR		
, (	THE STATE OF THE S	RL	<b>T</b> T **	Dil vi	Dī		
Parameter Chloride	Flag	Cert Result	Units mg/Kg	Dilution 50	RL 4.00		
Chloride		343	mg/Kg		·4.		

Report Date: July 12, 2011 114-6400858 Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 9 of 14

Eddy Co., NM

D	T	

1			K.L			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			218	mg/Kg	50	4.00

Report Date: July 12, 2011 114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 10 of 14 Eddy Co., NM

# Method Blanks

Method Blank (1)

QC Batch: 82929

82929 QC Batch: Prep Batch: 70311

Date Analyzed: QC Preparation: 2011-07-06

2011-07-11

Analyzed By: AR.

Prepared By:

Parameter Chloride

Flag

Cert

MDLResult <3.85

Units mg/Kg RL4

Method Blank (1)

QC Batch: 82930

QC Batch: Prep Batch: 70311

Date Analyzed: QC Preparation:

2011-07-11 2011-07-06 Analyzed By: AR

Prepared By: AR

Parameter Chloride

Flag

Cert

MDL Result < 3.85

Units nig/Kg

RL4

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 11 of 14

Eddy Co., NM

# Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch:

Date Analyzed:

2011-07-11

Analyzed By: AR.

Prep Batch:

70311

QC Preparation: 2011-07-06 Prepared By: AR.

Rec.

96

Rec.

Limit

85 - 115

LCS Spike Matrix Parani Result Units Dil. Amount Result Chloride 95.8 mg/Kg 100 < 3.85 1

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

ĺ			LCSD			Spike	Matrix		Rec.		RPD
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	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: Prep Batch:

70311

Date Analyzed:

QC Preparation:

2011-07-11 2011-07-06 Analyzed By:

Prepared By:

LCS Spike Matrix Rec. Param ! F C Dil. Result Units Amount Result Rec. Limit Chloride 95.3<3.85 95 85 - 115 mg/Kg

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	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.

Matrix Spike (MS-1) Spiked Sample: 270989

QC Batch: Prep Batch: 70311

82929

Date Analyzed:

QC Preparation:

2011-07-11 2011-07-06 Analyzed By: AR

Prepared By: AR

 $114^{1}6400858$ 

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 12 of 14

Eddy Co., NM

1			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			10300	mg/Kg	100	10000	390	99	80 - 120

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

1			MSD			$\operatorname{Spike}$	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			10700	mg/Kg	100	10000	390	103	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: 271199

QC Batch: 85

Param

Chloride

82930

Date Analyzed:

11400

2011-07-11 2011-07-06 Analyzed By: AR

Prepared By: AR.

104

80 - 120

Prep Batch: 70311 QC Preparation:

MS Spike Matrix Rec.
C Result Units Dil. Amount Result Rec. Limit

10000

963

100

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

F

			MSD			Spike	Matrix		Rec.		RPD
Param ¦	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			11700	mg/Kg	100	10000	963	107	80 - 120	3	20

mg/Kg

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

114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 13 of 14

Eddy Co., NM

# Calibration Standards

Standard (ICV-1)

QC Batch: 82929

Date Analyzed: 2011-07-11

Analyzed By: AR.

				ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	99.5	100	85 - 115	2011-07-11

Standard (CCV-1)

QC Batch: 82929

Date Analyzed: 2011-07-11

Analyzed By: AR

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param <sup>t</sup>	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			nig/Kg	100	101	101	85 - 115	2011-07-11

Standard (ICV-1)

QC Batch: 82930

Date Analyzed: 2011-07-11

Analyzed By: AR.

1				ICVs	ICVs	ICVs	Percent	
,				True	Found	Percent	Recovery	Date
Param ,	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	96.5	96	85 - 115	2011-07-11

Standard (CCV-1)

QC Batch: 82930

Date Analyzed: 2011-07-11

Analyzed By: AR

	•	•		$rac{ ext{CCVs}}{ ext{True}}$	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	104	104	85 - 115	2011-07-11

Report Date: July 12, 2011 114-6400858

Work Order: 11070111 COG/Dogwood Fed. #1 TB Page Number: 14 of 14 Eddy Co., NM

## **Appendix**

#### Laboratory Certifications

~	Certifying	Certification	Laboratory
$^{\rm C}$	Authority	Number	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.

PAGE: OF: 2.	(Circle or Specify Method No.)	9	(Ext. to C:	74 CQ CQ AU	e8 av 88 av 88 av 850/625	A gA ale A gale A gale A gale A gale A gale A gale all a gale a g	BTEX 8021 HPH 801 PAH 8270		X		X		×	X			<b>X</b>	5374 SAMPLED BY: (Print & Initial) Kim Date: 6/27/11	(Circle) BUS	TETRA TECH CONTACT PERSON:   Results by:	4)	Authorizad: Yes NO	
<b>lest of Chain of Custody Record</b>			1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946		ER: Jamese		SAMPLE IDENTIFICATION  NUMBER OF HICK	X SB-1 0-1, (3.8es) 1   X	3' (3.Beb) 1 X	S. (3' BEB) 1   X	7. (3. Bed) 11   X	(3. Bes)	15' (3' BEB) 1 X	Zo' (3' BEB)	25' (3' BEB)  1   X	30. (3. BEB)     X	7	Date: 6/3/2/ (AECEIVED BY (Signature)) Date: 0/2/2	MEGENED BY: (Signature)	Derte: ARCEIVED BY. (Signature) Date:	RECEIVED BY: (Signature)	PHONE ZIP: TIME.	All tests-Midland
Analysis Request					[	8580	NUMBER 201 TIME EXTENTE	S 647 8 500C	Т	96	186	489	683	h8h	988	%b	1/486	RELINQUISHED BY (Signature)	RELINQUISHED BY: (Signature)	RELINGUISHED BY: (Signature)	RECEINING LABORATORY:	STATE	010c intact

Analysis Request of Chain of Custody Record ANALYSIS REQUEST ANALYSIS REQUEST (Circle or Specify Method No.)	Date: 5/20///  Δησε /6 4/5  Time:  Time:  Time:  The:	Fedurest of Chain of Custody Record  TETRA TECH  Tetra Tech  Tetra
--	---	--

Work Order: 12042419

Page Number: 1 of 2

#### **Summary Report**

Ike Tavarez Tetra Tech

1910'N. Big Spring Street Midland, TX 79705

Report Date: May 4, 2012

Work Order: 12042419 Particular des particular des particular des particular des particular de la companya de la comp

Project Location: Eddy Co., NM

COG/Dogwood Fed. #1 TB Project Name:

Project Number: 114-6400858

			Date	${f Time}$	Date
Sample	Description	Matrix	Taken	Taken	Received
295104	SB-3 0-1'	soil	2012-04-19	00:00	2012-04-24
295105	SB-3 2-3'	soil	2012-04-19	00:00	2012-04-24
295106	SB-3 4-5'	soil	2012-04-19	00:00	2012-04-24
295107	SB-3 6-7'	soil	2012-04-19	00:00	2012-04-24
295108	SB-3 8'	soil	2012-04-19	00:00	2012-04-24
295109	SB-3 9'	soil	2012-04-19	00:00	2012-04-24
295110	SB-3 10'	soil	2012-04-19	00:00	2012-04-24

Sample: 295104 - SB-3 0-1'

Parain	Flag	Result	Units	$_{ m RL}$
Chloride		11300	mg/Kg	4

Sample: 295105 - SB-3 2-3'

Param	$\operatorname{Flag}$	Result	Units	$_{\_\_}$ RL
Chloride		9030	mg/Kg	4

Sample: 295106 - SB-3 4-5'

Param	Flag	Result	Units	RL
Chloride		199	nıg/Kg	4

Report Date: May	4, 2012	Work Order: 12042419	Page Number: 2 of 2			
Sample: 295107	- SB-3 6-7	·				
Param	Flag	Result	Units	RL		
Chloride		125	mg/Kg_	4		
Sample: 295108	- SB-3 8'					
Parani	$\mathbf{F}$ lag	Result	Units	RL		
Chloride		134	mg/Kg	4		
İ						
Sample: 295109	- SB-3 9'					
Param	Flag	Result	Units	RL		
Chloride		218	mg/Kg	4		
1						
1						
Sample: 295110	- SB-3 10'	•				
Param	Flag	Result	Units	RL		
Chloride	-	59.4	mg/Kg	4		

PAGE:   OF:	ANALYSIS REQUEST	(Circle or Specify Method No.)	6		I At bq	15 BB Cd 260/624 2570/625	A gA ala A silies  illes  ivolatile  ivolati	PAH 8270 PCHP Meta TCLP Meta TCLP Semi FCI. GC.MS 5ei PCB's 808 PC	- X	33	<b>9</b>	<b>X</b>	<b>X</b>	5	5		SAMPLED BY: (Print & Initial) 7		FEDERAL SAMPLE SHIPPED BY (Untel) FEDERAL METERS. 1004 OTHER	ž	- The Tayles Authorized: No Yes	
	ady Record $$					PRESERVATIVE METHOD	(N/A	BLEX 8051 HAO3 HCF HOO7 HOF	× ~ ~						•		Oale: (1/2, 2	Time: 10: 20	Date: Time:	Date: Time:	TIME	
	Analysis Request of Chain of Custody Record		TETRATECH	1910 N. Big Spring St.	Minialiu, 18xas 737 03 (432) 682-4559 • Fax (432) 682-3946	SITE MANAGER: TK Tavarez	Fed	Eddy (S. NA SAMPLE IDENTIFICATION	1.00				. 83	)	10,		2 of 1 -   HEREIVED RIVERINE)	30 111	RECEIVED BY (Signature)	RECEIVED BY: (Signature)	RECEIVED BY: (Signature)	
	s Hednest (			19	<b>)</b>		PROJECT NAME:	METRIX  MATRIX  GRAB  BARB	5 X 63.3		2-25	7-25	5.23.2	53.5	A 5333		Date:	Time: [2]	Date:	Date:	STATE: 1/2 ZIP.	
	Analysi:				···	CLIENT NAME:	PROJECT NO.: 085	LAB I.D. DATE T	205104 41/14	105	901	COI	801	801	21		Manager (Slowers)	1 C C DX	AELINOUISHED BY: (Signature)	RELINGUISHED BY: (Signature)	RECEIVING LABORATORY: ADDHESS: M. CA   An C	SAMPLE CONDITION WHEN BECEIVED



200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 (BioAquatic) 2501 Mayes Rd., Suite 100

El Paso. Texas 79922 Texas 79703 Midland. Carrolizon. Texas 75006 915-565-3443 432-689-6301

FAX 915 - 585 - 4944 FAX 432-689-6313

972-242-7750

E-Mail lab@traceanalysis.com WEB' www.traceanalysis.com

#### Certifications

**NCTRCA** DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

### Analytical and Quality Control Report

Ike Tavarez

Tetra Tech

1910 N. Big Spring Street

Midland, TX, 79705

Report Date:

May 4, 2012

Work Order:

12042419

Eddy Co., NM Project Location:

Project Name: COG/Dogwood Fed. #1 TB

Project Number: 114-6400858

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	$\operatorname{Time}$	Date
Sample	Description	Matrix	Taken	Taken	Received
295104	SB-3 0-1'	soil	2012-04-19	00:00	2012-04-24
295105	SB-3 2-3	soil	2012-04-19	00:00	2012-04-24
295106	SB-3 4-5'	soil	2012-04-19	00:00	2012-04-24
295107	SB-3 6-7'	soil	2012-04-19	00:00	2012-04-24
295108	SB-3 8'	soil	2012-04-19	00:00	2012-04-24
295109	SB-3 9'	soil	2012-04-19	00:00	2012-04-24
295110	SB-3 10°	soil	2012-04-19	00:00	2012-04-24

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 12 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael abel

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

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Sample 295105 (SB-3 2-3')	!
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Sample 295107 (SB-3 6-7')	ļ
Sample 295108 (SB-3 8')	
Sample 295109 (SB-3 9')	-
Sample 295110 (SB-3 10')	(
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QC Batch 90862 - Method Blank (1)	
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Laboratory Control Spikes	ę
QC Batch 90860 - LCS (1)	ç
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#### Case Narrative

Samples for project COG/Dogwood Fed. #1 TB were received by TraceAnalysis, Inc. on 2012-04-24 and assigned to work order 12042419. Samples for work order 12042419 were received intact at a temperature of 1.4 C.

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

1		Prep	Prep	$_{ m QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
Chloride (Titration)	SM 4500-Cl B	770G1	2012-05-01 at 08:50	90860	2012-05-02 at 15:08
Chloride (Titration)	SM 4500-Cl B	77061	2012-05-01 at 08:50	90862	2012-05-02 at 15:09

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 12042419 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.

114-6400858

Work Order: 12042419 COG/Dogwood Fed. #1 TB Page Number: 5 of 12 Eddy Co., NM

### Analytical Report

Sample: 295104 - SB-3 0-1'

Laboratory:

Prep Batch:

Midland

Analysis: QC Batch:

Chloride (Titration) 90860 77061

Analytical Method: Date Analyzed:

SM 4500-Cl B

2012-05-02 Sample Preparation: 2012-05-01 Prep Method: Analyzed By:

AR. Prepared By: AR.

N/A

RL

Cert Result Units Dilution RLParameter Chloride 11300 mg/Kg 10 4.00

Sample: 295105 - SB-3 2-3'

Midland Laboratory:

Analysis:

Chloride (Titration)

QC Batch: 90860 Prep Batch: 77061

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2012-05-02 2012-05-01

Prep Method: N/A Analyzed By:

ARPrepared By:

RL

Cert Result Units Dilution RLParameter Flag 4.00 Chloride 9030 mg/Kg 10

Sample: 295106 - SB-3 4-5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 90860 Prep Batch: 77061

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B

2012-05-02 2012-05-01 Prep Method:

Analyzed By: ARPrepared By:

RLParameter Flag Cert Result Units Dilution 4.00 Chloride 199 mg/Kg

Report Date 114-6400858	: May 4, 2012	Work Order: COG/Dogwood			Page Number: 6 of 12 Eddy Co., NM		
Sample: 29	5107 - SB-3 6-7'						
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 90860 77061	Analytical Methorate Analyzed: Sample Preparat		SM 4500-Cl B 2012-05-02 2012-05-01	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
Parameter	Flag	Cert R∈	RL sult	Units	Dilution	$_{ m RL}$	
Chloride	1 mg		125	mg/Kg	5	4.00	
Sample: 29	5108 - SB-3 8'						
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 90860 77061	Analytical Metho Date Analyzed: Sample Preparat		SM 4500-Cl B 2012-05-02 2012-05-01	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
 Paraineter	Flag	Cert Re	RL sult	Units	Dilution	RL	
Chloride			134	ıng/Kg	5	4.00	
Sample: 29: Laboratory: Analysis: QC Batch: Prep Batch:	5109 - SB-3 9' Midland Chloride (Titration) 90862 77061	Analytical Methe Date Analyzed: Sample Preparat		SM 4500-Cl B 2012-05-02 2012-05-01	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
Parameter	Flag	-	RL sult	Units	Dilution	RL	
Chloride			218	mg/Kg	5	4.00	
Sample: 29 Laboratory: Analysis: QC Batch: Prep Batch:	5110 - SB-3 10'  Midland Chloride (Titration) 90862 77061	Analytical Metho Date Analyzed: Sample Preparat		SM 4500-Cl B 2012-05-02 2012-05-01	Prep Method: Analyzed By: Prepared By:	N/A AR AR	

Report Date: May 4, 2012 114-6400858

Work Order: 12042419 COG/Dogwood Fed. #1 TB

Page Number: 7 of 12 Eddy Co., NM

Ì	•		RL			
Parameter	$\operatorname{Flag}$	Cert	Result	Units	Dilution	RL
Chloride			59.4	mg/Kg	5	4.00

114 - 6400858

Work Order: 12042419 COG/Dogwood Fed. #1 TB Page Number: 8 of 12

Eddy Co., NM

### Method Blanks

Method Blank (1)

QC Batch: 90860

QC Batch: Prep Batch:

90860 77061

Date Analyzed: QC Preparation: 2012-05-02

2012-05-01

Analyzed By: AR

Prepared By: AR

MDL

Parameter

Flag

Result

Units

RLCert < 3.85 Chloride mg/Kg 4

Method Blank (1)

QC Batch: 90862

QC Batch: 90862 Prep Batch: 77061 Date Analyzed: QC Preparation:

2012-05-02 2012-05-01

Analyzed By: AR.

Prepared By: AR

MDL

RL

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

114-6400858

Work Order: 12042419 COG/Dogwood Fed. #1 TB Page Number: 9 of 12

Eddy Co., NM

### Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch:

Prep Batch: 77061

Date Analyzed: QC Preparation:

2012-05-02

2012-05-01

Analyzed By: AR

Prepared By: AR.

;			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	${ m Rec.}$	$\mathbf{Limit}$
Chloride			2420	mg/Kg	1	2500	< 3.85	97	85 - 115

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2490	mg/Kg	1	2500	<3.85	100	85 - 115	3	20

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

Laboratory Control Spike (LCS-1)

QC Batch:

Date Analyzed:

2012-05-02

Analyzed By: AR.

Prep Batch: 77061

QC Preparation: 2012-05-01

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2620	mg/Kg	1	2500	<3.85	105	85 - 115

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

•			LCSD			$\mathbf{Spike}$	Matrix		${ m Rec.}$		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2510	mg/Kg	1	2500	<3.85	100	85 - 115	4	20

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

Matrix Spike (MS-1) Spiked Sample: 295108

QC Batch: 90860 Prep Batch: 77061

Date Analyzed: QC Preparation:

2012-05-02 2012-05-01 Analyzed By: AR

Prepared By: AR

114-6400858

Work Order: 12042419 COG/Dogwood Fed. #1 TB Page Number: 10 of 12

Eddy Co., NM

1			MS			Spike	Matrix		Rec.
Param	F	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2350	mg/Kg	5	2500	134	89	79.4 - 120.6

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2420	mg/Kg	5	2500	134	91	79.4 - 120.6	3	20

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

Matrix Spike (MS-1) Spiked Sample: 295119

QC Batch: 90862

Date Analyzed:

2012-05-02

Analyzed By: AR

Prep Batch: 77061

QC Preparation:

2012-05-01

Prepared By: AR.

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			5070	mg/Kg	10	2500	2530	102	79.4 - 120.6

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

				MSD			Spike	Matrix		Rec.		RPD
Param	•	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		-		5250	mg/Kg	10	2500	2530	109	79.4 - 120.6	4	20

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

114-6400858

Work Order: 12042419 COG/Dogwood Fed. #1 TB Page Number: 11 of 12

Eddy Co., NM

# Calibration Standards

Standard (CCV-1)

QC Batch: 90860

Date Analyzed: 2012-05-02

Analyzed By: AR.

				$rac{ ext{CCV}s}{ ext{True}}$	CCVs Found	$\begin{array}{c} { m CCV}s \\ { m Percent} \end{array}$	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-05-02

Standard (CCV-2)

QC Batch: 90860

Date Analyzed: 2012-05-02

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		·	mg/Kg .	100	99.3	99	85 - 115	2012-05-02

Standard (CCV-1)

QC Batch: 90862

Date Analyzed: 2012-05-02

Analyzed By: AR

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	98.9	99	85 - 115	2012-05-02

Standard (CCV-2)

QC Batch: 90862

Date Analyzed: 2012-05-02

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-05-02

114-6400858

Work Order: 12042419 COG/Dogwood Fed. #1 TB Page Number: 12 of 12 Eddy Co., NM

## Appendix

#### Report Definitions

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

#### **Laboratory Certifications**

	Certifying	Certification	Laboratory
C	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HÙB	1752439743100-86536	Trace Analysis
-	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.

Work Order: 12042416

Page Number: 1 of 5

### **Summary Report**

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

Report Date: May 7, 2012

Work Order: 12042416

Project Location: Eddy Co., NM

Project Name: COG/Dogwood Fed. #1 TB

Project Number: 114-6400858

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
295076	CS-1 Bottom Hole 2'	soil	2012-04-19	00:00	2012-04-24
295077	CS-1 East Sidewall	soil	2012-04-19	00:00	2012-04-24
295078	CS-1 West Sidewall	soil	2012-04-19	00:00	2012-04-24
295079	CS-2 Bottom Hole 2'	soil	2012-04-19	00:00	2012-04-24
295080	CS-2 East Sidewall	soil	2012-04-19	00:00	2012-04-24
295081	CS-2 West Sidewall	soil	2012-04-19	00:00	2012-04-24
295082	CS-3 Bottom Hole 2'	soil	2012-04-19	00:00	2012-04-24
295083	CS-3 North Sidewall	soil	2012-04-19	00:00	2012-04-24
295084	CS-3 South Sidewall	soil	2012-04-19	00:00	2012-04-24
295085	CS-4 Bottom Hole 1'	soil	2012-04-19	00:00	2012-04-24
295086	CS-4 North Sidewall	soil	2012-04-19	00:00	2012-04-24
295087	CS-4 East Sidewall	soil	2012-04-19	00:00	2012-04-24
295088	CS-4 South Sidewall	soil	2012-04-19	00:00	2012-04-24
295089	CS-4 West Sidewall	soil	2012-04-19	00:00	2012-04-24
295090	CS-5 Bottom Hole 2' (AH-4)	soil	2012-04-19	00:00	2012-04-24
295091	CS-5 East Sidewall (AH-4)	soil	2012-04-19	00:00	2012-04-24
295092	CS-5 West Sidewall (AH-4)	soil	2012-04-19	00:00	2012-04-24
295093	CS-6 0-1'	soil	2012-04-19	00:00	2012-04-24
295094	CS-7 0-1'	soil	2012-04-19	00:00	2012-04-24
295095	Trench #1 3' (AH-4)	lioa	2012-04-19	00:00	2012-04-24
295096	Trench #1 4' (AH-4)	soil	2012-04-19	00:00	2012-04-24
295097	CS-8 Bottom Hole 3' (South Area)	soil	2012-04-19	00:00	2012-04-24
295098	CS-8 North Sidewall (South Area)	soil	2012-04-19	00:00	2012-04-24
295099	CS-8 East Sidewall (South Area)	soil	2012-04-19	00:00	2012-04-24
295100	CS-8 South Sidewall (South Area)	soil	2012-04-19	00:00	2012-04-24
295101	CS-8 West Sidewall (South Area)	soil	2012-04-19	00:00	2012-04-24

Report Date: May 7, 2012 Work Order: 12042416 Page Number: 2 of 5 BTEX Benzene Toluene Ethylbenzene Xylene Sample - Field Code (mg/Kg) (mg/Kg) (mg/Kg) (mg/Kg) 295079 - CS-2 Bottom Hole 2' < 0.0200 < 0.0200 < 0.0200 < 0.0200 Sample: 295076 - CS-1 Bottom Hole 2' Param Result Units RLChloride <20.0 mg/Kg 4 Sample: 295077 - CS-1 East Sidewall Param Flag Result Units RLChloride 24.4mg/Kg i Sample: 295078 - CS-1 West Sidewall Param Flag Result Units RLChloride 156 mg/Kg Sample: 295079 - CS-2 Bottom Hole 2' Param Flag Result Units RLChloride 161 mg/Kg Sample: 295080 - CS-2 East Sidewall Param Result Units RLChloride 215 mg/Kg Sample: 295081 - CS-2 West Sidewall Param Flag Result Units RLChloride 5830 mg/Kg Sample: 295082 - CS-3 Bottom Hole 2' Param Flag Result Units R.LChloride 3170 mg/Kg

· 1	7, 2012	Work Order: 12042416	Page 1	Number: 3 of 5
Sample: 295083	- CS-3 North Sidewall			
Faram	Flag	Result	Units	RI
Chloride	1 105	6950	mg/Kg	101
:				
Sample: 295084	- CS-3 South Sidewall			(
Param	Flag	Result	Units	RI
Chloride		3640	mg/Kg	4
Sample: 295085	- CS-4 Bottom Hole 1'			
Param	Flag	Result	Units	RL
Chloride		268	mg/Kg	4
Sample: 295086	- CS-4 North Sidewall			
Param	Flag	Result	Units	RI
Chloride		234	mg/Kg	4
			<u> </u>	
	- CS-4 East Sidewall Flag	Result 7840	Units mg/Kg	
Sample: 295087 Param Chloride			Units	
Sample: 295087 Param Chloride	Flag		Units	.4
Sample: 295087 Param Chloride Sample: 295088	Flag - CS-4 South Sidewall	7840	Units mg/Kg	4 RL
Sample: 295087 Param Chloride Sample: 295088 Param Chloride	Flag - CS-4 South Sidewall	7840 Result	Units mg/Kg Units	4 RL
Sample: 295087 Param Chloride Sample: 295088 Param Chloride	Flag - CS-4 South Sidewall Flag	7840 Result	Units mg/Kg Units	RL 4 RL 4
Sample: 295087 Param Chloride Sample: 295088 Param Chloride Sample: 295089	Flag  - CS-4 South Sidewall  Flag  - CS-4 West Sidewall	7840 Result 3170	Units mg/Kg  Units  units mg/Kg	RL 4
Sample: 295087 Param Chloride Sample: 295088 Param Chloride Sample: 295089 Param Chloride	Flag  - CS-4 South Sidewall  Flag  - CS-4 West Sidewall	Result 3170  Result <20.0	Units mg/Kg  Units mg/Kg  Units	RL 4
Sample: 295087 Param Chloride Sample: 295088 Param Chloride Sample: 295089 Param Chloride	Flag  - CS-4 South Sidewall Flag  - CS-4 West Sidewall Flag	Result 3170  Result <20.0	Units mg/Kg  Units mg/Kg  Units	RL 4

Chloride Sample: 295092 - CS-5 We Param Chloride Sample: 295093 - CS-6 0-1	Flag est Sidewall (	Result 4410	Units mg/Kg  Units mg/Kg  Units mg/Kg	
Chloride Sample: 295092 - CS-5 We Param Chloride Sample: 295093 - CS-6 0-1 Param	est Sidewall ( Flag	4410  (AH-4)  Result 64.6   Result	mg/Kg . Units mg/Kg	RL 4
Chloride Sample: 295092 - CS-5 We Param Chloride Sample: 295093 - CS-6 0-1 Param	est Sidewall ( Flag	4410  (AH-4)  Result 64.6   Result	mg/Kg . Units mg/Kg	RL 4
Sample: 295092 - CS-5 We Param Chloride  Sample: 295093 - CS-6 0-1 Param	Flag	Result 64.6  Result	Units mg/Kg  Units	4 RL
Param Chloride Sample: 295093 - CS-6 0-1	Flag	Result 64.6  Result	mg/Kg Units	RI.
Chloride Sample: 295093 - CS-6 0-1 Param	,	64.6 Result	mg/Kg Units	4 RL
 Sample: 295093 - CS-6 0-1 Param		Result	Units	RL
Param				
Param				
	Flag			RL 4
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•				
Sample: 295094 - CS-7 0-1	,			
	Flag	Result	Units	RL
Chloride		34.8	mg/Kg	4
:	·			
Sample: 295095 - Trench #	⊭1 3' (AH-4)			
Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4
Sample: 295096 - Trench #	≠1 4' (AH-4)		*	
Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4
;				
Sample: 295097 - CS-8 Bot	ttom Hole 3'	(South Area)		
Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4
; Sample: 295098 - CS-8 No	rth Sidewall	(South Area)		
_	Flag	Result	Units	RL
Chloride	146	69.7	mg/Kg	4

Report Date: May 7, 2	2012	Work Order: 12042416	Page N	Number: 5 of 5
Sample: 295099 - C	CS-8 East Sidewall	(South Area)		
Param	Flag	Result	Units	RL
Chloride		139	mg/Kg	4
Sample: 295100 - C	CS-8 South Sidewal Flag	ll (South Area)	Units	RL
Chloride		184	mg/Kg	4
Sample: 295101 - C	S-8 West Sidewall	(South Area)		
Sample: 295101 - C	CS-8 West Sidewall Flag	(South Area) Result	Units	RL

TETRATE  1910 N. Big Spring Midland, Texas 79 (432) 682-4559 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (432) 682-459 • Fax (4 (43	TETRATECH  TETRATECH  THE TRATECH		И	PAGE: / OF:	5	
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FED 611; Squaruly   Date:	P	) lest Siele rail			<i>Q</i>	
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FED BY: (Signature)   Date:   Control   Cont						
Page				-		
HED BY: (Signature)   Date:   FECEIVED BY: (Signature)   Date:   FEDEX   BUS   OTHER:		A SHELL	1000 S	SAMPLED BY: (Print & Initial)	),(	Date: 4//7//2
HED BY: (Signature)  Time:  LABORATOR:: TETRA TECH CONTACT PERSON:  TIME:  THE BY: (Signature)  Time: TETRA TECH CONTACT PERSON:  RECEIVED BY: (Signature)  Time: TETRA TECH CONTACT PERSON:  RECEIVED BY: (Signature)  Time: Tetra Tech CONTACT PERSON:  RECEIVED BY: (Signature)  Time: Tetra Tech CONTACT PERSON:  RECEIVED BY: (Signature)  THE CAND Delivered Contact Persons  Received BY: (Signature)  THE CAND DELIVERED CONTACT PERSON:  REMARKS:  THE CAND TECH CONTACT PERSON:  REMARKS:  THE CAND DELIVERED CONTACT PERSON:  REMARKS:  THE CAND DELIVERED CONTACT PERSON:  REMARKS:  THE CAND DELIVERED CONTACT PERSON:  REMARKS:  THE CAND DELIVERED CONTACT PERSON:  REMARKS:  THE CAND DELIVERED CONTACT PERSON:  REMARKS:  THE CAND DELIVERED CONTACT PERSON:  REMARKS:  THE CAND DELIVERED CONTACT PERSON:  REMARKS:  THE CAND DELIVERED CONTACT PERSON:  REMARKS:  THE CAND DELIVERED CONTACT PERSON:  THE C			Date: Time:	SAMPLE SHIPPED BY: (Circle) FEDEX BUS		ואפונו #: דעצים:
LABORATORY. Trace.  Archorages			Date:	TETRA TECH CONTACT PERSO		Results by:
Arafunct State: The Date: Time: Yes North Remarks: Date: Time: Yes	Trace			1	ф	RUSH Charges
LUDNO	And land STATE: 1		TIME			Yes No
	ONDITION WHEN RECEIVED:					
	to the					

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720 District III

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division** 1220 S. St Francis Dr. **Santa Fe, NM 87505** 

CONDITIONS

Action 205998

#### **CONDITIONS**

Operator:	OGRID:
Spur Energy Partners LLC	328947
9655 Katy Freeway	Action Number:
Houston, TX 77024	205998
	Action Type:
	[IM-SD] Incident File Support Doc (ENV) (IM-BNF)

#### CONDITIONS

Г	Created	Condition	Condition
	Ву		Date
	bhall	Historic documentation found in OCD files. Site has been deferred and contamination will need to be addressed at plugging and abandonment.	4/11/2023