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	on
	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
		Tuning Type Tunit Success	Lease No. 30-015-32927 NMNM-94594
医		N OF RELEASE h/South Line Feet from the East	/West Line County Eddy
10000000000000000000000000000000000000		° Longitude W 104.23523°	
	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?	707272 000 411
	By Whom? Josh Russo Was a Watercourse Reached? ☐ Yes ☒ No	Date and Hour 1/4/2012 10:54 am If YES, Volume Impacting the Wa 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 ha	ulers 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	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 act NMOCD marked as "Final Report" of contamination that pose a threat to gi	ions for releases which may endanger loes not relieve the operator of liability round water, surface water, human health
T. Carlot		OIL CONSERV	ATION DIVISION
	Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor:	Accepted for record NIMOCD
N. 1972.	Title: Project Manager	Approval Date:	Expiration Date:
Contain	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 8:56:07 AM	Clean up deferre til site abandon	nent

SITE	INF	ORM	ATIC	N
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	Report Type: Closure	Report
General Site Information:	区的经验的减少的特殊的复数形式的	京中の中央 中では、本 1 mm 12 mm

Site:	Dogwood Federal Tank Battery	
Company:	COG Operating LLC	
Section, Township and Range	Unit F - Section 25 - Township 17 Sout	th - Range 27 East
Lease Number:	30-015-32927	
County:	Eddy County	,
CDC.	32 48 352	104 14 115

 GPS:
 32 48.352
 104 14.11

 Surface Owner:
 Federal

Mineral Owner:

Directions:

From the intersection of Hwy 82 and Hwy 360, travel west on 82 4.3 miles, turn left on CR-225

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:

, o , , , o , o , , , , , , , , , , , ,	A Company of the Comp	er an une la tree la propriet la estada de la companya de la companya de la companya de la companya de la comp
Name:	Pat Ellis	lke Tavarez
Company:	COG Operating, LLC	Tetra Tech
Address:	550 W. Texas Ave. Ste. 1300	1910 N. Big Spring
P.O. Box		
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432) 686-3023	432-682-4559
Fax:	(432) 684-7137	
Email:	pellis@conchoresources.com	ike.tavarez@tetratech.com

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	0

WellHead Protection:	Ranking Score	Site Data	
Water Source <1,000 ft., Private <200 ft.	20		
Water Source >1,000 ft., Private >200 ft.	0	0	
Surface Body of Water:	Ranking Score	Site Data	
<200 ft.	20		
200 ft - 1,000 ft.	10		
>1,000 ft.	0	0	

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.

Tetra Tech

1910 North Big Spring, Midland.TX 79705

Tel 432.682.4559

Fax 432.682.3946

www.tetratech.com

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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

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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 yards³ 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.

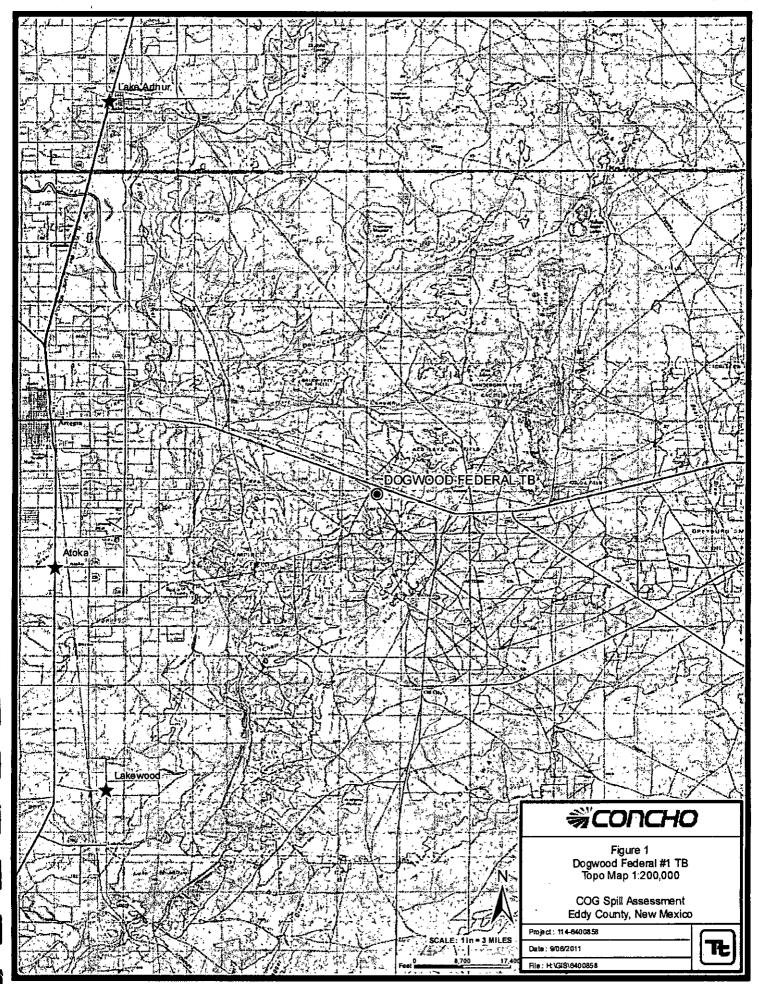
Respectfully submitted,

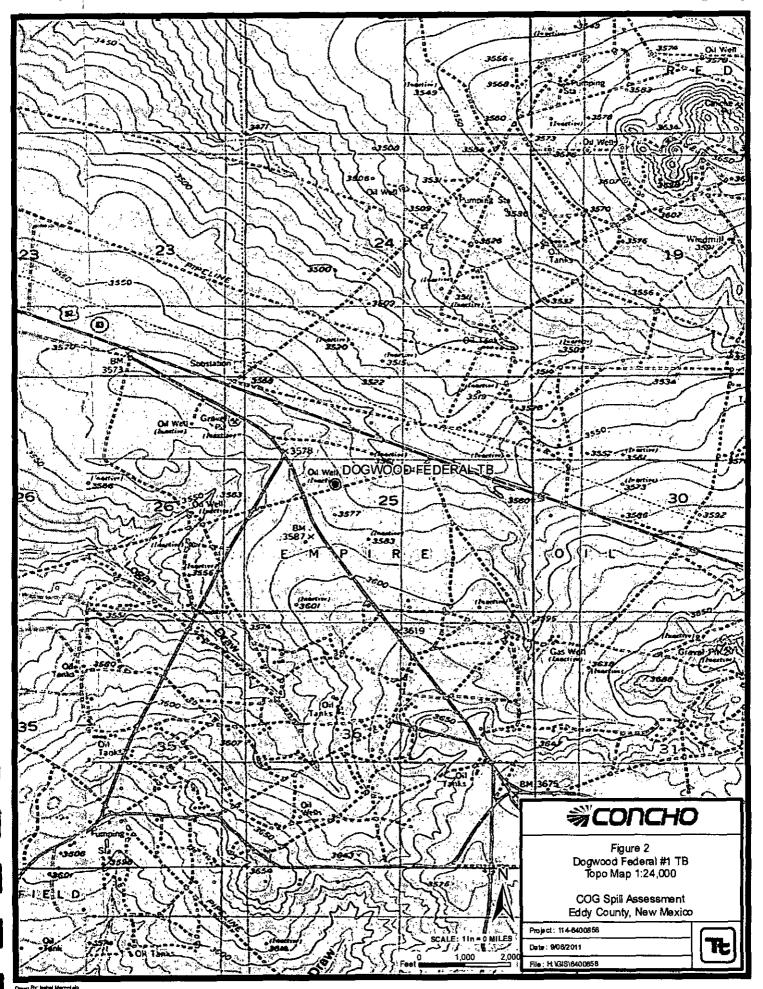
TETRA TECH

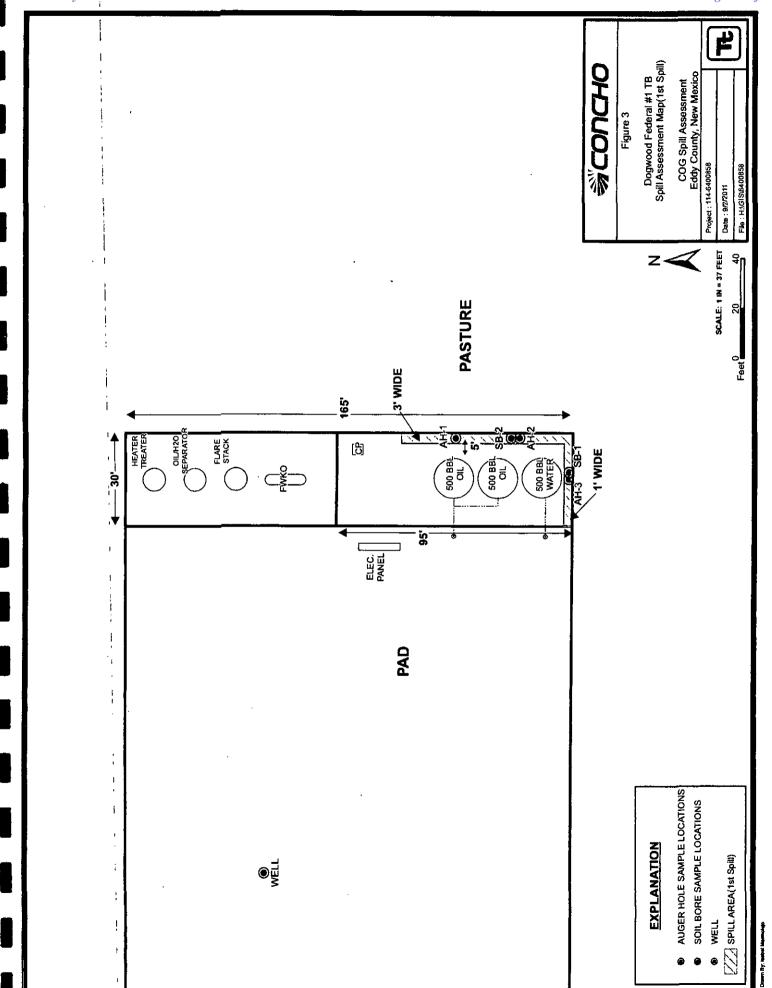
Ike Tavarez, PG Project Manager

cc: Pat Ellis - COG
Terry Gregston - BLM

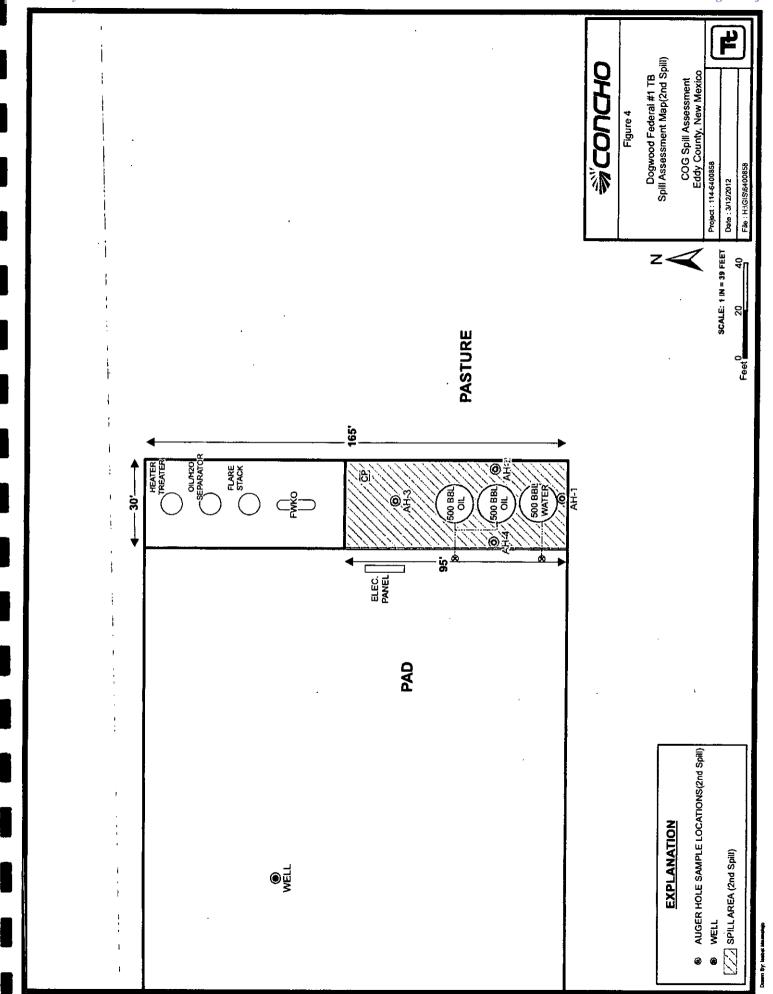
Figures



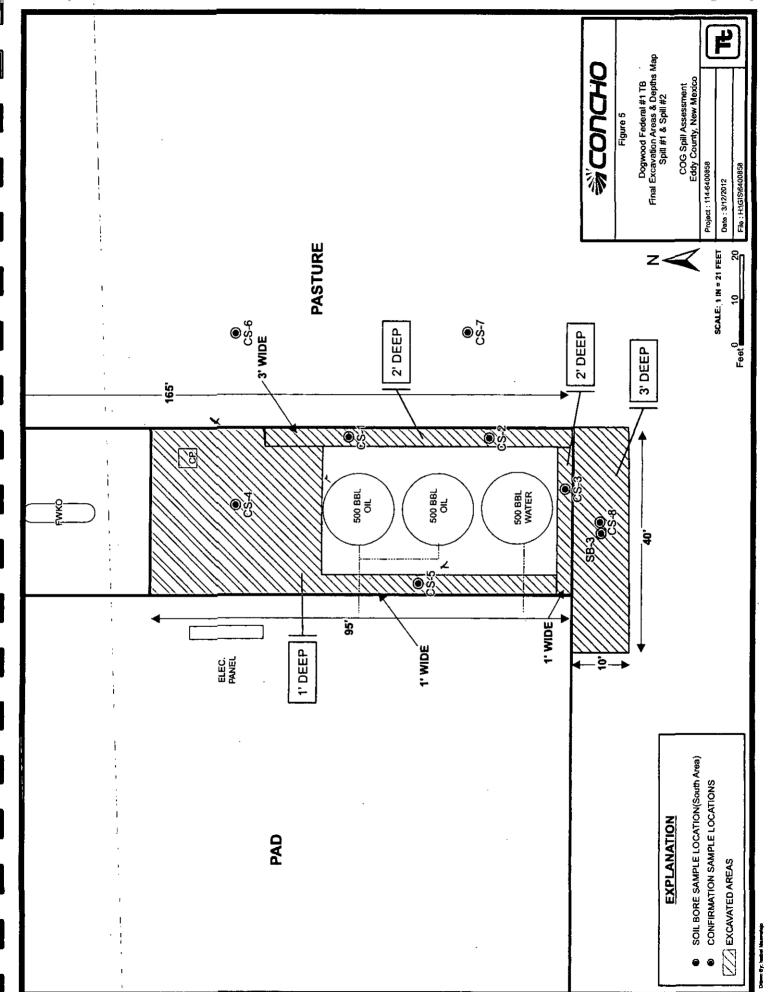




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Tables

COG Operating LLC. Table 1

DOGWOOD FEDERAL #1 TANK BATTERY - SPILL #1

	tecewed by OCD: 4/.	Chloride	(mg/kg)	007>	<200	<200	205	214	<200	9,780	3,430	1,750	252	370	2,330		255	320	390	<200	<200	343	218
	1	Total	BTEX (mg/kg)	<0.0200	4		,	-	•	172		r	,	,	,				,	1	•	-	
	1	Xvlene	(mg/kg)	<0.0200			-	1	•	82.1	* ±	P=_#*	ı	1	-		,	•	1	-	•	ę.	1
	1	Ethlybenzene	(mg/kg)	<0.0200	1	4	1	ŧ	; ;	40.6		\$,	ŧ	•		•	•	ŧ	1	ı	ı	ı
1	- SPILL #1	Toluene	(mg/kg)	<0.0200	-	•	1	•		45.5	-	•	•	•	-			ı	•	-	1	1	r
		Benzene	(mg/kg)	<0.0200		1	-	,	-	3.54	-	•	•	_	_		-	•	-	•	-	-	ı
	Table 1 G Operating LLC. AL #1 TANK BATTERY County, New Mexico	(b	Total	<50.0		•		,	•	2,262		•	-	-	1		-	-	-	-	•	•	,
1	Table 1 G Operating LLC. AL #1 TANK BATT County, New Mexi	TPH (mg/kg)	DRO	<50.0	,	•	ı	1	-	672			-	-				-	•	•	•	•	
1	COG C FEDERAL Eddy Cou	_	GRO	<2.00	1	1	•	1	-	1,590			•	1	•		•	1	•	•		1	•
	CO DOGWOOD FEDER	Soil Status	Removed							×	×	×									-		
1	OGWO	Soil	In-Situ	×	×	×	×	×	×			,	×	×	×	,	×	×	×	×	×	×	×
1)	1	8 E B													[;	4	4	4	4	4	4	4
	; ; ;	Sample	Depth (ft)	0-0.5	,1	2'	3.	4'	5'	0-0.5	-	2'	ෆ	-4	Ωï	;	0-1.	ਲ	ດົ	7'	10,	15,	20'
l	1		Date	3/25/2011	=	=	=	=	=	3/25/2011	=	=	=	#		77001=0,0	6/27/2011						
	Released to Imaging:	Sample	OI /2023	AH-1	6:07	'AN				AH-2				ļ			2P-2						

Table 1

COG Operating LLC.

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

aldmeS	Sample	Sample	0	Soil	Soil Status	1	TPH (mg/kg)	g)	Benzene	Toluene	Ethlvbenzene	Xvlene	Total	Chloride
□	Date	Depth (ft)	929	In-Situ	Removed	GRO	DRO	Total	(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	69.9	158	7,720
6:0 7	=	-	ı		X	15.6	<50.0	15.6	<0.0200	0.166	<0.0200	0.443	609.0	3,780
ÂM	=	2			×		•	₹* •		ı				2,490
	=	3,		×		•	-	,	•		-	1	-	5,060
	=	4'		×		•	,				1	,		2,140
SB-1	6/27/2011	0-1.	ص <u>.</u>		×	•1				•		-W	•	3,700
		3.	ë	×		,	•	•	•	ŧ	,	•	•	325
		5.	3	×		1	-	•	1	•	ı	1	,	<200
		7.	က	×		1	•	•	•	t	1	1	,	<200
		10,	જ	×		,	ı	,	•					<200
		15'	က	×		-			•	1	1	1		<200
		20,	ю	×		1	•	•	•		4	•		<200

Not Analyzed 1 Below Excavated Bottom BEB

Excavation Depth

Released to Imaging

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

Eddy County, New Mexico

Sample	Sample Date	Sample	Soil	Soil Status	_	TPH (mg/kg)	9)	Benzene	Toluene	Ethlybenzene	Xylene	Total	Chloride
<u>0</u>	Sample Date	Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	BIEX (mg/kg)	(mg/kg)
AH-1	1/19/2012	0-1		×	974	1,010	1,984	<0.100	1.02	4.49	21.5	27.01	1,400
	Ξ	1-1,5		×	-	•	'		•	, 1	1	ا يسمر	1,200
	=	2-2.5		×		·,t	3.	. ·	•		`1	-	1,240
	В	3-3.5	X		1	1	1	•	1	1	1	1	314
	2	3.5-4	X				· •	•		1	-	1	380
	0.000,000,0											1 1	
AH-Z	1/19/2012	- -		×	3.77	<50.0	3.77	.<0.0200	<0.0200	<0.0200	<0.0200	\$0.0200	4,190
:	±.	1-1.5	×		,	,	•	1	t	ı	1	•	435
	e.	2-2.5	X		-	-	,	-	•	ı	•		<200
	п	3-3.5	X		-	-	,	S			,		<200
	Ŧ.	3.5-4	X		-	-	,	•	•	Ţ	1		<200
AH-3	1/19/2012	0-1	, ,	×	5.65	<50.0	5.65	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	7,220
	=	1-1.5	×	_	,	,		-	•	1	•	1	410
	=	2-2.5	×		-	-	1	-	,	•	-		<200
	=	3-3.5	X		-	-	 	-		ţ			<200
	=	4-4.5	×		1	1	,	-	ı	,		,	<200
	= !	5-5.5	×		•	1	•	1	1	1	•	•	<200
AH-4	1/19/2012	0-1		×	4.47	<50.0	4 47	00000	00000	00000	000000	0000 041 0000 07	4 050
					:	2.55	7	×0.0200	20.0200	\$0.0200	<0.0200	\$<0.0200	4,050

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)	9)	Benzene	Toluene	Ethlybenzene	Xylene	Total	Chloride
Q	Date	Depth (ft)	In-Situ	In-Situ Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg) (mg/kg) (mg/kg) (mg/kg)	(mg/kg)	mg/kg)	(mg/kg)
SB-3	4/19/2012	0-1		×	1	•		•	1	•	1	_	11,300
		2-3'		×	-	ì				ě,			9,030
		4-5'	×		-	•	-	•	•	-	'		199
		6-7	X		-	•	•	•	•	1	-	-	125
		-ω	×		•	ı	•	•		1	•		134
		G	×		•	. •	•	•	•	1	ŧ		218
		10,	×		_	•	_	•	•	1	•	,	59.4

Not Analyzed

Excavation Depth

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

Eddy County, New Mexico

			i	ı									
Sample ID	Sample Date	Sample Depth (ft)	Soll Star	Status	GRO	IPH (mg/kg)	tg) Total	Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX (mg/kg)	Chloride (mg/kg)
CS-1 Bottom Hole	4/19/2012	2	×			,	•	1	,	-	'	,	<20.0
CS-1 East Sidewall	=	•	×			-	-	-			,		24.4
CS-1 West Sidewall	E.	,	×		•	•		4	•		Ţ		156
CS-2 Bottom Hole	4/19/2012	2	×		•		,	<0.0200	00000	00000	00000	00000	161
CS-2 East Sidewall	=	,	×			ı	-		•			,	215
CS-2 West Sidewall	п .	1	×		,	1	•	,	'	•	,	'	5,830
CS-3 Bottom Hole	4/19/2012	2	×		'	-	,	-		•	ı.	1	3,170
CS-3 North Sidewall	2	1	×		•	-	•	•	•	•	-		6,950
CS-3 South Sidewall	=	•	×		1	1	-	•	•	1	-	-	3,640
		ľ											
CS-4 Bottom Hole	4/19/2012	-	×		-	ı	•	,	1		1	,	268
CS-4 North Sidewall	=	,	×		J	1	•	7	•	1	-	,	234
CS-4 East Sidewall	n	•	×		•	1	•	•	,	,	-	,	7,840
CS-4 South Sidewall		ı	×		-	•	•		•	•	•	,	3,170
CS-4 West Sidewall	=	•	×		•	-	•	-	•	•	'	,	<20.0
CS-5 Bottom Hole	4/19/2012	2	×		-	-	-	-	-	-	ı	•	<20.0
CS-5 East Sidewall	E	•	×		'	-	-	•	-	_	-	•	4,410
CS-5 West Sidewall	*	,	×		•	-	•	-	-	_	-	-	64.6
9-S2	4/19/2012	0-1	×		,	-	, 	,	'	-	1	1	189
CS-7	4/19/2012	5-6-	×										3
	1.0101	-			'		•	'		•	•	- 	34.8

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

Eddy County, New Mexico

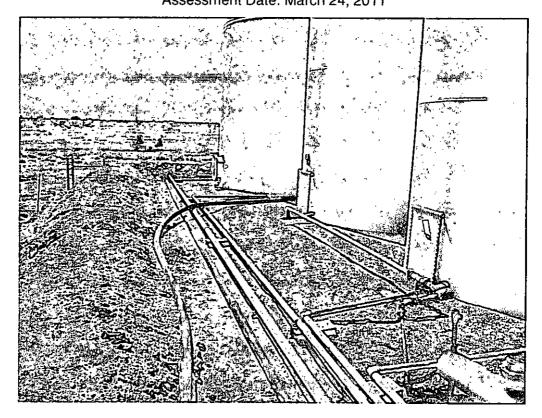
		Sample	Soil (Soil Status	1	TPH (mg/kg)	(b)	Benzene	Benzene Toluene	Ethlybenzene	Xylene	Total	Chloride
Sample ID	Sample Date	Depth (ft)	In-Situ	Removed	GRO	ONG	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	BTEX (mg/kg)	(mg/kg)
CS-8 Bottom Hole	4/20/2012	3	×		,	,	1		,	,	,	,	<20.0
CS-8 North Sidewall	=	1	×			,	ı	•	í	•	,	1	69.7
CS-8 East Sidewall	±	-	×		ı	,	ı	•	ı	1	1	,	139
CS-8 South Sidewall	£	•	×		1	•	1	,	-	-	•	•	184
CS-8 West Sidewall	в .	•	×		•		*	-	-	•	-	,	169
												j	
Trench #1	4/19/2012	3	X		1	-	•	•	•	1	-	'	<20.0
Trench #1	4/19/2012	4	×		,	ı	,	3	'		,	1	<20.0

(--) Not Analyzed

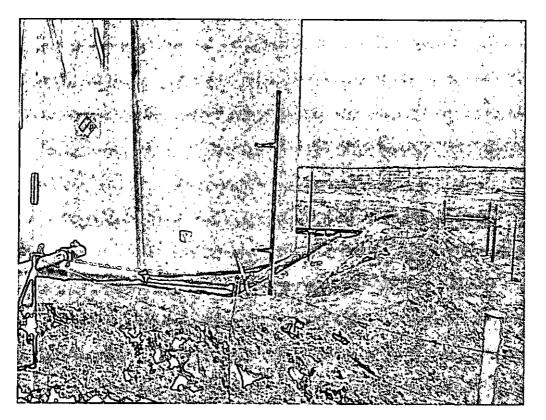
Photos



TETRATECT



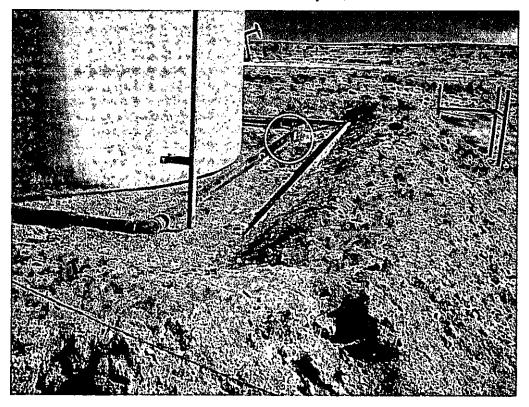
View south along backside of facility near AH-1 and AH-2



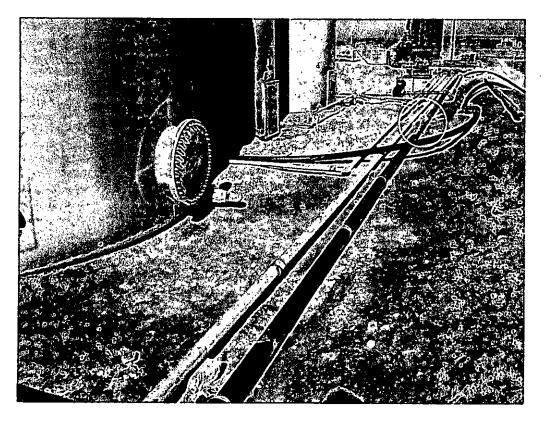
View east along southern edge of facility near AH-3







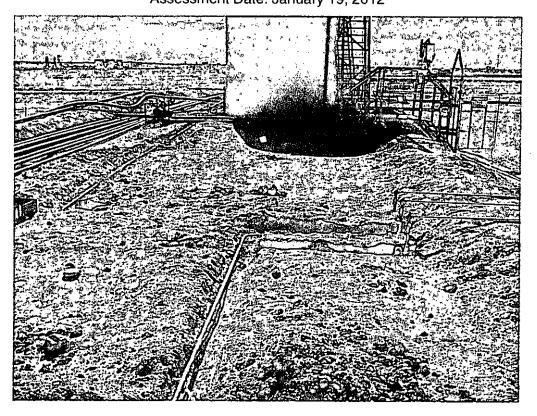
Southern edge of facility near AH-1



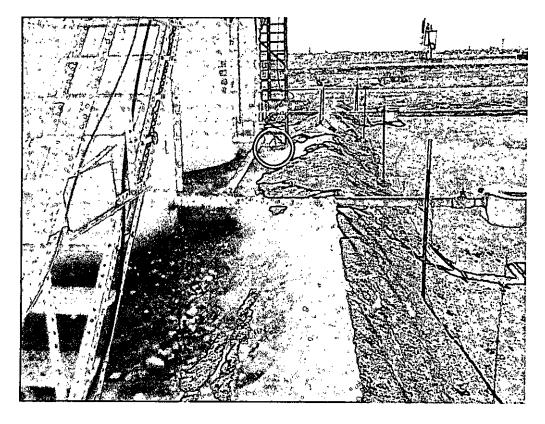
Backside of facility along eastern edge near AH-2



TETRA.



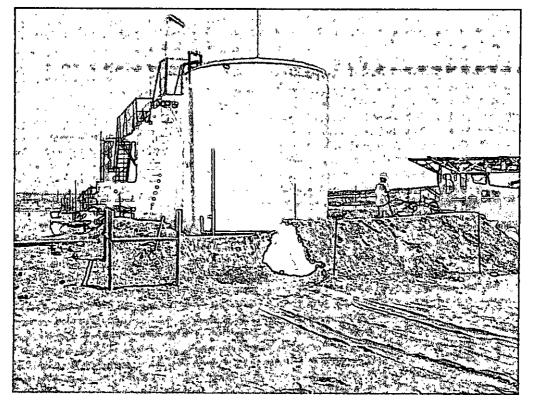
View south near AH-3 north of tanks



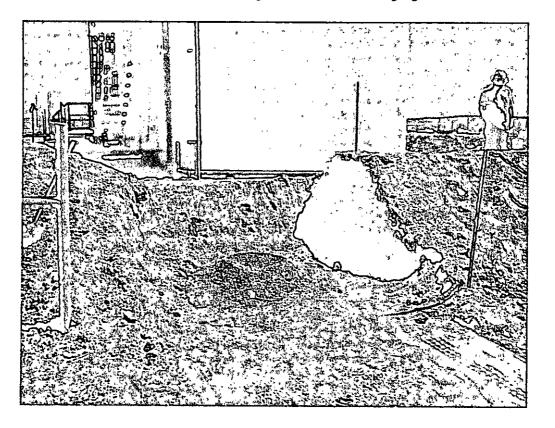
Front side of facility along western edge near AH-4





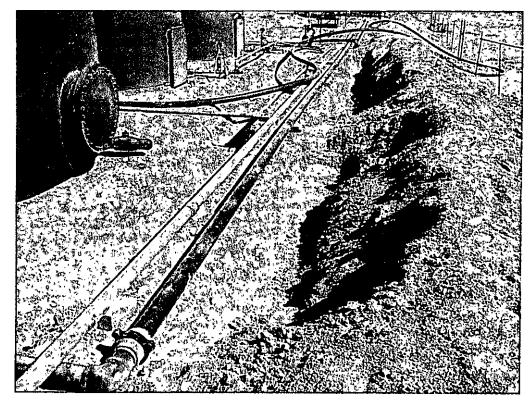


Removed berm to gain assess for drilling rig

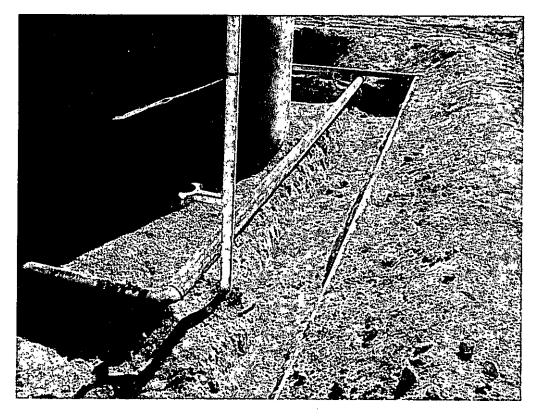


.SB-1 installed near AH-3

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

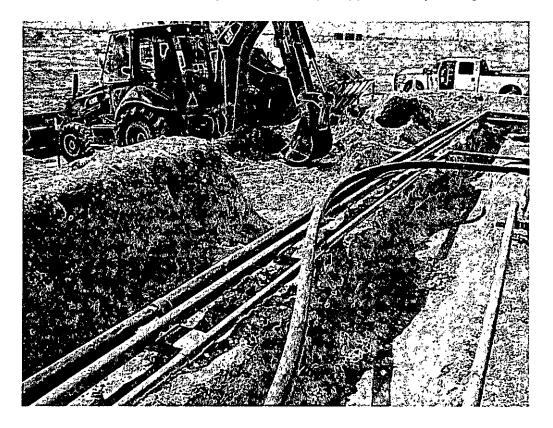
COG Operating LLC
Dogwood Federal (Spill #1)
Eddy County, New Mexico
Excavation Photos



TETRA TECH



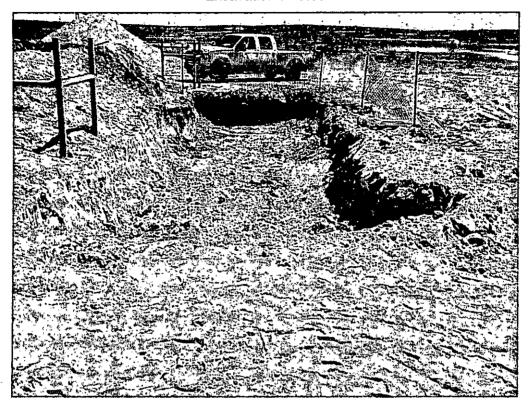
Backside of tank battery excavation depth approximately 1.0' bgs



South end of tank battery excavation depth approximately 1.0' bgs

TETRA TEC

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 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

										- بندر دند	
	}		NMNM-94594								
						OPERA'	TOR	_ ⊠ In	itial Report		Final Rep
Name of Co											
Address)1						
Pacility Na	me	Dogw	ood Fede	rai		Facility Ty	e Tan	k Battery			
Surface Ow	vner Fed	eral		Mineral (Owner			Leas			
	ì			LOCA	ATIO	N OF RE	LEASE				
Unit Letter F	Section 25	Township 17S		Feet from the	Norti	h/South Line	Feet from the	East/West Lin		Eddy	
	,	<u> </u>	L	Latitude 32	48.351	Longit	ade 104 14.115		<u></u>		··· ·
				NAT	URE						
Type of Rele											
Source of Re	lease Wate	r tank									
Was Immedia	ate Natice (liven?		-					ים מכיר וזמי	iir	
	!		Yes 🛭	No 🛛 Not R	equired						
By Whom?											
Was a Water	course Read					If YES, Vo	olume Impacting (he Watercourse.			
	ì		Yes 🗵	I No							
fa Watercou	irse was Im	pacted, Descr	ibe Fully.								-
Describe Car	se of Proble	en and Reme	fiel Action	Taken.*				 -			
Water haulers	s failed to p	ick up water a	ifter the w	ell was turned bac	ak on.						
Describe Are	a Affected a	and Cleanup A	uction Tak	en.*							
			s a1		- 4	OLL1te					
he spill site a	area to delin	este any poss	ible contac	mination from the	releas	e and we will p	resent a remediat	ion work plan to	the NMOCD	BLM fo	r approv
rior to any si	ignificant re	emediation wo	rk.			_		•			
hereby certi	fy that the i	nformation of	von abow	is true and comp	ete to	he best of my	knowledge and ur	derstand that me	remark to NMC	CD mile	and
egulations al	operators	are required to	report an	dior file certain n	elease i	notifications an	d perform correct	ive actions for n	leases which s	nay enda	nger
ublic health	or the envir	onment. The	acceptance	e of a C-141 repo	rt by th	ie NMOCD ma	rked as "Final Re	port" does not re	lieve the open	uor of lia	bility
nould tactro; c the environ	perations m iment. In si	ave mued to a ddition. NMO	CD acces opdasteri	investigate and re	ancum report c	te contaminati loes not relieve	a that pose a ture the operator of n	at to ground wet	er, stattace wat compliance wi	er, kuma ih sovot	n neatta her
ederal, state,	or local lav	s and/or regu	lations.								
							OIL CONS	ERVATION	DIVISIO	Ŋ	
		·									
ionature:		<u> </u>	—			Approved by 1	District Superviso	r:			
		Josh	Russo		 }						·
rinted Name			Russo ordinator			Approval Date	z	Expiration	Date:		
lignature: Printed Name Title: I-mail Addres	!		ordinator	es.com		Approval Date		Expiration			
rinted Name Title: -mail Addres	!	HSE Co	ordinator noresource	es.com -212-2399				Expiration	Date:		

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State of New Mexico Energy Minerals and Natural Resources

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

Form C-141 Revised October 10, 2003

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					anta r	e, NM 8/:	<u> </u>					
i (·	-	Rele	ase Notifi	catio	n and C	orrective A	ction				
						OPERA'	TOR	×	Initia	al Report		Final Repor
Name of C	ompany	COG OP	ERATIN	GLLC		Contact		at Ellis				
Address				dland, TX 7970	01	Telephone		230-0077				<u></u>
Facility Na			ood Fede			Facility Typ		k Battery				
Surface Ov	vner Fede	ral		Mineral	Owner			L	case N	lo. (API) NMN		
				· LOC	ATIO	N OF RE	LEASE					
Unit Letter	Section 25	Township 17S	Range 27E	Feet from the		/South Line	Feet from the	East/West	Line	County,	Eddy	_
	<u>.</u>			Latitude 32	48.245	Longit	ude 104 14.115	<u></u>		,		
,				NAT	TURE	OF REL	EASE					
Type of Rele	ase Produc	ed water					Release 105bbls	Vo	lumo R	lecovered	100Ы	ls
Source of Re	lease Wate	rtank				Date and I 01/03/201	Hour of Occurrence			Hour of Die 2 8:00 a.r		,
Was Immedi	ate Notice C		Yes 🛘	No Not R	Lequired	IF YES, To	Whom?	Mike Brate Jim Amo Terry Gregs	9-BLM	1		
By Whom? J	losh Russo					Date and I	lour 01/04/2012		itou-Di			·
Was a Water	course Reac		Yes ⊠	No		If YES, Vo	olume Impacting t	he Watercou	rse.		•	
If a Waterco	urse was lmj	acted, Descri	be Fully.*									
Describe Cau	use of Proble	m and Remed	lial Action	Taken.*								
Wells were to	umed off du	e to problems	with wate	r haulers and wh	en the w	elis were turr	ned back on the w	ater haulers :	vere na	ot notified i	n time.	
Describe Are	a Affected a	nd Cleanup A	ction Tak	en. *								
Tetra Tech w for approval	rill sample th prior to any	e spill site an significant rer	a to delina nediation	eate any possible work.	contam	ination from (ck. All of the flui the release and we	will present	the N	MOCD/BLI	M with	a work plan
regulations at public health should their o	il operators to or the environations has nment. In ac	re required to connent. The live failed to a Idition, NMO	report and acceptance dequately CD accept	d/or file certain r c of a C-141 repo investigate and r	release no ort by the emediate	otifications are NMOCD ma contamination	knowledge and us ad perform correct arked as "Final Re on that pose a thre e the operator of a	tive actions f port" does n at to ground	or rele ot relic water,	ases which we the oper surface wa	may en stor of ter, hus	idanger Tiability man health
		7 1		-			OIL CONS	ERVATI	ON I	DIVISIO	N	
Signature: Printed Name		Josh J	Russo			Approved by	District Superviso)F:				
Title:		HSE Co	ordinator			Approval Dat	e:	Expin	ation D	ate:		
E-mail Addre	:ss:	russo@conct	oresource	s.com		Conditions of	Approval:			Attached		
Date: 01/	16/2012	Phone:	432-2	112-2399	_				ļ			

Released to Imaging: 4/11/2023 8:56:07 AM

* Attach Additional Sheets If Necessary

District I
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State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Form C-141 Revised October 10, 2003

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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 Lease No. 30-015-32927 Mineral Owner NMNM-94594 LOCATION OF RELEASE Unit Letter Township North/South Line Feet from the Section Range Feet from the East/West Line County 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 bbls 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 laws and/or regulations OIL CONSERVATION DIVISION Signature: Approved by District Supervisor: Printed Name: Ike Tavarez (agent for COG) Expiration Date: Title: Project Manager Approval Date: E-mail Address: ike.tavarez@tetratech.com Conditions of Approval: Attached Phone: (432) 682-4559

District I
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State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe. NM 87505 Form C-141 Revised October 10, 2003

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

1220 (1. Dt. 114)	·	4 1 C, 1 1 1 C) C (C)		Sa	anta F	e, NM 875	05			Side of form
	!		Rele	ease Notific	catio	n and Co	rrective A	ction	_	•••
						OPERA?	ΓOR	□ In:	tial Report	☐ Final Report
Name of Co	ompany C	COG Operat	ting LLC	,		Contact Par				<u> </u>
				nd, Texas 7970	1	Telephone N	No. (432) 230-0	077		
Facility Na	me Dogwe	ood Federal				Facility Typ	e Tank Batte	ry		
Surface Ow	ner Feder	al		Mineral C	Owner				: No. 30-015 M-94594	5-32927
L								141411	141-24224	
F 7 1 8	T of the	- (:	La	•	· ·	N OF REI		- 	·····	
Unit Letter F	Section 25	Township 17-S	Range 27-E	Feet from the	Nort	h/South Line	Feet from the	East/West Lin	-	County Eddy
			ľ	Latitude N 32.8	80598	8° Longitud	e W 104.2352	3°		
				NAT	URE	OF RELI	EASE			
Type of Rele Produced Wa						Volume of 105 bbls	Release	Volume 100 bb	Recovered s	
Source of Re Water Tank						Date and H 1/3/2012	lour of Occurrence		d Hour of Dis 2 8:00 am	scovery
Was Immedi	ate Notice (Yes [] No ☐ Not Re	equired	Jim Amos	cher – OCD – BLM		,	
By Whom?	Josh Russo		·				gston - BLM lour 1/4/2012 10):54 am		
Was a Water							lume Impacting t			
			Yes 🛚	No		N/A				
If a Watercon	urse was Im	pacted, Descri	be Fully.*							
Describe Cau	se of Proble	em and Remed	dial Action	ı Taken.*						
Wells were to	: urned off du :	e to problems	with wate	r haulers and who	en the v	wells were turn	ed back on the w	ater haulers were	not notified i	n time
Describe Are	a Affected	and Cleanup A	Action Tak	en.*						
Controlled R report and su	ecovery, Inc bmitted to I	c. for proper d. NMOCD for re	lisposal. T	efine spills extent. The site was then	brough	t up to surface	grade with clean	backfill material	. Tetra Tech	prepared closure
regulations a public health should their or or the enviro	II operators or the enviro operations h nment. In a	are required to ronment. The ave failed to a	o report an acceptance dequately OCD accept	is true and compled/or file certain re e of a C-141 repoinvestigate and re tance of a C-141 a	elease i ort by th emedia	notifications an ne NMOCD ma te contamination	nd perform correct arked as "Final Room that pose a thro	tive actions for r eport" does not r eat to ground wa	eleases which elieve the ope er, surface wa	may endanger rator of liability ater, human health
Signature: L	M	1. U	<u> </u>					SERVATIO	<u>N DIVISIO</u>	<u>)N</u>
- Printed Name	e: Ike Tavar	ez (agent for (COG)	<u> </u>		Approved by	District Supervise	or:		
Title: Project	Manager					Approval Date	e:	Expiratio	n Date:	
E-mail Addre	ess: ike.tava	rez@tetratech	.com			Conditions of	Approval:		Attached	
Date:	12-1	12_	Phone	(432) 682-4559	-				1	

Appendix B

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

	15	South	13	26 East	1	6	15	South I4	3	7 East	1	6	15	South I4	3	28 East	<u>.</u> T1
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	29	28	27	26	25	30	29	28	27	26	25	30	29	61 28	27	26	- 2
	29 1	20	2'	20	27	150	25	20	70	20	23	30	29	20	2,	20	
_	32	33	34	35	36	31	32	33	34	35	36	31	32	33	34	35	3
	17.5	outh		26 East			17.5	South		7 East		<u> </u>	17	South		28 East	,
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	5	4	3	2	1	6	5	4	3	2	1	6	5	4	3	2	1
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		100	67			30	29	28	27	26	25	30	29	28	27	26	25
	29	28	27	20								<u> </u>	 				
		28	27 34	35	36	31	32	33	34	35	36	31	32	33	34	35	36

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	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	
	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.

	l 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	Units	RL
Chloride		<200	mg/Kg	4.00
			<u></u>	
\				•
Sample: 261893	- AH-1 2'			
Param	Flag	Result	Units	RL
Chloride	_ <u></u>	<200	mg/Kg	4.00
1				
Sample: 261894	- AH-1 3'			
Param	Flag	Result	Units	RL
Chloride		205	mg/Kg	4.00
-				
Sample: 26 1895	- AH-1 4'			
Sample: 261895 -	- AH-1 4'	Result	Units	
Sample: 261895		Result 214	Units mg/Kg	
Sample: 261895 -				
Sample: 261895 Param Chloride	Flag			
Sample: 261895 Param Chloride	Flag			4.00
Sample: 261895 Param Chloride Sample: 261896	Flag	214	mg/Kg	4.00 RL
Sample: 261895 Param Chloride Sample: 261896	Flag	214 Result	mg/Kg Units	4.00 RL
Sample: 261895 Param Chloride Sample: 261896 Param Chloride	Flag - AH-1 5' Flag	214 Result	mg/Kg Units	4.00 RL
Sample: 261895 Param Chloride Sample: 261896 Param Chloride	Flag - AH-1 5' Flag - AH-2 0-0.5'	214 Result	mg/Kg Units mg/Kg	4.00 RL 4.00
Sample: 261895 Param Chloride Sample: 261896 Param Chloride	Flag - AH-1 5' Flag	214 Result <200	mg/Kg Units	4.00 RL 4.00
Sample: 261895 Param Chloride Sample: 261896 Param Chloride Sample: 261897	Flag - AH-1 5' Flag - AH-2 0-0.5'	Result <200	mg/Kg Units mg/Kg Units	4.00 RL 4.00 RL
Sample: 261895 Param Chloride Sample: 261896 Param Chloride Sample: 261897	Flag - AH-1 5' Flag - AH-2 0-0.5' Flag	Result <200	mg/Kg Units mg/Kg Units	4.00 RL 4.00 RL
Sample: 261895 Param Chloride Sample: 261896 Param Chloride Sample: 261897 Param Chloride	Flag - AH-1 5' Flag - AH-2 0-0.5' Flag	Result <200	mg/Kg Units mg/Kg Units	RL 4.00 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.

Report Date: April 6, 2011		Work Order: 11032820	Page	Number: 3 of 4
Sample: 261899	- AH-2 2'			···
Param	Flag	Result	Units	RL
Chloride		1750	mg/Kg	4.00
ı				
Sample: 261900	- AH-2 3'			
Param	Flag	Result	Units	_ RL
Chloride		252	nig/Kg	4.00
I				
 Sample: 261901	- AH-2 4'			
Param	Flag	Result	Units	RL
Chloride		370	mg/Kg	4.00
Sample: 261902 Param Chloride	Flag	Result 2330	Units mg/Kg	RL 4.00
Sample: 261903 -	- AH-3 0-0.5'			
Param	Flag	Result	Units	RL
Chloride	·	7720	mg/Kg	4.00
Sample: 261904 -	- AH-3 1'			
Parani	Flag	Result	T1=:4=	חת
Chloride	r kitg	3780	Units mg/Kg	RL 4.00
f				
Sample: 261905 -	· AH-3 2'			
Param	Flag	Result	Units	RL
Chloride		2490	mg/Kg	4.00
,				
Sample: 261906 -	· AH-3 3'			
n .)	Flag	Result	Units	RL
Param Chloride	1 106	I (MOLITO	Onto	111

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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.



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

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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

Midland: T104704392-08-TX

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

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.

	1			Date	${f Time}$	Date
Sample	1	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

•			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.

		Prep	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	$\mathrm{S}~8021\mathrm{B}$	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

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	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:

Chloride (Titration)

Analytical Method: Date Analyzed:

SM 4500-Cl B 2011-03-31

Prep Method: N/A Analyzed By: AR

QC Batch: Prep Batch:

79935 67767

Sample Preparation:

2011-03-29

Prepared By: AR.

RL

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

Sample: 261891 - AH-1 0-0.5'

Laboratory:

Midland

Analysis:

TPH DRO - NEW

Analytical Method: Date Analyzed:

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

QC Batch: Prep Batch: 67823

79924

Sample Preparation: 2011-03-30

Prepared By: kg

RL

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

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

,					\mathbf{Spike}	Percent	Recovery
Surrogate	\mathbf{Flag}	Result	Units	Dilution	Amount	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

Prep Batch:

Analysis: Chloride (Titration) QC Batch: 79935

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

, Diam D

RL

RL

Sample: 261893 - AH-1 2'

Laboratory: Midland

Prep Batch:

Analysis: Chloride (Titration)
QC Batch: 79935

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

ParameterFlagResultUnitsDilutionRLChloride<200</td>mg/Kg504.00

Report Date: April 6, 2011 114-6400858		Work Order: 110 COG/Dogwood Fed		Page Number: 6 of Eddy Co., N		
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: 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	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

¹Estimated concentration value greater than standard range.

²High surrogate recovery due to peak interference. ³High surrogate recovery due to peak interference.

Released to Imaging: 4/11/2023 8:56:07 AM

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

Parameter Fl GRO	ag	RL Result		Units	, Б	Pilution	RL
GRO	·- <u>-</u> -	1590		mg/Kg			2.00
Surrogate)	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BF	B) 4	$\frac{11.6}{33.3}$	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: ME Prepared By: ME

RLFlag Parameter Result Units Dilution RLBenzene < 0.0200 mg/Kg 0.0200 1 Toluene < 0.0200 mg/Kg1 0.0200 Ethylbenzene < 0.0200 mg/Kg 1 0.0200Xylene 0.379 mg/Kg 1 0.0200

ł					Spike	Percent	Recovery
Surrogate;	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorot olivene (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

Flag

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

⁴High surrogate recovery due to peak interference.

⁵High 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: Analyzed By: 2011-04-05 kg Prep Batch: 67966 Sample Preparation: 2011-04-05 Prepared By: kg RLFlag Parameter Result Units RLDilution DRO < 50.0 50.0 mg/Kg Spike Percent Recovery Surrogate Result Flag Units Dilution Amount Recovery Limits 70 - 130 n-Tricosane 77.6 $\overline{100}$ mg/Kg 78 1 Sample: 261898 - AH-2 1' Midland Laboratory: Analysis: TPH GRO 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 RLGRO 9.87mg/Kg 1 2.00Spike Percent Recovery Recovery Surrogate Flag Result Units Dilution Amount Limits Trifluorotoluene (TFT) 2.90 48.5 - 152 mg/Kg 2.00 145 1 4-Bromofluorobenzene (4-BFB) 2.90 mg/Kg 1 2.00 145 42 - 159 Sample: 261899 - AH-2 2' Laboratory: Midland

*		\mathtt{RL}			
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		0.441	mg/Kg	1	0.0200

S 8021B

2011-04-05

2011-04-05

Prep Method:

Analyzed By:

Prepared By:

S 5035

ME

ME

Analytical Method:

Sample Preparation:

Date Analyzed:

BTEX

80090

67957

Analysis:

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	1	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 Sample Preparation: 2011-03-29

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

RLResult Parameter Flag Units Dilution RL Chloride -1750100 mg/Kg 4.00

Sample: 261899 - AH-2 2'

Laboratory: Midland

Prep Batch:

Analysis: { TPH DRO - NEW QC Batch: 80098 67966

Analytical Method: Date Analyzed: Sample Preparation: S 8015 D 2011-04-05 2011-04-05

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

RLFlag Result Parameter Units Dilution RL $\overline{\mathrm{DRO}}$ < 50.0 mg/Kg 50.0 î

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

S 8015 D Analytical Method: Date Analyzed: 2011-04-05 Sample Preparation: 2011-04-05

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

RLParameter Flag Result Dilution Units RL $\overline{36.8}$ GRO 2.00mg/Kg

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_i

Chloride :

•									
Report Date: April 6, 2011 114-6400858			k Order: Dogwood l	11032820 Fed. #1 TB		Page Number: 12 of 36 Eddy Co., NM			
Sample: 261903 - AH-3 0-0.	5'								
 Laboratory: Midland									
Analysis: BTEX		Analytical I	Method	S 8021B		Prep Met	hod: S	5035	
QC Batch: 80015		Date Analy		2011-04-02		Analyzed		E	
Prep Batch: 67886		Sample Pre		2011-04-01		Prepared		Œ	
i		Daispio 1 10	ratuon.	2011 01 01		2 topulou	25. 111		
ı		RL							
Parameter Fla	g	Result		Units		Dilution		RL	
Benzene		6.09		mg/Kg		50		.0200	
Toluene '		45.2		${ m mg/Kg}$		50		.0200	
Ethylbenzene		36.5		$_{ m mg/Kg}$		50	0.	.0200	
Xylene [†]		69.9	<u> </u>	mg/Kg		50	0.	.0200	
	·				Spike	Percent	Reco	very	
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Lin	iits	
Trifluorotoluene (TFT)		51.9	mg/Kg	50	50.0	104	52.8 -	- 137	
4-Bromofluorobenzene (4-BFB)		65.9	mg/Kg	50	50.0	132	38.4 -	- 157	
Laboratory: Midland Analysis: Chloride (Titratio QC Batch: 79936	n)		ical Metho	od: SM 4500-	-Cl B	Prep M	athod:	N/A	
Prep Batch: 67767		Sample	malyzed: e Preparat	2011-03-3	31	Analyze Prepare	d By:	AR AR	
Prep Batch: 67767		Sample RL	•	2011-03-3 ion: 2011-03-2	31	Analyze Prepare	d By:	AR AR	
•		Sample	•	2011-03-3	31	Analyze	ed By:	AR AR RL	
Prep Batch: 67767 Parameter Flag Chloride Sample: 261903 - AH-3 0-0.8 Laboratory: Midland		Sample RL Result 7720	e Preparat	2011-03-3 ion: 2011-03-2 Units mg/Kg	31 29	Analyze Prepare Dilution 100	d By:	AR. AR. RL 4.00	
Prep Batch: 67767 Parameter Flag Chloride Sample: 261903 - AH-3 0-0.9 Laboratory: Midland Analysis: TPH DRO - NEW		Sample RL Result 7720 Analy	e Preparat	2011-03-3 ion: 2011-03-2 Units mg/Kg	31 29	Analyze Prepare Dilution 100	d By: d By:	AR AR RL	
Prep Batch: 67767 Parameter Flag Chloride Sample: 261903 - AH-3 0-0.9 Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924		Sample RL Result 7720 Analy Date	e Preparat tical Meth	2011-03-3 ion: 2011-03-2 Units mg/Kg od: S 8015 I 2011-03-	31 29	Analyze Prepare Dilution 100	d By: d By:	AR. AR. RL 4.00	
Prep Batch: 67767 Parameter Flag Chloride Sample: 261903 - AH-3 0-0.9 Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924		Sample RL Result 7720 Analy Date	e Preparat	2011-03-3 ion: 2011-03-2 Units mg/Kg od: S 8015 I 2011-03-	31 29 0 30	Analyze Prepare Dilution 100	ed By: d By: ethod: d By: l	AR AR RL 4.00	
Prep Batch: 67767 Parameter Flag Chloride Sample: 261903 - AH-3 0-0.9 Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924		RL Result 7720 Analy Date Samp	e Preparat tical Meth	2011-03-3 ion: 2011-03-2 Units mg/Kg od: S 8015 I 2011-03-	31 29 0 30	Analyze Prepare Dilution 100 Prep Me Analyze	ed By: d By: ethod: d By: l	AR AR RL 4.00	
Prep Batch: 67767 Parameter Flag Chloride Sample: 261903 - AH-3 0-0.9 Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924 Prep Batch: 67823		Sample RL Result 7720 Analy Date	e Preparat tical Meth	2011-03-3 ion: 2011-03-2 Units mg/Kg od: S 8015 I 2011-03-	31 29 0 30	Analyze Prepare Dilution 100 Prep Me Analyze	ed By: d By: ethod: d By: l	AR AR RL 4.00	
Parameter Flag Chloride Sample: 261903 - AH-3 0-0.9 Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924 Prep Batch: 67823 Parameter Flag		RL Result 7720 Analy Date Samp	e Preparat tical Meth	2011-03-3 ion: 2011-03-2 Units mg/Kg od: S 8015 I 2011-03-1 tion: 2011-03-1	31 29 0 30	Analyze Prepare Dilution 100 Prep Me Analyze Prepare	ethod: Id By: Id	AR AR RL 4.00 N/A kg kg	
Parameter Flag Chloride Sample: 261903 - AH-3 0-0.9 Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924 Prep Batch: 67823 Parameter Flag		RL Result 7720 Analy Date Samp RL Result	e Preparat tical Meth	2011-03-3 ion: 2011-03-2 Units mg/Kg and: S 8015 I 2011-03-2 tion: 2011-03-4 Units mg/Kg	31 29 O 30 30	Analyze Prepare Dilution 100 Prep Me Analyze Prepare	ethod: Id By: Id	AR AR RL 4.00 N/A kg kg	
Parameter Flag Chloride Sample: 261903 - AH-3 0-0.9 Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924 Prep Batch: 67823 Parameter Flag DRO		RL Result 7720 Analy Date Samp RL Result 1160	tical Meth Analyzed: le Prepara	2011-03-3 ion: 2011-03-2 Units mg/Kg and: S 8015 I 2011-03-2 tion: 2011-03-4 Units mg/Kg	31 29 0 30 30 30	Analyze Prepare Dilution 100 Prep Me Analyze Prepare Dilution 1 Percent	ethod: Id By: Id	RL 4.00 N/A kg kg RL 50.0	
Parameter Flag Chloride Sample: 261903 - AH-3 0-0.9 Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 79924 Prep Batch: 67823 Parameter Flag DRO		RL Result 7720 Analy Date Samp RL Result	tical Meth Analyzed: le Prepara	2011-03-3 ion: 2011-03-2 Units mg/Kg and: S 8015 I 2011-03-2 tion: 2011-03-4 Units mg/Kg	31 29 O 30 30	Analyze Prepare Dilution 100 Prep Me Analyze Prepare Dilution 1	ethod: Id By: Id	RL 4.00 N/A kg kg RL 50.0 very nits	

⁶High surrogate recovery due to peak interference.

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

Prepared By:

Sample: 261903 - AH-3 0-0.5'

Laboratory: Midland

TPH GRO Analysis: 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

ME

RL

Parameter Flag	Result			${f Units}$	Ι	Dilution	RL	
GRO		1820		mg/Kg		50	2.00	
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	7	54.8 89.8	mg/Kg mg/Kg	50 50	50.0 50.0	110 180	48.5 - 152 42 - 159	

Sample: 261904 - AH-3 1'

Midland Laboratory:

Analysis: BTEX QC Batch: 80015 Prep Batch: 67886

Analytical Method: S 8021B Date Analyzed: 2011-04-02 Sample Preparation: 2011-04-01 Prep Method: S 5035 Analyzed By: ME Prepared By: ME

RLParameter Flag Result Units Dilution RLBenzene < 0.0200 mg/Kg 0.0200 Toluene 0.166mg/Kg 1 0.0200Ethylbenzene < 0.0200 1 mg/Kg 0.0200Xylene 0.443mg/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

Analytical Method: Date Analyzed: Prep Batch: 67767 Sample Preparation:

SM 4500-Cl B 2011-03-31 2011-03-29

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

RL

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

⁷High surrogate recovery due to peak interference.

Report Date: 114-6400858	: April 6, 2011		ork Order: 11 /Dogwood Fe				nber: 14 of Eddy Co., 1	
Sample: 26.	1904 - AH-3 1'							
Laboratory: Analysis: QC Batch: Prop Batch:	lysis: TPH DRO - NEW Batch: 80023		lytical Metho Analyzed: ple Preparati	2011-04-	01	Prep Method: Analyzed By: Prepared By:		
		RL		*.		7		
Parameter DRO	Flag	Result <50.0		Units		Dilution		
DRO				mg/Kg				
Surrogate	Flag Res	ult Units	Dilut		pike nount	Percent Recovery	Recove Limit	
n-Tricosane		.09 mg/Kg	1		100	109	70 - 13	
QC Batch: Prep Batch:	80016 67886	RL	*	2011-04-02 2011-04-01	-	Analyzed Prepared	By: ME	
Parameter GRO	Flag	Result 15.6		Units mg/Kg		Dilution 1	$\frac{I}{2}$	
		10.0		mg/rxg		<u> </u>		
ĺ			**	To d	Spike	Percent	Recove	
Surrogate		Flag Result	Units	Dilution	Amount	Recovery	Limits	
Surrogate Trifluorotolue		Flag Result 2.53 2.66	Units mg/Kg mg/Kg	Dilution 1 1	-			
Surrogate Trifluorotolue 4-Bromofluoro	ene (TFT)	2.53 2.66 Analy Date	mg/Kg	1 1 : SM 4500- 2011-03-3	Amount. 2.00 2.00	Recovery 126	Limits 48.5 - 1 42 - 15 ethod: National By: Al	
Surrogate Trifluorotolue 4-Bromofluoro Sample: 261 Laboratory: Analysis: QC Batch:	ene (TFT) obenzene (4-BFB) 1905 - AH-3 2' Midland Chloride (Titration) 79936	2.53 2.66 Analy Date	mg/Kg mg/Kg rtical Method Analyzed:	1 1 : SM 4500- 2011-03-3	Amount. 2.00 2.00	Recovery 126 133 Prep Me Analyze	Limits 48.5 - 1 42 - 15 ethod: National By: Al	

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Report Date 114-6400858	:: April 6, 20	11 Work Order: 11032820 COG/Dogwood Fed. #1 TB					mber: 15 of 3 Eddy Co., NM
Sample: 26	1006 AH	Q Q;	··········				. ,
. !		3 3					
Laboratory:	Midland			.1 1 (2)	-00 01 0	ъ.	
Analysis:	Chloride (T	itration)	Analytical Me		500-Cl B		Method: N/A
QC Batch:	79936		Date Analyze		03-31 03-29	Anaiya Prepar	ted By: AR.
Prep Batch:	67767		Sample Prepa	ration: 2011-	-03-29	тераг	ed By: AR
i			RL				
Parameter		Flag	Result	Units		Dilution	RI
Chloride ;			5060	mg/Kg		100	4.00
Sample: 26	1907 - AH-	3 4'					
Laboratory:	Midland						
Analysis: ₁	Chloride (T	litration)	Analytical Mo		500-Cl B	Prep M	•
QC Batch:	79936		Date Analyze		03-31	Analyz –	
Prep Batch:	67767		Sample Prepa	ration: 2011-	03-29	Prepar	ed By: AR
!			RL				
Parameter		Flag	Result	Units		Dilution	RL
Chloride :			2140	mg/Kg		100	4.00
Method Bla QC Batch: Prep Batch:	79924 67823	QC Batch: 79924	Date Analyzed: QC Preparation:	2011-03-30 2011-03-30			yzed By: kg ared By: kg
1				DL			
Parameter		Flag	Res			Units	RL
						mg/Kg	50
			<1	5.7			
			<1	5.7	Spike	Percent	Recovery
DRO	Flag	Result		5.7 Dilution	Spike Amount		Recovery Limits
DRO Surrogate	Flag	Result 121			_	Percent	
Surrogate n-Tricosane			Units I	Dilution	Amount	Percent Recovery	Limits
Surrogate n-Tricosane Method Bla	ank (1)	121	Units I mg/Kg	Dilution 1	Amount	Percent Recovery 121	Limits 70 - 130
Surrogate n-Tricosane Method Bla	ank (1) 79935	121	Units I mg/Kg Date Analyzed:	Dilution 1 2011-03-31	Amount	Percent Recovery 121 Analyz	Limits 70 - 130 zed By: AR
Surrogate n-Tricosane Method Bla	ank (1)	121	Units I mg/Kg	Dilution 1	Amount	Percent Recovery 121 Analyz	Limits 70 - 130
Surrogate n-Tricosane Method Bla	ank (1) 79935	121	Units Img/Kg Date Analyzed: QC Preparation:	Dilution 1 2011-03-31 2011-03-29 DL	Amount	Percent Recovery 121 Analyz Prepar	Limits 70 - 130 zed By: AR red By: AR
Surrogate n-Tricosane Method Bla QC Batch: Prep Batch: Parameter Chloride	ank (1) 79935	121	Units I mg/Kg Date Analyzed: QC Preparation: M Res	Dilution 1 2011-03-31 2011-03-29 DL	Amount	Percent Recovery 121 Analyz	70 - 130 zed By: AR

Eddy Co., NM

AR

RL

ME

ME

RL

0.02

0.02

0.02

0.02

Analyzed By: AR

Prepared By:

Report Date: April 6, 2011 Work Order: 11032820 Page Number: 16 of 30 114-6400858 COG/Dogwood Fed. #1 TB Method Blank (1) . QC Batch: 79936 Date Analyzed: QC Batch: 79936 2011-03-31 QC Preparation: 2011-03-29 Prep Batch: 67767 MDL Parameter Flag Result Units < 3.85 Chloride | mg/Kg Method Blank (1) QC Batch: 80015 80015 Date Analyzed: QC Batch: 2011-04-02 Analyzed By: QC Preparation: 2011-04-01 Prep Batch: 67886 Prepared By: MDL Flag Result Parameter Units Benzene < 0.0118 mg/Kg Toluene < 0.00600 mg/Kg · Ethylbenzene < 0.00850 mg/Kg < 0.00613 Xylene mg/Kg Spike

· ·					эріке	. rercem	Recovery
Surrogaté	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	mg/Kg	1	2.00	86	55.4 - 124
			,				

Method Blank (1) QC Batch: 80016

QC Batch: 80016 67886 Prep Batch:

Date Analyzed: 2011-04-02 QC Preparation: 2011-04-01

Analyzed By: ME Prepared By: ME

Flag Result Units RLParameter GRO < 0.753 mg/Kg Spike Percent Recovery Surrogate Flag Result Units Dilution Amount Recovery Limits Trifluorotoluene (TFT) 1.88mg/Kg 2.00 67.6 - 150 1 94 1.66 52.4 - 130 4-Bromofluorobenzene (4-BFB) mg/Kg 1 2.00 83

MDL

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

Work Order: 11032820 114-6400858 COG/Dogwood Fed. #1 TB Page Number: 17 of 30

Eddy Co., NM

Parameter		Flag		MDL Result	Ţ	Units			
DRO				<15.7	111	50			
	-	. .	.		Spike	Percent	Recovery		
Surrogate	Flag	Result	Units	Dilution	Amount	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: 2011-04-05 QC Preparation: 2011-04-05

Analyzed By: ME Prepared By: ME

MDL Parameter Flag Units Result RLBenzene i < 0.0118 mg/Kg 0.02Toluene mg/Kg 0.02< 0.00600 Ethylbenzene < 0.00850 mg/Kg 0.02Xylene | -0.02mg/Kg < 0.00613

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	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:

MDL Flag Parameter Result Units RL $\overline{G}RO$ < 0.753 mg/Kg

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:

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

Eddy Co., NM

Parameter				MDL Result	τ	RL	
DRO				<15.7	In	50	
Surrogate	Flag Result Units Dilu		Dilution	Spike Amount	Percent Recovery	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:

QC Preparation:

2011-03-30 2011-03-30 Analyzed By: kg

Prepared By: kg

(LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO	256	mg/Kg	1	250	<15.7	102	47.5 - 144.1

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

] 	LCSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{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.

į	LCS	$_{ m LCSD}$			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	${f Rec.}$	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 Work Order: 11032820 Page Number: 20 of 30 114-6400858 COG/Dogwood Fed. #1 TB Eddy Co., NM LCS Spike Matrix Rec. Param Result Units Limit Dil. Amount Result Rec. GRO 17.7 mg/Kg 20.0 < 0.753 88 60.9 - 95.4 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 Dil. Amount Result Rec. Limit RPD Limit GRO 16.8mg/Kg 60.9 - 95.420.0< 0.753 $\bar{84}$ 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 Trifluorotoluene (TFT) 2.03 1.68 61.9 - 142 mg/Kg 1 2.00 102 84 mg/Kg 4-Bromofluorobenzene (4-BFB) 1.93 1.60 1 2.00 96 80 68.2 - 132Laboratory Control Spike (LCS-1) QC Batch: 80023 Date Analyzed: 2011-04-01 Analyzed By: kg Prep Batch: 67893 QC Preparation: Prepared By: 2011-04-01 LCS Matrix Spike Rec. Param Result Units Dil. Result Limit Amount Rec. $\overline{\text{DRO}}$ 282 113 mg/Kg 250<15.7 47.5 - 144.1 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. LCSD RPD Spike Matrix Rec. Result Param Units Dil. RPD Amount Result Rec. Limit Limit 20 $\overline{\text{DRO}}$ 278 mg/Kg 250<15.7 111 47.5 - 144.1 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. LCS LCSD LCS LCSD Rec. Spike Result Units Dil. Rec. Surrogate, Result Amount Rec. Limit 100 n-Tricosane 126 124 mg/Kg ī 126124 70 - 130 Laboratory Control Spike (LCS-1) QC Batch: 80090 Date Analyzed: Analyzed By: ME 2011-04-05 Prep Batch: 67957 QC Preparation: 2011-04-05 Prepared By: MELCS Spike Matrix Rec. Param Result Rec. Limit Units Dil. Amount Result Benzene 2.13mg/Kg 2.00< 0.0118 10681.9 - 108 ī

2.14

2.12

mg/Kg

mg/Kg

1

1

2.00

2.00

< 0.00600

< 0.00850

107

106

81.9 - 107

78.4 - 107

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continued ...

Toluene

Ethylbenzene

114-6400858

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

Eddy Co., NM

control spikes continued ...

{	LCS			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.

1	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Triffuorotoluene (TFT)	2.12	2.03	mg/Kg	1	2.00	106	102	70.2 - 114
4-Bromofluorobenzene (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: QC Preparation: 2011-04-05

2011-04-05

Analyzed By: ME Prepared By:

ME

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit 16.8 **CRO** mg/Kg 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.

	ı	LCSD			Spike	Matrix		Rec.	•	RPD
Param	:	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
$\overline{\text{GRO}}$		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			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	mg/Kg	1	2.00	102	106	68.2 - 132

Laboratory Control Spike (LCS-1)

80098 QC Batch: Prep Batch: 67966 Date Analyzed:

2011-04-05

Analyzed By:

QC Preparation: 2011-04-05 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.

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

MSD RPD Spike Matrix Rec. Param Result Units Dil. Amount Result Limit Rec. RPD Limit Chloride | 10600mg/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

.

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 1 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 QC Preparation: 2011-04-01

Analyzed By: ME Prepared By: ME

MS Matrix Rec. Spike Param Result Units Dil. Amount Result Limit Rec. Benzene mg/Kg 1.61 1 2.00 < 0.0118 80 80.5 - 112 9 Toluene 1.70 mg/Kg 1 2.00 0.172476 82.4 - 113Ethylbenzene 1.72 mg/Kg 1 2.00 < 0.00850 86 83.9 - 114 10 5.25 78 Xylene mg/Kg 1 6.000.55284 - 114

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene !	1.74	ing/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

⁸Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

⁹Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

¹⁰Matrix 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	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	mø/Kø	1	2	106	120	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 261891

QC Batch: 80016

Date Analyzed: 2011-04-02

Analyzed By: ME

 Prepared By: ME

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

Matrix Spike (MS-1) Spiked Sample: 261916

QC Batch: 80023 Prep Batch: 67893

023

Date Analyzed: 2011-04-01 QC Preparation: 2011-04-01

Analyzed By: kg Prepared By: kg

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:

2011-04-05

Analyzed By: ME

QC Preparation:

2011-04-05

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	ing/Kg	1	2.00	< 0.00850	111	83.9 - 114
Xylene	6.98	${ m mg/Kg}$	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.	${f Limit}$	RPD	$_{ m Limit}$
Benzene i	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 Date Analyzed:

2011-04-05

Analyzed By: ME

Prep Batch: 67957

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

	MS			\mathbf{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

¹¹High surrogate recovery due to peak interference.

¹²High surrogate recovery due to peak interference.

Work Order: 11032820

Page Number: 26 of 30

114-6400858

COG/Dogwood Fed. #1 TB

Eddy Co., NM

Surrogate -	$rac{ ext{MS}}{ ext{Result}}$	MSD Result	Units	Đil.	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)

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

	MS			Spike	Matrix		Rec.
Param	Result	\mathbf{U} nits	Dil.	Amount	Result	Rec.	Limit
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.

į	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	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

	ĺ		CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO	i	nig/Kg	250	258	103	80 - 120	2011-03-30

Standard (ICV-1)

QC Batch: 179935

Date Analyzed: 2011-03-31

Analyzed By: AR.

Report Date 114-6400858	e: April 6, 2011			Order: 11032 ogwood Fed. 7		Page N	umber: 27 of 30 Eddy Co., NA
 	Dl	11	ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param Chloride	Flag	Units mg/Kg	Conc. 100	Conc. 98.3	Recovery 98	Limits 85 - 115	Analyzed 2011-03-31
Omoride				50.0	30	00 - 110	2011-03-01
Standard (CCV-1)						
QC Batch:	79935		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 ₁		mg/Kg	100	102	102	85 - 115	2011-03-31
Standard (ICV-1)					•	•
QC Batch	79936		Date Analy	zed: 2011-03	-31	Anal	yzed By: AR
,			ICVs	ICVs	ICVs	Percent	
:			True	Found	Percent	Recovery	. Date
Param !	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2011-03-31
Standard (CCV-1)						
QC Batch:	79936		Date Analy	zed: 2011-03-	-31	Anal	yzed By: AR
:			CCVs	CCVs	CCVs	Percent	
1			True	Found	Percent	Recovery	Date
Param 1	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride Standard (CCV-1)	mg/Kg	100	97.9	98	85 - 115	2011-03-31
QC Batch:	ŕ		Date Analy	zed: 2011-04-	02	Analy	yzed By: ME
			CCV			·	
! !			CCVs	CCVs	CCVs	Percent	D 4-
	Flag	Units	True Conc.	Found	Percent	Recovery	Date Analyzad
Param '	L 181A	mg/Kg	0.100	Conc.	Recovery 87	Limits	Analyzed 2011-04-02
		mg/rxg	0.100	0.0871		80 - 120	
Benzene			በ ተሰቡ	ህ ህወሀ ነ	ממ	ממנ חט	ባስ11 በ4 ሰባ
Param Benzene Toluene Ethylbenzene	<u> </u>	mg/Kg mg/Kg	$0.100 \\ 0.100$	0.0894 0.0981	89 98	80 - 120 80 - 120	2011-04-02 2011-04-02

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 _		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	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

	1		CCVs	CCVs	CCVs	Percent	•
	i		True	Found	Percent	Recovery	Date
Param	\mathcal{F} lag	$\mathbf{U}_{\mathbf{nits}}$	Conc.	Conc.	Recovery	Limits	Analyzed
GRO	1	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 358	i.		c Order: 110328 Jogwood Fed. #		Page N	Jumber: 29 of 30 Eddy Co., NM
							
			CCVs	CCVs	CCVs	Percent	D .
Param	Dlo e	Units	True Conc.	Found	Percent	Recovery	Date
GRO 1	Flag		1.00	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg_	1.00	1.15	115	80 - 120	2011-04-02
Standard	l (CCV-2)						
QC Batch	: 80023		Date Anal	yzed: 2011-04	-01	An	alyzed By: kg
1			CCVs	CCVs	CCVs	Percent	
1	l		True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO	, * 105	mg/Kg	250	262	105	80 - 120	2011-04-01
Ditto		, , , , , , , , , , , , , , , , , , ,			100	00 - 120	2011-04-01
Standard	(CCV-3)						
QC Batch	: 80023		Date Anal	yzed: 2011-04	-01	Ana	alyzed By: kg
	1		CCVs	CCVs	CCVs	Percent	
	i		True	Found	Percent	Recovery	Date
Param	! Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	298	119	80 - 120	2011-04-01
Standard	(CCV-1)						
QC Batch:	ì		Date Analy	zed: 2011-04-	05	Anal	yzed By: ME
•	t		·				, , , ,
	!		CCVs	CCVs	$_{ m CCVs}$	Percent	
•••	1		True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene	į.	mg/Kg	0.100	0.115	115	80 - 120	2011-04-05
Toluene	1	mg/Kg	0.100	0.115	115	80 - 120	2011-04-05
Ethylbenze	ene !	mg/Kg	0.100	0.115	115	80 - 120	2011-04-05
Xylene	1	mg/Kg	0.300	0.347	116	80 - 120	2011-04-05
Standard	(CCV-2)						
QC Batch:	: 80090		Date Analy	zed: 2011-04-	05	Anal	yzed By: ME
			CCVs	CCVs	CCVs	Percent	
	}	•	True	Found	Percent	Recovery	Date
Param	l_ Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.102	102	80 - 120	2011-04-05
Toluene	Į.	mg/Kg	0.100	0.103	103	80 - 120	2011-04-05
Ethylbenze	ene	mg/Kg	0.100	0.102	102	80 - 120	2011-04-05
							continued

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	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		CCVs	CCVs	CCVs	Percent	
<u> </u>			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Xylene		mg/Kg	0.300	0.308	103	80 - 120	2011-04-05
Standard ((CCV-1)						
QC Batch:	80091		Date Analy	zed: 2011-04-	05	Analy	yzed By: ME
i 1			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.05	105	80 - 120	2011-04-0
QC Batch: Param GRO	80091 Flag	Units mg/Kg	Date Analy CCVs True Conc. 1.00	zed: 2011-04- CCVs Found Conc. ·	CCVs Percent Recovery 107	Analy Percent Recovery Limits 80 - 120	vzed By: ME Date Analyzed 2011-04-05
Standard (CCV-1)						
QC Batch:	¹ 80098		Date Analy	zed: 2011-04	-05	Ana	lyzed By: kg
	•		CCVs	CCV_S	CCVs	Percent	
	1		True	Found	Percent	Recovery	Date
Param	; Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO	1	mg/Kg	250	251	100	80 - 120	2011-04-05
Standard ((CCV-2)						
QC Batch:	80098		Date Analy	zed: 2011-04-	-05	Ana	lyzed By: kg
			CCVs	CCVs	CCVs	Percent	
	i i		True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
i ai ain			250	290	116		••

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1910 N. Big Spring St.	
(432) 682-4559 • Fax (432) 682-3946	Vr Pd
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SAMPLE CONDITION WHEN RECIEVED: REMARKS.	
Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech	- Project Manager retains Plnk 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
$_{ m Sample}$	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

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: July 12, 2011		Work Order: 11070111	Page	Page Number: 2 of 3		
Sample: 270980	- SB-1 5' (3' BEB)		-,			
Param	Flag	Result	Units	RI		
Chloride	Trag	<200	mg/Kg			
1						
Sample: 270981 -	- SB-1 7' (3' BEB)					
Param	Flag	Result	Units	RL		
Chloride	1 100	<200	mg/Kg	4		
	- SB-1 10' (3' BEB)					
Param	Flag	Result	Units	RL		
Chloride		<200	mg/Kg	4		
Param Chloride	Flag	Result <200	Units mg/Kg	RL 4		
Sample: 270984 -	- SB-1 20' (3' BEB)					
Sample: 270984 - Param	- SB-1 20' (3' BEB) Flag	Result	Units	m RL		
1	,	Result <200	Units mg/Kg	RL 4		
Param Chloride	Flag					
Param Chloride Sample: 270987	Flag - SB-2 0-1' (4' BEB)	<200		. 4		
Param Chloride	Flag		mg/Kg			
Param Chloride Sample: 270987 - Param Chloride	Flag - SB-2 0-1' (4' BEB) - Flag	<200 Result	mg/Kg Units	4 RL		
Param Chloride Sample: 270987 - Param Chloride Sample: 270988 -	Flag - SB-2 0-1' (4' BEB) - Flag - SB-2 3' (4' BEB)	<200 Result 255	mg/Kg Units mg/Kg	RL 4		
Param Chloride Sample: 270987 - Param Chloride	Flag - SB-2 0-1' (4' BEB) - Flag	<200 Result	mg/Kg Units	4 RL		
Param Chloride Sample: 270987 - Param Chloride Sample: 270988 - Param	Flag - SB-2 0-1' (4' BEB) - Flag - SB-2 3' (4' BEB)	<200 Result 255 Result	mg/Kg Units mg/Kg Units	RL 4		
Param Chloride Sample: 270987 - Param Chloride Sample: 270988 - Param Chloride	Flag - SB-2 0-1' (4' BEB) - Flag - SB-2 3' (4' BEB)	<200 Result 255 Result	mg/Kg Units mg/Kg Units	RL 4		
Param Chloride Sample: 270987 - Param Chloride Sample: 270988 - Param Chloride	Flag - SB-2 0-1' (4' BEB) - Flag - SB-2 3' (4' BEB) - Flag	<200 Result 255 Result	mg/Kg Units mg/Kg Units	RL 4		

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

Param

Chloride

		Work Order: 11070111	rager	Number: 3 of 3
Sample: 270990 - S	SB-2 7' (4' BEB)			
Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4
Sample: 270991 - S Param	SB-2 10' (4' BEB) Flag	Result	Units	RL
Chloride		<200	mg/Kg	4
Sample: 270992 - S	6B-2 15' (4' BEB)			
Param	Flag	Result	Units	RL
Chloride		343	mg/Kg	4
1				

Result

218

Units

nig/Kg

RL

Flag

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.



1970) Abordoen Avenne, Sune 9 700 East Sonset Road, Suite E 5002 Basin Street, Suite Af

888 • 596 • 3443 El Peso, Texas 79322 Midland, Texas 79703

915 * 585 * 3443 432 * 689 * 6301 817 • 201 • 5260

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

6015 Harris Parkway, Suite 119 Ft. Worth, Texas 76132

E-Mail: lab@traceanalysis.com

Certifications

DoD LELAP WBE HUB NCTRCA DBE **NELAP** 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	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 Leitwich, Director
Dr. Michael Abel, Project Manager

Report Contents

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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))	
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Sample 270992 (SB-2 15' (4' BEB))	
Sample 270993 (SB-2 20' (4' BEB))	
Method Blanks	4.6
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QC Batch 82930 - Method Blank (1)	
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Laboratory Control Spikes	1
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QC Batch 82930 - LCS (1)	
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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	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:

Chloride (Titration)

QC Batch: Prep Batch:

82929 70311

Date Analyzed:

Analytical Method: SM 4500-Cl B 2011-07-11

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

RL

4.00

Prepared By:

Dilution

100

RL

Flag Cert Result Parameter Units 3700 Chloride mg/Kg

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 Sample Preparation: 2011-07-06

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

Cert

Flag Parameter Chloride

RLResult $\overline{325}$

Units nig/Kg

Dilution RL4.00

Sample: 270980 - SB-1 5' (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: ARPrepared 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 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

RL

Parameter Chloride

Flag Cert Result <200

Units mg/Kg Dilution 50

RL4.00

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

Laboratory:

Midland

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

82929 70311

Analytical Method: Date Analyzed:

Sample Preparation:

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

Prep Method: N/A

Analyzed By: ARPrepared By: AR.

RL

Parameter Chloride

Flag

Cert Result <200

Units mg/Kg Dilution

RL4.00

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

Laboratory:

Prep Batch:

Chloride

Midland

Analysis: Chloride (Titration) QC Batch:

82929

70311

Analytical Method: Date Analyzed:

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

Prep Method: N/A ARAnalyzed By:

Parameter Flag

RLCert Result Prepared By: AR.

Dilution Units <200 mg/Kg

RL50 4.00

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

Laboratory: Midland

Analysis: QC Batch: Chloride (Titration)

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

RL

Page Number: 7 of 14

Eddy Co., NM

I			

Parameter	Flag	Cert	Result	\mathbf{Units}	Dilution	RL
Chloride			<200	mg/Kg	50	4.00

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

Laboratory:

Analysis:

QC Batch:

Midland

Chloride (Titration)

82929

Analytical Method: Date Analyzed:

2011-07-11

SM 4500-Cl B

Prep Method: Analyzed By: AR

Prep Batch:

70311

Sample Preparation:

2011-07-06

Prepared By: AR

Result

RL

Parameter Flag Cert Units Dilution RLChloride 255 mg/Kg 50 4.00

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

Laboratory:

Midland

Chloride (Titration) Analysis:

QC Batch:

Analytical Method: Date Analyzed:

SM 4500-Cl B

Prep Method: N/A AR

82929 70311

2011-07-11

Analyzed By:

Prep Batch:

Sample Preparation:

2011-07-06

Prepared By: AR

RL

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

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

Laboratory:

Midland

Chloride (Titration) Analysis:

Analytical Method:

SM 4500-Cl B

Prep Method: N/A

82929

Date Analyzed:

2011-07-11

Analyzed By: AR

QC Batch:

Prep Batch: 70311

2011-07-06 Sample Preparation:

Prepared By: AR

RL

Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			390	mg/Kg	50	4.00

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

Analysis: QC Batch: Chloride (Titration)

82930 70311 Prep Batch:

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

Flag Parameter Chloride

Result <200

Units mg/Kg Dilution RL50 4.00

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

Laboratory:

Midland

Analysis: QC Batch: Prep Batch:

Chloride (Titration)

82930 70311

Analytical Method: Date Analyzed:

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

Prep Method: Analyzed By:

N/A ARPrepared By: AR

Cert Flag Result Parameter

RL

<200

343

Units mg/Kg Dilution 50

RL4.00

RL

4.00

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

Laboratory:

Chloride

Midland

Analysis:

Chloride (Titration)

QC Batch: 82930 70311 Prep Batch:

Analytical Method:

SM 4500-Cl B 2011-07-11

Units

mg/Kg

Prep Method: N/A Analyzed By: AR

Chloride

Date Analyzed: Sample Preparation:

2011-07-06

Prepared By: AR

Parameter Flag

RLCert Result

Dilution

50

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

Laboratory:

Midland

Analysis:

Chloride (Titration)

QC Batch: 82930 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: 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:

82929

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

Prep Batch: 70311

QC Preparation: 2011-07-06

Prepared By: AR

MDL Flag Parameter Cert

Chloride

Result <3.85 Units

mg/Kg

RL4

RL

Method Blank (1)

QC Batch: 82930

QC Batch: 82930 Prep Batch: 70311

Date Analyzed: QC Preparation:

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

Prepared By: AR

MDL

Cert Result Parameter Flag Chloride <3.85

mg/Kg

Units

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

LCS Spike Matrix Rec. Param C Result Units Dil. Amount Result Rec. Limit 100 <3.85 Chloride 95.8 mg/Kg 85 - 115

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

RPD LCSD Rec. Spike Matrix Param Result Units Dil. Amount Result Rec. Limit R.P.D Limit <3.85 102 85 - 115 Chloride 102 ıng/Kg 100 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:

2011-07-11

Analyzed By: AR

QC Preparation:

2011-07-06

Prepared By:

LCS Spike Matrix Rec. F C Result Units Dil. Result Param Amount Rec. Limit 95.3 mg/Kg 100 <3.85 85 - 115 Chloride

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

LCSD Spike Matrix Rec. RPD FC Units Dil. Amount Result Rec. Limit RPD Limit Param Result 106 100 < 3.85 106 85 - 115 11 20 Chloride mg/Kg 1

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: 82929 Prep Batch: 70311 Date Analyzed: 2011-07-11 QC Preparation: 2011-07-06

Analyzed By: AR Prepared By: AR

114-6400858

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

Eddy Co., NM

,			MS			Spike	Matrix		Rcc.
Param	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.

ı			MSD			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: 82930

opinou stampioi strat

Prep Batch: 70311

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

7-11 Analyzed By: AR

Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	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	$\rm CCVs$	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	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	
1				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 ₁RPD 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 THE TECH									
TETRATECH	Allalys		ן עַ	ار	O Clall	Jy necold	ANALYSIS RE	QUEST	
Colored Colo			_				(Circle or specify i	wethod No.j	
Site Middle Site Middle Site Middle Site Middle Site Middle Site :	!	_	F	TETRATECH		øs			
STATE DEPTH COLOR STATE STAT					Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946		gH dq 1	S	
17 17 17 17 17 17 17 17						F	St CQ A	H, YD9	
SC SC SC SC SC SC SC SC	CLIENT NAME:				بقاق		88 e. s	łą ,and	
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X SB-1 O-1 (3.BEB)	LAB I.D. DATE NUMBER 201	TIME	XIRTAM	RARD	SAMPLE IDENTIFICATION	NONE HOG HCL	TPH 8019 PCBA Meta TCLP Volati TCLP Semi TCLP Semi ACI GC.MS Sen GC.MS Sen GC.MS Sen GC.MS Sen	Chloride Gamma Spa Alpha Beta PLM (Asbes	
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PHONE: RECEIVED BY: (Signature) Date: Tetra Tech Contact Person: Received BY: (Signature) Time: Tetra Tech Contact Person: Received BY: (Signature) Time: Tetra Tech Contact Person: Results by: RUSH Charges Authorized: Authorized: Yea	RELINOUISHED BY: (Signatu	(9)		[Date: Time:	SAMPLE SHIPPED BY: (Circle) FEDEX	AIRBILL #:	
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S K SB-2 S' (4' BEB) K K K K K K K K K	TIME MATHIX SMOO	Eddy G. NY SAMPLE IDENTIFICATION	NONE ICE HNO3 HCC LICLEBED	TPH 8070 RCRA Med TCLP Med TCLP Vola TCLP Sem	GC.MS Vo GC.MS Se PCB's 808 Pest. 808/	Alpha Beto deA) MJ9
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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: Janu	ary 26, 2012	Work Order: 12012001	Page 1	Vumber: 2 of 4
Darana	Tille en	Double	Units	RI
Param Chloride	Flag	Result 1400	mg/Kg	4
Chioride		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'			
Parain	Flag	Result	Units	RL
Chloride		314	mg/Kg	4
G L cocces	177 - 0 - 0			
Sample: 286933 - Parain		Result	Units	RL
Chloride	Flag	380	mg/Kg	4
Sample: 286934	- AH-2 0-1'			
Param	Flag	Result	Units	RL
Chloride		4190	mg/Kg	4
Sample: 286935	- AH-2 1-1.5'			
Param	Flag	Result	Units	RL
Chloride		435	mg/Kg	4
Sample: 286936 -	· AH-2 2-2.5'			
Param	Flag	Result	Units	RL
•		<200	mg/Kg	4

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	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

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 Number: 4 of 4

Sample: 286945 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		4050	mg/Kg	4

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.



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

Lubbock, Texas 79424 El Paso, Texas 79922 Midland, Texas 79703

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6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817 • 201 • 5260

E-Mail: lab@traceanalysis.com

Certifications

DoD LELAP Oklahoma ISO 17025 NCTRCA DBE NELAP Kansas

Analytical and Quality Control Report

Ike Tavarez

Tetra Tech

1910 N. Big Spring Street Midland, TX, 79705

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	$_{ m Time}$	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))	
Sample 270992 (SB-2 15' (4' BEB))	
Sample 270993 (SB-2 20' (4' BEB))	
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Method Blanks	10
Y.	
QC Batch 82929 - Method Blank (1)	. 1
QC Batch 82929 - Method Blank (1)	
QC Batch 82930 - Method Blank (1)	
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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

Prep Method: N/A Analyzed By:

Prep Batch:

70311

2011-07-11 Sample Preparation: 2011-07-06

Prepared By:

RLParameter Flag Cert Result

Units 3700 mg/Kg Dilution RL100 4.00

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

Laboratory:

Chloride

Midland

Analysis: QC Batch:

Chloride (Titration)

82929

Analytical Method: Date Analyzed:

SM 4500-Cl B 2011-07-11

Prep Method: N/A Analyzed By: AR.

Prep Batch: 70311

Sample Preparation:

2011-07-06

Prepared By:

RL

Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			325	m g/ Kg	50	4.00

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

RL

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

114-6400858

Work Order: 11070111

Page Number: 6 of 14

Eddy Co., NM

COG/Dogwood Fed. #1 TB

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 Prepared By: AR.

RL

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

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

Laboratory: Midland

Prep Batch:

Analysis: Chloride (Titration) QC Batch: 82929

70311

Analytical Method: Date Analyzed:

SM 4500-Cl B 2011-07-11

Prep Method: N/A Analyzed By: AR

ï

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

RLDilution RLParameter Flag Cert Result Units 50 4.00Chloride <200 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		k Order: 1107 Dogwood Fed.	Page Number: 7 of 1- Eddy Co., NM			
			RL				
Parameter	Flag	Cert	Result	Units	Dilution	RL	
Chloride			< 200	mg/Kg	50	4.00	
-1	0987 - SB-2 0-1' (4' BEI	3)					
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 82929 70311	Date Ar	cal Method: nalyzed: Preparation:	SM 4500-Cl B 2011-07-11 2011-07-06	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
] 			RL				
Parameter	Flag	Cert	Result	Units	Dilution	RL	
Chloride			255	mg/Kg	50	4.00	
1							
Sample: 270 Laboratory: Analysis: QC Batch:	0988 - SB-2 3' (4' BEB) Midland Chloride (Titration) 82929 70311	Analytic Date Ar	cal Method: nalyzed: Preparation:	SM 4500-Cl B 2011-07-11 2011-07-06	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
Sample: 270 Laboratory: Analysis: QC Batch:	Midland Chloride (Titration) 82929	Analytic Date Ar	nalyzed: Preparation:	2011-07-11	Analyzed By:	AR	
Sample: 276 Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 82929 70311	Analytic Date Ar	nalyzed:	2011-07-11	Analyzed By:	AR	
Sample: 276 Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 82929	Analytic Date Ar Sample	nalyzed: Preparation: RL	2011-07-11 2011-07-06	Analyzed By: Prepared By:	AR AR RL	
Sample: 270 Laboratory: Analysis: Prep Batch: Parameter Chloride Sample: 270 Laboratory: Analysis: QC Batch:	Midland Chloride (Titration) 82929 70311 Flag D989 - SB-2 5' (4' BEB) Midland Chloride (Titration) 82929	Analytic Date An Sample Cert Analytic Date An	nalyzed: Preparation: RL Result 320 cal Method: nalyzed:	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	
Sample: 270 Laboratory: Analysis: Prep Batch: Parameter Chloride Sample: 270 Laboratory: Analysis:	Midland Chloride (Titration) 82929 70311 Flag D989 - SB-2 5' (4' BEB) Midland Chloride (Titration)	Analytic Date An Sample Cert Analytic Date An	nalyzed: Preparation: RL Result 320	2011-07-11 2011-07-06 Units mg/Kg	Analyzed By: Prepared By: Dilution 50 Prep Method:	AR AR RL 4.00	
Sample: 270 Laboratory: Analysis: QC Batch: Parameter Chloride Sample: 270 Laboratory: Analysis: QC Batch:	Midland Chloride (Titration) 82929 70311 Flag D989 - SB-2 5' (4' BEB) Midland Chloride (Titration) 82929	Analytic Date An Sample Cert Analytic Date An	nalyzed: Preparation: RL Result 320 cal Method: nalyzed:	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	
Sample: 270 Laboratory: Analysis: QC Batch: Parameter Chloride Sample: 270 Laboratory: Analysis: QC Batch:	Midland Chloride (Titration) 82929 70311 Flag D989 - SB-2 5' (4' BEB) Midland Chloride (Titration) 82929	Analytic Date An Sample Cert Analytic Date An	nalyzed: Preparation: RL Result 320 cal Method: nalyzed: 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 RL 4.00	

Report Date 114-6400858	: July 12, 2011	Work Order: 11 COG/Dogwood Fe		Page Number: 8 of 1 Eddy Co., NA		
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	2011-07-11	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
<u>.</u>	T)	R		D.3. (1	D.	
Parameter Chloride	Flag	Cert Resu		Dilution 50	$\frac{RL}{4.00}$	
Sampley 27	0991 - SB-2 10' (4' BEB)	· .				
Laboratory:	Midland					
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A	
QC Batch:	82930	Date Analyzed:	2011-07-11	Analyzed By:	AR	
Prep Batch:	70311	Sample Preparation	n: 2011-07-06	Prepared By:	AR	
I		R	T,			
Parameter	Flag	Cert Resu		Dilution	RL	
Chloride		<20	0 mg/Kg	50	4.00	
Sample: 27 Laboratory: Analysis: QC Batch: Prep Batch:		Analytical Method: Date Analyzed: Sample Preparation	2011-07-11	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
Damamatan	Dlo a	R Cont. Record		Dilution	ÐΤ	
Parameter Chloride	Flag	Cert Resul		Dilution 50	$\frac{RL}{4.00}$	
Sample: 27 Laboratory: Analysis: QC Batch: Prep Batch:	0993 - SB-2 20' (4' BEB) Midland Chloride (Titration) 82930 70311	Analytical Method: Date Analyzed: Sample Preparation	2011-07-11	Prep Method: Analyzed By: Prepared By:	N/A AR AR	

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

Eddy Co., NM

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D		
п	.Ł	,

1			R.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

QC Batch: Prep Batch: 70311

82929

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

Flag

Cert

MDL Result

Units

RL

Chloride

< 3.85

nig/Kg

4

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.

			LCS			Spike	Matrix		Rec.
Parani	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			95.8	mg/Kg	1	100	<3.85	96	85 - 115

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

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:

2011-07-11

Analyzed By: AR

Prepared By: AR

1			LCS			Spike	Matrix		Rec.
Param !	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloridè			95.3	mg/Kg	1	100	< 3.85	95	85 - 115

QC Preparation: 2011-07-06

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:

82929

Date Analyzed:

2011-07-11

Analyzed By: AR

Prepared By: AR.

Prep Batch: 70311

QC Preparation:

2011-07-06

 $114^{1}6400858$

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			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: 82930 Date Analyzed:

2011-07-11

Analyzed By: AR

Prep Batch: 70311

QC Preparation:

2011-07-06

Prepared By: AR.

'			MS			Spike	Matrix		Rec.
Parani	\mathbf{F}	Ċ	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.

1			MSD			Spike	Matrix		Rec.		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 True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param (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.

'				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.

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

Report Date: July 12, 2011

Work Order: 11070111 114-6400858 COG/Dogwood Fed. #1 TB Page Number: 14 of 14 Eddy Co., NM

Appendix

Laboratory Certifications

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

Standard Flags

- F Description
- Analyte detected in the corresponding method blank above the method detection
- Analyzed out of hold time
- Estimated concentration
- 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.
- Surrogate recovery outside of laboratory limits.
 - 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			X	5374 SAMPLED BY: (Print & Initial) Kim Date: 6/27/11	(Circle) BUS	TETRA TECH CONTACT PERSON: Results by:	4)	Authorizad: Yes NO	
lest of Chain of Custody Record			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: AECEIVED 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	RELINGUISHED BY (Signature)	RELINQUISHED BY: (Signature)	RELINGUISHED BY: (Signature)	RECEINING LABORATORY:	STATE	010c intact

CLIENT NAME: CLIENT NAME: CLIENT NAME: CLIENT NAME: COC CO	STE WANAGER SAMPLE SAMP	BEB STATE OF THE S	AMALYS SAMPLE SHIPPEO BY (Gride) TECH Metals Ag As Ba Cd Cr Pb Hg Se TCLP Volatiles TCLP Semi Vol. 8240/8260/624 GC.MS Vol. 8240/8260/624 GC.MS Semi Vol. 8240/8260/624 GC.MS Semi Vol. 8240/8260/624 GC.MS Semi Vol. 8240/8260/624 GC.MS Semi Vol. 8240/8260/624 GC.MS Semi Vol. 8240/8260/624 TEMPLE SHIPPEO BY (Gride) TEMPLE SHIPPEO BY (A Special Command Special Comm
RECIMOUSHED BY: (Signature) RECEIVING LABORATORY: TRACE ADDRESS: COTTA MINE MINE STATE TY CONTACT: PHONE. SAMPLE CONDITION WHEN RECEIVED:	Time: ZIP:	Date: Time: TIME:	DELIVERED SCH CONTRCT	OTHER: Results by: RUSH Charges Authorized: Yes No

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 Participation for the participation of the particip

Project Location: Eddy Co., NM

Project Name:

COG/Dogwood Fed. #1 TB

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	Flag	Result	Units	$_{__}$ RL
Chloride		9030	mg/Kg	4

Sample: 295106 - SB-3 4-5'

Param	Flag	Result	Units	RL
Chloride		199	nig/Kg	4

TraceAualysis, 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: May	4, 2012	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

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.

PAGE: OF:	ANALYSIS REQUEST	(Circle or Specify Method No.)	В		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	9	X	X	5	5		SAMPLED BY: (Print & Initial) 7		FEDERAL SAMPLE SHIPPED BY CURING SAMPLE #: FEDERAL AGE METERS. 1104	ž	- The Tayles Authorized: No Yes	
	ady Record $$					PRESERVATIVE	(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 05 (432) 682-4559 • Fax (432) 682-3946	SITE MANAGER: TK Tavarez	Fed	Eddy (S. NA SAMPLE IDENTIFICATION	1.00				. 83)	10,		2 - 1 1 - 1 AGAEIVED ACK OF (Marure)	30 111	RECEIVED BY (Signature)	RECEIVED BY: (Signature)	RECEIVED BY: (Signature)	
	s Hednest (19)		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 Midland, Texas 79703 Carrolton, Texas 75006 915-565-3443 432-689-6301 972-242-7750 FAX 915 585 4944 FAX 432 689 6313

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

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Ike Tavarez

Tetra Tech

1910 N. Big Spring Street

Midland, TX, 79705

Report Date:

May 4, 2012

Work Order: 12042419

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.

ļ			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
29510 6	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

Report Contents

Case Narrative
Analytical Report
Sample 295104 (SB-3 0-1')
Sample 295105 (SB-3 2-3')
Sample 295106 (SB-3 4-5')
Sample 295107 (SB-3 6-7')
Sample 295108 (SB-3 8')
Sample 295109 (SB-3 9')
Sample 295110 (SB-3 10')
Method Blanks
QC Batch 90860 - Method Blank (1)
QC Batch 90862 - Method Blank (1)
Laboratory Control Spikes
QC Batch 90860 - LCS (1)
QC Batch 90862 - LCS (1)
QC Batch 90860 - MS (1)
QC Batch 90862 - MS (1)
Calibration Standards
QC Batch 90860 - CCV (1)
QC Batch 90860 - CCV (2)
QC Batch 90862 - CCV (1)
QC Batch 90862 - CCV (2)
Appendix 1
Report Definitions
Laboratory Certifications
Standard Flags
Attachments

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		Ргер	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
Chloride (Titration)	SM 4500-Cl B	77061	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:

Midland

Analysis: QC Batch: Prep Batch:

Chloride (Titration)

90860 77061 Analytical Method: Date Analyzed:

SM 4500-Cl B

2012-05-02 Sample Preparation:

2012-05-01

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

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: Eddy C		
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	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

< 3.85

Analyzed By: AR

Prepared By: AR

Parameter Chloride

Flag

Cert

MDL Result

Units mg/Kg

RL

4

Method Blank (1)

QC Batch: 90862

QC Batch:

90862

Date Analyzed:

2012-05-02

Analyzed By: AR.

Prepared By: AR

Prep Batch: 77061

QC Preparation:

2012-05-01

Parameter

Flag Chloride

Cert

MDL

Result < 3.85

Units mg/Kg RL4

Released to Imaging: 4/11/2023 8:56:07 AM

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:

Date Analyzed:

2012-05-02

Analyzed By: AR

Prep Batch: 77061

QC Preparation: 2012-05-01 Prepared By: AR.

LCS Spike Matrix Rec. F Param C Result Units Dil. Amount Result Rec. Limit Chloride 2420 mg/Kg 1 2500 < 3.85 85 - 115

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 Dil. Amount Result Rec. Limit RPD Limit 2500 Chloride 2490 mg/Kg <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:

LCS

Result

2620

2012-05-02

Analyzed By: AR. Prepared By:

Prep Batch: 77061

Param

Chloride

QC Preparation:

2012-05-01

Dil.

Spike

Amount

2500

< 3.85

Matrix Rec. Rec. Result Limit

85 - 115

105

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

 \mathbf{C}

Spike RPD LCSD Matrix Rec. Param CDil. Result Limit RPD Limit Result Units Amount Rec. 2510 2500 <3.85 100 85 - 115 20 Chloride mg/Kg 1 4

Units

mg/Kg

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:

F

90860 Prep Batch: 77061 Date Analyzed:

2012-05-02

Analyzed By: AR Prepared By: AR

QC Preparation: 2012-05-01

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

Prepared By: AR.

Prep Batch: 77061

2012-05-01 QC Preparation:

			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}	С	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.

1				$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

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		12042416	Page N	umber: 2 of 5
]	BTEX	
	Benzene	Toluene	Ethylbenzene	Xylene
Sample - Field Code 295079 - CS-2 Bottom Hole 2'	(mg/Kg) <0.0200	(10g/Kg) <0.0200	(nig/Kg) <0.0200	<0.0200
1	(0.0200	(0.0200	\0.0200	(0.0200
Sample: 295076 - CS-1 Bottom I	Iole 2'			
Param Flag	Result		Units	RI
Chloride	<20.0		mg/Kg	4
	•			
Sample: 295077 - CS-1 East Side	wall			
Param Flag	Result		Units	RL
Chloride	24.4		mg/Kg	4
Param Flag Chloride	Result 156		Units mg/Kg	RL 4
Sample: 295079 - CS-2 Bottom H	íole 2'			
Param Flag	Result		Units	
Chloride				RL
Omonue	161		mg/Kg	
Sample: 295080 - CS-2 East Side	161			
Sample: 295080 - CS-2 East Side	161			4
Sample: 295080 - CS-2 East Side	161 wall		mg/Kg	4 RL
Sample: 295080 - CS-2 East Side Param Flag	161 wall Result 215		mg/Kg Units	4 RL
Sample: 295080 - CS-2 East Side: Param Flag Chloride Sample: 295081 - CS-2 West Side: Param Flag	wall Result 215 ewall Result		mg/Kg Units mg/Kg Units	RL 4 RL 4
Sample: 295080 - CS-2 East Side: Param Flag Chloride Sample: 295081 - CS-2 West Side	wall Result 215		mg/Kg Units mg/Kg	RL 4
Sample: 295080 - CS-2 East Side: Param Flag Chloride Sample: 295081 - CS-2 West Side:	wall Result 215 wall Result 5830		mg/Kg Units mg/Kg Units	RL 4
Sample: 295080 - CS-2 East Side Param Flag Chloride Sample: 295081 - CS-2 West Side Param Flag Chloride	wall Result 215 wall Result 5830		mg/Kg Units mg/Kg Units	RL 4

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· • i	7, 2012	Work Order: 12042416	Page I	Number: 3 of 5
Sample: 295083	- CS-3 North Sidewall			
; Param	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
Sample: 295087 Param Chloride	- CS-4 East Sidewall Flag	Result 7840	Units mg/Kg	
Param Chloride				
Param Chloride	Flag			.4
Param Chloride Sample: 295088	Flag - CS-4 South Sidewall	7840	mg/Kg	4 RL
Param Chloride Sample: 295088 Param Chloride	Flag - CS-4 South Sidewall	7840 Result	mg/Kg Units	4 RL
Param Chloride Sample: 295088 Param Chloride	Flag - CS-4 South Sidewall Flag	7840 Result	mg/Kg Units	RL 4 RL 4
Param Chloride Sample: 295088 Param Chloride Sample: 295089	Flag - CS-4 South Sidewall Flag - CS-4 West Sidewall	7840 Result 3170	mg/Kg Units mg/Kg	RL 4
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	mg/Kg Units mg/Kg Units	RL 4
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	mg/Kg Units mg/Kg Units	RL 4

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Sample: 295091 - CS-5 East Sidewall (AH-4) Parain Flag Result Units Chloride 4410 mg/Kg i Sample: 295092 - CS-5 West Sidewall (AH-4) Param Flag Result Units Chloride 64.6 mg/Kg Sample: 295093 - CS-6 0-1' Param Flag Result Units Chloride 189 mg/Kg Sample: 295094 - CS-7 0-1' Param Flag Result Units Chloride 34.8 mg/Kg I In the second of th	ge Number: 4 of
Sample: 295092 - CS-5 West Sidewall (AH-4)	
Sample: 295092 - CS-5 West Sidewall (AH-4) Param	R.I
Sample: 295092 - CS-5 West Sidewall (AH-4) Param Flag Result Units Chloride 64.6 mg/Kg Sample: 295093 - CS-6 0-1' Param Flag Result Units Chloride 189 mg/Kg Sample: 295094 - CS-7 0-1' Param Flag Result Units Chloride 34.8 mg/Kg Sample: 295095 - Trench #1 3' (AH-4) Param Flag Result Units Chloride < 20.0 mg/Kg Sample: 295096 - Trench #1 4' (AH-4) Param Flag Result Units Chloride < 200 mg/Kg	
Param Flag Result Units	
Sample: 295093 - CS-6 0-1'	
Sample: 295093 - CS-6 0-1' Param Flag Result Units Chloride 189 mg/Kg Sample: 295094 - CS-7 0-1' Param Flag Result Units Chloride 34.8 mg/Kg Sample: 295095 - Trench #1 3' (AH-4) Param Flag Result Units Chloride < 20.0 mg/Kg Sample: 295096 - Trench #1 4' (AH-4) Param Flag Result Units Chloride < 10.0 mg/Kg	RI
Param Flag Result Units	4
Param Flag Result Units	
Chloride 189 mg/Kg Sample: 295094 - CS-7 0-1' Param Flag Result Units Chloride 34.8 mg/Kg Sample: 295095 - Trench #1 3' (AH-4) Param Flag Result Units Chloride < 20.0	
Chloride 189 mg/Kg Sample: 295094 - CS-7 0-1' Param Flag Result Units Chloride 34.8 mg/Kg Sample: 295095 - Trench #1 3' (AH-4) Param Flag Result Units Chloride < 20.0	RI
Param Flag Result Units Chloride 34.8 mg/Kg Sample: 295095 - Trench #1 3' (AH-4) Units Param Flag Result Units Chloride <20.0	1
Param Flag Result Units Chloride 34.8 mg/Kg Sample: 295095 - Trench #1 3' (AH-4) Units Param Flag Result Units Chloride <20.0	
Param Flag Result Units Chloride 34.8 mg/Kg Sample: 295095 - Trench #1 3' (AH-4) Units Param Flag Result Units Chloride <20.0	
Chloride 34.8 mg/Kg Sample: 295095 - Trench #1 3' (AH-4) Param Flag Result Units Chloride <20.0	
Sample: 295095 - Trench #1 3' (AH-4) Param Flag Result Units Chloride <20.0 mg/Kg Sample: 295096 - Trench #1 4' (AH-4) Param Flag Result Units	RL
Sample: 295095 - Trench #1 3' (AH-4) Param Flag Result Units Chloride <20.0 mg/Kg Sample: 295096 - Trench #1 4' (AH-4) Param Flag Result Units	4
Param Flag Result Units Chloride <20.0	
Chloride <20.0 mg/Kg Sample: 295096 - Trench #1 4' (AH-4) Param Flag Result Units	
Chloride <20.0 mg/Kg Sample: 295096 - Trench #1 4' (AH-4) Param Flag Result Units	RL
Param Flag Result Units	4
Param Flag Result Units	
Chloride <20.0 mg/Kg	RL
;	4
Sample: 295097 - CS-8 Bottom Hole 3' (South Area)	
Param Flag Result Units	RL
Chloride <20.0 mg/Kg	4
; Sample: 295098 - CS-8 North Sidewall (South Area)	
Param Flag Result Units	RL
Chloride 69.7 mg/Kg	4

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

Chloride

Report Date: May 7,	2012	Work Order: 12042416	Page !	Number: 5 of 5
Sample: 295099 - 0	CS-8 East Sidewall	(South Area)		
Param	Flag	Result	Units	RL
Chloride		139	mg/Kg	4
Sample: 295100 - 0 Param	CS-8 South Sidewa Flag	ll (South Area) Result	Units	RL
Chloride		184	mg/Kg	4
G. i.l. common		1 (G . 11 A)		
Sample: 295101 - 0	JS-8 West Sidewal	(South Area)		
Param	Flag	Result	Units	RL

169

mg/Kg

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

S R S S S S S S S S S S S S S S S S S S	2/264961			
TETRA TECH TETRA TETRA TECH TETRA			PAGE;	1 OF: 3
TETRATECH 1910 N Big Spring St. 1910 N Big Sprin	Request of Chair		ANALYSIS REQU (Circle or Specify Met	EST hod No.)
STERMANGER: STERMANGER: STERMANGER: The Tarket T	TETRA T 1910 N. Big Spri Midland, Texas 7 (432) 682-4559 • Fax	32-3946	4 Cr Pb Hg Se	Sat
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(5-2 East Subtract) (5-2 East Subtract) (5-3 Dept. 101 2 1	(S			
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12-2 13-2	(5-2 East			
(55-3) 3cytom Hole 2 C5-3 Schort Side will C5-3 Schort Side will C5-3 C5-4 C5-	15.2 2.55			*>-
(55-3	C5-3 Ballom Holx			
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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 206000

CONDITIONS

Operator:	OGRID:
Spur Energy Partners LLC	328947
9655 Katy Freeway	Action Number:
Houston, TX 77024	206000
	Action Type:
	[IM-SD] Incident File Support Doc (ENV) (IM-BNF)

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