## SITE INFORMATION

		Repor	t Type: Clos	sure Re	port						
General Site I	nformation:	The second se									
Síte:		Save D A 21	Federal #1		AND AN AN AN AN AND AN AN AN AN						
Company:		COG Opera	ting LLC								
	nship and Range	Sec 21	T 25S	R 29E	·						
Ľease Numbe	r:	API-30-015-	34840								
County:		Eddy Count	y								
GPS:			32.12089° N			103.99588° W					
Surface Owne	er:	Federal									
Mineral Owne	er:				· · · · · · · · · · · · · · · · · · ·						
Directions:		for approxima miles, turn No	tely 4.2 miles, turn	NORTH/NE and continu	onto Pipline F le for apx. 3 n	n Rd) travel EAST on Longhorn Rd. Rd Number 1 and continue for apx. 1. niles, turn WEST onto lease road for					
Release Data:											
Date Released	<i>l:</i>	11/29/2013									
Type Release:		Oil and Prod	uced water								
Source of Con		Leak in pack	ing on polishing	rod							
Fluid Released		0 bbls	V								
Fluids Recover	red:	12 bbls									
Official Comm	nunication: 😳 🔿 🔥										
Name:	Robert McNeil				Ike Tavarez						
Company:	COG Operating, L				Tetra Tech						
Address:	One Concho Cent		-								
Auuress.			+		4000 N. Big	g spring					
	600 W. Illinois Ave				Ste 401						
City:	Midland Texas, 79	701			Midland, Te						
Phone number	:: (432) 686-3023				(432) 687-8	3110					
Fax:	(432) 684-7137										
Email:	rmcneil@conchc	resources.com	<u>1</u>		Ike.Tavare	ez@tetratech.com					
Ranking Crite	ria										
Depth to Groun	dwater:		Ranking Score	1		Site Data					
<50 ft			20								
50-99 ft			10								
>100 ft.			0								
WellHead Prote			Panking Coort			Site Data					
	<i>ction:</i> 1,000 ft., Private <200	ft	Ranking Score 20			Sile Dala					
	1,000 ft., Private >200		0			0					
Surface Bady a	f Water:	· · · · · · · · · · · · · · · · · · ·	Ponking Ores			Site Data					
Surface Body of <200 ft.			Ranking Score 20	+		Site Data					
<200 ft - 1,000 ft.		<u> </u>	10		· · · · · · · · · · · · · · · · · · ·						
>1,000 ft.			0			0					
	otal Ranking Score			, an ,		NM OIL CONSERVATION ARTESIA DISTRICT					
		the second s	ble Soil RRAL								
		Benzene	Total BTEX	TPH		JUN 0 4 2014					
		10	.50	5,000							
	and the second					RECEIVED					

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March 11, 2014

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

# Re: Closure Report for the COG Operating LLC., Save D A 21 Federal #1, Unit D, Section 21, Township 25 South, Range 29 East, Eddy County, New Mexico.

#### Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Save D A 21 Federal #1, Unit D, Section 21, Township 25 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.12089°, W 103.99588°. The site location is shown on Figures 1 and 2.

### Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on November 29, 2013, and released approximately ten (10) barrels of produced water and five (5) barrels of oil from a leaking rod liner packing. To alleviate the problem, COG personnel will ensure that the packing is full. Zero (0) barrels of standing fluids were recovered. The spill affected an area on the pad approximately 30' x 145', as well as an area north of the pad approximately 5' x 95'. The initial C-141 form is enclosed in Appendix A.

#### Groundwater

No water wells were listed within Section 21. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 125' below surface. The groundwater data is shown in Appendix B.



### Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

### Soil Assessment and Analytical Results

On December 16, 2013, Tetra Tech personnel inspected and sampled the spill area. Eight (8) auger holes (AH-1 through AH-8) 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, the areas of auger holes (AH-5, AH-6, and AH-8) exceeded the TPH RRAL. The areas showed TPH concentrations of 6,500 mg/kg, 12,150 mg/kg, and 18,180 mg/kg at 0-1' below surface, respectively. Auger holes (AH-5 and AH-8) were not vertically defined at 0'-1' below surface. Auger hole (AH-6) showed TPH concentrations that declined with depth below the RRAL at 1'-1.5' below surface.

In addition, the areas of auger holes (AH-4 and AH-6) exceeded the RRAL for total BTEX, but all declined below the RRAL at 1'-1.5' below surface. The area of AH-5 was not vertically defined with a total BTEX concentration of 166 mg/kg at 0-1'.

Elevated chloride concentrations were detected in majority of the auger holes (AH-1, AH-2, AH-3, AH-4, AH-5 and AH-7). The areas of AH-6 and AH-8 did not show a significant chloride impact to the soils. The chloride concentrations at auger holes (AH-1 and AH-4) declined at 1'-1.5' and vertically defined. The areas of auger holes (AH-2, AH-3, AH-5 and AH-7) were not vertically defined with bottom hole auger hole samples of 4,890 mg/kg at 1-1.5', 1,730 mg/kg at 1-1.5', 923 mg/kg at 0-1' and 3,840 mg/kg at 0-1', respectively.



### **Remedial Activities**

On April 3, 2014, Tetra Tech began supervising the excavation of impacted materials as highlighted (green) on Table 1 and shown on Figure 4. Prior to excavating, backhoe trenches were installed in the areas of AH-2, AH-3, AH-5, AH-7, and AH-8 to evaluate the excavation bottom and define the chloride concentrations.

Referring to Table 1, T-2 and T-4 showed chloride concentrations of 512 mg/kg at 2.0' and 352 mg/kg at 1.0' below surface, respectively. The area of T-1 showed elevated chloride concentrations at 2.0' below surface of 3,760 mg/kg. However, the sample was collected on top of dense bedrock and was possibly cross-contaminated from the surrounding excavation. Tetra Tech resampled the area of AH-2 by chiseling the bedrock, which showed a chloride concentration of 240 mg/kg. The areas of T-3 (AH-5) and T-5 (AH-8) were analyzed for TPH and BTEX and did not show concentrations above the RRAL's.

The areas of AH-1, AH-4, and AH-6 were excavated to a depth of approximately 1.0', and the areas of AH-2, AH-3, AH-5, AH-7, and AH-8 were excavated to a depth of approximately 2.0' below surface.

Approximately 420 yards of excavated soil was transported offsite for proper disposal and the areas will be backfilled with clean material to surface grade.

### Conclusion

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

Respectfully submitted, TETRA TECH

mzels

Clair Gonzales, Geologist

cc: Robert McNeil – COG cc: Mike Burton – BLM





Drawn By; isabel Marmolejo



<sup>.</sup> Draws By; is abe! Marmolejo





# Photos



**TETRA TECH** 



View East – Area of AH-1



View North – Area of AH-2



TETRA TECH



View North – Area of AH-3



View North – Area of AH-4



TETRA TECH



View North – Area of AH-5



View North – Area of AH-6



TETRA TECH



View West – Area of AH-7 and AH-8



TETRA TECH



View South – Area of T-1



View West-Area of T-2



TETRA TECH



View West – Area of T-3



View Southwest – Area of T-4



View South – Area of T-5



View South - Excavated area of AH-1

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TETRA TECH





View South - Excavated area of AH-3



View South - Excavated areas of AH-4 and AH-5



View South – Excavated areas of AH-6, AH-7, and AH-8



# Tables

Sample ID	Sample Date	BEB Sample	Excavation Bottom	Soil	Status		TPH (mg/k	(g)	Benzene	Toluene	Ethlybenzene	Xylene	Total BTEX	Chloride
Sample ID	Sample Date	Depth (ft)	Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-1	12/17/2013	0-1	0		X	348	159	507	<0:100	0.176	0.634	12.1	.12.9	1,430
	n	1-1.5	0	x		-	-	-	-	-	-	-	-	541
AH-1 North Sidewall	4/11/2014	-	-	x		-	-	-	-	-	-	-	-	912
AH-1 South Sidewall	4/11/2014	-	-	x		-	-	-	-	-	-	-	-	1,360
AH-1 East Sidewall	4/11/2014		-	х		-	-	-	-	-	-	-	-	736
AH-2	12/17/2013	. 0-1	0		X	<8.00	69.2	69.2	<0.0400	<0.0400	≈0.0400	1. N. 1. 1.	<0.0400	3,780
	u	11.5	0		X									4,890
AH-2 Bottom Hole	4/11/2014	2	0	х		-	-	-	-	-	-	-	-	240
	4/8/2014	0	0 - 0		X.									2,800
	It	2' refusal.	0		States -							1		3,760
AH-2 East Sidewall	4/11/2014	-	-	х		-	-	-	-	-	-	-	-	1,420
AH-2 West Sidewall	4/11/2014	-	-	x		-	-	-	-	-	-	-	-	720

		BEB	Excavation	Soil	Status		TPH (mg/k	g)	Benzene	Toluene	Ethlybenzene	Xylene	Total BTEX	Chloride
Sample ID	Sample Date	Sample Depth (ft)	Bottom Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-3	12/17/2013	0-1	0		X	313		544	<0.100	0.876	0:833	10.5	12,2	5,210
	11	1-1.5	0		X					Karling Mill				1,730
T-2	4/8/2014	0	0		x									1,520
	11	2 <sup>;</sup> refusal.	0		×		می این این این این این این این این این ای						-	512
AH-3 East Sidewall	4/11/2014	-	-	х		-	-	-	-	-	-	-	-	832
AH-3 West Sidewall	4/11/2014	-	-	х		-	-	-	-	-	-	-	-	1,140
AH-4	12/17/2013	0=1	Ô		×	885	1,730	2,615	<0100	6.64	4.62	45.2	56.5	1,450
	II	1-1.5	0	х		-	-	-	<0.100	0.912	0.955	7.87	9.74	689
AH-4 East Sidewall	4/11/2014	-	-	x		-	-	-	-	-	-	-	-	784
AH-4 West Sidewall	4/11/2014	-	-	х		-	-	-	-	-	-	-	-	400

.

Semale ID	Comple Date	BEB	Excavation Bottom	Soil	Status	-	TPH (mg/k	g)	Benzene	Toluene	Ethlybenzene	Xylene	Total BTEX	Chloride
Sample ID	Sample Date	Sample Depth (ft)	Depth (ft)	In-Situ		GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-5	12/17/2013	0-1	Ô.		X	3,200	3,300	6,500	- 0.699	29.4	12.9	123	166	923
T-3	4/8/2014	0	0		×	<10.0	<10.0	<10:0	<0.050	<0:050	<0.050	<0.150	<0.300	
	ŧ	2	0	×		<10.0	30.6	30.6	<0.050	<0.050	<0.050	<0.150	<0.300	-
	u	4' refusal	0	x		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	-
AH-5 South Sidewall	4/11/2014	-	-	х		-	-	-	-	-		-		368
AH-5 East Sidewall	4/11/2014	-	-	х		-	-	-	-	-	-	-	_	1,570
AH-5 West Sidewall	4/11/2014	-	-	x		-	-	-	-	-	-	-	-	416
AH-6	12/17/2013	Q-1.			×	7,810	4, <b>3</b> 40	12,150	2.33	95.9	32:0	278	408	244
	u	1-1.5	0	х		49.4	<50.0	49.4	<0.0200	<0.0200	0.0699	0.271	0.341	516
AH-6 East Sidewall	4/11/2014	-	-	x		-	-	-	-	-	-	-	-	2,040
AH-6 West Sidewall	4/11/2014	-	_	х		-	-	-	-	-	-	-	-	656

Os and the IP	Comple Date	BEB	Excavation	Soil	Status		FPH (mg/k	g)	Benzene	Toluene	Ethlybenzene	Xylene	Total BTEX	Chloride
Sample ID	Sample Date	Sample Depth (ft)	Bottom Depth (ft)	In-Situ	Removed		DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-7	12/17/2013	0.1**	Ó		्र	580	385	965	<0:100	2.33	1-37	16.8	20.5	3,840
T-4	4/8/2014	0	Ő.		X									320
	п	1' refusal	0	х		-	-	-	-	-	-	-	-	352
AH-7 East Sidewall	4/11/2014	-	-	х		-	-	-	-	-	-	-	-	656
AH-7 West Sidewall	4/11/2014	-	-	х		-	-	-	-	-	-	-	-	736
AH-8	12/17/2013	<ol> <li>,0-1+↓</li> </ol>	Эта О С		X	2,680	15,500	18,180,	v*10.393	27.3	17.0	, , 151-, ,	-196	66.9
T-5	4/8/2014	0.5	0		×	137	2,655	2,792	<0.050	<0:050	0.696	3.57	4.27	
	u	2	0	х		<10.0	12.5	12.5	<0.050	<0.050	<0.050	<0.150	<0.300	-
AH-8 East Sidewall	4/11/2014	-	-	х		-	-	-	-	-		-	-	1,040
AH-8 West Sidewall	4/11/2014	-	-	х		-	-	-	-	-	-	-	-	2,160
										L		l	l	L

(-) Not Analyzed

(BEB) Below Excavation Bottom

Excavation Depths

# Appendix A

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

**Oil Conservation Division** 1220 South St. E. · .

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

District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505	•	Fe, NM 875			side of form
Release	Notificatio	Salarit - sensitive and set a definition of the set of the		ction	
		OPERAT	FOR	🛛 Initia	al Report 🔲 Final Repor
Name of Company COG OPERATING LL		Contact	R	obert McNeill	
Address 600 West Illinois Avenue, Midland		Telephone M		32-230-0077	
Facility Name Save D A 21 Federal #00	01	Facility Typ	e	Tank Battery	
Surface Owner Federal	Mineral Owner			Lease N	No. (API#) 30-015-34840
	LOCATIC	ON OF REI	LEASE		
Unit LetterSectionTownshipRangeFeetD2125S29E	from the Nort	h/South Line	Feet from the	East/West Line	County Eddy
Lati	tude 32.12089	Longi	tude 103.99588	<u></u>	<b></b>
		E OF RELI			
Type of Release Oil and produced water		Volume of		ols oil Volume F	Recovered Obbls of oil
Source of Release Packing leak			bbls of produced		Obbls produced water
Source of Release Packing leak		Date and H	lour of Occurrenc		Hour of Discovery 13 11:00am
Was Immediate Notice Given?	Not Required	If YES, To		مىسىتىسى بىتى يەن ب <u>ۇنى</u> لىچى <sub>تارىخ</sub> ىي	<u>na na serie de espando de la construcción de la de</u>
By Whom?	· · · · · · · · · · · · · · · · · · ·	Date and H	lour		
Was a Watercourse Reached?			lume Impacting t	he Watercourse.	
Yes 🛛 No					
If a Watercourse was Impacted, Describe Fully.*					
Describe Cause of Problem and Remedial Action Take	n.*				
Polishing rod liner packing leaked due to weather chan	ge. Make sure th	e packing is ful	1		
Describe Area Affected and Cleanup Action Taken.*			<u></u>		
Initially 5bbls of oil and 10bbls of produced water were vacuum truck. All free fluids have been recovered. Con will present a remediation work plan to the NMOCD/B	icho will have the	spill site samp	led to delineate a	ny possible contan	able to recover Obbls with a nination from the release and we
I hereby certify that the information given above is true regulations all operators are required to report and/or fi public health or the environment. The acceptance of a should their operations have failed to adequately invest or the environment. In addition, NMOCD acceptance of federal, state, or local laws and/or regulations.	le certain release C-141 report by t igate and remedie	notifications ar he NMOCD ma ate contamination	nd perform correc arked as "Final Re on that pose a thre	tive actions for rele eport" does not reli at to ground water	eases which may endanger ieve the operator of liability r, surface water, human health
			OIL CONS	SERVATION	DIVISION
Signature: The lot they					
Printed Name: Robert Grubbs Jr.		Approved by	District Supervise	or:	
Title: Senior Environmental Coordina	ator	Approval Date	c:	Expiration	Date:
E-mail Address: rgrubbs@concho.com		Conditions of	Approval:		Attached
Date: 12-11-2013 Phone: 43 Attach Additional Sheets If Necessary	2-661-6601				

NM OIL CONSERVATION

ARTESIA DISTRICT

JUN 0 4 2014

### RECEIVED

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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

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

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			ncie	ease nound	auor	OPERAT		_	tial Damant		Einel Demont
Name of Co	mpany C	OG Operat	ing LLC	1			bert McNeil		tial Report	$\boxtimes$	Final Report
				Texas 79701			lo. (432) 230-0	077			
Facility Nar	ne Save D	A 21 Feder	al #001				e Tank Batte				
Surface Ow	ner: Feder	al		Mineral C	)wner			Lease	No. (API #	) 30-01	5-34840
	_			LOCA	IOITA	N OF REI	LEASE				
Unit Letter	Section	Township	Range	Feet from the		South Line	Feet from the	East/West Line	County		
D	21	258	29E							Edd	y
L.,	1	·	]	Latitude N 32.	 12089°	Longitud	e W 103.9958	B°			<u> </u>
			_			OF RELI		-			
Type of Relea	ase: Oil and	produced wa	ter	1171	UND		Release 5 bbls o	il Volume	Recovered	) bbls c	oil
						10 bbls p	roduced water	0 bbl	s produced w		
Source of Rel	lease: Packi	ing				Date and H	our of Occurrenc	e Date an 11/29/2	d Hour of Dis 013 11:00	-	,
Was Immedia	ate Notice C		·			If YES, To		1112912	015 11.00	a,111.	
			Yes 🛛	No 🛛 Not Re	equired		<u></u>	····			
By Whom? Was a Watero	Dourse Deer	had?		·		Date and H		ha Wataraauraa			
was a water	course Read		Yes 🛛	No		N/A	lume Impacting t	he watercourse.			
If a Watercou	irse was Im	pacted, Descri	ibe Fully.*	k		L					
N/A								1	ARTES		RVATION
									JUN	04	2014
Describe Cau	se of Proble	em and Reme	dial Action	n Taken.*							
Polishing rod	liner packi	ng leaked due	to weathe	er change. Make	sure pac	king is full.			RE	CEIV	ED
Describe Are	a Affected a	and Cleanup A	Action Tak	ten.*							
   Initially 5 bbl	s of oil and	10 bbls of pro	oduced wa	iter were released	from a l	eak in the pace	king on the polis	hing rod. None	of the fluid w	as reco	vered. Tetra
Tech inspecte	ed site and c	collected samp	les to defi	ine spills extent. S	Soil that	exceeded RR	AL was removed	and hauled away	/ for proper d	sposal.	
then brought	up to surfac	e grade with o	clean back	fill material. Tetr	a Tech p	repared closu	re report and sub	mitted to NMOC	D for review		
regulations al public health should their c or the enviror	l operators or the envir operations h oment. In a	are required to ronment. The ave failed to a	o report an acceptanc idequately ICD accep	is true and comp id/or file certain r ce of a C-141 report investigate and r tance of a C-141	elease no ort by the emediate	otifications ar NMOCD ma contamination	d perform correc arked as "Final R on that pose a thr	tive actions for r eport" does not r eat to ground wa	eleases which elieve the ope ter, surface w	may e rator o ater, hu	ndanger f liability man health
	/ /	11	7	$\geq$			OIL CON	SERVATIO	N DIVISIO	DN	
Signature:	1/1	1		/							
Printed Name	: Ike Tavar	ez (AG	ait	In COC	)	Approved by	District Supervise	or:			
Title: Project	Manager	•				Approval Dat	2:	Expiratio	n Date:	-	
E-mail Addre	ss: Ike.Tav	arez@TetraTe	ch.com		•	Conditions of	Approval:		Attached		
Date: 5	-8 - 1	14	Phone:	(432) 682-4559							

\* Attach Additional Sheets If Necessary

Appendix B

### Water Well Data Average Depth to Groundwater (ft) COG - Save D A 21 Federal #1 **Eddy County, New Mexico**

	24	1 Sc	outh			28 East				
70	5	30	4	30	3	2	55	1	60	
	8	50	9		10	11		12		
					17	20		73		
	17		16		15	14		13		
	42		29		18	52		34		
	20		21		22	23		24		
	48									
	29		28		27	26		25		
	32		33		34	35		36		
	70	70 5 8 17 42 20 48 29	70         5         30           8         50           17         42           20         48           29         9	70         5         30         4           8         50         9           17         16         29         29           20         21         48         48           29         28         28         28	8         50         9           17         16           42         29           20         21           48         29           29         28	70         5         30         4         30         3           8         50         9         10         17           17         16         15         12         29         18           20         21         22         48         29         28         27	70         5         30         4         30         3         2           8         50         9         10         11           17         16         15         14           42         29         18         52           20         21         22         23           48         29         28         27         26	70         5         30         4         30         3         2         55           8         50         9         10         11           17         16         15         14           42         29         18         52           20         21         22         23           48         -         -         -           29         28         27         26	70         5         30         4         30         3         2         55         1           8         50         9         10         11         12         73           17         16         15         14         13           42         29         18         52         34           20         21         22         23         24           48	

	25 Sc	uth	28	East	-
6	5	4 35	3 <b>32</b>	2	1
	59				Site
7	8	9	10	11	12
18	17	16	15 <b>48</b>	14	13
67			49		
19	20	21	22	23	24
	96				レノ
30	29	28	27	26 <b>40</b>	25
	15	90			5
31	32	33	34	35	36
					40 (

30	29	28	27	26 <b>40</b>	25
	15	90			
31	32	33	34	35	36
					40
	26 \$	South	2	28 East	
6	5	4	3	2 120	1 ~
				21	
7	8	9	10	11	12
					100
18	17	16	15	14	13
				120	56
19	20	21	22	23	24
			120		
30	29	28	27	26	25

34

		24 So	outh	29	East	
Caris	6 bad	5	4	3	2	1
	7 160	8	9	10	11	12
	18	17 4	16 18	15	14	13
	19	20	21	22	23	24
	30	29	88	27	26	25
	31	32	33	34	35	36

	25 Sc	outh	29	East	
6 4 <b>0</b>	50	4	3	2	1
	8	9	10 <b>40</b>	11	12
لر 18	17	16	15 60	14	13
19	20	21 SITE	22	23	24
30 30	29	28	27	26	25
31	32 115	33	34	35	36

	24 South		30	East_	
6	5	4	3	2	1
7	8 1 <b>86</b>	9	10	11	12
18	17	16	15	14	13
19 <b>231</b> 150		21	22	23 <b>400</b>	24
30	<sup>29</sup> ,	28	27	26	25
31. :	32	33	34	35	36

	25 South			30 East		
6	5	4	3	2 <b>295</b>	1	
7 264	8	9 <b>295</b>	10	11	12 <b>390</b>	
18	17	16	15	14	13	
19	20	21 <b>265</b> 268	22	23	24	
30	29	28	27	26	25	
31	32	33	34	35	36	

	26 Sc	outh	29	East	
6	5 78	4	3	2	1
7	8	9	10	11	12
18	17	16 125	15	14	13
19	20	21	22 <b>57</b> 69	23	24
30 🗸	29	28	27	26	25
31	32	33	34	35	36

	26 Sc	outh	;	t	
6	5 179	4	3	2	1
	180				
7	8	9	10	11	12
1	172			Í	
18	17	16	15	14	13
19	20	21	22	23	24
					180
30	29	28	27	26	25
					$1 \leq$
31	32	33	34	35	36

New Mexico State Engineers Well Reports

35

36

USGS Well Reports

33

31

32

Geology and Groundwater Conditions in Southern Eddy, County, NM

NMOCD - Groundwater Data

Field water level

New Mexico Water and Infrastructure Data System

# Appendix C

## **Summary Report**

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

Report Date: January 6, 2014

Work Order:	13121819

Project Location:	Eddy Co, NM
Project Name:	COG/Save D A 21 Fed #001
Project Number:	TBD

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
349281	AH-1 0-1'	soil	2013-12-17	00:00	2013-12-18
349282	AH-1 1-1.5'	soil	2013-12-17	00:00	2013-12-18
349283	AH-2 0-1'	soil	2013-12-17	00:00	2013-12-18
349284	AH-2 1-1.5'	soil	2013-12-17	00:00	2013-12-18
349285	AH-3 0-1'	soil	2013-12-17	00:00	2013-12-18
349286	AH-3 1-1.5'	soil	2013-12-17	00:00	2013-12-18
349287	AH-4 0-1'	soil	2013-12-17	00:00	2013-12-18
349288	AH-4 1-1.5'	soil	2013-12-17	00:00	2013-12-18
349289	AH-5 0-1'	soil	2013-12-17	00:00	2013-12-18
349290	AH-6 0-1'	soil	2013-12-17	00:00	2013-12-18
349291	AH-6 1-1.5'	soil	2013-12-17	00:00	2013-12-18
349292	AH-7 0-1'	soil	2013-12-17	00:00	2013-12-18
349293	AH-8 0-1'	soil	2013-12-17	00:00	2013-12-18

		В	TEX		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)
349281 - AH-1 0-1'	<0.100 Qa	0.176 Qs	0.634 Qs	12.1 Qs	159	348
349283 - AH-2 0-1'	<0.0400 Q×	<0.0400 Qs	<0.0400 Qs	<0.0400 Qs	69.2	< 8.00
349285 - AH-3 0-1'	<0.100 Qs	<b>0.876</b> дя	0.833 Qs	10.5 Qs	231	313
349287 - AH-4 0-1'	<0.100 Qs	<b>6.64</b> Q <sub>8</sub>	4.62 Qs	45.2 Qs	1730	885
349288 - AH-4 1-1.5'	< 0.100	0.912	0.955	7.87		
349289 - AH-5 0-1'	<b>0.699</b> <sub>Qs</sub>	<b>29.4</b> Qs	12.9 Q.	123 Q.	3300	3200
349290 - AH-6 0-1'	2.33 Qs	95.9 Qa	32.0 Q.	278 Qa	4340	7810
349291 - AH-6 1-1.5'	< 0.0200	< 0.0200	0.0699	0.271	<50.0	49.4
349292 - AH-7 0-1'	<0.100 q.	2.33 Q≝	1.37 Qa	16.8 Qs	385	580
349293 - AH-8 0-1'	<b>0.393</b> д₃	27.3 Qa	17.0 Qs	151 Q.	15500	2680

#### Sample: 349281 - AH-1 0-1'

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Report Date: January 6, 2014		Work Order: 13121819	Page	e Number: 2 of 3
Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		1430	mg/Kg	4
Sample: 349282	- AH-1 1-1.5'			
Param	Flag	Result	Units	$\operatorname{RL}$
Chloride		541	mg/Kg	4
Sample: 349283	- AH-2 0-1'			
Param	Flag	Result	Units	$\operatorname{RL}$
Chloride		3780	mg/Kg	4
Sample: 349284	- AH-2 1-1.5'			
Param	Flag	Result	Units	$\operatorname{RL}$
Chloride		4890	mg/Kg	4
Sample: 349285	- AH-3 0-1'			
Param	Flag	$\mathbf{Result}$	Units	RL
Chloride		5210	mg/Kg	4
Sample: 349286	- AH-3 1-1.5'			
Param	$\operatorname{Flag}$	Result	Units	RL
Chloride		1730	mg/Kg	4
Sample: 349287	- AH-4 0-1'			
Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		1450	mg/Kg	4
Sample: 349288	- AH-4 1-1.5'			
Param	Flag	Result	Units	RL
Chloride	<u>~</u>	689	mg/Kg	4

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Report Date: January 6, 2014		Work Order: 13121819	Page 1	Number: 3 of 3
Sample: 349289	- AH-5 0-1'			
Param	Flag	Result	Units	RL
Chloride		923	mg/Kg	4
Sample: 349290	- AH-6 0-1'			
Param	Flag	Result	Units	RL
Chloride		244	mg/Kg	4
Sample: 349291	- AH-6 1-1.5'			
Param	$\mathbf{Flag}$	Result	Units	RL
Chloride	······································	516	mg/Kg	4
Sample: 349292	- AH-7 0-1'			
Param	Flag	Result	Units	$\operatorname{RL}$
Chloride		3840	mg/Kg	4
Sample: 349293	- AH-8 0-1'			
Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		66.9	mg/Kg	4



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

Certifications

NELAP DoD LELAP WBE HUB NCTRCA DBE Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

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

Report Date: January 6, 2014

Work Order: 13121819 

Project Location: Eddy Co, NM Project Name: COG/Save D A 21 Fed #001 Project Number: TBD

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
349281	AH-1 0-1'	soil	2013-12-17	00:00	2013-12-18
349282	AH-1 1-1.5'	soil	2013-12-17	00:00	2013-12-18
349283	AH-2 0-1'	soil	2013-12-17	00:00	2013-12-18
349284	AH-2 1-1.5'	soil	2013-12-17	00:00	2013-12-18
349285	AH-3 0-1'	soil	2013-12-17	00:00	2013-12-18
349286	AH-3 1-1.5'	soil	2013-12-17	00:00	2013-12-18
349287	AH-4 0-1'	soil	2013-12-17	00:00	2013-12-18
349288	AH-4 1-1.5'	soil	2013-12-17	00:00	2013-12-18
349289	AH-5 0-1'	soil	2013-12-17	00:00	2013-12-18
349290	AH-6 0-1'	soil	2013-12-17	00:00	2013-12-18
349291	AH-6 1-1.5'	soil	2013-12-17	00:00	2013-12-18
349292	AH-7 0-1'	soil	2013-12-17	00:00	2013-12-18
349293	AH-8 0-1'	soil	2013-12-17	00:00	2013-12-18

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

This report consists of a total of 45 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

# **Report Contents**

Case Narrative	5																
Analytical Report	6																
Sample 349281 (AH-1 0-1')	6																
Sample 349282 (AH-1 1-1.5')	7																
Sample 349283 (AH-2 0-1')	7																
Sample 349284 (AH-2 1-1.5')	9																
Sample 349285 (AH-3 0-1')	9																
	11																
	11																
	12																
	13																
• •	14																
	16																
	17																
	19																
Method Blanks 2	21																
QC Batch 107761 - Method Blank (1)	21																
QC Batch 107765 - Method Blank (1)	21																
•	21																
•	22																
	22																
•	22																
	23																
	23																
•	24																
•	<b>24</b>																
•																	
Laboratory Control Spikes 2	25																
QC Batch 107761 - LCS (1)	25																
	25																
	26																
QC Batch 107808 - LCS (1)	26																
QC Batch 107810 - LCS (1)	27																
	27																
QC Batch 107855 - LCS (1)	28																
QC Batch 107889 - LCS (1)	28																
	29																
QC Batch 107984 - LCS (1)	29																
	30																
QC Batch 107765 - MS (1)	30																
	31																
	31																
	32																
•	32																
	QC Batch	107855 -	· MS (1)			 	 	 	 	 	 	 	 	 	 	. 33	3
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	QC Batch	107889 -	· MS (1)			 	 	 	 	 • • •	 	 	 	 	 	. 33	3
	QC Batch	107983 -	MS (1)			 	 	 	 	 	 	 	 	 	 	. 34	4
	QC Batch	107984 -	MS (1)			 	 	 	 	 	 	 	 	 	 	. 34	1
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	QC Batch			١													
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	QC Batch 1	107811 -	CCV(3)	)		 	 	 	 	 	 	 	 	 	 	40	)
	QC Batch 1	107855 -	CCV (1)				•										)
	QC Batch 1	107855 -	CCV(2)	)		 	 	 	 	 	 	 	 	 	 	40	)
	QC Batch 1	107855 -	CCV(3)	)		 	 	 	 	 	 	 	 	 	 	41	1
	QC Batch 1	107889 -	CCV(1)	)		 	 	 	 	 	 	 	 	 	 	41	I
	QC Batch 1	107889 -	CCV(2)	)		 	 	 	 	 	 	 	 	 	 	41	Ĺ
	QC Batch 1	107889 -	CCV(3)	)		 	 	 	 	 	 	 	 	 	 	42	2
	QC Batch 1	107983 -	CCV(1)			 	 	 	 	 	 	 	 	 	 	42	2
	QC Batch 1	107983 -	CCV(2)	)		 	 	 	 	 	 	 	 	 	 	42	2
	QC Batch 1					 	 	 	 	 	 	 	 	 	 	42	2
	QC Batch 1	107984 -	CCV(2)	۱		 	 	 	 	 	 	 	 	 • •	 	42	2
An	pendix															44	1
	Report Defi	initions				 		 		 			 				
	Laboratory																
	Standard F																-
	Result Com																
	Attachment																

# Case Narrative

Samples for project COG/Save D A 21 Fed #001 were received by TraceAnalysis, Inc. on 2013-12-18 and assigned to work order 13121819. Samples for work order 13121819 were received intact at a temperature of 3.9 C.

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

		Prep	Prep	$\mathbf{QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	91171	2013-12-19 at 08:26	107765	2013-12-20 at 12:25
BTEX	S 8021B	91224	2013-12-20 at 12:31	107810	2013-12-23 at 09:48
BTEX	S 8021B	91258	2013-12-23 at 12:50	107855	2013-12-24 at 13:15
Chloride (Titration)	SM 4500-Cl B	91351	2013-12-31 at $08:40$	107983	2014-01-03 at 10:26
Chloride (Titration)	SM 4500-Cl B	91351	2013-12-31 at 08:40	107984	2014-01-03 at 10:34
TPH DRO - NEW	S 8015 D	91215	2013-12-19 at 13:00	107761	2013-12-20 at 09:49
TPH DRO - NEW	S 8015 D	91251	2013-12-23 at 08:35	107808	2013-12-23 at 08:40
TPH GRO	S 8015 D	91171	2013-12-19 at 08:26	107771	2013-12-20 at 12:55
TPH GRO	S 8015 D	91224	2013-12-20 at 12:31	107811	2013-12-23 at 09:51
TPH GRO	S 8015 D	91286	2013-12-24 at 09:00	107889	2013-12-30 at 15:54

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 13121819 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

# **Analytical Report**

#### Sample: 349281 - AH-1 0-1'

Laboratory: Midland Analysis: BTEX QC Batch: 107765 Prep Batch: 91171		Da	ate Anal	Method: yzed: eparation:	S 8021B 2013-12- 2013-12-	20		Prep Method Analyzed By: Prepared By:	AK
					$\mathbf{RL}$				
Parameter	Flag		Cert	F	lesult	Units		Dilution	RL
Benzene	Qu,U		1	<	0.100	mg/Kg		5	0.0200
Toluene	$\mathbf{Q}_{\mathbf{H}}$		1	6	).176	mg/Kg		5	0.0200
Ethylbenzene	Qa		ı	0	).634	mg/Kg		5	0.0200
Xylene	Qs		1		12.1	mg/Kg		5	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.40	mg/Kg	5	2.00	70	70 - 130
4-Bromofluorobenzene (4-BFB)	Qur	Qsr		5.19	mg/Kg	5	2.00	260	70 - 130

#### Sample: 349281 - AH-1 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 107983 91351	Date An	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-03 2013-12-31	Prep Method: Analyzed By: Prepared By:	ÁR.
Parameter	Flag	Cert	RL Result	Units	Dilution	$\mathbf{RL}$
Chloride			1430	mg/Kg	10	4.00

#### Sample: 349281 - AH-1 0-1'

Analysis:	Midland TPH DRO - NEW 107761 91215	Date A	cal Method: nalyzed: Preparation:	S 8015 D 2013-12-20 2013-12-19	Prep Method: Analyzed By: Prepared By:	$\mathbf{KC}$
Dummeter	Flor	Cert	RL	TT: 4	Dilution	ы
Parameter DRO	Flag		Result 159	Units mg/Kg	Dilution1	$\frac{\text{RL}}{50.0}$

Report Date: Janua TBD			Work Order G/Save D A	Page Number: 7 of 45 Eddy Co, NM						
Surrogate	Flag	Cert	R	esult	Units	Dilut		pike nount	Percent Recovery	Recovery Limits
n-Tricosane				122	mg/Kg	1		100	122	70 - 130
Sample: 349281 - Laboratory: Midla		,								
Analysis: TPH ( QC Batch: 10777)	GRO			Analytica Date Ana	al Method: alyzed:	S 8015 2013-12			Prep Metho Analyzed B	
Prep Batch: 91171			S	ample F	reparation:	2013-12	2-19		Prepared B	y: AK
						$\mathbf{RL}$				
Parameter		Flag		Cert	Re	sult	Uni		Dilution	RL
GRO				1		348	mg/K	g	5	4.00
								Spike	Percent	Recovery
Surrogate			Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TF	,				2.07	mg/Kg	5	2.00	104	70 - 130
4-Bromofluorobenzei	<u>1e (4-BFB)</u>	Qsr	Q×r		12.6	mg/Kg	5	2.00	630	70 - 130

#### Sample: 349282 - AH-1 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titrati 107983 91351	Date An	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-03 2013-12-31	Prep Method: Analyzed By: Prepared By:	ÁR	
				R.L			
Parameter		Flag	$\operatorname{Cert}$	$\mathbf{Result}$	Units	Dilution	$\mathbf{RL}$
Chloride				541	mg/Kg	5	4.00

#### Sample: 349283 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method: S 5035	j
QC Batch:	107765	Date Analyzed:	2013-12-20	Analyzed By: AK	
Prep Batch:	91171	Sample Preparation:	2013-12-19	Prepared By: AK	

continued ...

Report Date: January 6, 2014	Work Order: 13121819	Page Number: 8 of 45
TBD	COG/Save D A 21 Fed #001	Eddy Co, NM

## sample 349283 continued ...

					$\operatorname{RL}$				
Parameter	Flag		Cert		Result	Unit	S	Dilution	RL
					$\mathbf{RL}$				
Parameter	Flag		$\operatorname{Cert}$		Result	Unit	s	Dilution	$\mathbf{RL}$
Benzene	Qs;0		Ŀ	<	:0.0400	mg/K		2	0.0200
Toluene	Q <sub>8</sub> ,U		1	<	(0.0400	mg/K	g	2	0.0200
Ethylbenzene	Q∎,U		ı	<	<0.0400	mg/K	g	2	0.0200
Xylene	Qs,U		1	<	< 0.0400	mg/K	g	2	0.0200
							Spike	Percent	Recovery
Surrogate	F	'lag	$\mathbf{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.58	mg/Kg	2	2.00	79	70 - 130
4-Bromofluorobenzene (4-BFB)				1.64	mg/Kg	2	2.00	82	70 - 130

## Sample: 349283 - AH-2 0-1'

Chloride			3780	mg/Kg	10	4.00
Parameter	Flag	Cert	RL Result	Units	Dilution	$\mathbf{RL}$
Prep Batch:	91351	Sample 1	Preparation:	2013-12-31	Prepared By:	AR.
QC Batch:	107983	Date An	alyzed:	2014-01-03	Analyzed By:	AR.
Analysis:	Chloride (Titration)	Analytic	al Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland					

## Sample: 349283 - AH-2 0-1'

n-Tricosane			115	mg/Kg	1	100	115	70 - 130
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
DRO			1	6	9.2	mg/Kg	1	50.0
Parameter		Flag	Cert		RL sult	Units	Dilution	RL
Laboratory: Analysis: QC Batch: Prep Batch:	TPH DRO - NE 107761 91215	W	Dat	lytical Meth e Analyzed: ple Preparat	2013-1	2-20	Prep Me Analyze Preparec	•

Report Date: January 6, 2014	Work Order: 13121819	Page Number: 9 of 45
TBD	COG/Save D A 21 Fed #001	Eddy Co, NM

## Sample: 349283 - AH-2 0-1'

Laboratory: Midland Analysis: TPH GRO QC Batch: 107771 Prep Batch: 91171			Date An	al Method alyzed: Preparatio	2013-1	2-20		Prep Metho Analyzed B Prepared By	y: AK
					RL				
Parameter	Flag		Cert	]	Result	Uni	ts	Dilution	$\mathbf{RL}$
GRO	U		1		<8.00	mg/K	g	2	4.00
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				2.15	mg/Kg	2	2.00	108	70 - 130
4-Bromofluorobenzene (4-BFB)				2.40	mg/Kg	2	2.00	120	70 - 130

#### Sample: 349284 - AH-2 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Analysis: Chloride (Titration)		al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-03 2013-12-31	Prep Method: Analyzed By: Prepared By:	AR.
Parameter	Flag	Cert	RL Result	Units	Dilution	$\mathbf{RL}$
Chloride	1 105		4890	mg/Kg	10	4.00

#### Sample: 349285 - AH-3 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 107765 91171		Analytical Metho Date Analyzed: Sample Preparati	2013-12-2		Prep Method: Analyzed By: Prepared By:	S 5035 AK AK
				$\mathbf{RL}$			
Parameter		Flag	Cert	$\mathbf{Result}$	Units	Dilution	$\mathbf{RL}$
Benzene		Qa,U	1	< 0.100	mg/Kg	5	0.0200
Toluene		Qя	1	0.876	mg/Kg	5	0.0200
Ethylbenzene	)	Qs	1	0.833	mg/Kg	5	0.0200
Xylene		Qs	1	10.5	mg/Kg	5	0.0200

Report Date: January 6, 2014 TBD	2014 Work Order: 13121819 COG/Save D A 21 Fed #001					Page Number: 10 of 45 Eddy Co, NM			
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qar	Qsi		1.39	mg/Kg	5	2.00	70	70 - 130
4-Bromofluorobenzene (4-BFB)	Qar	Qsr		4.60	mg/Kg	5	2.00	230	70 - 130

#### Sample: 349285 - AH-3 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	sis: Chloride (Titration) atch: 107983		al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-03 2013-12-31	Prep Method: Analyzed By: Prepared By:	AR
			$\mathbf{RL}$			
Parameter	Flag	$\operatorname{Cert}$	Result	Units	Dilution	$\operatorname{RL}$
Chloride			5210	mg/Kg	10	4.00

#### Sample: 349285 - AH-3 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	: TPH DRO - NEW ch: 107761		Date	lytical Methe e Analyzed: ple Preparat	2013-1	2-20	Prep Me Analyzec Preparec	l By: KC
					RL	<b>TT</b> 1.		D.L.
Parameter		Flag	Cert	Res	ult	Units	Dilution	RL
DRO			1	2	31	mg/Kg	1	50.0
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			123	mg/Kg	1	100	123	70 - 130

#### Sample: 349285 - AH-3 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 107771 91171		Analytical M Date Analyz Sample Prep		12-20	Prep Method: Analyzed By: Prepared By:	AK
				$\mathbf{RL}$			
Parameter		Flag	Cert	Result	Units	Dilution	$\mathbf{RL}$
GRO			1	313	mg/Kg	5	4.00

Report Date: January 6, 2014 TBD	Work Order: 13121819 COG/Save D A 21 Fed #001					Page Number: 11 of 45 Eddy Co, NM			
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)				2.07	mg/Kg	5	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)	Qar	Qar		11.3	mg/Kg	5	2.00	565	70 - 130

#### Sample: 349286 - AH-3 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 107983 91351	Date Ar	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-03 2013-12-31	Prep Method: Analyzed By: Prepared By:	<b>A</b> R
			$\operatorname{RL}$			
Parameter	Flag	Cert	$\operatorname{Result}$	Units	Dilution	$\mathbf{RL}$
Chloride			1730	mg/Kg	10	4.00

#### Sample: 349287 - AH-4 0-1'

Laboratory: Midland Analysis: BTEX QC Batch: 107765 Prep Batch: 91171		Analytica Date Ana Sample Pi	lyzed:	2013-12	-20		Prep Method Analyzed By Prepared By:	: AK
				$\mathbf{RL}$				
Parameter	Flag	Cert		Result	Units	3	Dilution	$\mathbf{RL}$
Benzene	Qx	1	•	< 0.100	mg/Kg	5	5	0.0200
Toluene	Qa	1		6.64	mg/Kg	r S	5	0.0200
Ethylbenzene	$\mathbf{Q}_{\mathbf{N}}$	1		4.62	mg/Kg	5	5	0.0200
Xylene	QĦ	1		45.2	mg/Kg	5	5	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.41	mg/Kg	5	2.00	70	70 - 130
4-Bromofluorobenzene (4-BFB)			12.0	mg/Kg	5	2.00	600	70 - 130

#### Sample: 349287 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107983	Date Analyzed:	2014-01-03	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	$\mathbf{AR}$

Report Date: Janu TBD	Report Date: January 6, 2014 'BD			/ork Order: 13 /Save D A 21	Page Number: 12 of 45 Eddy Co, NM			
Demonstern		Floor	Cont	RI		I.I: to	Dilution	RL
Parameter Chloride		Flag	Cert	Resul 145		Units mg/Kg	Dilution 10	4.00
Sample: 349287	- AH-4 0-1	,						
v	DRO - NEV	N		ytical Method			Prep Me	,
QC Batch: 1077 Prep Batch: 9121				Analyzed: ple Preparatio	2013-12 n: 2013-12		Analyzeo Preparec	•
				RI	J			
Parameter		Flag	Cert	Resul	L U	Units	Dilution	$\operatorname{RL}$
DRO			1	1730	)	mg/Kg	1	50.0
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane Q*	r Qar		191	mg/Kg	1	100	191	70 - 130

## Sample: 349287 - AH-4 0-1'

Laboratory: Midland Analysis: TPH GRO QC Batch: 107889 Prep Batch: 91286	alysis:TPH GROAnalytical Method:S 8015 DBatch:107889Date Analyzed:2013-12-30							Prep Metho Analyzed By Prepared By	y: AK
					$\mathbf{RL}$				
Parameter	Flag		Cert	I	Result	Unit	S	Dilution	$\mathbf{RL}$
GRO			1		885	mg/K	g	50	4.00
<b>a</b>		131	<b>a</b> .	Dh	<b>T</b> T <b>1</b> ,	T>11	Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				2.24	mg/Kg	50	2.00	112	70 - 130
4-Bromofluorobenzene (4-BFB)	Qar	Qar		19.4	mg/Kg	50	2.00	970	70 - 130

#### Sample: 349288 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	107855	Date Analyzed:	2013-12-24	Analyzed By:	AK
Prep Batch:	91258	Sample Preparation:	2013-12-23	Prepared By:	AK

Report Date: January 6, 2014 TBD			Work Orc G/Save D	Page Number: 13 of 45 Eddy Co, NM				
				RL				
Parameter	Flag	Cert		Result	Units	5	Dilution	$\mathbf{RL}$
Benzene		1		< 0.100	mg/Kg	 ;	5	0.0200
Toluene		1		0.912	mg/Kg	5	5	0.0200
Ethylbenzene		1		0.955	mg/Kg		5	0.0200
Xylene		1		7.87	mg/Kg		5	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units		Amount	Recovery	Limits
Trifluorotoluene (TFT)			9.47	mg/K	-	10.0	95	70 - 130
4-Bromofluorobenzene (4-BFB)			10.6	mg/K	g 5	10.0	106	70 - 130
Sample: 349288 - AH-4 1-1. Laboratory: Midland Analysis: Chloride (Titratio QC Batch: 107983 Prep Batch: 91351		Date	ytical Me Analyze ple Prepa	d:	SM 4500-Cl B 2014-01-03 2013-12-31		Prep Met Analyzed Prepared	By: AR
Devenuetor	Flor	Cont		RL	TT:4	_	Dilution	, DI
Parameter Chloride	Flag	Cert		Result	Unit	-	Dilution	
JIIOFIQE				689	mg/K	5	5	4.00

## Sample: 349289 - AH-5 0-1'

Laboratory:MidlandAnalysis:BTEXQC Batch:107765Prep Batch:91171		Analytica Date Ana Sample Pi		S 8021H 2013-12 2013-12	-20		Prep Method Analyzed By Prepared By:	AK
				$\mathbf{RL}$				
Parameter	Flag	Cert	F	Result	Units		Dilution	$\mathbf{RL}$
Benzene	Qa	1	(	).699	mg/Kg		10	0.0200
Toluene	Qы	1		<b>29.4</b>	mg/Kg		10	0.0200
Ethylbenzene	QM	I		12.9	mg/Kg		10	0.0200
Xylene	Qя	1	=	123	mg/Kg		10	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.26	mg/Kg	10	2.00	63	70 - 130
4-Bromofluorobenzene (4-BFB)			22.1	mg/Kg	10	2.00	1105	70 - 130

Report Date: January 6, 2014	Work Order: 13121819	Page Number: 14 of 45
TBD	COG/Save D A 21 Fed #001	Eddy Co, NM

## Sample: 349289 - AH-5 0-1'

Laboratory:	Midland					
Analysis:	Chloride (Titration)	Analytic	al Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107983	Date An	alyzed:	2014-01-03	Analyzed By:	AR
Prep Batch:	91351	c c		2013-12-31	Prepared By:	AR.
			$\mathbf{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			923	mg/Kg	5	4.00

#### Sample: 349289 - AH-5 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	s: TPH DRO - NEW ch: 107761			Date	lytical Metho Analyzed: ple Preparat	2013-12	-20	Prep Me Analyzec Preparec	By: KC
Parameter			Flag	Cert	l Res	RL ult	Units	Dilution	RL
DRO				1	33		mg/Kg	1	50.0
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qar	Qsr		213	mg/Kg	1	100	213	70 - 130

#### Sample: 349289 - AH-5 0-1'

Laboratory: Midland Analysis: TPH GRO QC Batch: 107889 Prep Batch: 91286	TPH GRO : 107889			Analytical Method: S 8015 1 Date Analyzed: 2013-12- Sample Preparation: 2013-12-				Prep Metho Analyzed By Prepared By	y: AK
					$\operatorname{RL}$				
Parameter	Flag		Cert	F	Result	Unit	5	Dilution	$\mathbf{RL}$
GRO			1		3200	mg/Kg	5	100	4.00
							Spike	Percent	Recovery
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.85	mg/Kg	100	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)	Qat	Qar		63.8	mg/Kg	100	2.00	3190	70 - 130

Report Date: January 6, 2014	Work Order: 13121819	Page Number: 15 of 45
TBD	COG/Save D A 21 Fed #001	Eddy Co, NM

#### Sample: 349290 - AH-6 0-1'

Laboratory: Midland Analysis: BTEX QC Batch: 107765 Prep Batch: 91171		Da	te Anal	Method: yzed: eparation:	S 8021B 2013-12- 2013-12-	20		Prep Method Analyzed By: Prepared By:	AK
					RL				
Parameter	Flag		Cert	R	lesult	Units		Dilution	$\mathbf{RL}$
Benzene	Qu		1		2.33	mg/Kg		40	0.0200
Toluene	Qa		1		95.9	mg/Kg		40	0.0200
Ethylbenzene	Qs		1		32.0	mg/Kg		40	0.0200
Xylene	Q×		1		278	mg/Kg		40	0.0200
			<b>a</b> .		TT •,	T>11 1	Spike		Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount		Limits
Trifluorotoluene (TFT)				1.55	mg/Kg	40	2.00	78	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qar		44.8	mg/Kg	40	2.00	2240	70 - 130

#### Sample: 349290 - AH-6 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Analysis: Chloride (Titration) QC Batch: 107983		al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-03 2013-12-31	Prep Method: Analyzed By: Prepared By:	AR.
Parameter	Flag	$\operatorname{Cert}$	RL Result	Units	Dilution	RL
Chloride			244	mg/Kg	5	4.00

#### Sample: 349290 - AH-6 0-1'

Laboratory: Analysis:	s: TPH DRO - NEW				lytical Metho	d: S 8015 I	D	•	thod: N/A
QC Batch:	107761			Date	Date Analyzed:		-20	Analyzeo	l By: KC
Prep Batch:	91215			Sample Preparation:			2013-12-19 Prep		By: KC
					H	RL.			
Parameter			Flag	Cert	Rest	ılt	Units	Dilution	$\mathbf{RL}$
DRO				1	434	40	mg/Kg	1	50.0
							Spike	Percent	Recovery
Surrogate		$\mathbf{F}$ lag	Cert	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qar	Qar		276	mg/Kg	1	100	276	70 - 130

Report Date: January 6, 2014	Work Order: 13121819	Page Number: 16 of 45
TBD	COG/Save D A 21 Fed #001	Eddy Co, NM

#### Sample: 349290 - AH-6 0-1'

Laboratory: Midland Analysis: TPH GRO QC Batch: 107811 Prep Batch: 91224		E	)ate Ana	al Method: alyzed: 'reparatior	2013-12	2-23		Prep Metho Analyzed B Prepared B	y: AK
					$\operatorname{RL}$				
Parameter	Flag		Cert	F	lesult	Unit	S	Dilution	$\mathbf{RL}$
GRO			1		7810	mg/K	g	100	4.00
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)				2.09	mg/Kg	100	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)	Qar	Qər		158	mg/Kg	100	2.00	7900	70 - 130

#### Sample: 349291 - AH-6 1-1.5'

Laboratory: Midland Analysis: BTEX QC Batch: 107810 Prep Batch: 91224		Analytica Date Ana Sample P		S 8021B 2013-12- 2013-12-	23		Prep Method Analyzed By: Prepared By:	AK
				$\mathbf{RL}$				
Parameter	Flag	Cert	]	Result	Units		Dilution	$\mathbf{RL}$
Benzene	U	1	<(	0.0200	mg/Kg		1	0.0200
Toluene	U	1	<(	0.0200	mg/Kg		1	0.0200
Ethylbenzene		1	0	.0699	mg/Kg		1	0.0200
Xylene		1		0.271	mg/Kg		1	0.0200
						Spike	Percent	Recovery
Surrogate	Fla	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.43	mg/Kg	1	2.00	72	70 - 130
4-Bromofluorobenzene (4-BFB)			2.11	mg/Kg	1	2.00	106	70 - 130

#### Sample: 349291 - AH-6 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107984	Date Analyzed:	2014-01-03	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

continued ...

Report Date: January 6, 2014	Work Order: 13121819	Page Number: 17 of 45
TBD	COG/Save D A 21 Fed #001	Eddy Co, NM

sample 349291 continued ...

			$\mathbf{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	· · · · · · · · · · · · · · · · · · ·		516	mg/Kg	5	4.00

#### Sample: 349291 - AH-6 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NH 107808 91251	EW	Date	lytical Meth e Analyzed: ple Preparat	2013-1		Prep Me Analyzec Preparec	i By: KC
					RL			
Parameter		Flag	Cert	Res	ult	Units	Dilution	$\mathbf{RL}$
DRO			1	<5	0.0	mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			114	mg/Kg	1	100	114	70 - 130

#### Sample: 349291 - AH-6 1-1.5'

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Laboratory: Midland Analysis: TPH GRO QC Batch: 107811 Prep Batch: 91224		Ľ	)ate Ana	l Method lyzed: 'reparation	2013-12	2-23		Prep Metho Analyzed By Prepared By	y: AK
					$\mathbf{RL}$				
Parameter	Flag		Cert	H	Result	Unit	s	Dilution	RL
GRO			1		49.4	mg/K	p. 	1	4.00
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)				1.86	mg/Kg	1	2.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)	Qar	Qar		3.64	mg/Kg	1	2.00	182	70 - 130

Report Date: January 6, 2014	Work Order: 13121819	Page Number: 18 of 45
TBD	COG/Save D A 21 Fed $\#001$	Eddy Co, NM

#### Sample: 349292 - AH-7 0-1'

Laboratory: Midland Analysis: BTEX QC Batch: 107765 Prep Batch: 91171		Dat	e Analy	Method: zed: paration:	S 8021B 2013-12-2 2013-12-1			Prep Methoo Analyzed By Prepared By	: AK
					RL				
Parameter	Flag		Cert	R	esult	Units	l	Dilution	$\operatorname{RL}$
Benzene	Qa		1	<(	0.100	mg/Kg		5	0.0200
Toluene	Qs		1		2.33	mg/Kg		5	0.0200
Ethylbenzene	Qs		1		1.37	mg/Kg		5	0.0200
Xylene	Qø		1		16.8	mg/Kg	· · · ·	5	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	1 Qsr	QHI		1.32	mg/Kg	5	2.00	66	70 - 130
4-Bromofluorobenzene (4-BFB)	Qar	Qnr		5.99	mg/Kg	5	2.00	300	70 - 130

#### Sample: 349292 - AH-7 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 107984 91351	Date An	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-03 2013-12-31	Prep Method: Analyzed By: Prepared By:	AR
			$\mathbf{RL}$			
Parameter	$\operatorname{Flag}$	Cert	Result	Units	Dilution	$\mathbf{RL}$
Chloride			3840	mg/Kg	10	4.00

#### Sample: 349292 - AH-7 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	nalysis: TPH DRO - NEW C Batch: 107761		Date	lytical Metho e Analyzed: ple Preparati	2013-12	S 8015 D 2013-12-20 2013-12-19		thod: N/A t By: KC t By: KC	
					I	۲L			
Parameter			Flag	$\operatorname{Cert}$	Resi	ılt	Units	Dilution	$\mathbf{RL}$
DRO				1	3	85	mg/Kg	1	50.0
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		131	mg/Kg	1	100	131	70 - 130

Report Date: January 6, 2014	Work Order: 13121819	Page Number: 19 of 45
TBD	COG/Save D A 21 Fed #001	Eddy Co, NM

## Sample: 349292 - AH-7 0-1'

Laboratory: Midland Analysis: TPH GRO QC Batch: 107771 Prep Batch: 91171			Date Analyzed: 2013-12-20						Prep Metho Analyzed B Prepared B	y: AK
						RL				
Parameter		Flag		Cert	R	lesult	Unit	s	Dilution	RL
GRO				1		580	mg/K	g	5	4.00
								Spike	Percent	Recovery
Surrogate			$\mathbf{F}\mathbf{lag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)				1.94	mg/Kg	5	2.00	97	70 - 130
4-Bromofluor	obenzene (4-BFB)	Qsr	Qst		15.0	mg/Kg	5	2.00	750	70 - 130

#### Sample: 349293 - AH-8 0-1'

Laboratory:MidlandAnalysis:BTEXQC Batch:107765Prep Batch:91171		Analytical Method:S 8021BDate Analyzed:2013-12-20Sample Preparation:2013-12-19						: S 5035 AK AK	
					RL				
Parameter	Flag		Cert	R	esult	Units	Γ	Dilution	$\mathbf{RL}$
Benzene	Qa		1	0	.393	nıg/Kg		5	0.0200
Toluene	Q×		1		27.3	mg/Kg		5	0.0200
Ethylbenzene	Qs		1		17.0	mg/Kg		5	0.0200
Xylene	Qя		1		151	mg/Kg		5	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	2 Qar	Qar		1.27	mg/Kg	5	2.00	64	70 - 130
4-Bromofluorobenzene (4-BFB)	QNE	Qsr		31.1	mg/Kg	5	2.00	1555	70 - 130

#### Sample: 349293 - AH-8 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107984	Date Analyzed:	2014-01-03	Analyzed By:	ÁR.
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR.

continued ...

Report Date: January 6, 2014	Work Order: 13121819	Page Number: 20 of 45
TBD	COG/Save D A 21 Fed #001	Eddy Co, NM

sample 349293 continued ...

			$\mathbf{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
			$\mathbf{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			66.9	mg/Kg	5	4.00

#### Sample: 349293 - AH-8 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DR 107808 91251	I'PH DRO - NEW 107808		Analytical Method: S 801 Date Analyzed: 2013 Sample Preparation:			- I - I - I - I - I - I - I - I - I - I		•
					]	RL			
Parameter			$\mathbf{F}\mathbf{lag}$	$\operatorname{Cert}$	Res	ult	Units	Dilution	$\operatorname{RL}$
DRO				1	155	00	mg/Kg	5	50.0
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qar	Qsr		995	mg/Kg	5	100	995	70 - 130

#### Sample: 349293 - AH-8 0-1'

Laboratory: Midland Analysis: TPH GRO QC Batch: 107889 Prep Batch: 91286		Analytical Method:S 8015 DDate Analyzed:2013-12-30Sample Preparation:2013-12-24						Prep Method: S 5035 Analyzed By: AK Prepared By: AK		
						RL				
Parameter		Flag		Cert	F	Result	Unit	s	Dilution	$\mathbf{RL}$
GRO				1		2680	mg/K	g	100	4.00
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluen	ue (TFT)				1.79	mg/Kg	100	2.00	90	70 - 130
4-Bromofluorol	benzene (4-BFB)	Qar	$Q_{st}$		45.8	mg/Kg	100	2.00	2290	70 - 130

# Method Blanks

Method Blank (1)	QC 1	Batch: 107	761					
QC Batch: 107761 Prep Batch: 91215				Analyzed: reparation:	2013-12-20 2013-12-19		••	vzed By: KC ured By: KC
Parameter		F	ag	Cert		MDL Lesult	Units	$\operatorname{RL}$
DRO		L' 1		1		<6.88	mg/Kg	50
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		· · · · · · · · · · · · · · · · · · ·	114	mg/Kg	1	100	114	88.3 - 126.1
Method Blank (1)	QC 1	Batch: 107	765					

QC Batch: 107765 Prep Batch: 91171	Date Analyzed: QC Preparation:			2013-12- 2013-12-			Analyzed By: Prepared By:		
					MDL				
Parameter	Flag		$\operatorname{Cert}$		$\operatorname{Result}$		Units	$\operatorname{RL}$	
Benzene			1		< 0.00533	]	mg/Kg	0.02	
Toluene			1		< 0.00645		mg/Kg	0.02	
Ethylbenzene			I		< 0.0116	:	mg/Kg	0.02	
Xylene			1		< 0.00874		mg/Kg	0.02	
						Spike	Percent	Recovery	
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)			1.68	mg/Kg	1	2.00	84	70 - 130	
4-Bromofluorobenzene (4-BFB)			1.54	mg/Kg	1	2.00	77	70 - 130	

Method Blank (1)	QC Batch:	107771
------------------	-----------	--------

QC Batch:	107771	Date Analyzed:	2013-12-20	Analyzed By:	AK
Prep Batch:	91171	QC Preparation:	2013-12-19	Prepared By:	AK

Report Date: January 6, 2014 TBD			Work Ord G/Save D		Page Number: 22 of 45 Eddy Co, NM			
Parameter	Flag		Cert		MDL Result		Units	RL
GRO	Trug		1		<2.32	]	mg/Kg	4
Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	Flag	Cert	Result 2.34 2.13	Units mg/Kg mg/Kg	Dilution 1 1	Spike Amount 2.00 2.00	Percent Recovery 117 106	Recovery Limits 70 - 130 70 - 130
4-DIOHIOHUOIODERISEIIE (4-DI D)			2.13	mg/Kg	r	2.00	100	10 - 130
Method Blank (1) QC Batch	: 107808							

QC Batch: Prep Batch:			Date Analyzed: QC Preparation:			2013-12-23 2013-12-23			vzed By: KC ared By: KC
Parameter			F	ag	Cert		MDL Result	Units	RL
DRO					1		<6.88	mg/Kg	50
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane				109	mg/Kg	1	100	109	88.3 - 126.1

#### Method Blank (1) QC Batch: 107810

QC Batch: 107810 Prep Batch: 91224			analyzed: eparation:	2013-12- 2013-12-			Analyzed I Prepared I	
					MDL			
Parameter	$\mathbf{F}$ lag		$\operatorname{Cert}$		$\mathbf{Result}$		Units	$\mathbf{RL}$
Benzene			1		< 0.00533	1	ng/Kg	0.02
Toluene			1		< 0.00645	1	ng/Kg	0.02
Ethylbenzene			1		< 0.0116	1	ng/Kg	0.02
Xylene			1		< 0.00874	]	ng/Kg	0.02
	ורז			<b></b>	<b>2</b>	Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.45	$\mathrm{mg/Kg}$	1	2.00	72	70 - 130
4-Bromofluorobenzene (4-BFB)			1.47	mg/Kg	1	2.00	74	70 - 130

Report Date: January 6, TBD	2014			Work Orde G/Save D	er: 131218 A 21 Fed			Page Number Edd		
Method Blank (1)	QC Batch: 107	811								
QC Batch: 107811				nalyzed:	2013-12-			Analyzec		
Prep Batch: 91224			QC Pr	eparation:	2013-12-	20		Prepared	By: AK	
						MDL				
Parameter	Fl	ıg		Cert		Result		Units	RI	
GRO				ľ		<2.32		mg/Kg	4	
							Spike	Percent	Recovery	
Surrogate	F	ag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
				2.13	mg/Kg	1	2.00	106	70 - 130	
				2.20	177	1	2.00	110	70 - 130	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4- <b>Method Blank (1)</b> QC Batch: 107855	BFB) QC Batch: 107	855	Date A	nalyzed:	mg/Kg 2013-12-	1	2.00	Analyzeo	l By: AK	
4-Bromofluorobenzene (4- Method Blank (1)		855				24 23	2.00			
4-Bromofluorobenzene (4- Method Blank (1) QC Batch: 107855 Prep Batch: 91258	QC Batch: 107	855 'lag		nalyzed:	2013-12-	24	2.00	Analyzeo		
4-Bromofluorobenzene (4- Method Blank (1) QC Batch: 107855 Prep Batch: 91258 Parameter	QC Batch: 107			nalyzed: eparation:	2013-12-	24 23 MDL		Analyzeo Prepareo	By: AK RI 0.0	
4-Bromofluorobenzene (4- Method Blank (1) QC Batch: 107855 Prep Batch: 91258 Parameter Benzene Toluene	QC Batch: 107			analyzed: eparation: Cert	2013-12-	24 23 MDL Result		Analyzec Preparec Units mg/Kg mg/Kg	By: AK	
4-Bromofluorobenzene (4- Method Blank (1) QC Batch: 107855 Prep Batch: 91258 Parameter Benzene Foluene Ethylbenzene	QC Batch: 107			analyzed: eparation: <u>Cert</u>	2013-12-	24 23 MDL Result <0.00354 <0.00966 <0.00790		Analyzed Prepared Units mg/Kg mg/Kg mg/Kg	By: AK RI 0.02 0.02 0.02	
4-Bromofluorobenzene (4- Method Blank (1) QC Batch: 107855 Prep Batch: 91258 Parameter Benzene Toluene Ethylbenzene	QC Batch: 107			analyzed: eparation: Cert	2013-12-	24 23 MDL Result <0.00354 <0.00966		Analyzec Preparec Units mg/Kg mg/Kg	By: AK RI 0.02 0.02	
4-Bromofluorobenzene (4- Method Blank (1) QC Batch: 107855	QC Batch: 107			analyzed: eparation: Cert 1 1 1	2013-12-	24 23 MDL Result <0.00354 <0.00966 <0.00790		Analyzed Prepared Units mg/Kg mg/Kg mg/Kg	By: AK RI 0.02 0.02 0.02	
4-Bromofluorobenzene (4- Method Blank (1) QC Batch: 107855 Prep Batch: 91258 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate	QC Batch: 107			analyzed: eparation: Cert 1 1 1 1 1 1 1 1 1	2013-12- 2013-12- Units	24 23 MDL Result <0.00354 <0.00966 <0.00790	Spike Amount	Analyzeo Prepareo Units mg/Kg mg/Kg mg/Kg mg/Kg ng/Kg Percent Recovery	By: AK RL 0.0 0.0 0.0 0.0 Recovery Limits	
4-Bromofluorobenzene (4- Method Blank (1) QC Batch: 107855 Prep Batch: 91258 Parameter Benzene Toluene Ethylbenzene Xylene	QC Batch: 107	lag	QC Pr	analyzed: eparation: Cert 1 1 1	2013-12- 2013-12-	24 23 MDL Result <0.00354 <0.00966 <0.00790 <0.00667	Spike	Analyzeo Prepareo Units mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg Mg/Kg	By: AK RL 0.02 0.02 0.02 0.02 0.02 Recovery	

QC Batch:	107889		Date Analyzed:		Analyzed H	
Prep Batch:	91286		QC Preparation:	2013-12-24	Prepared E	sy: AK
				MDL		
Parameter		Flag	Cert	$\mathbf{Result}$	Units	$\mathbf{RL}$
GRO			1	<2.32	mg/Kg	4

Report Date: January 6, 2014 TBD	Work Ord COG/Save D	8	Page Number: 24 of 45 Eddy Co, NM		
Surrogate Flag Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	Cert Result 1.92 1.89	Units Dilution mg/Kg 1 mg/Kg 1	AmountRecoveryLi2.009670	overy mits - 130 - 130	
<b>Method Blank (1)</b> QC Batch: 107983 QC Batch: 107983 Prep Batch: 91351	Date Analyzed: QC Preparation:	2014-01-03 2013-12-31	Analyzed By: Prepared By:	AR AR	
Parameter Flag Chloride	Cert	MDL Result <3.85	Units mg/Kg	RL 4	
Method Blank (1) QC Batch: 107984 QC Batch: 107984	Date Analyzed:	2014-01-03	Analyzed By:	AR	
Prep Batch: 91351	QC Preparation:	2013-12-31	Prepared By:	AR	
Parameter Flag Chloride	Cert	MDL Result <3.85	Units mg/Kg	$\frac{\text{RL}}{4}$	

# Laboratory Control Spikes

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

QC Batch: 107761 Prep Batch: 91215			te Analyz 2 Preparat		013-12-20 013-12-19				nalyzed E repared E	•
			LCS			Spike	Ma	trix		Rec.
Param	$\mathbf{F}$	C I	Result	Units	Dil.	Amount		sult Re	ec.	Limit
DRO	<u> </u>	1	261	nıg/Kg	1	250	<6	.88 10	)4 79.	4 - 120.1
Percent recovery is based on	the spike res	ult. RPI	D is based	on the	spike and	spike dupl	licate re	esult.		
		LCSD			Spike	Matrix		R.ec.		RPD
Param	$\mathbf{F}$ $\mathbf{C}$	Result		Dil.	Amount	$\operatorname{Result}$	Rec.	$\operatorname{Limit}$	RPI	) Limit
DRO	1	257	mg/Kg	1	250	< 6.88	103	79.4 - 120	).1 2	20
Percent recovery is based on	the spike res	ult. RPI	D is based	on the	spike and	spike dupl	licate re	esult.		
	LCS	LCS	D			Spike	LCS	LCSI	D	Rec.
Surrogate	Result	Resu	lt Ui	nits	Dil.	Amount	Rec.	Rec.		Limit
n-Tricosane	115	115	i mg	/Kg	1	100	115	115	92.	9 - 137.7
Laboratory Control Spike	e (LCS-1)									
Laboratory Control Spike QC Batch: 107765 Prep Batch: 91171	∍ (LCS-1)		te Analyz ? Preparat		013-12-20 013-12-19				nalyzed E repared B	•
QC Batch: 107765	∍ (LCS-1)		•			Spike	Ν		•	•
QC Batch: 107765	e ( <b>LCS-1</b> ) F	QC	C Preparat	ion: 20 Units	013-12-19 Dil.	Spike Amount	t F	Pr fatrix Result	•	y: AK
QC Batch: 107765 Prep Batch: 91171 Param Benzene		QC	C Preparat LCS Result 1.57	ion: 20 Units mg/Kg	$\frac{\text{Dil.}}{5}$	Amount 2.00	: F <(	Pr fatrix Result 0.00533	repared B Rec. 78	y: AK Rec. Limit 70 - 130
QC Batch: 107765 Prep Batch: 91171 Param Benzene Toluene		QC C	C Preparat LCS Result 1.57 1.58	ion: 20 Units mg/Kg mg/Kg	D13-12-19 Dil. 5 1 5 1	Amount 2.00 2.00	t F <( <(	Pr fatrix Result 0.00533 0.00645	Rec. 78 79	y: AK Rec. Limit 70 - 130 70 - 130
QC Batch: 107765 Prep Batch: 91171 Param Benzene Toluene Ethylbenzene			C Preparat LCS Result 1.57 1.58 1.62	ion: 20 Units mg/Kg mg/Kg mg/Kg	D13-12-19 Dil. 5 1 5 1 5 1	Amount 2.00 2.00 2.00	t I <( <( <	Pr fatrix Result 0.00533 0.00645 0.0116	Rec. 78 79 81	y: AK Rec. Limit 70 - 130 70 - 130 70 - 130
QC Batch: 107765 Prep Batch: 91171 Param Benzene Toluene Ethylbenzene Xylene	F	QC	C Preparat LCS Result 1.57 1.58 1.62 4.91	ion: 20 Units mg/Kg mg/Kg mg/Kg	Dil. 5 1 5 1 5 1 5 1 5 1	Amount 2.00 2.00 2.00 6.00	F >>> <( <( <)> <(	Pr latrix Result 0.00533 0.00645 0.0116 0.00874	Rec. 78 79	y: AK Rec. Limit 70 - 130 70 - 130
QC Batch: 107765 Prep Batch: 91171 Param Benzene Toluene Ethylbenzene	F	QC	C Preparat LCS Result 1.57 1.58 1.62 4.91	ion: 20 Units mg/Kg mg/Kg mg/Kg	Dil. 5 1 5 1 5 1 5 1 5 1	Amount 2.00 2.00 2.00 6.00	F >>> <( <( <)> <(	Pr latrix Result 0.00533 0.00645 0.0116 0.00874	Rec. 78 79 81	y: AK Rec. Limit 70 - 130 70 - 130 70 - 130
QC Batch: 107765 Prep Batch: 91171 Param Benzene Toluene Ethylbenzene Xylene	F the spike res	QC	C Preparat LCS Result 1.57 1.58 1.62 4.91 D is based	ion: 20 Units mg/Kg mg/Kg mg/Kg	Dil. 5 1 5 1 5 1 5 1 5 1	Amount 2.00 2.00 6.00 spike dupl Matrix	- F <( <( <( ( licate re	Pr fatrix Result 0.00533 0.00645 0.0116 0.00874 esult. Rec.	Rec. 78 79 81 82	y: AK Rec. Limit 70 - 130 70 - 130 70 - 130
QC Batch: 107765 Prep Batch: 91171 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on Param	F	QC 1 1 1 1 1 1 1 1 1 1 1 1 1	C Preparat LCS Result 1.57 1.58 1.62 4.91 D is based Units	Units Mg/Kg mg/Kg mg/Kg mg/Kg on the Dil.	Di3-12-19 Dil. 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	Amount 2.00 2.00 6.00 spike dupl Matrix Result	t I <( <( <( c licate re	Pr [atrix Result 0.00533 0.00645 0.00874 esult. Rec. Rec. Limit	Rec. 78 79 81 82 t RPI	y: AK Rec. Limit 70 - 130 70 - 130 70 - 130 70 - 130 70 - 130 RPD Limit
QC Batch: 107765 Prep Batch: 91171 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on Param Benzene	F the spike res	$\frac{C}{1}$ 1 1 1 1 1 1 1 1 1 1 LCSD Result 1.56	C Preparat LCS Result 1.57 1.58 1.62 4.91 D is based Units mg/Kg	ion: 20 Units mg/Kg mg/Kg mg/Kg on the Dil. 1	Di3-12-19 Dil. 1 1 1 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	Amount 2.00 2.00 6.00 spike dupl Matrix Result <0.0053	E F <( <( <( <( ( licate re Rec 3 78	Pr fatrix Result 1.00533 1.00645 0.0116 1.00874 esult. Rec. 2. Limit 70 - 1;	Rec.         78           79         81           82         82           t         RPI           30         1	y: AK Rec. Limit 70 - 130 70 - 130 70 - 130 70 - 130 RPD Limit 20
QC Batch: 107765 Prep Batch: 91171 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on Param Benzene Toluene	F the spike res F C	$\begin{array}{c} C\\ \hline \\ 1\\ 1\\ \hline \\ 1\\ \hline \\ ult. RPI\\ LCSD\\ Result\\ \hline \\ 1.56\\ 1.56 \end{array}$	C Preparat LCS Result 1.57 1.58 1.62 4.91 D is based Units mg/Kg mg/Kg	ion: 20 Units mg/Kg mg/Kg mg/Kg on the Dil. 1 1	Dil. Di Di Di Di Di Di Di Di Di Di	Amount 2.00 2.00 6.00 spike dupl Matrix Result <0.0053 <0.0064	E F <( <( <( <( ( licate re 3 78 5 78	Pr fatrix Result ).00533 ).00645 0.0116 ).00874 esult. Rec. c. Limit 70 - 1: 70 - 1: 70 - 1:	Rec.           78           79           81           82           t           RPI           30         1           30         1	y: AK Rec. Limit 70 - 130 70 - 130 70 - 130 70 - 130 RPD Limit 20 20
QC Batch: 107765 Prep Batch: 91171 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on Param Benzene	F the spike res F C	$\frac{C}{1}$ 1 1 1 1 1 1 1 1 1 1 LCSD Result 1.56	C Preparat LCS Result 1.57 1.58 1.62 4.91 D is based Units mg/Kg	ion: 20 Units mg/Kg mg/Kg mg/Kg mg/Kg on the Dil. 1 1 1 1	Di3-12-19 Dil. 1 1 1 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	Amount 2.00 2.00 6.00 spike dupl Matrix Result <0.0053	E F <(0 <(0 <(0) <(0) <(0) <(1) <(1) <(1) <(2) <(1) <(2) <(3) <(3) <(3) <(3) <(3) <(3) <(4) <(4) <(4) <(4) <(4) <(5) <(4) <(5) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6) <(6	Pr fatrix Result ).00533 ).00645 0.0116 ).00874 esult. Rec. 2. Limit 70 - 1: 70 -	Rec.           78           79           81           82           t           RPE           30           1           30           1           30	y: AK Rec. Limit 70 - 130 70 - 130 70 - 130 70 - 130 RPD Limit 20

Report Date: January 6, 2014 TBD			Work Order: 13121819 COG/Save D A 21 Fed #001							Page Number: 26 of 45 Eddy Co, NM			
Surrogate			LC Res		CSD esult	Units	Dil.	Spik Amou		LCS Rec.	LCSI Rec.		Rec. Limit
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			1.8		.46 .51	mg/Kg mg/Kg	1 1	2.0		76 80	73 76		0 - 130 0 - 130
						8/8							
Laboratory Control Spike (L	CS-1	L)											
QC Batch: 107771 Prep Batch: 91171				e Analyz Preparat		013-12-20 013-12-19					Analyze Prepare		
D		n	a a	LCS	<b>T</b> T <b>*</b>	D.1		Spike		latrix	D		Rec.
Param GRO		F		Result 14.8	Unit mg/k		<i>F</i>	$\frac{1}{20.0}$		$\frac{1}{2.32}$	Rec. 74		Limit 0 - 130
Percent recovery is based on the s	pike	resu			÷,		spike						
			LCSD			Spike	N	Iatrix		Re	c.		RPD
Param	F	С	Result	Units				lesult	Rec.	Lin		RPD	Limit
GRO		1	14.4	mg/K		20.0		<2.32	72	70 -	130	3	20
Percent recovery is based on the s	pike	resu	lt. RPD	is based	on the	spike and	spike	duplica	te res	sult.			
			$\mathbf{LC}$	CS L	CSD			Spil	æ	LCS	LCSI	)	Rec.
Surrogate			Res	ult R	$\operatorname{esult}$	Units	Dil.	Amou	$\operatorname{int}$	Rec.	Rec.		Limit
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			1.9		.96	mg/Kg	1	2.0		100	98		0 - 130
			2.1	18 1	2.19	mg/Kg	1	2.00	n	109	110	7	0 - 130

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

QC Batch: Prep Batch:	107808 91251				e Analyz Prepara		013-12-23 013-12-23				yzed By: F ared By: F	
Param		I	7		LCS lesult	Units	Dil.	Spike Amount	Matrix Result		Rec. Limit	
DRO				1	292	mg/Kg	1	250	< 6.88	117	79.4 - 12	20.1
	very is based on the	•	resi	LCSD			Spike	Matrix		Rec.		PD
Param		$\mathbf{F}$	C_	$\operatorname{Result}$	Units	Dil.	$\operatorname{Amount}$	$\operatorname{Result}$	Rec.	Limit	RPD Lii	$_{ m mit}$

0

20

DRO <u>1 291 mg/Kg 1 250 <6.88 116 79.4 - 120.1</u>

Report Date: January 6, 2014 TBD		CO	Page Number: 27 of 45 Eddy Co, NM					
	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	$\mathbf{Result}$	Units	Dil.	Amount	Rec.	Rec.	$\mathbf{Limit}$
n-Tricosane	112	112	mg/Kg	1	100	112	112	92.9 - 137.7

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

QC Batch:	107810	Date Analyzed:	2013-12-23	Analyzed By:	AK
Prep Batch:	91224	QC Preparation:	2013-12-20	Prepared By:	AK

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	$\mathbf{Result}$	Rec.	$\mathbf{Limit}$
Benzene		1	1.56	mg/Kg	1	2.00	< 0.00533	78	70 - 130
Toluene		1	1.74	mg/Kg	1	2.00	< 0.00645	87	70 - 130
Ethylbenzene		1	1.66	mg/Kg	1	2.00	< 0.0116	83	70 - 130
Xylene		1	5.14	mg/Kg	1	6.00	< 0.00874	86	70 - 130

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	1.60	mg/Kg	1	2.00	< 0.00533	80	70 - 130	3	20
Toluene		1	1.60	mg/Kg	1	2.00	< 0.00645	80	70 - 130	8	20
Ethylbenzene		1	1.64	mg/Kg	1	2.00	< 0.0116	82	70 - 130	1	20
Xylene		1	4.98	mg/Kg	1	6.00	< 0.00874	83	70 - 130	3	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.	$\operatorname{Amount}$	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.83	1.46	mg/Kg	1	2.00	92	73	70 - 130
4-Bromofluorobenzene (4-BFB)	1.94	1.59	mg/Kg	1	2.00	97	80	70 - 130

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

QC Batch: Prep Batch:	C Batch:107811Date Analyzed:rep Batch:91224QC Preparation:								Analyzed By: A Prepared By: A		
Param		F	С	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	
GRO	<u></u>		1	15.2	mg/Kg	1	20.0	<2.32	76	70 - 130	

Report Date: January 6, 2014	Work Order: 13121819	Page Number: 28 of 45
TBD	COG/Save D A 21 Fed #001	Eddy Co, NM

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	$\operatorname{Limit}$	RPD	Limit
GRO		1	16.9	mg/Kg	1	20.0	<2.32	84	70 - 130	11	20
	 								-		

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	$\operatorname{Limit}$
Trifluorotoluene (TFT)	1.94	2.12	mg/Kg	1	2.00	97	106	70 - 130
4-Bromofluorobenzene (4-BFB)	2.42	2.46	mg/Kg	1	2.00	121	123	70 - 130

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

QC Batch:	107855	Date Analyzed:	2013-12-24	Analyzed By:	AK
Prep Batch:	91258	QC Preparation:	2013-12-23	Prepared By:	AK

			LCS			Spike	Matrix		Rec.
Param	F	$\mathbf{C}$	$\operatorname{Result}$	Units	Dil.	Amount	$\operatorname{Result}$	Rec.	Limit
Benzene		1	1.83	mg/Kg	1	2.00	< 0.00354	92	70 - 130
Toluene		1	1.84	mg/Kg	1	2.00	< 0.00966	92	70 - 130
Ethylbenzene		1	2.09	mg/Kg	1	2.00	< 0.00790	104	70 - 130
Xylene		ı	6.35	mg/Kg	1	6.00	< 0.00667	106	70 - 130

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	1.75	mg/Kg	1	2.00	< 0.00354	88	70 - 130	5	20
Toluene		1	1.77	mg/Kg	1	2.00	< 0.00966	88	70 - 130	4	20
Ethylbenzene		1	2.02	mg/Kg	1	2.00	< 0.00790	101	70 - 130	4	20
Xylene		1	6.11	mg/Kg	1	6.00	< 0.00667	102	70 - 130	4	<b>20</b>

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	$\operatorname{Result}$	$\mathbf{Result}$	Units	Dil.	$\operatorname{Amount}$	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.93	1.92	mg/Kg	1	2.00	96	96	70 - 130
4-Bromofluorobenzene (4-BFB)	2.10	2.11	mg/Kg	1	2.00	105	106	70 - 130

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

QC Batch:	107889	Date Analyzed:	2013-12-30	Analyzed By:	AK
Prep Batch:	91286	QC Preparation:	2013-12-24	Prepared By:	AK

Report Date: January 6, 2014 TBD	è	<u></u>				13121819 21 Fed #				P	age Ni		29 of 45 Co, NM
Param GRO	F			LCS Result 17.9	Unit mg/l		ļ.	Spike Amoun 20.0	t F	fatrix Result	R	ec.	Rec. Limit 70 - 130
Percent recovery is based on the spil	ce re	1 sult	RPD				t snik				9		10 - 130
Param I GRO	۲ 	L C R	CSD esult 7.8		i Dil	Spike	e nt	Matrix Result <2.32	Rec.	R Li	lec. imit - 130	RPD 1	RPD Limit 20
Percent recovery is based on the spil	ce re	sult.	RPD			spike and	l spił		cate re	sult.			
Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			L( Res 1.9 2.	sult Re 94 1	CSD esult .81 .08	Units mg/Kg mg/Kg	Dil 1 1	. Am 2.	oike ount .00 .00	LCS Rec. 97 106	R		Rec. Limit 70 - 130 70 - 130
Laboratory Control Spike (LCS	-1)												
QC Batch: 107983 Prep Batch: 91351				e Analyz Preparat		2014-01-03 2013-12-31						yzed By ared By	
Param Chloride	F	C	R	LCS .esult 2660	Units mg/Kg	Dil.	A	Spike mount 2500	Mat Res <3.	ult	Rec.	I	Rec. Jimit - 115.9
Percent recovery is based on the spil	e re	sult.	-			·					100		
Param F Chloride	С	LC	SD ult	Units mg/Kg	Dil.	Spike Amount 2500	Ma Re	atrix esult I	Rec.	Re Lin 89.7 -	nit	RPD 3	RPD Limit 20

## Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:	107984 91351			•	yzed: 201 ration: 201					zed By: AR red By: AR
Param		F	С	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride				2370	mg/Kg	1	2500	<3.85	95	89.7 - 115.9

Report Date: January 6, 2014 TBD	-			Work COG/Sav	Page Nu	Page Number: 30 of 45 Eddy Co, NM					
Param	F	С	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	·••••		2490	mg/Kg	1	2500	<3.85	100	89.7 - 115.9	5	20

#### Matrix Spike (MS-1) Spiked Sample: 349281

QC Batch:	107761	Date Analyzed:	2013-12-20	Analyzed By:	KC
Prep Batch:	91215	QC Preparation:	2013-12-19	Prepared By:	KC

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	С	$\operatorname{Result}$	Units	Dil.	$\operatorname{Amount}$	Result	Rec.	Limit
DRO		1	385	mg/Kg	1	250	159	90	64.8 - 149.9

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$	RPD	Limit
DRO		1	369	mg/Kg	1	250	159	84	64.8 - 149.9	4	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	$\mathbf{Result}$	$\mathbf{Result}$	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	133	134	mg/Kg	1	100	133	134	85.4 - 147.7

#### Matrix Spike (MS-1) Spiked Sample: 349283

QC Batch:	107765	Date Analyzed:	2013-12-20	Analyzed By:	AK
Prep Batch:	91171	QC Preparation:	2013-12-19	Prepared By:	AK

				MS			Spike	Matrix		Rec.
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	$\operatorname{Limit}$
Benzene	3 <sub>Qx</sub>	Qs	1	< 0.0107	mg/Kg	2	2.00	< 0.0107	0	70 - 130
Toluene	Qs	Qu	1	< 0.0129	$\mathrm{mg/Kg}$	2	2.00	< 0.0129	0	70 - 130
Ethylbenzene	$Q_{24}$	QH	1	< 0.0232	mg/Kg	2	2.00	< 0.0232	0	70 - 130
Xylene	Qs	$\mathbf{Q}_{\mathbf{S}}$	1	< 0.0175	mg/Kg	2	6.00	< 0.0175	0	70 - 130

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

				MSD			Spike	Matrix		Rec.		RPD
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	4 Q,	Qs	1	< 0.0107	mg/Kg	2	2.00	< 0.0107	0	70 - 130	0	20
Toluene	$\mathbf{Q}_{\mathbf{N}}$	Qs	L	< 0.0129	mg/Kg	<b>2</b>	2.00	< 0.0129	0	70 - 130	0	20

continued ...

Report Date: January 6, 2014 TBD				Vork Orde G/Save D			1		Pag	e Number: Eddy	31 of 45 Co, NM
37.1	F 24 Q: 24 Q:	1	MSD Result <0.0232 <0.0175	Units mg/Kg mg/Kg	Dil. 2 2	Spike Amount 2.00 6.00	Mat t Res <0.0 <0.0	$\frac{\text{ult}}{232}$ Rec	Re 2. Lin 70 - 70 -	nit RPI 130 0	RPD Limit 20 20
Percent recovery is based on the											
Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			MS Result 1.58 1.62	MSD Result 1.59 1.61	U mg	-		Spike Amount 2 2	MS Rec. 79 81	MSD Rec. 80 80	Rec. Limit 70 - 130 70 - 130
<b>Matrix Spike (MS-1)</b> Spike QC Batch: 107771 Prep Batch: 91171	d San	nple: 3	349283 Date Ar QC Pre	nalyzed: paration:		-12-20 -12-19				Analyzed B Prepared B	-
Param		F	MS C Resu		nits	Dil.	Spil Amo		fatrix lesult	Rec.	Rec. Limit
GRO		<b>_</b>	1 6.7		g/Kg	2	8.0		<4.64	84	70 - 130
Percent recovery is based on the	spike	result	. RPD is t	ased on t	he spil	ke and s	pike dur	olicate re	sult.		
Param GRO	F			Units I ng/Kg	Dil. A	Spike Amount 8.00	Matri Resul	lt Rec.	Rec Lim 70 - 1	it RPD	RPD Limit 20
Percent recovery is based on the	spike	result	. RPD is t	based on t	he spil	ke and s	pike dup	olicate res	sult.		
Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			MS Result 2.02 2.14	MSD Result 2.04 2.08	mg	nits 5/Kg 5/Kg	$\frac{\text{Dil.}}{2}$	Spike Amount 2 2	MS Rec. 101 107	MSD Rec. 102 104	Rec. Limit 70 - 130 70 - 130
QC Batch: 107808 Prep Batch: 91251		-	MS	paration:	2013- 2013-	-12-23 -12-23	Spike	Mat	H rix	Analyzed F Prepared B	y: KC Rec.
Param	F	<u> </u>					Amoun	t Res	ult F		Limit
DRO			1 273	mg/	Kg	1	250	<6.	88 1	109 64.	8 - 149.9

Surrogate Re	AS sult 08	MSD Result 265 sult. RP MS Res 10	D 1lt U		Spike Amount 250 spike and	Matrix Result <6.88 spike dup	Rec. 106 licate r	Rec. Limit 64.8 - 14	t RP	
Percent recovery is based on the spik N Surrogate Re n-Tricosane 1	te res AS sult 08	ult. RP MS Res	D is based D 1lt U	d on the					49.9 3	20
N Surrogate Re n-Tricosane I	AS sult 08	MS Res	D 1lt U		spike and	spike dup	licate r	esult		
Surrogate Re n-Tricosane I	sult 08	Res	ilt U	Inite		-		court.		
Surrogate Re n-Tricosane I	sult 08	Res	ilt U	Inite		C : ]	3.4	7 M	- T	Dee
n-Tricosane 1	08				Dil.	Spike Amount	M: Re			Rec. Limit
		10		g/Kg	1	100	10			5.4 - 147.7
Matrix Spike (MS-1) Spiked S	1									
QC Batch: 107810	amp		4 .te Analyz	zed: 20	013-12-23			I	Analyzed 1	By: AK
Prep Batch: 91224		QC	Prepara	tion: 20	013-12-20				Prepared I	
			MS			Spike	M	Matrix		Rec.
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amoun		Result	Rec.	Limit
Benzene	-	1	1.52	mg/Kg		2.00		0.00533	76	70 - 130
Toluene		1	1.54	mg/Kg		2.00		0.00645	77	70 - 130
Ethylbenzene		1	1.57	mg/Kg		2.00		0.0116	78	70 - 130
Xylene		1	4.72	mg/Kg		6.00		0.00874	79	70 - 130
Percent recovery is based on the spik	æ res	ult. RP	D is based			spike dup	licate r	esult.		
	a	MSD	<b>T</b> T •,	D.11	Spike	Matrix		Re		RPD
Param F	C	Result			Amount	Result				
Benzene	1	1.47	mg/Kg		2.00	< 0.0053				20
Toluene Ethylbongene	1	1.50	mg/Kg		2.00	< 0.0064				20
Ethylbenzene Yrdona	1	$\begin{array}{c} 1.50 \\ 4.57 \end{array}$	mg/K		2.00	<0.011 <0.0087				20
Xylene			mg/Kg		6.00	· · · · · · · · · · · · · · · · · · ·			130 3	20
Percent recovery is based on the spik	e res	ult. RPI	J is based	i on the	spike and	spike dup	licate r	esult.		
			MS	MSD	<b>T</b> T •.	D.1	Spike	MS	MSD	Rec.
Surrogate			Result	Result	Units		Amoun		Rec.	Limit
Trifluorotoluene (TFT) QNI	r Q	ar	1.33	1.28	mg/Kg	1	2	66 79	64 74	70 - 130
4-Bromofluorobenzene (4-BFB)			1.55	1.49	mg/Kg	1	2	78	74	70 - 130

QC Batch:	107811	Date Analyzed:	2013-12-23	Analyzed By:	AK
Prep Batch:	91224	QC Preparation:	2013-12-20	Prepared By:	AK

Report Date: January 6, 2014 TBD	(	Work Order: 13121819 COG/Save D A 21 Fed #001						Page Number: 33 of 45 Eddy Co, NM					
		_		MS				ike		atrix			Rec.
Param		F	<u> </u>	Result	Units	Dil.		ount		esult		ec.	Limit
GRO			1	15.4	mg/Kg	; 1	20	0.0	<	2.32	7	7	70 - 130
Percent recovery is based on the Param	F	C	MSD Result	Units	Dil.	Spike Amouni	Mat	rix	Rec.	Re	ec. nit	RPE	RPD Limit
GRO		r	15.2	mg/Kg	ç 1	20.0	< 2.	32	76	70 -	$1\overline{30}$	1	20
Percent recovery is based on the	spike	e resu			on the s ISD	pike and	spike du	ıplicat Spil		ult. MS	М	SD	Rec.
Surrogate			Rea	sult Re	esult	Units	Dil.	Amo	unt	Rec.	R	.ec.	Limit
Trifluorotoluene (TFT)	1		1.	95 1	.91	mg/Kg	1	2		98	9	96	70 - 130
4-Bromofluorobenzene (4-BFB)			2.	38 2		mg/Kg	1	2		119	1	20	70 - 130

#### Matrix Spike (MS-1) Spiked Sample: 349304

QC Batch:	107855	Date Analyzed:	2013-12-24	Analyzed By:	AK
Prep Batch:	91258	QC Preparation:	2013-12-23	Prepared By:	AK

			MS			Spike	Matrix		Rec.
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$
Benzene		1	1.71	mg/Kg	1	2.00	< 0.00354	86	70 - 130
Toluene		1	1.75	mg/Kg	1	2.00	< 0.00966	88	70 - 130
Ethylbenzene		1	2.00	mg/Kg	1	2.00	< 0.00790	100	70 - 130
Xylene		1	6.05	mg/Kg	1	6.00	< 0.00667	101	70 - 130

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	$\operatorname{RPD}$	Limit
Benzene		1	1.66	mg/Kg	1	2.00	< 0.00354	83	70 - 130	3	20
Toluene		1	1.68	mg/Kg	1	2.00	< 0.00966	84	70 - 130	4	20
Ethylbenzene		1	1.91	mg/Kg	1	2.00	< 0.00790	96	70 - 130	5	20
Xylene		ı	5.73	mg/Kg	1	6.00	< 0.00667	96	70 - 130	5	20

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.92	1.92	mg/Kg	1	2	96	96	70 - 130
4-Bromofluorobenzene (4-BFB)	2.10	2.11	mg/Kg	1	2	105	106	70 - 130

Report Date: January 6, 2014 TBD			Work ( COG/Save		Page Number: 34 of 45 Eddy Co, NM						
Matrix Spike (MS-1) Spike	d Sample	: 349560	I								
QC Batch: 107889 Prep Batch: 91286			e Analyze Preparati		13-12-30 13-12-24				Analyz Prepar		
0	Б	a	MS	<b>ኮ</b> ፑ ነ	E) I	Spike		[atrix	Rec		Rec. Limit
Param GRO	F	<u>C</u>	Result 17.2	Units mg/Kg	Dil.	Amount 20.0		esult 2.84	72		$\frac{1}{0} - 130$
Percent recovery is based on the	anika roa										
recent recovery is based on the	spike rest		Is based (	on the s	pike and s	pike dupite	ale ies				
		MSD			Spike	Matrix	_	Re			RPD
Param	F C	Result		Dil.	Amount		Rec.	Lin		RPD	Limit
GRO	1	17.8	nıg/Kg		20.0	2.84	75	70 -	130	3	20
Percent recovery is based on the	spike resi	ılt. RPE	is based o	on the s	pike and s	pike duplic	ate res	sult.			
				стр.		с.		MS	MS	D	Rec.
		N	/IS M	SD .		J.	bike	IVIO		$\mathbf{D}$	1000.
urrogate				SD sult	Units		oike ount	Rec.	Ree		Limit
		Re	sult Re	sult	Units mg/Kg			Rec. 110		с.	Limit
Irifluorotoluene (TFT)		Re 2	sult Re	sult .76 i		Dil. Am	ount	Rec.	Ree	c. 3 7	
Surrogate Irifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 107983 Prep Batch: 91351	d Sample	Re 2 2 :: 349290 Dat	sult Re 20 1. 48 1.	sult .76 1 .99 1 d: 20	mg/Kg	Dil. Am	ount 2	Rec. 110 124	Rec 88	c. 3 7 0 7	Limit 0 - 130 0 - 130 : AR
Irifluorotoluene (TFT) I-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 107983 Prep Batch: 91351	-	Re 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	sult Re 20 1. .48 1. e Analyze Preparati MS	sult .76 1 .99 1 d: 20 on: 20	mg/Kg mg/Kg 14-01-03 13-12-31	Dil. Am 1 1 Spike	ount 2 2 Ma	Rec. 110 124	Rec 88 100 Analyz Prepar	c. 3 7 0 7 zed By red By	Limit 0 - 130 0 - 130 : AR : AR : AR : Rec.
Prifluorotoluene (TFT) I-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 107983 Prep Batch: 91351	d Sample F	Re 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	sult Re 20 1. .48 1. e Analyze Preparati MS Result	sult .76 1 .99 1 d: 20 on: 20 Units	mg/Kg mg/Kg 14-01-03 13-12-31 Dil.	Dil. Am 1 1 Spike Amount	ount 2 2 Ma Re	Rec. 110 124	Rec 88 100 Analyz Prepar	c. 3 7 0 7 zed By red By	Limit 0 - 130 0 - 130 : AR : AR : AR Rec. Limit
Trifluorotoluene (TFT) I-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 107983 Prep Batch: 91351	-	Re 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	sult Re 20 1. .48 1. e Analyze Preparati MS Result	sult .76 1 .99 1 d: 20 on: 20	mg/Kg mg/Kg 14-01-03 13-12-31	Dil. Am 1 1 Spike	ount 2 2 Ma Re	Rec. 110 124	Rec 88 100 Analyz Prepar	c. 3 7 0 7 zed By red By	Limit 0 - 130 0 - 130 : AR : AR : AR Rec. Limit
Prifluorotoluene (TFT) -Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 107983 Prep Batch: 91351	F	Re 2 2 :: 349290 Dat QC	sult Re 20 1 .48 1 e Analyze Preparati MS Result 3050	sult .76 1 .99 1 d: 20 on: 20 Units mg/Kg	mg/Kg mg/Kg 14-01-03 13-12-31 Dil. 5	Dil. Am 1 1 Spike Amount 2500	ount 2 2 Ma Re 2	Rec. 110 124	Rec 88 100 Analyz Prepar	c. 3 7 0 7 zed By red By	Limit 0 - 130 0 - 130 : AR : AR : AR Rec. Limit
Prifluorotoluene (TFT) -Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 107983 Prep Batch: 91351 Param Phloride	F	Re 2 2 :: 349290 Dat QC C 1 alt. RPL	sult Re 20 1 .48 1 e Analyze Preparati MS Result 3050	sult .76 1 .99 1 d: 20 on: 20 Units mg/Kg	mg/Kg mg/Kg 14-01-03 13-12-31 Dil. 5 pike and s	Dil. Am 1 1 Spike Amount 2500 spike duplic	ount 2 2 Ma Re 2	Rec. 110 124	Rec. 88 100 Analyz Prepar Rec. 112	c. 3 7 0 7 zed By red By	Limit 0 - 130 0 - 130 : AR : AR : AR Rec. Limit 9 - 121
Irifluorotoluene (TFT) -Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 107983 Prep Batch: 91351 Param Chloride	F	Re 2 2 :: 349290 Dat QC	sult Re 20 1 .48 1 e Analyze Preparati MS Result 3050	sult .76 1 .99 1 d: 20 on: 20 Units mg/Kg	mg/Kg mg/Kg 14-01-03 13-12-31 Dil. 5	Dil. Am 1 1 Spike Amount 2500	ount 2 2 Ma Re 2	Rec. 110 124	Rec. 88 100 Analyz Prepar Rec. 112	c. 3 7 0 7 zed By red By	Limit 0 - 130 0 - 130 : AR : AR : AR : Rec.

## Matrix Spike (MS-1) Spiked Sample: 349293

QC Batch:	107984	Date Analyzed:	2014-01-03	Analyzed By:	AR
Prep Batch:	91351	QC Preparation:	2013-12-31	Prepared By:	$\mathbf{AR}$

Report Date: January 6, 2014 TBD				Page Number: 35 of 45 Eddy Co, NM								
Param		F	СИ	MS Result	Units	Dil.	Spike Amount		atrix esult	Rec.		Rec. Limit
Chloride				2400	mg/Kg	5	2500	6	6.9	93	78	9 - 121
Percent recovery is based on the	spike	e resi	ult. RPD	is based	on the s	spike and s	spike dupli	cate re	sult.			
			MSD			Spike	$\operatorname{Matrix}$		Re	ec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	$\operatorname{Lin}$	nit	$\operatorname{RPD}$	Limit
Chloride			2460	mg/Kg	5	2500	66.9	96	78.9	- 121	2	20

# **Calibration Standards**

## Standard (CCV-1)

QC Batch:	107761	Date Analyzed			2013-12-20		Analy	zed By: KC
				CCVs True	$\operatorname{CCVs}$ Found	$\mathrm{CCVs}$ Percent	Percent Recovery	Date
Param	$\operatorname{Flag}$	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	265	106	80 - 120	2013-12-20

#### Standard (CCV-2)

DRO		1	mg/Kg	250	267	107	80 - 120	2013-12-20
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
QC Batch:	107761		Date	Analyzed:	2013-12-20		Analy	zed By: KC

#### Standard (CCV-3)

QC Batch:	QC Batch: 107761			Date Analyzed: 2013-12-2			Analyzed By: 1			
				CCVs	CCVs	CCVs	Percent			
				True	Found	Percent	Recovery	Date		
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
DRO		1	mg/Kg	250	271	108	80 - 120	2013-12-20		

## Standard (CCV-1)

QC Batch: 107765		Date Ar	nalyzed: 20	Analyzed By: AK			
			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag Ce	ert Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene	1	ı mg/kg	0.100	0.0879	88	80 - 120	2013-12-20
Toluene	]	n mg/kg	0.100	0.0864	86	80 - 120	2013-12-20

continued ...

Report Date: January 6, 2014 TBD				/ork Order: /Save D A	Page Number: 37 of 45 Eddy Co, NM			
standard continued				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	$\mathbf{F}$ lag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Ethylbenzene		1	mg/kg	0.100	0.0844	84	80 - 120	2013-12-20
Xylene		1	mg/kg	0.300	0.253	84	80 - 120	2013-12-20

## Standard (CCV-2)

QC Batch: 107765			Date An	Analyzed By: AK				
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0905	90	80 - 120	2013-12-20
Toluene		1	mg/kg	0.100	0.0897	90	80 - 120	2013-12-20
Ethylbenzene		1	mg/kg	0.100	0.0855	86	80 - 120	2013-12-20
Xylene		1	mg/kg	0.300	0.257	86	80 - 120	2013-12-20

## Standard (CCV-3)

QC Batch: 107765			Date An	alyzed: 20	Analyzed By: AK			
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0801	80	80 - 120	2013-12-20
Toluene		1	mg/kg	0.100	0.0844	84	80 - 120	2013-12-20
Ethylbenzene		1	mg/kg	0.100	0.0808	81	80 - 120	2013-12-20
Xylene		1	mg/kg	0.300	0.244	81	80 - 120	2013-12-20

## Standard (CCV-1)

QC Batch:	107771		Date	Analyzed:	2013-12-20		Analy	zed By: AK
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	$\mathbf{F}\mathbf{lag}$	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.946	95	80 - 120	2013-12-20

Report Date: January 6, 2014	Work Order: 13121819	Page Number: 38 of 45
TBD	COG/Save D A 21 Fed #001	Eddy Co, NM

## Standard (CCV-2)

QC Batch:	107771		Date	Analyzed:	2013-12-20		Analy	zed By: AK
				CCVs True	$\operatorname{CCVs}$ Found	$\operatorname{CCVs}$	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		ŀ	mg/Kg	1.00	0.926	93	80 - 120	2013-12-20

## Standard (CCV-3)

QC Batch:	107771		Date	Analyzed:	2013-12-20		Analy	zed By: AK
				CCVs	CCVs	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.852	85	80 - 120	2013-12-20

## Standard (CCV-1)

QC Batch:	107808		Date	Analyzed:	2013-12-23		Analy	Analyzed By: KC		
				CCVs	CCVs	CCVs	Percent			
				True	Found	Percent	Recovery	Date		
Param	$\operatorname{Flag}$	Cert	Units	Conc.	Conc.	Recovery	$\mathbf{Limits}$	Analyzed		
DRO		1	mg/Kg	250	254	102	80 - 120	2013-12-23		

## Standard (CCV-2)

QC Batch:	107808		Date	Analyzed:	2013-12-23		Analy	Analyzed By: KC		
				$\mathrm{CCVs}$	$\mathrm{CCVs}$	CCVs	Percent			
				True	Found	Percent	Recovery	$\operatorname{Date}$		
Param	$\operatorname{Flag}$	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
DRO		1	mg/Kg	250	284	114	80 - 120	2013-12-23		

## Standard (CCV-3)

QC Batch: 107808

Date Analyzed: 2013-12-23

Analyzed By: KC

Report Date: January 6, 2014 TBD		)14	C		er: 13121819 A 21 Fed #0	01	Page Number: 39 of 45 Eddy Co, NM		
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	
DRO		1	mg/Kg	250	273	109	80 - 120	2013-12-23	

## Standard (CCV-1)

QC Batch: 107810			Date An	alyzed: 20	Analyzed By: AK			
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0860	86	80 - 120	2013-12-23
Toluene		1	mg/kg	0.100	0.0847	85	80 - 120	2013-12-23
Ethylbenzene		1	mg/kg	0.100	0.0814	81	80 - 120	2013-12-23
Xylene		1	mg/kg	0.300	0.246	82	80 - 120	2013-12-23

## Standard (CCV-2)

QC Batch: 107810			Analyzed By: AK					
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0852	85	80 - 120	2013-12-23
Toluene		1	mg/kg	0.100	0.0832	83	80 - 120	2013-12-23
Ethylbenzene		1	mg/kg	0.100	0.0797	80	80 - 120	2013 - 12 - 23
Xylene-		1	mg/kg	0.300	0.240	80	80 - 120	2013-12-23

## Standard (CCV-3)

QC Batch: 107810			Analyzed By: AK							
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date		
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Benzene		1	mg/kg	0.100	0.0864	86	80 - 120	2013-12-23		
Toluene		1	mg/kg	0.100	0.0842	84	80 - 120	2013-12-23		
Ethylbenzene		1	mg/kg	0.100	0.0796	80	80 - 120	2013-12-23		
Xylene		ı	mg/kg	0.300	0.240	80	80 - 120	2013-12-23		
Report Date TBD	e: January 6, 20	Work Order: 13121819 COG/Save D A 21 Fed #001						Page Number: 40 of 45 Eddy Co, NM		
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Standard (	CCV-1)									
QC Batch:	107811		Date	Analyzed:	2013-12-23		Analyzed By: AK			
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date		
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
GRO		1	mg/Kg	1.00	0.906	91	80 - 120	2013-12-23		

# Standard (CCV-2)

QC Batch:	107811	Date Analyzed:			2013-12-23		Analyzed By: AK	
				CCVs	CCVs	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.812	81	80 - 120	2013-12-23

# Standard (CCV-3)

QC Batch:	atch: 107811			Analyzed:	2013-12-23		Analy	zed By: AK
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.837	84	80 - 120	2013-12-23

# Standard (CCV-1)

QC Batch: 107855			Analyzed By: AK					
				CCVs	CCVs	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		i	mg/kg	0.100	0.0955	96	80 - 120	2013-12-24
Toluene		1	mg/kg	0.100	0.0931	93	80 - 120	2013 - 12 - 24
Ethylbenzene		1	mg/kg	0.100	0.100	100	80 - 120	2013 - 12 - 24
Xylene		1	mg/kg	0.300	0.304	101	80 - 120	2013-12-24

Report Date: January 6, 2014	Work Order: 13121819	Page Number: 41 of 45
TBD	COG/Save D A 21 Fed #001	Eddy Co, NM
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# Standard (CCV-2)

QC Batch: 107855			Analyzed By: AK					
				CCVs True	$\operatorname{CCVs}$ Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		ŀ	mg/kg	0.100	0.0909	91	80 - 120	2013-12-24
Toluene		1	mg/kg	0.100	0.0891	89	80 - 120	2013-12-24
Ethylbenzene		1	mg/kg	0.100	0.0962	96	80 - 120	2013-12-24
Xylene		1	mg/kg	0.300	0.291	97	80 - 120	2013-12-24

# Standard (CCV-3)

QC Batch: 107855			Date An	Analyzed By: AK				
				CCVs	$\mathbf{CCVs}$	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0942	94	80 - 120	2013-12-24
Toluene		1	mg/kg	0.100	0.0918	92	80 - 120	2013 - 12 - 24
Ethylbenzene		1	mg/kg	0.100	0.0975	98	80 - 120	2013 - 12 - 24
Xylene		1	mg/kg	0.300	0.295	98	80 - 120	2013-12-24

# Standard (CCV-1)

QC Batch:	107889	Date	Analyzed:	2013-12-30		Analy	zed By: AK	
				$\mathrm{CCVs}$	$\mathbf{CCVs}$	$\mathrm{CCVs}$	Percent	
				True	Found	$\mathbf{Percent}$	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.13	113	80 - 120	2013-12-30

# Standard (CCV-2)

QC Batch:	2C Batch: 107889			Analyzed:	2013-12-30		Analyzed By: AK	
				CCVs True	CCVs Found	$\operatorname{CCVs}$	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		l	mg/Kg	1.00	0.812	81	80 - 120	2013-12-30

Report Date: . TBD	January 6, 20	14	C	Work Orc OG/Save E	Page Number: 42 of 45 Eddy Co, NM			
Standard (CC	CV-3)							
QC Batch: 10	)7889		Date	Analyzed:	2013-12-30		Analy	rzed By: AK
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO	Thag	r	mg/Kg	1.00	1.02	102	80 - 120	2013-12-30
Standard (CO	CV-1)							
QC Batch: 10	)7983		Date	Analyzed:	2014-01-03		Analy	zed By: AR
		<b>G</b>	<b>TT</b> 1.	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param Chloride	Flag	Cert	Units mg/Kg	Conc. 100	Conc. 99.7	Recovery 100	Limits 85 - 115	Analyzed 2014-01-03
Standard (CO								
QC Batch: 10	)7983		Date	Analyzed:	2014-01-03		Analy	zed By: AR
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2014-01-03
Standard (CO	CV-1)							
QC Batch: 10	)7984		Date	Analyzed:	2014-01-03		Analy	zed By: AR
			<b>TT</b> •.	CCVs True	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	necovery	LIIIIUS	Analyzed

# Standard (CCV-2)

QC Batch: 107984

Date Analyzed: 2014-01-03

Analyzed By: AR

Report Date: TBD	January 6, 201	4	CC	Work Orden DG/Save D A	Page Number: 43 of 45 Eddy Co, NM			
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	$\mathbf{F}$ lag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	99.8	100	85 - 115	2014-01-03

Work Order: 13121819 COG/Save D A 21 Fed #001

# Appendix

# **Report Definitions**

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

# Laboratory Certifications

	Certifying	Certification	Laboratory
$\mathbf{C}$	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	Т104704392-13-7	Midland

# Standard Flags

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

# **Result Comments**

Report Date: January 6, 2014 TBD Work Order: 13121819 COG/Save D A 21 Fed #001 Page Number: 45 of 45 Eddy Co, NM

1 Surrogate low due to possible dilution out of sample.

2 Surrogate low due to possible dilution out of sample.

3 MS & MSD were not spiked due to prep error. LCS/LCSD show recovery for the batch.

4 MS & MSD were not spiked due to prep error. LCS/LCSD show recovery for the batch.

# Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

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SAMPLE CONDITION WHEN RECEIVED: REMARKS:																					

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



May 06, 2014

IKE TAVAREZ TETRA TECH 1910 N. BIG SPRING STREET MIDLAND, TX 79705

RE: SAVE D A #21 FED #1

Enclosed are the results of analyses for samples received by the laboratory on 04/30/14 9:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/qa/lab\_accred\_certif.html">www.tceq.texas.gov/field/qa/lab\_accred\_certif.html</a>.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celez D. Keine

Celey D. Keene Lab Director/Quality Manager



TETRA TECH IKE TAVAREZ 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	04/30/2014	Sampling Date:	04/11/2014
Reported:	05/06/2014	Sampling Type:	Soil
Project Name:	SAVE D A #21 FED #1	Sampling Condition:	** (See Notes)
Project Number:	112MC06170	Sample Received By:	Jodi Henson
Project Location:	COG		

#### Sample ID: AH-1 NSW (H401295-01)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	912	16.0	05/05/2014	ND	400	100	400	3.92	

# Sample ID: AH-1 SSW (H401295-02)

Chloride, SM4500Cl-8	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1360	16.0	05/05/2014	ND	400	100	400	3.92	

#### Sample ID: AH-1 ESW (H401295-03)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	736	16.0	05/05/2014	ND	400	100	400	3.92	

#### Sample ID: AH-2 ESW (H401295-04)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1420	16.0	05/05/2014	ND	400	100	400	3.92	

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\*=Accredited Analyte

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



TETRA TECH IKE TAVAREZ 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	04/30/2014	Sampling Date:	04/11/2014
Reported:	05/06/2014	Sampling Type:	Soil
Project Name:	SAVE D A #21 FED #1	Sampling Condition:	** (See Notes)
Project Number:	112MC06170	Sample Received By:	Jodi Henson
Project Location:	COG		

#### Sample ID: AH-2 WSW (H401295-05)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	720	16.0	05/05/2014	ND	400	100	400	3.92	

### Sample ID: AH-3 ESW (H401295-06)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	832	16.0	05/05/2014	ND	400	100	400	3.92	

#### Sample ID: AH-3 WSW (H401295-07)

Chloride, SM4500Cl-B mg/kg			Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1140	16.0	05/02/2014	ND	400	100	400	0.00	

#### Sample ID: AH-4 ESW (H401295-08)

Chloride, SM4500Cl-B	Cl-B mg/kg			Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chłoride	784	16.0	05/02/2014	ND	400	100	400	0.00	

#### Sample ID: AH-4 WSW (H401295-09)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	05/02/2014	ND	400	100	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager



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Received:	04/30/2014	Sampling Date:	04/11/2014
Reported:	05/06/2014	Sampling Type:	Soil
Project Name:	SAVE D A #21 FED #1	Sampling Condition:	** (See Notes)
Project Number:	112MC06170	Sample Received By:	Jodi Henson
Project Location:	COG		

### Sample ID: AH-5 SSW (H401295-10)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	05/02/2014	ND	400	100	400	0.00	

#### Sample ID: AH-5 ESW (H401295-11)

Chloride, SM4500Cl-B mg/kg			Analyze	Analyzed By: AP				<u> </u>	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1570	16.0	05/02/2014	ND	400	100	400	0.00	

#### Sample ID: AH-5 WSW (H401295-12)

Chloride, SM4500Cl-B mg/kg			Analyze	lyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	416	16.0	05/02/2014	ND	400	100	400	0.00	

#### Sample ID: AH-6 ESW (H401295-13)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2040	16.0	05/02/2014	ND	400	100	400	0.00	

### Sample ID: AH-6 WSW (H401295-14)

Chloride, SM4500CI-B	mg/	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	656	16.0	05/02/2014	ND	400	100	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager



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Received:	04/30/2014	Sampling Date:	04/11/2014
Reported:	05/06/2014	Sampling Type:	Soil
Project Name:	SAVE D A #21 FED #1	Sampling Condition:	** (See Notes)
Project Number:	112MC06170	Sample Received By:	Jodi Henson
Project Location:	COG		

### Sample ID: AH-7 ESW (H401295-15)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	656	16.0	05/02/2014	ND	400	100	400	0.00	

#### Sample ID: AH-7 WSW (H401295-16)

Chloride, SM4500Cl-B	SM4500Cl-B mg/kg			d By: AP			<u></u>		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	736	16.0	05/02/2014	ND	400	100	400	0.00	

#### Sample ID: AH-8 ESW (H401295-17)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1040	16.0	05/02/2014	ND	400	100	400	0.00	

#### Sample ID: AH-8 WSW (H401295-18)

Chloride, SM4500Cl-B mg/kg		Analyze	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2160	16.0	05/02/2014	ND	400	100	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager



### **Notes and Definitions**

 ND
 Analyte NOT DETECTED at or above the reporting limit

 RPD
 Relative Percent Difference

 \*\*\*
 Samples not received at proper temperature of 6°C or below.

 \*\*\*
 Insufficient time to reach temperature.

 Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

Page 6 of 8

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H401295 TETRATECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946							5 (Ext. to C35)	<u>්</u> ර	J Vr Pd Hg Se									SQ		
H401295 CLIENT NAME: COG SITE MANAGER: FKE TEL VERTE	NERS			SER	VATIVE	1	TX1005	As Ba Cd	s Ba Cd			60/624	8270/625					ns, pH, TDS		
PROJECT NO.: 1/2MC 06170 Save DA #21 Fed #1	F CONTAL	(N)				۳	8015 MOD.			iles	Volatilet	8240/82	ni. Vol. 8	)/608 08		ec. (Air)	stos)	ns/Catio		
LAB I.D. NUMBER DATE TIME TIME TIME TIME TIME TIME TIME TI	NUMBER OF CONTAINERS	FILTERED (Y/N)	HN03	ICE	NONE	BTEX 8021B	TPH 801	PAH 8270 RCRA Metals Ag	TCLP Metals Ag	TCLP Volatiles	TCLP Semi Volatiles RCI	GC.MS Vol. 8240/8260/624	GC.MS Ser	PCB's 8080/608 Pest. 808/608	Chloride	Gamma Spec. Aloha Beta (Ai	PLM (Asbestos)	Major Anions/Cations,		
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Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

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LAB I.D. NUMBER DATE	MATHIX COMP GRAB	SAMPL	E IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N) HCL	HN03	ICE	NONE		TPH 801 PAH 8270	<b>RCRA Metals Ag</b>	TCLP Metals Ag	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	PCB's 8080/608	Pest. 808	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos) Major Anions/Cations, pH, TDS		
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April 10, 2014

IKE TAVAREZ TETRA TECH

1910 N. BIG SPRING STREET

MIDLAND, TX 79705

RE: SAVE D A #21 FED #1

Enclosed are the results of analyses for samples received by the laboratory on 04/09/14 9:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/qa/lab\_accred\_certif.html">www.tceq.texas.gov/field/qa/lab\_accred\_certif.html</a>.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celuz D. Keine

Celey D. Keene Lab Director/Quality Manager



TETRA TECH IKE TAVAREZ 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	04/09/2014	Sampling Date:	04/08/2014
Reported:	04/10/2014	Sampling Type:	Soil
Project Name:	SAVE D A #21 FED #1	Sampling Condition:	Cool & Intact
Project Number:	112MC06170	Sample Received By:	Jodi Henson
Project Location:	COG		

# Sample ID: T-1 (AH-2) 0' (H401068-01)

Chloride, SM4500Cl-B mg/kg		/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2800	16.0	04/09/2014	ND	400	100	400	3.92	

# Sample ID: T-1 (AH-2) 2' REFUSAL (H401068-02)

Chloride, SM4500Cl-B	Analyze	d By: AP							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3760	16.0	04/09/2014	ND	400	100	400	3.92	

#### Sample ID: T-2 (AH-3) 0' (H401068-03)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1520	16.0	04/09/2014	ND	400	100	400	3.92	

#### Sample ID: T-2 (AH-3) 2' REFUSAL (H401068-04)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP			********		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	512	16.0	04/09/2014	ND	400	100	400	3.92	

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TETRA TECH IKE TAVAREZ 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	04/09/2014	Sampling Date:	04/08/2014
Reported:	04/10/2014	Sampling Type:	Soil
Project Name:	SAVE D A #21 FED #1	Sampling Condition:	Cool & Intact
Project Number:	112MC06170	Sample Received By:	Jodi Henson
Project Location:	COG		

#### Sample ID: T-3 (AH-5) 0' (H401068-05)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/09/2014	ND	2.12	106	2.00	26.1	
Toluene*	<0.050	0.050	04/09/2014	ND	1.97	98.6	2.00	26.2	
Ethylbenzene*	<0.050	0.050	04/09/2014	ND	1.88	94.2	2.00	26.6	
Total Xylenes*	<0.150	0.150	04/09/2014	ND	5.46	91.1	6.00	25.2	
Total BTEX	<0.300	0.300	04/09/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIL	107 9	% 89.4-12	6		,,,,				
TPH 8015M	mg/	kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/09/2014	ND	196	98.2	200	0.606	
DRO >C10-C28	<10.0	10.0	04/09/2014	ND	214	107	200	10.8	
EXT DRO >C28-C35	<10.0	10.0	04/09/2014	ND					
Surrogate: 1-Chlorooctane	113 %	65.2-14	0						
Surrogate: 1-Chlorooctadecane	108 %	63.6-15	4						

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Celey D. Keene, Lab Director/Quality Manager



TETRA TECH IKE TAVAREZ 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	04/09/2014	Sampling Date:	04/08/2014
Reported:	04/10/2014	Sampling Type:	Soil
Project Name:	SAVE D A #21 FED #1	Sampling Condition:	Cool & Intact
Project Number:	112MC06170	Sample Received By:	Jodi Henson
Project Location:	COG		

### Sample ID: T-3 (AH-5) 2' (H401068-06)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/09/2014	ND	2.12	106	2.00	26.1	
Toluene*	<0.050	0.050	04/09/2014	ND	1.97	98.6	2.00	26.2	
Ethylbenzene*	<0.050	0.050	04/09/2014	ND	1.88	94.2	2.00	26.6	
Total Xylenes*	<0.150	0.150	04/09/2014	ND	5.46	91.1	6.00	25.2	
Total BTEX	<0.300	0.300	04/09/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIL	107 5	% 89.4-12	6				and allow the second additional and an and a second second second second second second second second second se		
TPH 8015M	mg/	/kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/09/2014	ND	196	98.2	200	0.606	
DRO >C10-C28	30.6	10.0	04/09/2014	ND	214	107	200	10.8	
EXT DRO >C28-C35	<10.0	10.0	04/09/2014	ND					
Surrogate: 1-Chlorooctane	125 9	65.2-14	0	en — (-) en andreas antes de la constante de la serie de la constante de				999-999-998 (****) 1999-999 (*******************************	an 1946 an An Ionaidh a' an Ann a
Surrogate: 1-Chlorooctadecane	113 9	63.6-15	4						

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Celeg Di Keine

Celey D. Keene, Lab Director/Quality Manager



TETRA TECH IKE TAVAREZ 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	04/09/2014	Sampling Date:	04/08/2014
Reported:	04/10/2014	Sampling Type:	Soil
Project Name:	SAVE D A #21 FED #1	Sampling Condition:	Cool & Intact
Project Number:	112MC06170	Sample Received By:	Jodi Henson
Project Location:	COG		

# Sample ID: T-3 (AH-5) 4' REFUSAL (H401068-07)

BTEX 8021B	mg/	kg	Analyze	d By: MS		· · · · · · · · · · · · · · · · · · ·			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/09/2014	ND	2.12	106	2.00	26.1	
Toluene*	<0.050	0.050	04/09/2014	ND	1.97	98.6	2.00	26.2	
Ethylbenzene*	<0.050	0.050	04/09/2014	ND	1.88	94.2	2.00	26.6	
Total Xylenes*	<0.150	0.150	04/09/2014	ND	5.46	91.1	6.00	25.2	
Total BTEX	<0.300	0.300	04/09/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIL	107 9	% 89.4-12	6	andre ben mann fram allers Greekant um Las man han		an a			
TPH 8015M	mg/kg		Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/09/2014	ND	196	98.2	200	0.606	
DRO >C10-C28	<10.0	10.0	04/09/2014	ND	214	107	200	10.8	
EXT DRO >C28-C35	<10.0	10.0	04/09/2014	ND					
Surrogate: 1-Chlorooctane	126 9	65.2-14	0					Ann a Miles et en an Staanse de Staa	Na ann an t-an t-an t-an t-an t-an t-an t

# Sample ID: T-4 (AH-7) 0' (H401068-08)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	04/09/2014	ND	400	100	400	3.92	

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Celey D. Kune

Celey D. Keene, Lab Director/Quality Manager



TETRA TECH IKE TAVAREZ 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	04/09/2014	Sampling Date:	04/08/2014
Reported:	04/10/2014	Sampling Type:	Soil
Project Name:	SAVE D A #21 FED #1	Sampling Condition:	Cool & Intact
Project Number:	112MC06170	Sample Received By:	Jodi Henson
Project Location:	COG		

#### Sample ID: T-4 (AH-7) 1' REFUSAL (H401068-09)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	04/09/2014	ND	400	100	400	3.92	

# Sample ID: T-5 (AH-8) 0' (H401068-10)

BTEX 8021B	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/09/2014	ND	2.12	106	2.00	26.1	
Toluene*	<0.050	0.050	04/09/2014	ND	1.97	98.6	2.00	26.2	
Ethylbenzene*	0.696	0.050	04/09/2014	ND	1.88	94.2	2.00	26.6	
Total Xylenes*	3.57	0.150	04/09/2014	ND	5.46	91.1	6.00	25.2	
Total BTEX	4.27	0.300	04/09/2014	ND					
				Building and and a set and a set of the set	a landsoft to constrain the interview of the state				

Surrogate: 4-Bromofluorobenzene (PIL 109 % 89.4-126

TPH 8015M	mg/I	kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	137	10.0	04/10/2014	ND	196	98.2	200	0.606	
DRO >C10-C28	2310	10.0	04/10/2014	ND	214	107	200	10.8	
EXT DRO >C28-C35	345	10.0	04/10/2014	ND					
Surrogate: 1-Chlorooctane	136 %						ananananan anan yan katanan ku u atama atama ana kutu m	a mata anala (da ka	
Surrogate: 1-Chlorooctadecane	130 %	63.6-15	4						

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Celey D. Kune

Celey D. Keene, Lab Director/Quality Manager



TETRA TECH IKE TAVAREZ 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	04/09/2014	Sampling Date:	04/08/2014
Reported:	04/10/2014	Sampling Type:	Soil
Project Name:	SAVE D A #21 FED #1	Sampling Condition:	Cool & Intact
Project Number:	112MC06170	Sample Received By:	Jodi Henson
Project Location:	COG		

# Sample ID: T-5 (AH-8) 2' (H401068-11)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/10/2014	ND	2.12	106	2.00	26.1	
Toluene*	<0.050	0.050	04/10/2014	ND	1.97	98.6	2.00	26.2	
Ethylbenzene*	<0.050	0.050	04/10/2014	ND	1.88	94.2	2.00	26.6	
Total Xylenes*	<0.150	0.150	04/10/2014	ND	5.46	91.1	6.00	25.2	
Total BTEX	<0.300	0.300	04/10/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIL	113 9	6 89.4-12	6				itty-fölkitet för fölkitet av den som	ay yana mana yang yang kanan na danan da ma	
TPH 8015M	mg/	kg	Analyze	d By: ms			<u>.</u>		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/09/2014	ND	196	98.2	200	0.606	
DRO >C10-C28	<10.0	10.0	04/09/2014	ND	214	107	200	10.8	
EXT DRO >C28-C35	12.5	10.0	04/09/2014	ND					
Surrogate: I-Chlorooctane	123 9	65.2-14	0						
Surrogate: 1-Chlorooctadecane	110 %	63.6-15	4						

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Celey D. Keene, Lab Director/Quality Manager



### **Notes and Definitions**

- ND
   Analyte NOT DETECTED at or above the reporting limit

   RPD
   Relative Percent Difference

   \*\*
   Samples not received at proper temperature of 6°C or below.

   \*\*\*
   Insufficient time to reach temperature.
- Chloride by SM4500CI-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Kune

Celey D. Keene, Lab Director/Quality Manager

Page 8 of 10

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April 14, 2014

IKE TAVAREZ TETRA TECH 1910 N. BIG SPRING STREET MIDLAND, TX 79705

RE: SAVE D A #21 FED #1

Enclosed are the results of analyses for samples received by the laboratory on 04/14/14 10:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/qa/lab\_accred\_certif.html">www.tceq.texas.gov/field/qa/lab\_accred\_certif.html</a>.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celez D. Keine

Celey D. Keene Lab Director/Quality Manager



TETRA TECH IKE TAVAREZ 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	04/14/2014	Sampling Date:	04/11/2014
Reported:	04/14/2014	Sampling Type:	Soil
Project Name:	SAVE D A #21 FED #1	Sampling Condition:	** (See Notes)
Project Number:	112MCD6170	Sample Received By:	Jodi Henson
Project Location:	COG		

### Sample ID: AH-2 BOTTOM HOLE @ 2' (H401118-01)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP		······			<u></u>
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	04/14/2014	ND	400	100	400	0.00	

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Celeg D. Kune

Celey D. Keene, Lab Director/Quality Manager



#### **Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500CI-B does not require samples be received at or below $6^{\circ}\text{C}$
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celeg D. Kune

Celey D. Keene, Lab Director/Quality Manager

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