### SITE INFORMATION **Report Type: Closure Report** General Site Information: Skelly Unit #968 Site: COG Operating LLC Company: Section, Township and Range Sec 15 T17S **R31E** API-30-015-35816 Lease Number: Eddy County County: GPS: 32.83548° N 103.85998° W Surface Owner: Federal Mineral Owner: In Loco Hills, from the intersection of HWY 529 and HWY 82, travel East on 82 for Directions: approximately 0.4 miles, turn North onto CR 223 and continue for approximately 0.8 miles, turn East onto lease road and continue for approximately 0.1 miles, turn North onto lease road and continue for approximately 0.3 miles to location **Release Data:** Date Released: 11/4/2013 Type Release: Produced water and oil Source of Contamination: Polyline connection failure Fluid Released: 5 bbls Fluids Recovered: 0 bbls **Official Communication:** Name: Robert McNeil Ike Tavarez COG Operating, LLC Company: Tetra Tech One Concho Center Address: 4000 N. Big Spring 600 W. Illinois Ave. Ste 401 City: Midland Texas, 79701 Midland, Texas Phone number: (432) 686-3023 (432) 687-8110 (432) 684-7137 Fax: rmcneil@conchoresources.com Email: Ike.Tavarez@tetratech.com

anking Criteria		·		· · · · · · · · · · · · · · · · · · ·
Depth to Groundwater:		Ranking Score		Site Data
<50 ft	,	20		
50-99 ft		10		
>100 ft	·····	0		
WellHead Protection:		Ranking Score		Site Data
Water Source <1,000 ft., Private <200 ft.		20		
Water Source >1,000 ft., Private >200 ft.		0		0
Surface Body of Water:		Ranking Score		Site Data
<200 ft.	•	20		
200 ft - 1,000 ft.		10		
>1,000 ft.		0		0
Total Ranking Score:		10		
<u>, , , , , , , , , , , , , , , , , , , </u>			4	NM OIL CONSERVATION
	Accepta	able Soil HHAL (r	ng/kg)	ARTESIA DISTRICT
	Benzene	Total BTEX	TPH	ILINE & A DOLA
	10	50	5,000	JUN V + ZUI4

RECEIVED



May 19, 2014

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

### Re: Closure Report for the COG Operating LLC., Skelly Unit #968 Tank Battery, Unit F, Section 15, Township 17 South, Range 31 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from Skelly Unit #968 Tank Battery; located in Unit F, Section 15, Township 17 South, Range 31 East, Eddy County, New Mexico. (Site). The spill site coordinates are N 32.83548°, W 103.85998°. 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 04, 2013, and released approximately two (2) barrels of oil and three (3) barrels of produced water from a polyline connection. To alleviate the problem, COG personnel replaced the polyline. None of standing fluid was recovered. The spill initiated south of the tank battery pad affecting an area approximately 100' X 30' in the pasture. The initial C-141 form is enclosed in Appendix A.

### Groundwater

No water wells were listed within Section 15. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 300' 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 10, 2013, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, only auger hole (AH-3) exceeded the TPH and BTEX RRAL at 0-1', but declined with depth below the RRAL at 1'-1.5' below surface. A shallow chloride impact was detected in all of the auger holes. Auger holes (AH-1, AH-2, AH-3, and AH-4) detected chloride highs of 1,060 mg/kg at 1'-1.5' below surface, 4,130 mg/kg at 1'-1.5' below surface, 4,170 mg/kg at 3'-3.5' below surface, and 9,340 mg/kg at 2'-2.5', respectively. The chloride concentrations in auger holes (AH-1, AH-2, and AH-3) declined with depth at 2.0' to 3.0' and were all vertically defined. In the area of AH-4, the chloride spiked at 3.0-3.5' of 4,170 mg/kg and possible could be cross-contamination from the upper soils.

### **Remedial Activities**

On April 23, 2014, Tetra Tech supervised the removal of impacted material as highlighted (green) in Table 1 and shown on Figure 4. The area of AH-1 was excavated with hand where accessible a depth of approximately 1.5'. Auger holes (AH-2 and AH-4) were excavated to a depth of approximately 2.5' below surface. To evaluate the deeper soils, the area of AH-3 was trenched with a backhoe to confirm the chloride spike at 3-3.5' below surface. Referring to Table 1, T-1 did not show any impact to the subsurface soils. Based on the field results, the area was then excavated to approximately 1.5' below surface.



Once the areas were excavated to the appropriate depths, the excavation was backfilled with clean material to grade. Approximately 160 cubic yards of contaminated material was taken to the proper disposal.

### Conclusion

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

Respectfully submitted, TETRA TECH Ike Tavarez. PG Project Management

cc: Robert McNeil – COG Jeff Robertson - BLM

Figures



Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo





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Tables

### Table 1 COG Operating LLC. Skelly Unit #968 Eddy County, New Mexico

Sample ID Sample S	Sample Date	Sample	BEB	Soil	Status	1	PH (mg/k	g)	Benzene	Toluene	Ethlybenzene	Xylene	Total	Chloride
Sample ib	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	12/12/2013	0-1	-	Х		<4.00	251	251	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	803
	u	1-1.5	-	Х		-	-	-	-	-	_	-	-	1,060
	"	2-2.5	-	Х		-	-	-	-	-	-	-	-	66.5
		3-3.5	-	<sup>×</sup> X		-	-	-	-	-	-	-	-	52.3
	"	4-4.5	-	Х		-	-	-	-	-	-	-	-	114
	n	5-5.5	-	Х		-	-	-	-	-	-	-	-	247
AH-2	12/12/2013	0-1			X	277	1360	1637	<0.100	4.39	10.9	12.7	28.0	2,940
		1-1.5	-		X	-	÷	-	· -	-		-		4,130
		2-2.5	-	· X	X	-	÷.	-	-	- ,				2,490
		3-3.5	-	Х		-	-	-	-	-	-	-	-	200
	u	4-4.5	-	Х		-	-	-	-	-	-	-	-	<20.0
AH-3	12/12/2013	0-1	-		X	1,070	7,520	8,590	<0.400	9.6	40.3	48.7	98.6	2,080
		1-1.5	-		<b>X</b> .	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	1,040
	u	2-2.5	-	X		-	-	-	-	-	-	-	-	721
	"	3-3.5	-	Х		-	•	-	-	-	-	-	-	4,170
T-1	4/24/2014	Ő	· -		×	-	-	-	-	-		-		128
	"	2	-	x	······	-	-	-	-	-	-	-	-	32.0
		4	-	X		-	-	-	-	-	-	-	-	512
	"	6	-	Х		-	-	-	-	-	-	-	-	<16.0
	μ	8	-	Х		-	-	-	-	-	-	-	-	<16.0
	41	10	-	Х		-	-	-	-	-	-	-	-	.32.0
AH-4	12/12/2013	0-1	· ·	; ;	X	4.37	125	129	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	1,530
	н	1-1.5	-		X	-		· · · ·		-	-	-	-	1,440
	и	2-2.5	- ·		X '-	- '	-	-	_	-	· · · · · · · · · · · · · · · · · · ·	-	-	9,340
		3-3.5	-	Х		-	-	-	-	-	~	-	-	497
		4-4.5	-	Х		-	-	-	-	-	-	-	-	<20.0

Excavated Depths

(-) Not Analyzed

(BEB) Below Excavation Bottom

COG Operating LLC Skelly Unit #968 Tank Battery Eddy County, New Mexico







View North – Area of AH-1 Deferred due to Header

# TETRA TECH

COG Operating LLC Skelly Unit #968 Tank Battery Eddy County, New Mexico







View East – Area of AH-2

## COG Operating LLC Skelly Unit #968 Tank Battery Eddy County, New Mexico

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View East - Excavation Backfilled

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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

Santa	Fe, NM 87505		
Release Notificati	on and Corrective Ac	ction	
	OPERATOR	🛛 Initia	al Report 🔲 Final Report
Name of Company COG OPERATING LLC	Contact Ro	bert McNeill	
Address 600 West Illinois Avenue, Midland, TX 79701	Telephone No. 43	32-230-0077	
Facility Name Skelly Unit #968	Facility Type T	ank Battery	
Surface Owner Federal Mineral Owner	er	Lease N	No. (API#) 30-015-35816
LOCATI	ON OF RELEASE		
Unit Letter Section Township Range Fect from the No F 15 17S 31E	rth/South Line Feet from the	East/West Line	County Eddy
Latitude 32.8354	3 Longitude 103.85998		LZ
NATUF	E OF RELEASE		
Type of Release Oil and produced water	Volume of Release 2bbls of 3bbls produced a	of oil Volume F	Recovered Obbls of oil
Source of Release Polyline	Date and Hour of Occurrence	Date and	Hour of Discovery
Was Immediate Notice Given?	If YES, To Whom?	11-04-20	15 1.18pm
☐ Yes ⊠ No ☐ Not Requir	ed		
By Whom?	Date and Hour		
Was a Watercourse Reached?	If YES, Volume Impacting th	te Watercourse.	RECEIVED
		1	LOLIVED
If a Watercourse was impacted, Describe Fully.*			JUN 04 2014
Describe Cause of Problem and Remedial Action Taken.*	and a second	N	MOCD ARTEOLA
Polyline connection failed on header. Replaced 25' of polyline going t	o the header.		MILLONA L
Describe Area Affected and Cleanup Action Taken.*			
Initially 2bbls of oil and 3bbls of produced water was released due to a pasture. Tetra Tech will sample the spill site area to delineate any poss NMOCD/BLM for approval prior to any significant remediation work	polyline failure. We were unable t ible contamination from the release	to recover any flui e and we will press	id. The spill was in the adjacent ent a work plan to the
I hereby certify that the information given above is true and complete regulations all operators are required to report and/or file certain release public health or the environment. The acceptance of a C-141 report by should their operations have failed to adequately investigate and remete or the environment. In addition, NMOCD acceptance of a C-141 report federal, state, or local laws and/or regulations.	o the best of my knowledge and un e notifications and perform correct the NMOCD marked as "Final Re liate contamination that pose a thre nt does not relieve the operator of re	iderstand that purs ive actions for rele port" does not reli at to ground water esponsibility for co	suant to NMOCD rules and eases which may endanger ieve the operator of liability r, surface water, human health ompliance with any other
	OIL CONS	ERVATION	DIVISION
Signature:			
Printed Name: Robert Grubbs Jr.	Approved by District Superviso	r:	
Title: Senior Environmental Coordinator	Approval Date:	Expiration	Date:
E-mail Address: rgrubbs@concho.com	Conditions of Approval:		Attached
Date: 11-08-2013 Phone: 432-661-6601			

\* Attach Additional Sheets If Necessary

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

	-				anta F	e, $i$	03					
			Rel	ease Notifi	catio	n and Co	orrective A	ction				
						<b>OPERA</b>	ror		🗌 Initi	al Report	$\square$	Final Report
Name of Co	ompany C	COG Operat	ting LLC	2		Contact Ro	bert McNeill		-			
Address 60	<u>0 W. Illin</u>	ois Ave, Mi	dland, T	exas 79701		Telephone N	No. (432) 685-4	4332				
Facility Na	me Skelly	Unit #968				Facility Typ	e Tank Batte	ry				
Surface Ow	ner: Feder	al		Mineral	Owner				Lease 1	No. (API#)	30-01	5-35816
				LOC	ATIO	N OF REI	LEASE					
Unit Letter	Section	Township	Range	Feet from the	North	South Line	Feet from the	East/V	Vest Line	County		
F	15	178	31É									
L	_ <u></u>	J	I	Latitude 32.83	3548° N	Longitud	le 103.85998° \	¥		I		
				NAT	ГURE	OF REL	EASE					
Type of Rele	ase: Oil and	Produced W	ater			Volume of bbls Produ	Release 2 bbls C ced Water	Dil, 3	Volume I Produced	Recovered ( Water	) bbls o	of Oil and
Source of Release: Polyline						Date and F 11/04/2013	lour of Occurrenc	e .	Date and 11/04/20	Hour of Dis 13 1:18pm	scovery	
Was Immedi	ate Notice (	Given?	Yes 🗵	]No 🗌 Not R	Required	If YES, To	Whom?					
By Whom?						Date and H	lour					
Was a Water	course Read	ched?				If YES, Vo	lume Impacting t	the Wate	rcourse.			
			Yes 🗵	No		N/A						
If a Watercou	urse was Im	pacted, Descr	ibe Fully.	*								
NI/A												1
IN/ A								ſ	RE	CEIVI	ED	
Describe Cau	ise of Proble	em and Reme	dial Actio	n Taken.*					JU	N 04 20	14	1
Polyline con	nection faile	ed on header. I	Replaced	25' of polyline go	oing to th	ne header.			NMO	CD ART	TESI	A
	_								(alla)			
Describe Are	a Affected	and Cleanup A	Action Tal	ken.*								
Initially 2bbl	s of oil and	3bbls of produ	uced wate	r were released d	ue to a n	olvline failur	. COG was unab	le to reco	over any fl	uid. The spi	II was i	n the
adjacent past proper dispos review.	ure. Tetra T Sal. Site was	ech inspected then brought	site and c up to sur	collected samples face grade with c	to defin lean bacl	e spills extent kfill material.	. Soil that exceed Tetra Tech prepa	ed RRAI	L was rem ure report :	oved and ha and submitte	uled av ed to N	vay for MOCD for
I hereby certi regulations al public health should their c or the environ federal, state,	fy that the i ll operators or the envir operations h oment. In a or local las	nformation gi are required to onment. The ave failed to a ddition, NMC ys and/or regu	ven above o report al acceptand dequately CD accep lations.	e is true and comp nd/or file certain se of a C-141 rep investigate and otance of a C-141	olete to t release n ort by th remediat report d	he best of my otifications ar e NMOCD m e contaminati oes not reliev	knowledge and und perform correct arked as "Final R on that pose a thre e the operator of t	inderstan ctive acti- eport" do reat to gro responsil	nd that purs ons for rel oes not rel ound wate bility for c	suant to NM eases which ieve the ope r, surface wa ompliance v	OCD r may er rator of ater, hu vith any	ules and ndanger Mability man health vother
Signature:		12	$\overline{}$	5			OIL CON	SERV	ATION	DIVISIO	<u>)N</u>	
Printed Name	: Ike Tavar	ez	ALL	J Su C	66)	Approved by	District Supervise	or:				
Title: Project	Manager					Approval Dat	e:	E	Expiration	Date:		
E-mail Addre	ss: Ike.Tav	arez@TetraTe	ch.com			Conditions of	Approval:			Attached		
Date: 5	-19-	14	Pho	one: (432) 682-45	59						_	

\* Attach Additional Sheets If Necessary

Appendix B

v

### Water Well Data Average Depth to Groundwater (ft) COG - Skelly Unit #968 Eddy County, New Mexico

	16 S	outh	;	30 East				16 So	uth	31	East			16 5	South	32	2 East	
6	5	4	3	2	1	6 Carlsb	ad	5	4	3	2 <b>290</b>	1	6	5	4	3	2	1
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19	20	21	22	23	24	1 19	3 2	0	21	22	23	24	19	20	21	22	23	24
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30	29	28	27	26	25	30	) 2	:9	28	27	26	25	30	29	128	27	26	25
21	132	133	34	35	36				33	34	35	36	31	37	- 32	34	243	36
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	17 S	outh	:	30 East				17 So	uth	31	East			17 \$	South	32	2 East	
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				_										1	Maljam	175		
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																	88	120
18	17	16	15	14	13	18	3 1	7	16	15 SITE	14	13	.18	17	16	15	14	13
19	20 80	21	22	23	24	19	2	0	21	22	23	24	19	20	21	22	23	24
20			127	26	- 25	20			20	- 27	26	05	20.120			07	126	10=
30	25	20	21	20	25			.9	20	21	20	20	30 180	29	20	21	20	25
21	132	133	24	35	36			2	33	12.1	35	126	dry 31	22	33	24	25	26
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	18 S	outh	;	30 East				18 So	uth	31	East			18 5	South	32	East	
6	5	4	3	2	1	6	5		4	3	2	1	6	5	4 65	3	2	1
7	8	9	10	11	12	7	8	· · · • •	9	10	11	12	7 460	8	9	10	11	12
												400	82					
18	17	16	15	14	13	18	3 1	7	16	15 98	14	13	18	17	16	15	14	13
								1			317			1	84		1	1
19	20	21	22	23 44	24	19	) 2	0	21	22	23	24	19	20	21	22	23	24
														164		429		しう
30	29	28	27	26	25	30	) 2	9	28	27	26	25	30	29	28	27	26	25
31	32	33	34	35	36	31	3	2	33	34	35	36	31	32	33	34	35	36
											261					117		11

New Mexico State Engineers Well Reports

USGS Well Reports

Geology and Groundwater Conditions in Southern Eddy, County, NM

NMOCD - Groundwater Data

Field water level

New Mexico Water and Infrastructure Data System

# Appendix C

# **Summary Report**

Ike Tavarez Tetra Tech 1910 N. Big Spring Street Midland, TX 79705 Report Date: January 2, 2014

# Work Order: 13121627

Project Location:Eddy Co, NMProject Name:COG/Skelly Unit #968Project Number:112MC05810

			Date	$\operatorname{Time}$	Date
Sample	Description	Matrix	Taken	Taken	Received
349118	AH-1 0-1'	soil	2013-12-12	00:00	2013-12-16
349119	AH-1 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349120	AH-1 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349121	AH-1 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349122	AH-1 4-4.5'	soil	2013-12-12	00:00	2013-12-16
349123	AH-1 5-5.5'	soil	2013-12-12	00:00	2013-12-16
349124	AH-2 0-1'	soil	2013-12-12	00:00	2013-12-16
349125	AH-2 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349126	AH-2 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349127	AH-2 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349128	AH-2 4-4.5'	soil	2013-12-12	00:00	2013-12-16
349129	AH-3 0-1'	soil	2013-12-12	00:00	2013-12-16
349130	AH-3 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349131	AH-3 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349132	AH-3 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349133 <sup>·</sup>	AH-4 0-1'	soil	2013-12-12	00:00	2013-12-16
349134	AH-4 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349135	AH-4 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349136	AH-4 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349137	AH-4 4-4.5'	soil	2013-12-12	00:00	2013-12-16

		J	BTEX	TPH DRO - NEW	TPH GRO	
	Benzene	Toluene	Ethylbenzene	DRO	GRO	
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
349118 - AH-1 0-1'	< 0.0200	< 0.0200	< 0.0200	< 0.0200	251	<4.00
349124 - AH-2 0-1'	< 0.100	4.39	10.9	12.7	1360	277
349129 - AH-3 0-1'	< 0.400	9.62	40.3	48.7	7520	1070
349130 - AH-3 1-1.5'	< 0.0200	< 0.0200	<0.0200	<0.0200	<50.0	<4.00

continued ...

### Report Date: January 2, 2014

 $\dots$  continued

		I	BTEX		TPH DRO - NEW	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
349133 - AH-4 0-1'	< 0.0200	< 0.0200	< 0.0200	< 0.0200	125	4.37
Sample: 349118 - AH	I-1 0-1'					
Param	Flag		Result		Units	$\operatorname{RL}$
Chloride			803		mg/Kg	4
Sample: 349119 - AF	I-1 1-1.5'					
Param	Flag		Result		Units	$\mathbf{RL}$
Chloride			1060		mg/Kg	4
Sample: 349120 - AF	H-1 2-2.5'					
Param	$\mathbf{Flag}$		Result		Units	$\operatorname{RL}$
Chloride			66.5		mg/Kg	4
Sample: 349121 - AF	I-1 3-3.5'					
Param	Flag		Result		Units	BL
Chloride	1 100		52.3		mg/Kg	4
						<u>-</u> _
Sample: 349122 - AF	I-1 4-4.5'					
Param	Flag		$\operatorname{Result}$		Units	$\mathbf{RL}$
Chloride			114		mg/Kg	4
Sample: 349123 - AE	I-1 5-5.5'					
	Flag		Result		Units	RL
Param	terror and the second se		- 1 <b>-</b>		/	

continued ...

Report Date: January 2, 2014		Work Order: 13121627	Page I	Number: 3 of 4
sample 349124 con	tinued			
Param	Flag	Result	Units	RL
Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		2940	m mg/Kg	4
Sample: 349125	- AH-2 1-1.5'			
Param	Flag	$\operatorname{Result}$	Units	$\operatorname{RL}$
Chloride		4130	mg/Kg	4
Sample: 349126	- AH-2 2-2.5'			
Param	Flag	$\operatorname{Result}$	Units	$\mathbf{RL}$
Chloride		2490	mg/Kg	4
Sample: 349127	- AH-2 3-3.5'			
Param	Flag	$\operatorname{Result}$	Units	$\operatorname{RL}$
Chloride		200	mg/Kg	4
Sample: 349128	- AH-2 4-4.5'			
Param	Flag	$\mathbf{Result}$	Units	$\operatorname{RL}$
Chloride		<20.0	m mg/Kg	4
Sample: 349129	- AH-3 0-1'			
Param	Flag	$\operatorname{Result}$	Units	$\mathbf{RL}$
Chloride		2080	mg/Kg	4
Sample: 349130				
bumpie. 010100	- AH-3 1-1.5'			
Param	- AH-3 1-1.5' Flag	$\operatorname{Result}$	Units	$\operatorname{RL}$

### Sample: 349131 - AH-3 2-2.5'

Report Date: January 2, 2014		Work Order: 13121627	Page	Number: 4 of 4
Param	Flag	Result	Units	RL
Chloride		721	mg/Kg	4
Sample: 349132	- AH-3 3-3.5'			
Param	Flag	Result	Units	$\operatorname{RL}$
Chloride		4170	mg/Kg	4
Sample: 349133	- AH-4 0-1'			
Param	Flag	Result	Units	$\operatorname{RL}$
Chloride		1530	mg/Kg	4
Sample: 349134	- AH-4 1-1.5'			
Param	Flag	$\operatorname{Result}$	Units	$\operatorname{RL}$
Chloride		1440	mg/Kg	4
Sample: 349135	- AH-4 2-2.5'			
Param	Flag	Result	Units	$\mathbf{RL}$
Chloride	<u> </u>	9340	mg/Kg	4
Sample: 349136	- AH-4 3-3.5'			
Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		497	m mg/Kg	4
Sample: 349137	- AH-4 4-4.5'			
Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		<20.0	mg/Kg	4



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Certifications

NCTRCA DBE NELAP DoD LELAP WBE HUB Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

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

Report Date: January 2, 2014

Work Order: 13121627 

Project Location: Eddy Co, NM COG/Skelly Unit #968 Project Name: 112MC05810 Project Number:

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
349118	AH-1 0-1'	soil	2013-12-12	00:00	2013-12-16
349119	AH-1 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349120	AH-1 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349121	AH-1 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349122	AH-1 4-4.5'	soil	2013-12-12	00:00	2013-12-16
349123	AH-1 5-5.5'	soil	2013-12-12	00:00	2013-12-16
349124	AH-2 0-1'	soil	2013-12-12	00:00	2013-12-16
349125	AH-2 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349126	AH-2 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349127	AH-2 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349128	AH-2 4-4.5'	soil	2013-12-12	00:00	2013-12-16
349129	AH-3 0-1'	soil	2013-12-12	00:00	2013-12-16
349130	AH-3 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349131	AH-3 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349132	AH-3 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349133	AH-4 0-1'	soil	2013-12-12	00:00	2013-12-16
349134	AH-4 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349135	AH-4 2-2.5'	soil	2013-12-12	00:00	2013-12-16

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
349136	AH-4 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349137	AH-4 4-4.5'	soil	2013-12-12	00:00	2013-12-16

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

This report consists of a total of 30 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael april

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

# **Report Contents**

QC Batch 107963 - MS (1)

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QC Batch 107650 - CCV (1)	 	 		 •				•				•						 	•		
QC Batch 107650 - CCV (2)	 	 					 •											 	•		
QC Batch 107650 - CCV (3)	 	 																 	•		
QC Batch 107711 - CCV (1)	 	 					 											 	•		4
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Appendix																					:
Report Definitions	 	 					 											 			
Laboratory Certifications .	 	 					 											 			,
Standard Flags	 	 					 											 			ļ
Attachments	 	 					 											 			í

# **Case Narrative**

Samples for project COG/Skelly Unit #968 were received by TraceAnalysis, Inc. on 2013-12-16 and assigned to work order 13121627. Samples for work order 13121627 were received intact at a temperature of 4.1 C.

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

		$\mathbf{Prep}$	Prep	$\mathbf{QC}$	Analysis
Test	Method	$\operatorname{Batch}$	Date	$\operatorname{Batch}$	Date
BTEX	S 8021B	91111	2013-12-17 at 10:57	107646	2013-12-18 at 03:00
Chloride (Titration)	SM 4500-Cl B	91351	2013-12-31 at 08:40	107963	2014-01-02 at 14:09
Chloride (Titration)	SM 4500-Cl B	91351	2013-12-31 at 08:40	107965	2014-01-02 at 14:17
TPH DRO - NEW	S 8015 D	91113	2013-12-17 at 11:15	107650	2013-12-18 at 09:12
TPH GRO	S 8015 D	91149	2013-12-18 at 13:01	107711	2013-12-19 at 01:40

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 13121627 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: 349118 - AH-1 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 107646 91111			Analytical Date Anal Sample Pi	l Method: lyzed: reparatior	S 80211 2013-12 a: 2013-12	3 2-18 2-17			Prep Method Analyzed By: Prepared By:	S 5035 AK AK
						$\operatorname{RL}$					
Parameter		Flag		$\operatorname{Cert}$		Result		Units		Dilution	$\mathbf{RL}$
Benzene		U		1	<	< 0.0200	1	mg/Kg		1	0.0200
Toluene		U		1	<	< 0.0200	1	ng/Kg		1	0.0200
Ethylbenzene	•	U		1	<	< 0.0200	1	mg/Kg		1	0.0200
Xylene		U		1	<	< 0.0200		mg/Kg		1	0.0200
<b>C 1</b>		D	1.		DV	TT	D'I		Spike	Percent	Recovery
Surrogate		F	lag	Cert	Result	Units	Dilu	tion	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)				1.62	mg/Kg	1		2.00	81	70 - 130
4-Bromofluor	obenzene (4-BFB)		_		1.68	mg/Kg	1		2.00	84	70 - 130

### Sample: 349118 - AH-1 0-1'

Chloride			803	mg/Kg	5	4.00
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Prep Batch:	91351	Sample	Sample Preparation: 2013-12-31		Prepared By:	AR
QC Batch:	107963	Date Ar	nalyzed:	2014-01-02	Analyzed By:	AR
Analysis:	Chloride (Titration)	Analytic	cal Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland					

### Sample: 349118 - AH-1 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NEW 107650 91113	Analyti Date A Sample	ical Method: nalyzed: Preparation:	S 8015 D 2013-12-18 2013-12-17	Prep Method: Analyzed By: Prepared By:	N/A KC KC
			$\mathbf{RL}$			
Parameter	$\operatorname{Flag}$	$\operatorname{Cert}$	$\mathbf{Result}$	$\mathbf{Units}$	Dilution	$\mathbf{RL}$
DRO		1	251	mg/Kg	1	50.0

Report Date: Jan 112MC05810	uary 2, 2014			Work Order: COG/Skelly	Page Nur E	nber: 7 of 30 Eddy Co, NM		
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			119	mg/Kg	1	100	119	70 - 130

### Sample: 349118 - AH-1 0-1'

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Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 107711 91149			Analytic Date An Sample I	al Method alyzed: Preparatio	l: S 8013 2013-1 on: 2013-1	5 D 12-19 12-18		Prep Metho Analyzed By Prepared By	d: S 5035 7: AK 7: AK
						$\mathbf{RL}$				
Parameter		Flag		Cert		Result	U	nits	Dilution	$\operatorname{RL}$
GRO		U		1		<4.00	mg,	/Kg	1	4.00
Surrogate			Flag	Cert	Result	Units	Dilutior	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluer	ne (TFT)		~~~~		2.20	mg/Kg	1	2.00	110	70 - 130
4-Bromofluoro	benzene (4-BFB)				2.26	mg/Kg	1	2.00	113	70 - 130

### Sample: 349119 - AH-1 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 107963 91351	Anal Date Samj	ytical Method: Analyzed: ple Preparation:	SM 4500-Cl B 2014-01-02 2013-12-31	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			$\mathbf{RL}$			
Parameter	Flag	$\operatorname{Cert}$	$\operatorname{Result}$	$\mathbf{Units}$	Dilution	$\mathbf{RL}$
Chloride			1060	mg/Kg	5	4.00

### Sample: 349120 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

continued ...

Report Date 112MC05810	e: January 2, 2014 )	Wor COO	rk Order: 131 G/Skelly Unit	21627 ; #968	Page Number: 8 of 30 Eddy Co, NM			
sample 34912	20 continued							
			RL					
Parameter	Flag	Cert	Result	Units	Dilution	RL		
			$\mathbf{RL}$					
Parameter	$\mathbf{Flag}$	$\operatorname{Cert}$	$\mathbf{Result}$	Units	Dilution	$\mathbf{RL}$		
Chloride			66.5	mg/Kg	5	4.00		
Sample: 34	9121 - AH-1 3-3.5'							
Laboratory:	Midland							
Analysis:	Chloride (Titration)	Analytic	al Method:	SM 4500-Cl B	Prep Method:	N/A		
QC Batch:	107963	Date An	alyzed:	2014-01-02	Analyzed By:	AR		
Prep Batch:	91351	Sample	Preparation:	2013-12-31	Prepared By:	AR		
			$\operatorname{RL}$					
Parameter	Flag	Cert	Result	Units	Dilution	RL		
<u>Chlorid</u> e			52.3	mg/Kg	5	4.00		
Sample: 34	.9122 - AH-1 4-4.5'							
Laboratory:	Midland							
Analysis:	Chloride (Titration)	Analytic	al Method:	SM 4500-Cl B	Prep Method:	N/A		
QC Batch:	107963	Date An	alyzed:	2014-01-02	Analyzed By:	AR		
Prep Batch:	91351	Sample 2	Preparation:	2013-12-31	Prepared By:	AR		
			$\operatorname{RL}$					
Parameter	Flag	Cert	Result	Units	Dilution	RL		
Chloride			114	mg/Kg	5	4.00		

### Sample: 349123 - AH-1 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	AR

Report Date: January 112MC05810	2, 2014	Wo: COO	rk Order: 1312162 G/Skelly Unit #9	Page Number: 9 of 30 Eddy Co, NM		
Parameter	Flag	Cert	$\operatorname{RL}$ Result	Units	Dilution	RL
Chloride			247	mg/Kg	5	4.00

### Sample: 349124 - AH-2 0-1'

Laboratory:	Midland									
Analysis:	BTEX		Α	nalytical	Method:	S 8021B			Prep Method	: S 5035
QC Batch:	107646		D	ate Anal	yzed:	2013-12-	18		Analyzed By:	AK
Prep Batch:	91111		Sa	ample Pr	eparation:	2013-12-	·17		Prepared By:	AK
						$\mathbf{RL}$				
Parameter		Flag		$\operatorname{Cert}$	I	Result	Units		Dilution	RL
Benzene				1	<	0.100	mg/Kg		5	0.0200
Toluene				1		4.39	mg/Kg		5	0.0200
Ethylbenzene				1		10.9	mg/Kg		5	0.0200
Xylene				1		12.7	mg/Kg		5	0.0200
								Spike	Percent	Recovery
Surrogate			$\mathbf{F}$ lag	Cert	$\operatorname{Result}$	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)				1.49	mg/Kg	5	2.00	74	70 - 130
4-Bromofluor	obenzene (4-BFB)	Qsr	Qsr		5.76	mg/Kg	5	2.00	288	70 - 130

### Sample: 349124 - AH-2 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 107963 91351	A D Sa	nalytical Method: ate Analyzed: ample Preparation:	SM 4500-Cl B 2014-01-02 2013-12-31	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			$\mathbf{RL}$			
Parameter	Flag	g Cei	rt Result	Units	s Dilution	$\mathbf{RL}$
Chloride			2940	mg/Kg	g 10	4.00

### Sample: 349124 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	107650	Date Analyzed:	2013-12-18	Analyzed By:	KC
Prep Batch:	91113	Sample Preparation:	2013-12-17	Prepared By:	KC

Report Date: January 112MC05810	y 2, 2014 Work Order: 13121627 COG/Skelly Unit #968					Page Number: 10 of 30 Eddy Co, NM					
<b>D</b>				<b>a</b> .		RL		<b>T</b> T <b>•</b> ,			DI
Parameter		Flag		Cert	F			Unit	S	Dilution	
DRO				1		1360	r	ng/Kg	r 5	5	50.0
								S	pike	Percent	Recovery
Surrogate	Flag	Cert	F	Result	Units	Dilu	$\operatorname{tion}$	An	nount	Recovery	Limits
n-Tricosane <sub>Qsr</sub>	Qsr			167	mg/Kg	5	j	]	100	167	70 - 130
Sample: 349124 - Al	H-2 0-1	,									
Laboratory Midland											
Analysis: TPH GB	0		A	nalytica	d Method:	S 8015	D			Prep Metho	d: S 5035
OC Batch: 107711			Ī	Date Ana	lvzed:	2013-1	2-19			Analyzed B	v: AK
Prep Batch: 91149			S	ample P	reparation	n: 2013-1	2-18			Prepared B	y: AK
•						RL					
Parameter		Flag		Cert	F	lesult		Unit	5	Dilution	$\operatorname{RL}$
GRO				ı		277	r	ng/Kg	5	5	4.00
									Spike	Percent	Recovery
Surrogate			Flag	$\mathbf{Cert}$	$\mathbf{Result}$	Units	Dilu	tion	Amount	Recovery	Limits
Trifluorotoluene (TFT)					2.04	mg/Kg	5	,	2.00	102	70 - 130
4-Bromofluorobenzene	(4-BFB)	Qsr	Qsr		12.3	mg/Kg	5	,	2.00	615	70 - 130
Sample: 349125 - Al	H-2 1-1	.5'									
Laboratory: Midland											

Analysis: QC Batch: Prep Batch:	Chloride (Titration) 107963 91351		Analyt Date A Sample	ical Method: analyzed: e Preparation:	SM 4500-Cl B 2014-01-02 2013-12-31	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter		Flag	Cert	$\operatorname{RL}$ Result	Units	Dilution	RL
Chloride		0		4130	mg/Kg	10	4.00

### Sample: 349126 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107963	Date Analyzed:	2014-01-02	Analyzed By:	ÁR
Prep Batch:	91351	Sample Preparation:	2013-12-31	Prepared By:	$\mathbf{AR}$
<i>,</i>					

Report Date: January 112MC05810	2, 2014	Wor COO	k Order: 1312162 S/Skelly Unit #96	Page Number: 11 of 30 Eddy Co, NM		
Parameter	Flag	Cert	$\operatorname{RL}$ Result	Units	Dilution	RL
Chloride			2490	mg/Kg	10	4.00

### Sample: 349127 - AH-2 3-3.5'

Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 107963 Prep Batch: 91351		Analytic Date An Sample I	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-02 2013-12-31	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
<b>D</b>		<b>T</b> 1	<b>G</b>	RL		<b></b>	
Parameter		Flag	Cert	Result	Units	Dilution	RL
Chloride				200	mg/Kg	5	4.00

### Sample: 349128 - AH-2 4-4.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 107965 91351	Anal Date Samp	ytical Method: Analyzed: ble Preparation:	SM 4500-Cl B 2014-01-02 2013-12-31	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			$\operatorname{RL}$			
Parameter	$\mathbf{Flag}$	Cert	$\operatorname{Result}$	Units	Dilution	$\mathbf{RL}$
Chloride	U		<20.0	mg/Kg	5	4.00

### Sample: 349129 - AH-3 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 107646 91111		Analytical Me Date Analyze Sample Prepa	ethod: S 8021B d: 2013-12- ration: 2013-12-	18	Prep Method: Analyzed By: Prepared By:	S 5035 AK AK
Parameter		Flag	Cert	RL Result	Units	Dilution	RL
Benzene		 U	1	<0.400	mg/Kg	20	0.0200
Toluene			1	9.62	mg/Kg	20	0.0200
Ethylbenzene	9		1	40.3	mg/Kg	20	0.0200
Benzene Toluene Ethylbenzene	)	U	1 1 1	<0.400 9.62 40.3	mg/Kg mg/Kg mg/Kg	20 20 20	0.020

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### Report Date: January 2, 2014 112MC05810

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### Work Order: 13121627 COG/Skelly Unit #968

sample 349129 continued ...

Parameter	Flag		Cert	1	RL Result	Units		Dilution	$\mathbf{RL}$
Xylene			1		48.7	mg/Kg		20	0.0200
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recoverv	Recovery Limits
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		1.40 17.8	mg/Kg mg/Kg	20 20	2.00 2.00	70 890	70 - 130 70 - 130

### Sample: 349129 - AH-3 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 107965 91351	Analyt Date A Sample	cical Method: Analyzed: e Preparation:	SM 4500-Cl B 2014-01-02 2013-12-31	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter	Flag	$\operatorname{Cert}$	$\operatorname{RL}$ Result	Units	Dilution	$\mathbf{RL}$
Chloride	······································		2080	mg/Kg	5	4.00

### Sample: 349129 - AH-3 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DF 107650 91113	RO - NEV	W	Anal Date Sam	lytical Metho Analyzed: ple Preparat	od: S 8015 2013-12 ion: 2013-12	D -18 -17	Prep Me Analyzec Preparec	thod: N/A l By: KC l By: KC
					]	RL			
Parameter			$\mathbf{F}\mathbf{lag}$	$\operatorname{Cert}$	$\operatorname{Res}$	ult	$\mathbf{Units}$	Dilution	RL
DRO			· · · · · · · · · · · · · · · · · · ·	1	75	20	mg/Kg	50	50.0
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qør	Qsr		408	mg/Kg	50	100	408	70 - 130

### Sample: 349129 - AH-3 0-1'

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Laboratory: Analysis:	Midland TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	107711	Date Analyzed:	2013-12-19	Analyzed By:	AK
Prep Batch:	91149	Sample Preparation:	2013-12-18	Prepared By:	AK

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Report Date 112MC05810	e: January 2, 2014 )	1	N C	Work Order: COG/Skelly U	13121627 Unit #968		Page Numl E	ber: 14 of 30 ddy Co, NM
Sample: 34	9130 - AH-3 1-	1.5'						
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NH 107650 91113	EW	Ana Date Sam	lytical Meth e Analyzed: aple Preparat	od: S 8015 2013-1 tion: 2013-1	5 D 12-18 12-17	Prep Me Analyzed Prepared	thod: N/A l By: KC . By: KC
					RL			
Parameter		Flag	Cert	$\operatorname{Res}$	sult	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			107	mg/Kg	1	100	107	70 - 130

### Sample: 349130 - AH-3 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 107711 91149			Analytic Date An Sample l	al Methoc alyzed: Preparatic	l: S 801 2013- on: 2013-	5 D 12-19 12-18		Prep Methoo Analyzed By Prepared By	l: S 5035 <sup>:</sup> AK : AK
						$\mathbf{RL}$				
Parameter		Flag		$\operatorname{Cert}$		$\operatorname{Result}$	Uni	ts	Dilution	RL
GRO				1		<4.00	mg/ł	Кg	1	4.00
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)				2.24	mg/Kg	1	2.00	112	70 - 130
4-Bromofluor	obenzene (4-BFB)				2.18	mg/Kg	1	2.00	109	70 - 130

### Sample: 349131 - AH-3 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 107965 91351	Analytica Date Ana Sample P	l Method: lyzed: reparation:	SM 4500-Cl B 2014-01-02 2013-12-31	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter	Flag	Cert	$\operatorname{RL}$ Result	Units	Dilution	$\mathbf{RL}$
Chloride			721	mg/Kg	5	4.00

112MC05810	: January 2, 2014	<u> </u>			Work Orde COG/Skelly	r: 131216 y Unit #9	27 968 		Page Number Eddy	: 15 of 30 y Co, NM
Sample: 349	9132 - AH-3 3-3.	5'								
Laboratory:	Midland									
Analysis:	Chloride (Titratio	on)		Anal	ytical Met	hod: SN	M 4500-Cl B		Prep Metho	d: N/A
QC Batch:	107965			Date	Analyzed:	20	)14-01-02		Analyzed B	y: AR
Prep Batch:	91351			Samj	ple Prepara	ation: 20	)13-12-31		Prepared B	y: AR
						RL				
Parameter		Flag		$\operatorname{Cert}$	R	Result	Units	5	Dilution	RL
Chloride						4170	mg/Kg	5	10	4.00
Sample: 349	9133 - AH-4 0-1'									
Sample: 349 Laboratory: Analysis: QC Batch: Prep Batch:	9133 - AH-4 0-1' Midland BTEX 107646 91111		A I S	Analytical Date Anal Sample Pr	l Method: lyzed: reparation:	S 80211 2013-12 2013-12	B 2-18 2-17		Prep Method: Analyzed By: Prepared By:	S 5035 AK AK
Sample: 348 Laboratory: Analysis: QC Batch: Prep Batch:	9133 - AH-4 0-1' Midland BTEX 107646 91111		A I S	Analytical Date Anal Sample Pr	l Method: lyzed: reparation:	S 8021F 2013-12 2013-12 RL	B 2-18 2-17		Prep Method: Analyzed By: Prepared By:	S 5035 AK AK
Sample: 348 Laboratory: Analysis: QC Batch: Prep Batch: Parameter	9133 - AH-4 0-1' Midland BTEX 107646 91111	Flag	A I S	Analytical Date Anal Sample Pr Cert	l Method: lyzed: reparation: l	S 8021F 2013-12 2013-12 RL Result	B 2-18 2-17 Units	i	Prep Method: Analyzed By: Prepared By: Dilution	S 5035 AK AK RL
Sample: 349 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Benzene	9133 - AH-4 0-1' Midland BTEX 107646 91111	Flag	A I S	Analytical Date Anal Sample Pr Cert	l Method: lyzed: reparation: ] <0	S 8021F 2013-12 2013-12 RL Result 0.0200	B 2-18 2-17 Units mg/Kg	<u>.</u>	Prep Method: Analyzed By: Prepared By: Dilution 1	S 5035 AK AK RL 0.0200
Sample: 349 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Benzene Toluene	9133 - AH-4 0-1' Midland BTEX 107646 91111	Flag U U	A I S	Analytical Date Anal Sample Pr Cert	l Method: lyzed: reparation: ] <0 <0	S 8021H 2013-12 2013-12 RL Result 0.0200 0.0200	B 2-18 2-17 Units mg/Kg mg/Kg	<u>.</u>	Prep Method: Analyzed By: Prepared By: Dilution 1 1	S 5035 AK AK RL 0.0200 0.0200
Sample: 349 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Benzene Toluene Ethylbenzene	9133 - AH-4 0-1' Midland BTEX 107646 91111	Flag U U U	A I S	Analytical Date Anal Sample Pr Cert 1 1 1	l Method: lyzed: reparation: 1 <0 <0 <0 <0	S 8021H 2013-12 2013-12 RL Result 0.0200 0.0200 0.0200	B 2-18 2-17 		Prep Method: Analyzed By: Prepared By: Dilution 1 1 1	S 5035 AK AK 0.0200 0.0200 0.0200
Sample: 349 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Parameter Benzene Toluene Ethylbenzene Xylene	9133 - AH-4 0-1' Midland BTEX 107646 91111	Flag v v v	A E S	Analytical Date Anal Sample Pr Cert	l Method: lyzed: reparation: 1 <0 <0 <0 <0	S 8021F 2013-12 2013-12 RL Result 0.0200 0.0200 0.0200 0.0200	B 2-18 2-17 Units mg/Kg mg/Kg mg/Kg		Prep Method: Analyzed By: Prepared By: Dilution 1 1 1 1 1	S 5035 AK AK RL 0.0200 0.0200 0.0200 0.0200 0.0200
Sample: 349 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Benzene Toluene Ethylbenzene Xylene	9133 - AH-4 0-1' Midland BTEX 107646 91111	Flag U U U		Analytical Date Anal Sample Pr Cert	l Method: lyzed: reparation: ] <( <( <( <(	S 8021H 2013-12 2013-12 RL Result 0.0200 0.0200 0.0200 0.0200	B 2-18 2-17 mg/Kg mg/Kg mg/Kg	Spike	Prep Method: Analyzed By: Prepared By: Dilution 1 1 1 1 1 Percent	S 5035 AK AK 0.0200 0.0200 0.0200 0.0200 Recovery
Sample: 349 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Benzene Toluene Ethylbenzene Xylene Surrogate	9133 - AH-4 0-1' Midland BTEX 107646 91111	Flag U U U U	A I S S	Analytica) Date Anal Sample Pr Cert 1 1 1 1 1 Cert	l Method: lyzed: reparation:	S 8021H 2013-12 2013-12 RL Result 0.0200 0.0200 0.0200 0.0200 0.0200 Units	B 2-18 2-17 <u>Units</u> mg/Kg mg/Kg mg/Kg Dilution	Spike Amount	Prep Method: Analyzed By: Prepared By: Dilution 1 1 1 1 1 Percent Recovery	S 5035 AK AK 0.0200 0.0200 0.0200 0.0200 0.0200 Recovery Limits
Sample: 349 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotolue	9133 - AH-4 0-1' Midland BTEX 107646 91111 ene (TFT)	Flag U U U	A I S Flag	Analytical Date Anal Sample Pr Cert 1 1 1 1 1 Cert	l Method: lyzed: reparation: ] <( <( <( <( <( <( <( <( ) <( ) <( ) <	S 8021H 2013-12 2013-12 RL Result 0.0200 0.0200 0.0200 0.0200 Units mg/Kg	B 2-18 2-17 mg/Kg mg/Kg mg/Kg Dilution 1	Spike Amount 2.00	Prep Method: Analyzed By: Prepared By: Dilution 1 1 1 1 1 Percent Recovery 78	S 5035 AK AK 0.0200 0.0200 0.0200 0.0200 0.0200 Recovery Limits 70 - 130

### Sample: 349133 - AH-4 0-1'

Chloride			1530	mg/Kg	10	4.00
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Prep Batch:	91351	Sample 1	Preparation:	2013-12-31	Prepared By:	AR
QC Batch:	107965	Date An	alyzed:	2014-01-02	Analyzed By:	AR
Analysis:	Chloride (Titration)	Analytic	al Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland					

Report Date 112MC05810	: January 2, 2014		N C	Work Order: COG/Skelly U	13121627 Jnit #968		Page Num E	ber: 16 of 30 ddy Co, NM
Sample: 34	9133 - AH-4 0-1	,						
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NE 107650 91113	W	Ana Dat San	llytical Meth e Analyzed: 1ple Preparat	od: S 8015 2013-12 ion: 2013-12	D 2-18 2-17	Prep Me Analyzeo Preparec	thod: N/A d By: KC d By: KC
D I			Gent	D	RL	TT:+-	Dilution	זס
DRO		Flag		1	.25	mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-mcosane			110	mg/ Kg	1	100		10 - 130
Sample: 34	9133 - AH-4 0-1	,						
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 107711 91149		Analytic Date An Sample I	al Method: alyzed: Preparation:	S 8015 D 2013-12-19 2013-12-18		Prep Meth Analyzed I Prepared I	od: S 5035 By: AK By: AK
Parameter		Flag	Cert	Res	RL sult	Units	Dilution	RL

GRO		1		4.37	mg/K	g	1	4.00
Surrogate	Flag	Cert	$\operatorname{Result}$	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.35	mg/Kg	1	2.00	118	70 - 130
4-Bromofluorobenzene (4-BFB)			2.24	mg/Kg	1	2.00	112	70 - 130

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### Sample: 349134 - AH-4 1-1.5'

Flag

Laboratory:	Midland					
Analysis:	Chloride (Titration)	Analytic	cal Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107965	Date Ar	nalyzed:	2014-01-02	Analyzed By:	AR
Prep Batch:	91351	Sample	Preparation:	2013-12-31	Prepared By:	AR
			$\mathbf{RL}$			
Parameter	Flag	Cert	$\operatorname{Result}$	Units	Dilution	$\mathbf{RL}$
Chloride			1440	mg/Kg	10	4.00

Report Date 112MC05810	: January 2, 2014	Work Order: 131 COG/Skelly Unit	21627 #968	Page Number: 1' Eddy C	7 of 30 o, NM
Sample: 34	9135 - AH-4 2-2.5'				
Laboratory: Analysis: QC Batch: Prop Batch:	Midland Chloride (Titration) 107965 01351	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2014-01-02 2013 12 31	Prep Method: Analyzed By: Prepared By:	N/A AR AB
Flep Datch.	91331	Sample T reparation.	2013-12-31	T Tepated By.	AIL
D I		RL	<b>TT</b> • (		DI
Parameter	Flag	Cert Result	Units	Dilution	
Sample: 34 Laboratory: Analysis: QC Batch: Prep Batch:	<b>9136 - AH-4 3-3.5'</b> Midland Chloride (Titration) 107965 91351	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2014-01-02 2013-12-31	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Sample: 34 Laboratory: Analysis: QC Batch: Prep Batch:	9136 - AH-4 3-3.5' Midland Chloride (Titration) 107965 91351	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2014-01-02 2013-12-31	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Sample: 34 Laboratory: Analysis: QC Batch: Prep Batch: Parameter	9136 - AH-4 3-3.5' Midland Chloride (Titration) 107965 91351 Flag	Analytical Method: Date Analyzed: Sample Preparation: RL Cert Result	SM 4500-Cl B 2014-01-02 2013-12-31 Units	Prep Method: Analyzed By: Prepared By: Dilution	N/A AR AR RL
Sample: 34 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride	<b>9136 - AH-4 3-3.5'</b> Midland Chloride (Titration) 107965 91351 Flag	Analytical Method: Date Analyzed: Sample Preparation: RL Cert Result 497	SM 4500-Cl B 2014-01-02 2013-12-31 Units mg/Kg	Prep Method: Analyzed By: Prepared By: Dilution 5	N/A AR AR RL 4.00

Parameter Flag Cert Result Units Dilution	
	$\operatorname{RL}$
Chloride v <20.0 mg/Kg 5	4.00

Method Blank (1)

# Method Blanks

QC Batch: 107646

QC Batch: 107646 Prep Batch: 91111		Date A QC Pr	analyzed: eparation:	2013-12- 2013-12-	18 17		Analyzed Prepared	l By: By:	AK AK
					MDL				
Parameter	$\mathbf{Flag}$		Cert		$\operatorname{Result}$		Units		$\mathbf{RL}$
Benzene			1		< 0.00533	]	mg/Kg		0.02
Toluene			1		< 0.00645	1	mg/Kg		0.02
Ethylbenzene			1		< 0.0116	1	mg/Kg		0.02
Xylene			1		< 0.00874	]	mg/Kg		0.02
						Spike	Percent	Reco	overy
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Lin	nits
Trifluorotoluene (TFT)			1.71	mg/Kg	1	2.00	86	70 -	130
4-Bromofluorobenzene (4-BFB)			1.71	mg/Kg	1	2.00	86	70 -	130

### Method Blank (1) QC Batch: 107650

QC Batch: Prep Batch:	$107650 \\ 91113$			$\mathbf{Date}$	e Analyzed: Preparation:	2013-12-18 2013-12-17		Analy Prepa	yzed By: ared By:	KC KC
Parameter			FI	ag	Cert		MDL Result	Units		RL
DRO					1	·····	<6.88	mg/Kg	· · · ·	50
Surrogate	1	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Reco Lim	very its
n-Tricosane				107	mg/Kg	1	100	107	88.3 -	126.1

Method Bla	ank (1)	QC Batch: 107711				
QC Batch:	107711		Date Analyzed:	2013-12-19	Analyzed By:	AK
Prep Batch:	91149		QC Preparation:	2013-12-18	Prepared By:	AK

Report Date 112MC05810	: January )	2, 2014			Work Orde COG/Skell	er: 13121627 y Unit #968	8		Page Numb Ec	er: 19 ldy Co	of 30 o, NM
							MDL				
Parameter			Flag		Cert		Result		Units		$\operatorname{RL}$
GRO					1		<2.32		mg/Kg		4
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Rec Li	overy mits
Trifluorotolu	ene (TFT)		0		2.19	mg/Kg	1	2.00	110	70	- 130
4-Bromofluor	robenzene (	(4-BFB)			2.00	mg/Kg	1	2.00	100	70	- 130
Method Bl	ank (1) 107963	QC Batch:	107963	Date A	analyzed:	2014-01-02	2		Analyzed	l By:	AR
Prep Batch:	91351			QC Pr	eparation:	2013-12-31	Ĺ		Prepared	l By:	$\mathbf{AR}$
Parameter			Flag		$\operatorname{Cert}$		MDL Result		Units		RL
Chloride			0				<3.85		mg/Kg		4
Method Black	ank (1) 107965	QC Batch:	107965	Date A	Analyzed:	2014-01-02	2		Analyzed	i By:	AR
Prep Batch:	91351			QC Pr	eparation:	2013-12-31	1		Preparec	l By:	AR
Parameter			Flag		$\operatorname{Cert}$		${ m MDL} { m Result}$		Units		RL
Chloride			Q				<3.85		mg/Kg		4

Report Date: January 2, 2014 112MC05810

# Laboratory Control Spikes

### Laboratory Control Spike (LCS-1)

QC Batch:	107646	Date Analyzed:	2013-12-18	Analyzed By:	AK
Prep Batch:	91111	QC Preparation:	2013-12-17	Prepared By:	AK

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	С	Result	Units	Dil.	Amount	$\operatorname{Result}$	Rec.	Limit
Benzene		1	1.55	mg/Kg	1	2.00	< 0.00533	78	70 - 130
Toluene		1	1.57	mg/Kg	1	2.00	< 0.00645	78	70 - 130
Ethylbenzene		1	1.62	mg/Kg	1	2.00	< 0.0116	81	70 - 130
Xylene		1	4.94	mg/Kg	1	6.00	< 0.00874	82	70 - 130

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

			LCSD			$\mathbf{Spike}$	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	$\operatorname{Result}$	Units	Dil.	Amount	Result	Rec.	$\operatorname{Limit}$	RPD	$\operatorname{Limit}$
Benzene		1	1.56	mg/Kg	1	2.00	< 0.00533	78	70 - 130	1	20
Toluene		1	1.59	mg/Kg	1	2.00	< 0.00645	80	70 - 130	1	20
Ethylbenzene		1	1.63	mg/Kg	1	2.00	< 0.0116	82	70 - 130	1	20
Xylene		1	4.96	mg/Kg	1	6.00	< 0.00874	83	70 - 130	0	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	$\mathbf{Result}$	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.53	1.56	mg/Kg	1	2.00	76	78	70 - 130
4-Bromofluorobenzene (4-BFB)	1.70	1.56	mg/Kg	1	2.00	85	78	70 - 130

### Laboratory Control Spike (LCS-1)

QC Batch:	107650		]	Date Anal	yzed: 201	13-12-18			Analy	zed By: KC
Prep Batch:	91113		(	QC Prepa	ration: 20	13-12-17			Prepa	red By: KC
				LCS			Spike	Matrix		Rec.
Param		$\mathbf{F}$	С	$\mathbf{Result}$	Units	Dil.	Amount	Result	Rec.	Limit
DRO			1	264	mg/Kg	1	250	<6.88	106	79.4 - 120.1
									-	

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

control spikes continued         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       Limit       R         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       Limit       R         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       Limit       R         DRO       i       265       mg/Kg       1       250       <6.88	PD Limit RPD D Limit 20 Rec. Limit 2.9 - 137.7 By: AK By: AK By: AK
ParamFCResultUnitsDil.AmountResultRec.LimitRParamFCResultUnitsDil.AmountResultRec.LimitRParamFCResultUnitsDil.AmountResultRec.LimitRDROi265mg/Kg1250<6.8810679.4 - 120.1Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.SurrogateResultResultUnitsDil.AmountRec.Rec.n-Tricosane115113mg/Kg1100115113SLaboratory Control Spike (LCS-1)QC Batch:107711Date Analyzed:2013-12-19AnalyzedPrep Batch:91149QC Preparation:2013-12-18PreparedParamFCResultUnitsDil.AmountResultRec.ParamFCResultUnitsDil.AmountResultRec.QC Batch:107711Date Analyzed:2013-12-18PreparedParamFCResultUnitsDil.AmountResultRec.RefLCSSpikeMatrixRec.Rec.SilAmountResultRec.ParamFCResultUnitsDil.AmountResultRec.Rec.ParamFCResultUnits	PD Limit RPD PD Limit 20 Rec. Limit 2.9 - 137.7 By: AK By: AK By: AK
ParamFCResultUnitsDil.AmountResultRec.DRO1265mg/Kg1250<6.8810679.4 - 120.1Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.LCSLCSLCSSpikeLCSLCSDSurrogateResultResultUnitsDil.AmountRec.Rec.n-Tricosane115113mg/Kg11001151139Laboratory Control Spike (LCS-1)QC Batch:107711Date Analyzed:2013-12-19AnalyzedPrep Batch:91149QC Preparation:2013-12-18PreparedParamFCResultUnitsDil.AmountResultRec.GROi16.2mg/Kg120.0<2.3281Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.Rec.ParamFCResultUnitsDil.AmountResultRGOi16.2mg/Kg120.0<2.3281Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.Rec.ParamFCResultUnitsDil.AmountResultRamFCResultUnitsDil.AmountResultRec.	RPD D Limit 20 Rec. Limit 2.9 - 137.7 By: AK By: AK By: AK Rec.
ParamFCResultUnitsDil.AmountResultRec.LimitR.DRO1265mg/Kg1250<6.88	PD Limit D 20 Rec. Limit 2.9 - 137.7 By: AK By: AK Rec.
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	) 20 Rec. Limit 2.9 - 137.7 By: AK By: AK Rec.
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.         LCS       LCSD       Spike       LCS       LCSD         Surrogate       Result       Result       Units       Dil.       Amount       Rec.       Rec.         n-Tricosane       115       113       mg/Kg       1       100       115       113       9         Laboratory Control Spike (LCS-1)       Date Analyzed:       2013-12-19       Analyzed         QC Batch:       107711       Date Analyzed:       2013-12-19       Analyzed         Prep Batch:       91149       QC Preparation:       2013-12-18       Prepared         LCS       Spike       Matrix       Rec.       GRO $16.2$ mg/Kg       1       20.0       <2.32	Rec. Limit 2.9 - 137.7 By: AK By: AK By: AK Rec.
LCSLCSDSpikeLCSLCSDSurrogateResultResultUnitsDil.AmountRec.Rec.n-Tricosane115113mg/Kg1100115113SLaboratory Control Spike (LCS-1)QC Batch:107711Date Analyzed:2013-12-19AnalyzedPrep Batch:91149QC Preparation:2013-12-18PreparedParamFCResultUnitsDil.AmountResultRec.GRO116.2mg/Kg120.0<2.32	Rec. Limit 2.9 - 137.7 By: AK By: AK Rec.
SurrogateResultResultUnitsDil.AmountRec.Rec.n-Tricosane115113 $mg/Kg$ 11001151139Laboratory Control Spike (LCS-1)Date Analyzed:2013-12-19AnalyzedQC Batch:107711Date Analyzed:2013-12-19AnalyzedPrep Batch:91149QC Preparation:2013-12-18PreparedParamFCResultUnitsDil.AmountResultRec.GRO116.2mg/Kg120.0<2.32	Limit 2.9 - 137.7 By: AK By: AK Rec.
n-Tricosane115113mg/Kg11001151139Laboratory Control Spike (LCS-1)QC Batch:107711Date Analyzed:2013-12-19AnalyzedPrep Batch:91149QC Preparation:2013-12-18PreparedParamFCResultUnitsDil.AmountResultRec.GROi16.2mg/Kg120.0<2.32	2.9 - 137.7 By: AK By: AK Rec.
Laboratory Control Spike (LCS-1)         QC Batch:       107711       Date Analyzed:       2013-12-19       Analyzed         Prep Batch:       91149       QC Preparation:       2013-12-18       Prepared         LCS       Spike       Matrix       Prepared         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.         GRO       1       16.2       mg/Kg       1       20.0       <2.32	By: AK By: AK Rec.
LCSSpikeMatrixParamFCResultUnitsDil.AmountResultRec.GRO116.2mg/Kg120.0<2.3281Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.LCSDSpikeMatrixRec.ParamFCResultUnitsDil.AmountResultRec.	Rec.
Param       F       C       Result       Units       Dil.       Amount       Result       Rec.         GRO       1       16.2       mg/Kg       1       20.0       <2.32	<b>T</b> • • • •
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. LCSD Spike Matrix Rec. Param F C Result Units Dil. Amount Result Rec. Limit RI	Limit
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.         LCSD       Spike       Matrix       Rec.         Param       F       C       Result       Units       Dil.       Amount       Result       Ri	10 - 130
LCSD         Spike         Matrix         Rec.           Param         F         C         Result         Units         Dil.         Amount         Result         Ref.	
Param F C Result Units Dil. Amount Result Rec. Limit Ri	RPD
$(P_{1})$ 16.1 mg/Vg 1 90.0 <9.29 90 70 120 $(P_{1})$	$\frac{D}{20}$
$\frac{1}{10.1} \frac{10.1}{10} \frac{10}{10} \frac{1}{10} \frac{1}$	20
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.	
LCS LCSD Spike LCS LCSD Surrogate Besult Besult Units Dil Amount Bec Bec	Rec. Limit
$\frac{1}{10000000000000000000000000000000000$	70 - 130
4-Bromofluorobenzene (4-BFB) 2.32 2.45 mg/Kg 1 2.00 116 122	70 - 130
Laboratory Control Spike (LCS-1)QC Batch:107963Date Analyzed:2014-01-02AnalyzedPrep Batch:91351QC Preparation:2013-12-31Prepared	By: AR By: AR
LCS Spike Matrix	
Param F C Result Units Dil. Amount Result Rec.	Rec.
Chloride 2440 mg/Kg 1 2500 <3.85 98 8	Rec. Limit

				COG/	Skelly U	Jnit #968			г	age Nu	Eddy
Percent recovery is based on the	spike	resi	ult. RPI	) is based	l on the	spike and	spike dupl	licate	result.	<del>20</del> 1	
			LCSD			Spike	Matrix		$\mathbf{Re}$	c.	
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Lin	nit	RPD
Chloride			2600	mg/Kg	1	2500	<3.85	104	89.7 -	115.9	6
Percent recovery is based on the	spike	rest	ult. RPL	) is based	on the	spike and	spike dupl	icate 1	result.		
Laboratory Control Spike (L	<b>CS-</b> 1	L)									
QC Batch 107965			Dat	e Analyz	ed·2	014-01-02				Analy	zed Bv
Prep Batch: 91351			QC	Preparat	tion: 2	013-12-31				Prepa	red By
-			~~	r						-1	J
				1.00			<b>a</b>				
Daram		г	C I	LUS	Unita	D:1	Spike	M. D.	atrix	Dee	t T
Chlorida		Г	U I	10570	mg/Kg		Amount		2 0 5	102	<u> </u>
Cilloride				2370	ing/ Kg		2000		3.00	105	09.1
Percent recovery is based on the	spike	rest	ult. RPI	) is based	on the	spike and	spike dupl	icate	result.		
			LCSD			Spike	Matrix		Re	c.	
Param	F	$\mathbf{C}$	Result	Units	Dil	Amount	Result	Rec	Lin	nit.	RPD
		~									
Chloride			2390	mg/Kg	1	2500	<3.85	96	89.7 -	115.9	7
Chloride Percent recovery is based on the	spike	resi	2390 ult. RPE	mg/Kg ) is based	$\frac{1}{1}$ on the	2500 spike and	<3.85 spike dupl	96 icate	89.7 -	115.9	7
Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spike QC Batch: 107646	spike ed Sa	resi mple	2390 ult. RPD e: 349082 Dat	mg/Kg ) is based	on the	2500 spike and	<3.85 spike dupl	96 icate	89.7 - result.	115.9 Analy	zed By
Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spike QC Batch: 107646 Prep Batch: 91111	spike ed Sa	mple	2390 ult. RPI e: 349082 Dat QC	mg/Kg b is based e Analyz Preparat	ed: 2 <sup>t</sup> tion: 2 <sup>t</sup>	2500 spike and 013-12-18 013-12-17	<3.85 spike dupl	96 icate	89.7 - result.	Analy Prepa	zed By
Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spike QC Batch: 107646 Prep Batch: 91111 Param	spike ed Sa	mple	2390 ult. RPI e: 349082 Dat QC	mg/Kg b is based e Analyz Preparat MS Besult	ed: 2 tion: 2	2500 spike and 013-12-18 013-12-17	Spike Amount	96 icate	89.7 - result.	Analy Prepa	zed By red By
Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spike QC Batch: 107646 Prep Batch: 91111 Param Benzene	spike ed Sa	rest mple	2390 ult. RPD e: 349082 Dat QC C I	mg/Kg b is based e Analyz Preparat MS Result 1.57	I on the ed: 2 <sup>2</sup> Lion: 2 <sup>3</sup> Units	2500 spike and 013-12-18 013-12-17 Dil.	Spike Amount	96 icate 1	89.7 - result. Matrix Result 0.00533	Analy Prepa Re	zed By red By
Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spike QC Batch: 107646 Prep Batch: 91111 Param Benzene Toluene	spike ed Sa	rest mple	2390 ult. RPD e: 349082 Dat QC C I	mg/Kg b is based re Analyz Preparat MS Result 1.57 1.64	Interpretended in the second s	2500 spike and 013-12-18 013-12-17 Dil. 1	Spike dupl	96 icate	89.7 - result. Matrix Result 0.00533 0.00645	Analy Prepa Re 77	zed By red By
Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spike QC Batch: 107646 Prep Batch: 91111 Param Benzene Toluene Ethylbenzene	spike	rest mple	2390 ult. RPD e: 349082 Dat QC C I	mg/Kg mg/Kg b is based Preparat MS Result 1.57 1.64 1.67	I on the ed: 2 tion: 2 Units mg/Kg mg/Kg mg/Kg	2500 spike and 013-12-18 013-12-17 Dil. 5 1 5 1	Spike dupl Spike dupl 2.00 2.00 2.00	96 icate 1	Matrix Result 0.00533 0.00645	Analy Prepa Re 76 8 8	zed By red By ec. 8 7 2 7 4 7
Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spike QC Batch: 107646 Prep Batch: 91111 Param Benzene Toluene Ethylbenzene Xylene	spike	rest mple	2390 ult. RPI e: 349082 Dat QC C I	mg/Kg mg/Kg b is based Preparat MS Result 1.57 1.64 1.67 5.04	ed: 2 tion: 2 Units mg/Kg mg/Kg mg/Kg	2500 spike and 013-12-18 013-12-17 Dil. 5 1 5 1 5 1 5 1	Spike dupl Spike dupl 2.00 2.00 2.00 6.00	96 icate 1	Matrix Result 0.00533 0.00645 <0.0116 0.00874	Analy Prepa Re 73 83 84 84 85 85	zed By red By ec. 8 7 2 7 4 7 4 7
Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spike QC Batch: 107646 Prep Batch: 91111 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the	spike	F	2390 ult. RPI e: 349082 Dat QC C I	mg/Kg b is based preparat MS Result 1.57 1.64 1.67 5.04 b is based	ed: 2 tion: 2 Units mg/Kg mg/Kg mg/Kg	2500 spike and 013-12-18 013-12-17 Dil. 1 1 1 1 1 1 1 1 1 1	Spike dupl Spike dupl Amount 2.00 2.00 2.00 6.00 Spike dupl	96 icate 1	Matrix Result 0.00533 0.00645 <0.0116 0.00874 result	Analy Prepa Re 73 8 8 8 8 8	zed By red By ec. 8 7 2 7 4 7 4 7
Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spike QC Batch: 107646 Prep Batch: 91111 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the	spike	F	2390 ult. RPI e: 349082 Dat QC C I 1 1 1 1 1 1 1 1 1 1 1 1 1	mg/Kg mg/Kg b is based Preparat MS Result 1.57 1.64 1.67 5.04 0 is based	International control on the left on the l	2500 spike and 013-12-18 013-12-17 Dil. 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1	Spike dupl Spike dupl Amount 2.00 2.00 6.00 spike dupl	96 icate	Matrix Result. 0.00533 0.00645 <0.0116 0.00874 result.	Analy Prepa Re 71 88 88 88	zed By red By ec. 8 7 2 7 4 7 4 7
Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 107646 Prep Batch: 91111 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the	spike ed Sa	F rest	2390 ult. RPD e: 349082 Dat QC <u>C I</u> 1 1 1 1 1 1 L. RPD MSD	mg/Kg b is based e Analyz Preparat MS Result 1.57 1.64 1.67 5.04 0 is based	International control on the set of the set	2500 spike and 013-12-18 013-12-17 Dil. 1 1 1 1 1 1 1 1 1 2 1 2 1 3 1 2 1 2 5 1 5 1	Spike dupl Spike dupl 2.00 2.00 6.00 spike dupl Matrix	icate p	Matrix Result. 0.00533 0.00645 <0.0116 0.00874 result.	Analy Prepa Re 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	zed By red By sc. 8 7 2 7 4 7 4 7
Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 107646 Prep Batch: 91111 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the Param	spike ed Sa spike F	F rest F C	2390 ult. RPI e: 349082 Dat QC C I 1 1 1 1 ult. RPI MSD Result	mg/Kg mg/Kg b is based re Analyz Preparat MS Result 1.57 1.64 1.67 5.04 0 is based Units	I on the ed: 2 tion: 2 Units mg/Kg mg/Kg mg/Kg on the Dil.	2500 spike and 013-12-18 013-12-17 Dil. 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1	Spike Spike dupl 2.00 2.00 6.00 spike dupl Matrix Result	icate p	Matrix Result. 0.00533 0.00645 <0.0116 0.00874 result. Rec. Li	Analy Prepa Rec 74 88 84 84 84 84 84 84 84 84 84 84 84 84	III D           7           7           zed By           red By           8           7           4           7           RPD
Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 107646 Prep Batch: 91111 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the Param Benzene Toluene	spike ed Sa spike F	F rest F C 1	2390 ult. RPD e: 349082 Dat QC C I 1 1 1 ult. RPD MSD Result 1.56 1.62	mg/Kg b is based re Analyz Preparat MS Result 1.57 1.64 1.67 5.04 b is based Units mg/Kg	I on the ed: 2 tion: 2 Units mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	2500 spike and 013-12-18 013-12-18 013-12-17 Dil. 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1	Spike dupl Spike dupl 2.00 2.00 2.00 6.00 spike dupl Matrix Result <0.0021	icate p	Matrix Result 0.00533 0.00645 <0.0116 0.00874 result. Fec. Li 8 70 2 70	Analy Prepa Ree 76 85 86 86 86 86 86 86 86 86 86 86 86 86 86	zed By red By ec. 8 7 2 7 4 7 4 7 4 7 8 PD 1
Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 107646 Prep Batch: 91111 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the Param Benzene Toluene Ethylbenzene	spike ed Sa spike F	F rest F C 1 1	2390 ult. RPI e: 349082 Dat QC <u>C I</u> 1 1 1 ult. RPI MSD Result 1.56 1.63 1 60	mg/Kg mg/Kg b is based reparat MS Result 1.57 1.64 1.67 5.04 b is based Units mg/Kg	International content of the sector of the s	2500 spike and 013-12-18 013-12-18 013-12-17 Dil. 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1	Spike Amount 2.00 2.00 6.00 spike dupl Matrix Result <0.0053 <0.0064	$\frac{1}{96}$	Matrix Result. 0.00533 0.00645 <0.0116 0.00874 result. Rec. Li 8 70 2 70	Analy Prepa Ree 78 88 88 86 86 86 87 87 87 87 87 87 87 87 87 87 87 87 87	zed By red By red By 8 7 2 7 4 7 4 7 4 7 1 1
Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 107646 Prep Batch: 91111 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the Param Benzene Toluene Ethylbenzene Xylene	spike ed Sa spike F	F rest F	2390 ult. RPI =: 349082 Dat QC C I 1 1 1 1 1 1 1 1 1 1 1 1 1	mg/Kg b is based preparate MS Result 1.57 1.64 1.67 5.04 b is based Units mg/Kg mg/Kg	ed: 2 tion: 2 Units mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg ng/Kg 1 1	2500 spike and 013-12-18 013-12-18 013-12-17 Dil. 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1	Spike Spike dupl Spike dupl 2.00 2.00 2.00 6.00 spike dupl Matrix Result <0.0053 <0.0064 <0.0053	96           icate           icate <td>Matrix Result. 0.00533 0.00645 &lt;0.0116 0.00874 result. Resc. Li 8 70 2 70 4 70 5 70</td> <td>Analy Prepa Re 76 88 84 84 84 84 84 84 84 84 84 84 84 84</td> <td>zed By red By red By 8 7 2 7 4 7 4 7 8 PD 1 1</td>	Matrix Result. 0.00533 0.00645 <0.0116 0.00874 result. Resc. Li 8 70 2 70 4 70 5 70	Analy Prepa Re 76 88 84 84 84 84 84 84 84 84 84 84 84 84	zed By red By red By 8 7 2 7 4 7 4 7 8 PD 1 1

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Percent recovery is based	on the spike res	ult. RPD	is based	on the	spike and	spike dup	olicate re	sult.		
		N	íS M	ISD			Spike	MS	MSD	Rec.
Surrogate		Re	sult Re	esult	Units	Dil. A	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)		1.	56 1	.54	mg/Kg	1	2	78	77	70 - 130
4-DI OMONIOI ODENZENE (4-	<u>DFD</u> ;	1.		.02	IIIg/ Kg					10 - 150
Matrix Spike (MS-1)	Spiked Sample	e: 349055								
QC Batch: 107650		Dat	e Analvze	ed: 20	013-12-18			А	nalvzed	Bv: KC
Prep Batch: 91113		QC	Preparati	ion: 20	)13-12-17			P	repared	By: KC
			MS			Spike	Mat	rix		Rec.
Param	$\mathbf{F}$	C R	esult	Units	Dil.	Amount	Res	ult R	ec.	Limit
DRO		1	256 i	mg/Kg	1	250	12.	6 9	97 64	4.8 - 149.9
Percent recovery is based	on the spike rest	ult. RPD	is based	on the	spike and	spike dup	licate re	sult.		
-	_	MOD			- 			D		000
Daram	FC	M5D Result	Unite	Dil	Amount	Matrix Result	Roc	Kec.	RD	RPD D Limit
DRO	1 0	251	mg/Kg	1	250	$\frac{126}{126}$	95	64 8 - 14	$\frac{10}{99}$	$\frac{D}{20}$
Percent recovery is based	on the spike res		is based	on the	spike and	spike dur	licata ro			
reicent lecovery is based	on the spike res	un. ni D	is based	on the	spike and	spike dup	incate re:	suit.		
	MS	MSD	)			Spike	MS	MS	D	Rec.
Surrogate	Result	Resul	t Ur	nits	Dil.	Amount	Rec.	Ree	c	Limit
n-Tricosane	111	110	mg	/Kg	1	100	111	11(	0 85	5.4 - 147.7
Matrix Spike (MS-1)	Spiked Sample	e:								
QC Batch: 107711		Date	e Analvze	d: 20	)13-12-19			А	nalvzed	Bv: AK
Prep Batch: 91149		$\mathbf{QC}$	Preparati	ion: 20	)13-12-18			P	repared 1	By: AK
			MS			Spil	e N	latriv		Rec
Param	F	С	Result	Units	i Dil.	Amoi	int R	lesult	Rec.	Limit
GRO		1	14.2	mg/K	g 1	20.0	) <	<2.32	71	70 - 130
Percent recovery is based	on the spike res	ılt. RPD	is based	on the	spike and	spike dup	licate re	sult.		
		MSD			Snike	Matri	x	Rec		RPD
Param	F C	Result	Units	Dil.	Amoun	t Resul	t Rec.	Limi	t RP	D Limit
GRO	1	14.8	mg/Kg	ç 1	20.0	<2.32	2 74	70 - 1	30 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	$\mathbf{Result}$	$\operatorname{Result}$	Units	Dil.	Amount	Rec.	Rec.	$\operatorname{Limit}$
Trifluorotoluene (TFT)	1.56	1.54	mg/Kg	1	2	78	77	70 - 130
4-Bromofluorobenzene (4-BFB)	1.60	1.62	mg/Kg	1	2	80	81	70 - 130

				MS			Spike	Matrix		Rec.
Param		$\mathbf{F}$	$\mathbf{C}$	$\mathbf{Result}$	Units	Dil.	Amount	$\operatorname{Result}$	Rec.	Limit
DRO	 		1	256	mg/Kg	1	250	12.6	97	64.8 - 149.9
_		 								

			MS			Spike	Matrix		Rec.
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$

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Surrogate				N Re	MS esult	MSD Result	;	Units	Dil.	Sp Am	oike ount	MS Rec.	MS Re	SD ec.	Rec. Limit
Trifluorotoluene (TFT	) (4 DED)			2	.06	1.92	1	mg/Kg	1		2	103	9	6 7	0 - 130
4-Bromonuorobenzene	(4-BFB)			2	.14	2.21	]	mg/Kg			<u></u>	107	11	10 7	0 - 130
Matrix Spike (MS-1	l) Spiked	San	nple	: 349127	7										
QC Batch: 107963				Dat	te Analy	yzed:	20	14-01-02					Analy	zed By	: AR
Prep Batch: 91351				QC	Prepar	ation:	20	13-12-31					Prepa	red By	: AR
Denom		1	<b>D</b>	C ·	MS Bogult	I.		Dil	Spi	.ke	Ma	atrix	Dee	1	Rec.
Chloride		1	r	0	$\frac{1}{2920}$	mg	/Kg	<u> </u>	Amo	$\frac{1}{00}$	2	200	109	78	$\frac{11111}{9} - 121$
Percent recovery is bas	sed on the sr	oike	resu	lt. RPI	) is base	ed on t	he s	pike and	spike d	uplic	ate re	sult.			
	1			MCD				C1	-1 M-1			D.	_		מממ
Param		F	С	Result	Unit	s D	il.	Amount	Resu	itx ilt	Rec	ne Lin	ec. nit	RPD	Limit
Chloride		-		3000	mg/ł	Kg [	5	2500	200	)	112	78.9	121	3	20
Percent recovery is bas	sed on the sp	oike	resu	lt. RPI	) is base	ed on t	he s	pike and	spike d	uplic	ate re	sult.			
Matrix Spike (MS-1	l) Spiked	San	nple	: 349137	7										
QC Batch: 107965				Dat	te Analy	vzed:	20	14-01-02					Analy	zed By	: AR
Prep Batch: 91351				$\mathbf{QC}$	Prepar	ation:	20	13-12-31					Prepa	red By	: AR
Danom		1		C I	MS	Un	:+-	Dil	Spi	ke	Ma	atrix	Dee	1	Rec.
Chloride				0	2340	mg/	/Kg	<u> </u>	250	<u>30</u>		<u>19.2</u>	<u>94</u>	78	$\frac{11111}{9 - 121}$
Percent recovery is bas	sed on the sr	oike	resu	lt. RPI	) is base	ed on t	he s	pike and	spike d	uplic	ate re	sult.			
. <u> </u>	F			MCD			•	a	u			 D			000
Param		F	С	Result	Unit	s D	il	Spike	Matr	ux It	Rec	Ke Lin	ec. nit	RPD	KPD Limit
Chloride		-	<u> </u>	2430	mg/ł	<u>. 1</u> (g 5	5	2500	<19	.2	97	78.9	· 121	4	20

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

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# **Calibration Standards**

### Standard (CCV-1)

QC Batch: 10764	6		Analy	Analyzed By: AK				
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	$\mathbf{Flag}$	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0908	91	80 - 120	2013-12-18
Toluene		1	mg/kg	0.100	0.0891	89	80 - 120	2013-12-18
Ethylbenzene		1	mg/kg	0.100	0.0883	88	80 - 120	2013-12-18
Xylene		1	mg/kg	0.300	0.264	88	80 - 120	2013-12-18

### Standard (CCV-2)

QC Batch:	107646			Analy	zed 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	0.0909	91	80 - 120	2013-12-18
Toluene			1	mg/kg	0.100	0.0877	88	80 - 120	2013-12-18
Ethylbenzen	e		1	mg/kg	0.100	0.0860	86	80 - 120	2013-12-18
Xylene			1	mg/kg	0.300	0.262	87	80 - 120	2013-12-18

### Standard (CCV-3)

QC Batch:	107646			Analyzed By: AK					
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param		$\mathbf{Flag}$	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene			1	mg/kg	0.100	0.0889	89	80 - 120	2013-12-18
Toluene			1	mg/kg	0.100	0.0882	88	80 - 120	2013-12-18
Ethylbenzene	e		1	mg <sup>:</sup> /kg	0.100	0.0853	85	80 - 120	2013-12-18
Xylene			1	mg/kg	0.300	0.257	86	80 - 120	2013-12-18

Report Date: January 2, 2014 112MC05810				Work Orc COG/Ske	ler: 13121627 lly Unit #968		Page Number: 26 of 30 Eddy Co, NM		
Standard (	(CCV-1)								
QC Batch:	107650		Date	Analyzed:	2013-12-18		Analy	zed By: KC	
Param DRO	Flag	Cert	Units mg/Kg	CCVs True Conc. 250	CCVs Found Conc. 261	CCVs Percent Recovery 104	Percent Recovery Limits 80 - 120	Date Analyzed 2013-12-18	
Standard (	CCV-2)		Data	A1	0012 10 10		A		
QU Batch:	107650		Date	Analyzed:	2013-12-18		Analy	zed By: KC	
				CCVs	CCVs	CCVs	Percent		
P		<b>A</b> 1	<b>T</b> T <b>•</b> .	True	Found	Percent	Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Standard ( QC Batch:	( <b>CCV-3</b> ) 107650		Date	Analyzed:	2013-12-18		Analy	rzed By: KC	
				COV-	COV	COV-	Descent		
				True	Eound	Porcont	Percent	Dete	
Param	Flag	Cert	Units	Conc	Conc	Recovery	Limits	Analyzed	
DRO		1	mg/Kg	250	267	107	80 - 120	2013-12-18	
Standard (	(CCV-1)								
QC Batch:	107711		Date	Analyzed:	2013-12-19		Analy	zed By: AK	
				CCVs	CCVs	CCVs	Percent		
				True	Found	Percent	Recovery	Date	
Daram	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
ratam			/ 7 /	1 00	0.000	0.9	<u>00 100</u>	0010 10 10	

### Standard (CCV-2)

QC Batch: 107711

Date Analyzed: 2013-12-19

Analyzed By: AK

Report Date: 112MC05810	January 2, 20	14		Work Ord COG/Ske	ler: 13121627 lly Unit #968	······································	Page Number: 27 of 30 Eddy Co, NM			
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed		
GRO		1	mg/Kg	1.00	0.851	85	80 - 120	2013-12-19		
Standard (C	CV-3)									
QC Batch: 1	07711		Date	Analyzed:	2013-12-19		Analy	zed By: AK		
Daram	Flag	Cort	Unite	CCVs True Conc	CCVs Found	CCVs Percent Recovery	Percent Recovery	Date		
GRO	T Tag		mg/Kg	1.00	0.851	85	80 - 120	2013-12-19		
Standard (C QC Batch: 1	CV-1) 07963		Date	Analyzed: CCVs	2014-01-02 CCVs	CCVs	Analy Percent	zed By: AR		
				True	Found	Percent	Recovery	Date		
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
			mg/Kg	100	97.8	98	89 - 115	2014-01-02		
Standard (C	CV-2)									
QC Batch: 1	07963		Date	Analyzed:	2014-01-02		Analy	rzed By: AR		
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date		
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Chloride			mg/Kg	100	102	102	85 - 115	2014-01-02		

### Standard (CCV-1)

QC Batch: 107965

Date Analyzed: 2014-01-02

Analyzed By: AR

Report Date: 112MC05810	January 2, 201	.4		Work Orde COG/Skell	Page Number: 28 of 30 Eddy Co, NM			
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2014-01-02
Standard (C	CV-2)							
QC Batch: 10	07965		Date 2	Analyzed:	2014-01-02		Analy	rzed By: AR
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	98.7	99	85 - 115	2014-01-02

Report Date: January 2, 2014 112MC05810 Work Order: 13121627 COG/Skelly Unit #968 Page Number: 29 of 30 Eddy Co, NM

# Appendix

### **Report Definitions**

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

### Laboratory Certifications

	Certifying	Certification	Laboratory
С	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-13-7	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

### Attachments

Report Date: January 2, 2014 112MC05810 Work Order: 13121627 COG/Skelly Unit #968 Page Number: 30 of 30 Eddy Co, NM

The scanned attachments will follow this page.

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

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					L	<b>TETRA</b> 1910 N. Big Midland, Tez (432) 682-4559	<b>TECH</b> Spring St. (as 79705 Fax (432) 682-3946							_	35 (Ext. to C35)	d Cr Ph Ho Sa	d Vr Pd Hg Se										2		
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May 01, 2014

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

RE: SKELLY #968 TB

Enclosed are the results of analyses for samples received by the laboratory on 04/25/14 9:20.

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 www.tceq.texas.gov/field/qa/lab accred certif.html.

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,

Celeg D. Keine

Celey D. Keene Lab Director/Quality Manager



### Analytical Results For:

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

Received:	04/25/2014	Sampling Date:	04/24/2014
Reported:	05/01/2014	Sampling Type:	Soil
Project Name:	SKELLY #968 TB	Sampling Condition:	** (See Notes)
Project Number:	112MC05820	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

### Sample ID: T-1 (AH-3) 0' (H401251-01)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	04/30/2014	ND	400	100	400	7.69	

### Sample ID: T-1 (AH-3) 2' (H401251-02)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD .	Qualifier
Chloride	32.0	16.0	04/30/2014	ND	400	100	400	7.69	

### Sample ID: T-1 (AH-3) 4' (H401251-03)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP	-				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	512	16.0	04/30/2014	ND	400	100	400	7.69	

### Sample ID: T-1 (AH-3) 6' (H401251-04)

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	<16.0	16.0	04/30/2014	ND	400	100	400	7.69	

### **Cardinal Laboratories**

### \*=Accredited Analyte

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Celey & Kune

Celey D. Keene, Lab Director/Quality Manager



### Analytical Results For:

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

Received:	04/25/2014	Sampling Date:	04/24/2014
Reported:	05/01/2014	Sampling Type:	Soil
Project Name:	SKELLY #968 TB	Sampling Condition:	** (See Notes)
Project Number:	112MC05820	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

### Sample ID: T-1 (AH-3) 8' (H401251-05)

Chloride, SM4500Cl-B	mg/	kg	Analyzed	I By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	04/30/2014	ND	400	100	400	7.69	

### Sample ID: T-1 (AH-3) 10' (H401251-06)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	04/30/2014	ND	400	100	400	7.69	

### **Cardinal Laboratories**

### \*=Accredited Analyte

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Celey 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°C
   Samples reported on an as received basis (wet) unless otherwise noted on report

### Cardinal Laboratories

### \*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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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.