	**************************************		SITE INFOR	RMATION		A STATE OF THE STA						
2RP-451			Report Type: Closure Report									
General Site Info	rmation:											
Site:		Skelly Un										
Company:			rating LLC									
Section, Townsh	nip and Range	Unit P										
Lease Number:			API-30-15-35871									
County:		Eddy Cou		. =		100.05	0000144					
GPS: Surface Owner:		Federal	32.83073° I	<u> </u>		103.85	220° W					
Mineral Owner:		reuerai										
Directions:							ravel 1.9 miles, turn left 2 miles to location.					
Release Data: \} Date Released: Type Release:		12/31/200 Oil & Wate	9	factorial (Carlot)								
Source of Contan	nination:	1" nipple o	1" nipple on pumping tee									
Fluid Released:			15 bbls									
Fluids Recovered	THE TAX BEAUTY AND PROPERTY OF THE PARTY OF	10 bbls	Mark C. C. War. 1 (54), a graduation by			Andrew Commence and the Commence of the Commen	A P. C. A. Charles and M. C. Charles and M. C. Charles and Annual					
Official Commun	ication:		类的多数较浓									
Name:	Pat Ellis				Ike Tavarez	Z						
Company:	COG Operating, L	LC			Tetra Tech							
Address:	550 W. Texas Ave	e. Ste. 1300			1910 N. Big	g Spring						
P.O. Box												
City:	Midland Texas, 79	701			Midland, Te	exas						
Phone number:	(432) 686-3023			(432) 682-4								
Fax:	(432) 684-7137											
Email:	pellis@conchores	ources.com			ike.tavarez	z@tetratech.	com					

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

Acceptable Soil RRAL (mg/kg)

Total BTEX

50

**TPH** 

5,000

Benzene

10

FEB 14 2011

NMOCD ARTESIA



February 7, 2011

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

Re: Closure Report for the COG Operating LLC., Skelly Unit #967 Welll Site, Unit P, Section 15, Township 17 South, Range 31 East, Eddy County, New Mexico. 2RP-451

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Skelly Unit #967 Well Site, Unit P, Section 15, Township 17 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.83073°, W 103.85220°. 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 December 31, 2009, and released approximately fifteen (15) barrels of oil and produced water from a leak in a 1" nipple on the pumping tee. To alleviate the problem, COG personnel repaired the leak. Ten (10) barrels of standing fluids were recovered. The majority of the spill remained on the caliche pad. The spill migrated west and impacted 15' x 35' area of pasture in a low lying area. COG initiated a surfical scrape of the location pad to remove the saturated material. The collected material was hauled away for disposal. The initial C-141 form is enclosed in Appendix C.

#### Groundwater

No water wells were listed within Section 15. According to the NMOCD Eddy County 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 March 4, 2010, Tetra Tech personnel inspected and sampled the spill area. A total of five (5) auger holes (AH-1 through AH-5) were installed using a stainless steel hand auger to assess the impacted soils. Select 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 B. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all of the submitted samples were below the RRAL for TPH and BTEX. Elevated chloride concentrations were detected and vertically defined to less than 200 mg/kg at depth for each auger hole with the exception of AH-5 (8,690 mg/kg at 6.5-7.0').

In order to vertically define the extents in the area of AH-5, Tetra Tech supervised the installation of one soil bore (SB-1) utilizing an air rotary drilling rig. Soil samples were collected down to a total depth of 20.0' bgs. Select samples were analyzed for chloride by EPA method 300.0.

Referring to Table 1, SB-1 (AH-5) shows a definitive decline in chloride concentrations from 15,100 mg/kg at 10.0' bgs to less than 200 mg/kg at 20.0' bgs.



#### **Closure Activities**

As per the approved work plan, Tetra Tech personnel supervised the removal of impacted material on November 11, 2010. Approximately 740 cubic yards of soil were excavated and transported to CRI Inc. for proper disposal. Once excavated to the appropriate depths, six (6) confirmation samples were collected from the bottom of the excavations. Three locations CS-1, CS-2 and CS-5 showed chloride concentrations of <200 mg/kg. Chloride levels were reflected in CS-3 of 685 mg/kg and CS-4 of 1,850 mg/kg. Based on the results, the NMOCD was contacted to discuss the results of the confirmation samples. Mr. Bratcher reviewed the data and approved the sample results. The excavated area was then backfilled and brought up to surface grade with clean soils. The sample locations are shown on Figure 4. The confirmation sample results are shown in Table 2.

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

Respectfully submitted,

TETRA TEĆH

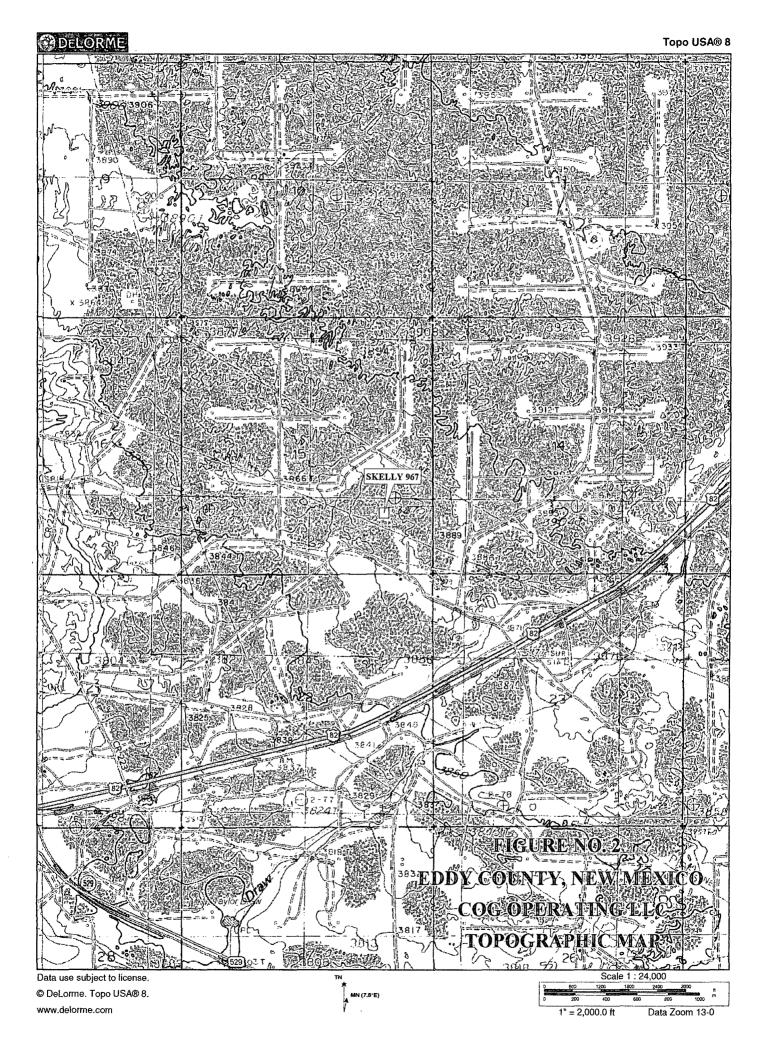
Ike Tavarez Staff Geologist

cc: Pat Ellis - COG

cc: Terry Gregston - BLM

FIGURES

書きる



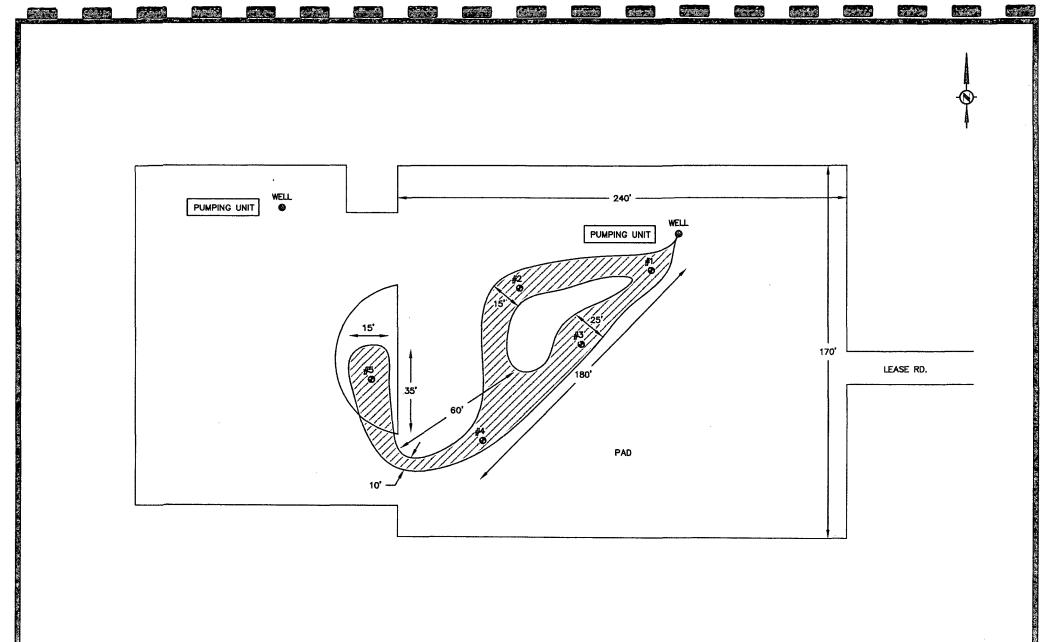


FIGURE NO. 3

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

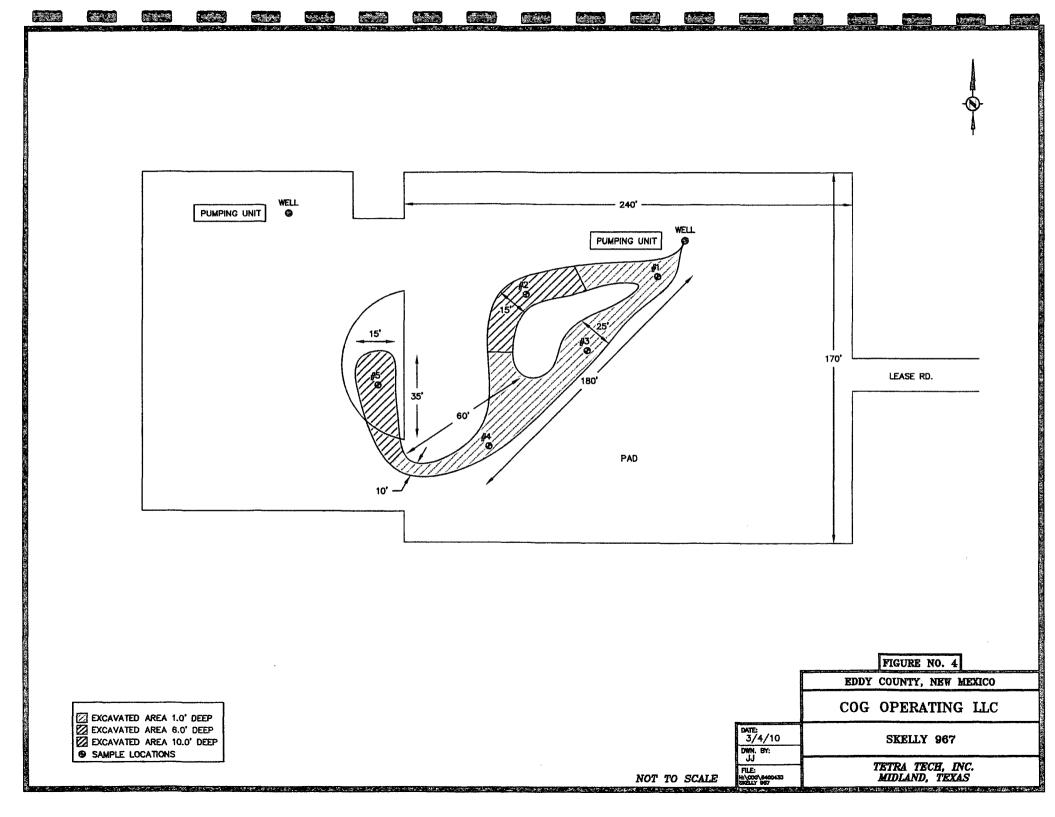
SPILL AREA

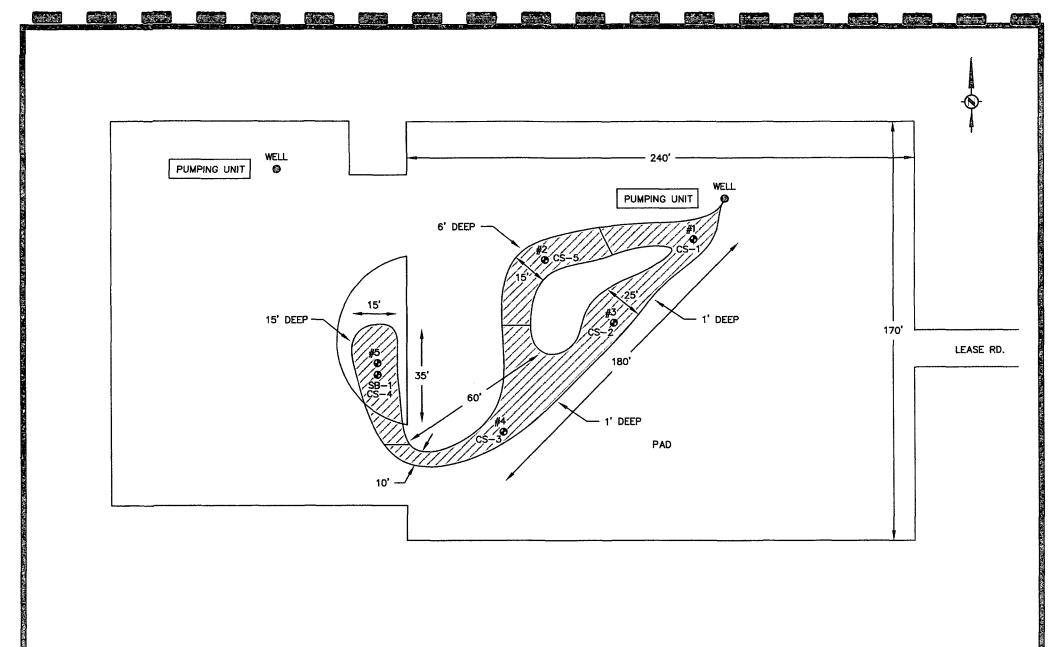
SAMPLE LOCATIONS

DATE:
3/4/10

SKELLY 967

DWN. BY:
J
FILE:
SAMPLE MIDIAND, TEXAS





	$\square$	EXCAVATED AREA SAMPLE LOCATIONS
	•	SAMPLE LOCATIONS
	•	SOIL BORING LOCATION
1	_	

## COMFIRMATION SAMPLE LOCATIONS

	FIGURE NO. 5
	EDDY COUNTY, NEW MEXICO
	COG OPERATING LLC
DATE: 3/4/10 DWN. BY:	SKELLY 967
JJ FILE: H-\CCC\6400436 SIGELY 967	TETRA TECH, INC. MIDLAND, TEXAS

NOT TO SCALE

**TABLES** 

N. C.

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P. Carlot

Section 1

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# Table 1 COG Operating LLC. Skelly 967 LEA COUNTY, NEW MEXICO

Sample Date	Depth (ft)			l Status	ır	H (mg/k	g)	Benzene	Toluene			1 - 1	Chloride
A 1975 SA 11	-open (it)	(BEB)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
3/4/2010	0-1"			X	<50.0/	<1.00	<50.0	<0.0100	<0.0100	<0.0100	<0:0100	4,220	
	1-1.5'		Х		-	-	-	-	-	-	•	<200	
	2-2.5'		Х		-	-	-	-	-		-	<200	
11/11/2010	0-1	1'	Х		-	-	-	-	-		-	<200	
3/4/2010	0-1'			<b>X</b>	, 71.6	4.9	76.5	<0.0100	<0.0100	<0.0100	<0.0100	3,580	
	1-1.5'	<b>显特式</b> 加		X **								490	
	2-2.5			X								<200	
	. 3-3.5			X								<200	
	4-4.5'	7 m		X								3,160-	
	5-5.5'			<b>X</b>								4,150	
	6-6.5			X		A 13 TOTAL				Tag		4,400	
	7-7.5'		Х		-	-	_	-	_	-	-	304	
	7.5-8'		Х		-	-	-	-	-	-	-	<200	
11/11/2010	0-1	6'	Х		-	-	-	-	-	-	-	<200	
3/4/2010	0-1			<b>X</b>	<50.0	<1.00	<50.0	<b>&lt;</b> 0.0100	<0.0100	<0.0100	<b>.</b> <0.0100	2,160	
	1-1.5'		Х		-	-	_	-	-	-	-	<200	
	2-2.5'		Х		-	-	-	•	-	-	-	<200	
11/11/2010	0-1	1'	Х		-	-	<del>-</del>	-	-		-	<200	
The state of the s	3/4/2010	3/4/2010 0-1  3/4/2010 0-1  1-1.5  2-2.5  3-3.5  4-4.5  5-5.5  6-6.5  7-7.5  7.5-8  11/11/2010 0-1  3/4/2010 0-1  1-1.5  2-2.5  2-2.5	11/11/2010 0-1 1'  3/4/2010 0-1'  1-1.5'  2-2.5'  3-3.5'  4-4.5'  5-5.5'  6-6.5'  7-7.5'  7.5-8'  11/11/2010 0-1 6'  3/4/2010 0-1'  1-1.5'  2-2.5'	11/11/2010 0-1 1' X  3/4/2010 0-1'	11/11/2010 0-1 1' X  3/4/2010 0-1' X  11-1.5 X  22-2.5 X  3-3.5 X  4-4.5 X  6-6.5 X  7-7.5' X  7.5-8' X  11/11/2010 0-1 6' X  3/4/2010 0-1' X  2-2.5' X	11/11/2010 0-1 1' X -  3/4/2010 0-1 X 71.6  11-1.5' X  2-2.5' X  3-3.5' X  4-4.5' X  6-6.5' X  7-7.5' X  7.5-8' X  -  11/11/2010 0-1 6' X -  3/4/2010 0-1	11/11/2010	11/11/2010 0-1 1' X	11/11/2010 0-1 1' X	11/11/2010	11/11/2010 0-1 1' X	11/11/2010	

# Table 1 COG Operating LLC. Skelly 967 LEA COUNTY, NEW MEXICO

Sample	Commis Data	Sample	Depth	Soi	l Status	TF	H (mg/k	g)	Benzene	Toluene	Ethlybenzene	Xylene	Chloride
ID	Sample Date	Depth (ft)	(BEB)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-4	3/4/2010	0-1'		机物证	X	,<50.0	<1.00	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	1,600
		1-1.5'		Х		-	-	_	-	_	· <u>-</u>	-	<200
		2-2.5'		Х		-	-	-	~	-	-	_	666
		3-3.5'		Х		-	-	-	-	-	-	-	1,070
		4-4.5'		Х		<u>-</u>	-	-	-	-	-	_	<200
		5-5.5'		Х		-	~	-	-	-	-	-	<200
		6-6.5'		Х		-	-	•	-	-	-	-	<200
		****											
CS-3	11/11/2010	0-1	1'	X		-	-	-	-	-	-	-	685

# Table 1 COG Operating LLC. Skelly 967 LEA COUNTY, NEW MEXICO

Sample	Sample Date	Sample	Depth	Soi	l Status	TF	PH (mg/k	(g)	Benzene	Toluene	Ethlybenzene	Xylene	Chloride
ID	Sample Date	Depth (ft)	(BEB)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-5	3/4/2010	-, O-1!			<b>X</b>	1,930	- 308	2,238	<0.100	<0.100	<0.100	1.27	289
		≨ 1-1.5°,			X			3 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )		all value			219
		<b>.</b> `.,2-2.5'			. X .		ari 5,					447-37	
		3-3.5'			X								<200
		,4-4.5'			X			A STATE OF S					473
		ົ້ 5-5.5"			X			green and					856
		6-6.5'			X								2,640
		6.5-7			<b>X</b>								8,690
SB-1	4/12/2010	8'			<b>X</b>		1.46 Pro-1	Strain St			** (*** *** *** *** *** *** *** *** ***		15,600
		10			<b>X</b>	3							15,100
		15'			X								689
		20'		Х		-	-		-	-		_	<200
CS-4	11/11/2010	0-1	15'	X		-	_	_	-	-	*	•	1,850
CS-4	11/11/2010	0-1	15'	Х		-		-					

BEB Below Excavation Bottom

CS Confirmation Samples

(--) Not Analyzed

Excavated material

### **APPENDIX A**

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**本海湾** 

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1. N. W.

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

1220 S. St. Francis Dr., Santa Fe, NM 87505

\* Attach Additional Sheets If Necessary

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

RECEIVED

Form C-141 Revised October 10, 2003

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

FEB 14 2011
Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back side of form

#### **Release Notification and Corrective Action**

						<b>OPERA</b>	ГOR	☐ Initi	al Report 🛛 Final Repor				
Name of Co							nicia Carrillo						
			0 Midlaı	nd, Texas 7970			No. (432) 685-4						
Facility Nar	ne Skelly	Unit 967				Facility Typ	e Tank Batter	y					
Surface Ow	ner: Federa	al		Mineral C	)wner	ner Lease No. NMLC029420A/ 30-15-35871							
				LOCA	TIOI	N OF REI	LEASE						
Unit Letter P	Section 15	Township 17S	Range 31E	Feet from the 1250	t .	/South Line OUTH	Feet from the 990	East/West Line EAST	County Eddy				
			L			Longitud	e W 103.95918	50°					
Type of Rele	ase Oil & V	Mater		INAL	UKE		Release 15 bbls	Volume I	Recovered 10 bbls				
		ople on pumpi	ng tee				Iour of Occurrenc		Hour of Discovery				
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Require						If YES, To	Whom?	444					
By Whom? Josh Russo						Date and F	lour 3/15/10 4:5	9 p.m.					
Was a Water	Was a Watercourse Reached?						olume Impacting t	he Watercourse.	, , , , , , , , , , , , , , , , , , , ,				
	☐ Yes ☒ No						N/A						
If a Watercou	rse was Imp	oacted, Descri	be Fully.*	•									
N/A													
Describe Cau	se of Proble	em and Remed	lial Action	1 Taken.*									
There was a l	nole in the l	" nipple on th	e pumpin	g tee.									
Describe Are	a Affected a	and Cleanup A	Action Tak	en.*		,							
site and colle	cted sample	s to define spi	ills extent.	Soil that exceede	ed RRA	L was remove		y for proper dispos	pasture. Tetra Tech inspected sal. Site was then brought up to				
regulations a public health should their o	I operators or the environment. In a	are required to onment. The ave failed to a ddition, NMO	report ar acceptance dequately CD accep	d/or file certain ree of a C-141 reporting and reference investigate and reference and reference are referenced.	elease n ort by the emediat	otifications are e NMOCD m e contaminati	nd perform correct arked as "Final Reconstruction that pose a threet the operator of the contract of the contr	tive actions for rele eport" does not reli eat to ground water responsibility for c	suant to NMOCD rules and eases which may endanger leve the operator of liability, surface water, human health ompliance with any other				
Signature:		11	3				OIL CONS	SERVATION	DIVISION				
Printed Name	e: Ike Tavar	ez Agu	T De	006		Approved by	District Superviso	or:					
Title: Project	Manager	0				Approval Dat	e:	Expiration	Date:				
	ess: Ike.Tav	arez@TetraTe		(432) 682-4559		Conditions of	Approval:		Attached				

**APPENDIX B** 

# Water Well Data Average Depth to Groundwater (ft) COG - Skelly Unit #967 Eddy County, New Mexico

	16	South		30 East	}		16	South	3	l East			16 9	South	3	2 East	
6	5	4	3	2	1	6	5	4	3	2	1	6	5	4	3 €	<b>5</b> 2 <b>26</b> 5	1 265
7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	12 <b>215</b>
18	17	16	15	14	13	18	17	16	15	14	13	18	17	16 221	15	14	13 215
19	20	21	22	23	24	19	20	21	22	23	24	19	20	21	22	23 210	24
30	29	28	27	26	25	30	29	28	27	26	25	<b>220</b> 30	29	210 28	27	26 243	25
31	32	33	34	35	36	31 <b>290</b>	32	33	34	35	36	31	32	33	34	35	36 <b>260</b>
	17 :	South		30 Easi			17	South	3.	i Easi	<u> </u>		17 9	South	3	2 East	
6	5	4	3	2	1	6	5	4	3	2	1	6	5	4 82	3 <b>175</b>	2 60	1 225
7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11 70 88	12
18	17	16	15	14	13	18	17	16	15 SITE	14	13	18	17	16	15	14	13
19	20	21	22	23	24	19	20	21	22	23	24	19	20	21	22	23	24
30	29	28	27	26	25	30	29	28	27	26	25	30 180 dry	29	28	27	26	25
31	32	33	34	35	36	31	32	33	34 271	35	36	31	32	33	34	35	36
	18 :	South	3	30 East			18	South	3	1 East	1		18 9	South	3	2 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	12 400	7 460 82	8	9	10	11	12
18	17	16	15	14	13	18	17	16	15	14 317	13	18	17	16 84	15	14	13
19	20	21	22	23	24	19	20	21	22	23	24	19	20 164	21	22 <b>429</b>	23	24
30	29	28	27	26	25	30	29	28	27	26	25	30	29	28	27	26	25
31	32	33	34	35	36	31	32	33	34	35 <b>261</b>	36	31	32	33	34 117	35	36

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

in the

Report Date: March 15, 2010 Work Order: 10031003 Page Number: 1 of 5

### **Summary Report**

Ike Tavarez Tetra Tech

1910 N. Big Spring Street Midland, TX 79705 Report Date: March 15, 2010

Work Order: 10031003

Project Location: Lea County, NM Project Name: COG/Skelly 967 Project Number: 114-6400436

			Date	Time	Date
Sample	Description	Matrix	$\operatorname{Taken}$	Taken	Received
224980	AH-1 0-1'	soil	2010-03-04	00:00	2010-03-09
224981	AH-1 1-1.5'	soil	2010-03-04	00:00	2010-03-09
224982	AH-1 2-2.5'	soil	2010-03-04	00:00	2010-03-09
224983	AH-2 0-1'	soil	2010-03-04	00:00	2010-03-09
224984	AH-2 1-1.5'	soil	2010-03-04	00:00	2010-03-09
224985	AH-2 2-2.5'	soil	2010-03-04	00:00	2010-03-09
224986	AH-2 3-3.5'	soil	2010-03-04	00:00	2010-03-09
224987	AH-2 4-4.5'	soil	2010-03-04	00:00	2010-03-09
224988	AH-2 5-5.5'	soil	2010-03-04	00:00	2010-03-09
224989	AH-2 6-6.5'	soil	2010-03-04	00:00	2010-03-09
224990	AH-2 7-7.5'	soil	2010-03-04	00:00	2010-03-09
224991	AH-2 7.5-8'	soil	2010-03-04	00:00	2010-03-09
224992	AH-3 0-1'	soil	2010-03-04	00:00	2010-03-09
224993	AH-3 1-1.5'	soil	2010-03-04	00:00	2010-03-09
224994	AH-3 2-2.5'	soil	2010-03-04	00:00	2010-03-09
224995	AH-4 0-1'	soil	2010-03-04	00:00	2010-03-09
224996	AH-4 1-1.5'	soil	2010-03-04	00:00	2010-03-09
224997	AH-4 2-2.5'	soil	2010-03-04	00:00	2010-03-09
224998	AH-4 3-3.5'	soil	2010-03-04	00:00	2010-03-09
224999	AH-4 4-4.5'	soil	2010-03-04	00:00	2010-03-09
225000	AH-4 5-5.5'	soil	2010-03-04	00:00	2010-03-09
225001	AH-4 6-6.5'	soil	2010-03-04	00:00	2010-03-09
225002	AH-5 0-1'	soil	2010-03-04	00:00	2010-03-09
225003	AH-5 1-1.5'	soil	2010-03-04	00:00	2010-03-09
225004	AH-5 2-2.5'	soil	2010-03-04	00:00	2010-03-09
225005	AH-5 3-3.5'	soil	2010-03-04	00:00	2010-03-09
225006	AH-5 4-4.5'	soil	2010-03-04	00:00	2010-03-09
225007	AH-5 5-5.5'	soil	2010-03-04	00:00	2010-03-09
225008	AH-5 6-6.5'	soil	2010-03-04	00:00	2010-03-09
225009	AH-5 6.5-7'	soil	2010-03-04	00:00	2010-03-09

			BTEX		TPH DRO - NEW	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	$_{ m GRO}$
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
224980 - AH-1 0-1'	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 50.0	<1.00
224983 - AH-2 0-1'	< 0.0100	< 0.0100	< 0.0100	< 0.0100	71.6	4.89
224992 - AH-3 0-1'	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 50.0	< 1.00
224995 - AH-4 0-1'	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 50.0	< 1.00
225002 - AH-5 0-1'	< 0.100	< 0.100	< 0.100	1.27	1930	308

Sample: 224980 - AH-1 0-1'

Param	Flag	Result	${f Units}$	RL
Chloride		4220	mg/Kg	4.00

Sample: 224981 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 224982 - AH-1 2-2.5'

Param	Flag	Result	${f Units}$	RL
Chloride		<200	mg/Kg	4.00

Sample: 224983 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		3580	mg/Kg	4.00

Sample: 224984 - AH-2 1-1.5'

Param	Flag	Result	$\operatorname{Units}$	$_{ m RL}$
Chloride		490	mg/Kg	4.00

Sample: 224985 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 224986 - AH-2 3-3.5'

Report Date: Mare	ch 15, 2010	Work Order: 10031003	Page	Page Number: 3 of 5	
Param	$\operatorname{Flag}$	Result	Units	RL	
Chloride		<200	mg/Kg	4.00	
Sample: 224987	- AH-2 4-4.5'				
Param	Flag	Result	Units	RL	
Chloride		3160	mg/Kg	4.00	
Sample: 224988	- AH-2 5-5.5'				
Param	Flag	Result	Units	RL	
Chloride		4150	mg/Kg	4.00	
Sample: 224989			77. 11	, DI	
Param Chloride	Flag	Result 4400	Units mg/Kg	$\frac{RL}{4.00}$	
Sample: 224990 Param	- <b>AH-2 7-7.5'</b> Flag	Result	Units	RL	
Chloride		304	mg/Kg	4.00	
Sample: 224991	- AH-2 7.5-8'				
Param	Flag	Result	Units	RL	
Chloride		<200	mg/Kg	4.00	
Sample: 224992	- AH-3 0-1'				
Param	Flag	Result	Units	RL	
Chloride		2160	mg/Kg	4.00	
Sample: 224993	- AH-3 1-1.5'				
Param	Flag	Result	Units	RL	
Chloride	<u> </u>	<200	mg/Kg	4.00	

Report Date: March	n 15, 2010	Work Order: 10031003	Page	Number: 4 of 5
Sample: 224994 -	AH-3 2-2.5'			
Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00
Sample: 224995 -	AH-4 0-1'			
Param	Flag	Result	Units	RL
Chloride		1600	mg/Kg	4.00
Sample: 224996 -	AH-4 1-1.5'			,
Param	Flag	$\operatorname{Result}$	Units	RL
Chloride		<200	mg/Kg	4.00
Sample: 224997 -	AH-4 2-2.5'			
Param	Flag	Result	Units	RL
Chloride		666	mg/Kg	4.00
Sample: 224998 -	AH-4 3-3.5'			
Param	Flag	$\operatorname{Result}$	Units	RL
Chloride		1070	mg/Kg	4.00
Sample: 224999 -	AH-4 4-4.5'			
Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00
Sample: 225000 -	AH-4 5-5.5'			
Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00
Sample: 225001 -	AH-4 6-6.5'			
Param	Flag	Result	Units	RL

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

Report Date: March 15, 2010		Work Order: 10031003		Page Number: 5 of 5	
Sample: 225002 - AH-	5 0-1'				
Param	Flag	Result	Units	RL	
Chloride		289	mg/Kg	4.00	
Sample: 225003 - AH-	5 1-1.5'				
Param	Flag	Result	Units	RL	
Chloride	2 300	219	mg/Kg	4.00	
Sample: 225004 - AH-	5 2-2.5'				
Param	Flag	Result	Units	RL	
Chloride		<200	mg/Kg	4.00	
Sample: 225005 - AH-	5 3-3.5'				
Param	$\operatorname{Flag}$	Result	Units	RL	
Chloride		<200	mg/Kg	4.00	
Sample: 225006 - AH-	5 4-4.5'				
Param	Flag	Result	Units	RL	
Chloride		473	mg/Kg	4.00	
Sample: 225007 - AH-	5 5-5.5'				
Param	Flag	Result	Units	RL	
Chloride		856	mg/Kg	4.00	
Sample: 225008 - AH-	5 6-6.5'				
Param	Flag	Result	Units	RL	
Chloride		2640	mg/Kg	4.00	
Sample: 225009 - AH-	5 6.5-7'				
Param	Flag	Result	Units	RL	
Chloride		8690	mg/Kg	4.00	

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296

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



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

E-Mail: lab@traceanalysis.com

#### Certifications

**WBENC:** 237019

HUB:

1752439743100 - 86536

**DBE:** VN 20657

**NCTRCA** WFWB38444Y0909

#### **NELAP Certifications**

Lubbock: T104704219-08-TX

LELAP-02003

Kansas E-10317

El Paso: T104704221-08-TX

LELAP-02002

Midland: T104704392-08-TX

### Analytical and Quality Control Report

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

Report Date: March 15, 2010

Work Order: 10031003 

Project Location: Lea County, NM Project Name: Project Number:

COG/Skelly 967 114-6400436

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

			Date	$\operatorname{Time}$	Date
Sample	Description	Matrix	Taken	Taken	Received
224980	AH-1 0-1'	soil	2010-03-04	00:00	2010-03-09
224981	AH-1 1-1.5'	soil	2010-03-04	00:00	2010-03-09
224982	AH-1 2-2.5'	soil	2010-03-04	00:00	2010-03-09
224983	AH-2 0-1'	soil	2010-03-04	00:00	2010-03-09
224984	AH-2 1-1.5'	soil	2010-03-04	00:00	2010-03-09
224985	AH-2 2-2.5'	soil	2010-03-04	00:00	2010-03-09
224986	AH-2 3-3.5'	soil	2010-03-04	00:00	2010-03-09
224987	AH-2 4-4.5'	soil	2010-03-04	00:00	2010-03-09
224988	AH-2 5-5.5'	soil	2010-03-04	00:00	2010-03-09
224989	AH-2 6-6.5'	soil	2010-03-04	00:00	2010-03-09

			Date	$\mathbf{Time}$	Date
$\mathbf{Sample}$	Description	Matrix	Taken	Taken	Received
224990	AH-2 7-7.5'	soil	2010-03-04	00:00	2010-03-09
224991	AH-2 7.5-8'	soil	2010-03-04	00:00	2010-03-09
224992	AH-3 0-1'	soil	2010-03-04	00:00	2010-03-09
224993	AH-3 1-1.5'	soil	2010-03-04	00:00	2010-03-09
224994	AH-3 2-2.5'	soil	2010-03-04	00:00	2010-03-09
224995	AH-4 0-1'	soil	2010-03-04	00:00	2010-03-09
224996	AH-4 1-1.5'	soil	2010-03-04	00:00	2010-03-09
224997	AH-4 2-2.5'	soil	2010-03-04	00:00	2010-03-09
224998	AH-4 3-3.5'	soil	2010-03-04	00:00	2010-03-09
224999	AH-4 4-4.5'	soil	2010-03-04	00:00	2010-03-09
225000	AH-4 5-5.5'	soil	2010-03-04	00:00	2010-03-09
225001	AH-4 6-6.5'	soil	2010-03-04	00:00	2010-03-09
225002	AH-5 0-1'	soil	2010-03-04	00:00	2010-03-09
225003	AH-5 1-1.5'	soil	2010-03-04	00:00	2010-03-09
225004	AH-5 2-2.5'	soil	2010-03-04	00:00	2010-03-09
225005	AH-5 3-3.5'	soil	2010-03-04	00:00	2010-03-09
225006	AH-5 4-4.5'	soil	2010-03-04	00:00	2010-03-09
225007	AH-5 5-5.5'	soil	2010-03-04	00:00	2010-03-09
225008	AH-5 6-6.5'	soil	2010-03-04	00:00	2010-03-09
225009	AH-5 6.5-7'	soil	2010-03-04	00:00	2010-03-09

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

Dr. Blair Leftwich, Director

Dr. Michael Abel, Project Manager

Standard Flags

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

#### Case Narrative

Samples for project COG/Skelly 967 were received by TraceAnalysis, Inc. on 2010-03-09 and assigned to work order 10031003. Samples for work order 10031003 were received intact at a temperature of 7.6 C.

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

$03:\overline{29}$
14:27
15:27
15:28
15:29
15:30
14:49
03:56
14:54

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 10031003 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

114-6400436

Section 1

Work Order: 10031003 COG/Skelly 967

Page Number: 4 of 32 Lea County, NM

#### **Analytical Report**

Sample: 224980 - AH-1 0-1'

Laboratory: Midland

Analysis: QC Batch:

BTEX 68153Prep Batch: 58275

Analytical Method: Date Analyzed:

S 8021B

2010-03-10 Sample Preparation: 2010-03-09 Prep Method: S 5035 Analyzed By:

AG

Prepared By:

AG

RL

		LULI			
Parameter	$\mathbf{Flag}$	Result	Units	Dilution	RL
Benzene		< 0.0100	mg/Kg	1	0.0100
Toluene		< 0.0100	$\mathrm{mg}/\mathrm{Kg}$	1	0.0100
Ethylbenzene		< 0.0100	mg/Kg	1	0.0100
Xylene		< 0.0100	mg/Kg	1	0.0100

					$\operatorname{Spike}$	$\operatorname{Percent}$	Recovery
Surrogate	Flag	Result	$\mathbf{Units}$	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.58	mg/Kg	1	2.00	79	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		1.77	mg/Kg	1	2.00	88	43.1 - 158.4

Sample: 224980 - AH-1 0-1'

Laboratory: Midland

Analysis: QC Batch: Chloride (Titration) 68197

Flag

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2010-03-12

2010-03-11

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

Prep Batch: 58320

Parameter

Chloride

$\operatorname{RL}$			
Result	Units	Dilution	RL
4220	mg/Kg	100	4.00

Sample: 224980 - AH-1 0-1'

Laboratory:

Midland

58292

Analysis: QC Batch:

Prep Batch:

TPH DRO - NEW 68138

Analytical Method: Date Analyzed:

Mod. 8015B 2010-03-10 Sample Preparation: 2010-03-10

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

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

114-6400436

Work Order: 10031003 COG/Skelly 967

Page Number: 5 of 32

Lea County, NM

					Spike	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane		96.4	mg/Kg	1	100	96	70 - 130

Sample: 224980 - AH-1 0-1'

Laboratory:

Midland

Analysis:

TPH GRO

QC Batch: 68154 Prep Batch: 58275

Analytical Method: Date Analyzed:

S 8015B

2010-03-10 Sample Preparation: 2010-03-09

Prep Method: S 5035

Analyzed By: AGPrepared By: AG

RL

Parameter Flag Result Units Dilution RLGRO <1.00 1.00 mg/Kg 1

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		2.19	mg/Kg	1	2.00	110	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.08	mg/Kg	1	2.00	104	61.7 - 131.1

Sample: 224981 - AH-1 1-1.5'

Laboratory:

Midland

Chloride (Titration) Analysis: QC Batch:

68198 Prep Batch: 58321 Analytical Method: Date Analyzed:

SM 4500-Cl B 2010-03-12 Sample Preparation: 2010-03-11

Prep Method: N/A Analyzed By: AR

Prepared By: AR

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

Sample: 224982 - AH-1 2-2.5'

Laboratory:

Midland

Analysis: QC Batch: Chloride (Titration)

Analytical Method: Date Analyzed:

SM 4500-Cl B 2010-03-12

Prep Method:

Analyzed By: AR

Prep Batch: 58321

68198

Sample Preparation:

2010-03-11

Prepared By:

AR

N/A

RL

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

114-6400436

Work Order: 10031003 COG/Skelly 967

Page Number: 6 of 32 Lea County, NM

Sample: 224983 - AH-2 0-1'

Laboratory: Midland

Analysis: BTEX QC Batch: 68187 Prep Batch: 58349

Analytical Method: S 8021B Date Analyzed: 2010-03-11 Sample Preparation: 2010-03-11 Prep Method: S 5035 Analyzed By: AGPrepared By: AG

RL

Parameter	Flag	Result	${ m Units}$	Dilution	RL
Benzene		< 0.0100	mg/Kg	1	0.0100
Toluene		< 0.0100	mg/Kg	1	0.0100
Ethylbenzene		< 0.0100	mg/Kg	1	0.0100
Xylene		< 0.0100	mg/Kg	1	0.0100

					$_{ m Spike}$	Percent	$\operatorname{Recovery}$
Surrogate	$\operatorname{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.65	mg/Kg	1	2.00	82	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		1.82	mg/Kg	11	2.00	91	43.1 - 158.4

Sample: 224983 - AH-2 0-1'

Midland Laboratory:

Chloride (Titration) Analysis:

QC Batch: 68198 Prep Batch: 58321

Analytical Method: SM 4500-Cl B Date Analyzed:

2010-03-12 Sample Preparation: 2010-03-11 Prep Method: N/A Analyzed By: AR

Prepared By: AR

RL

Parameter	Flag	Result	Units	Dilution	RL
Chloride		3580	mg/Kg	100	4.00

Sample: 224983 - AH-2 0-1'

Laboratory: Midland

TPH DRO - NEW Analysis:

QC Batch: 68138 Prep Batch: 58292

Analytical Method: Date Analyzed:

Mod. 8015B 2010-03-10 Sample Preparation: 2010-03-10

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

Parameter	Flag	Result	Units	Dilution	RL
DRO		71.6	${ m mg/Kg}$	1	50.0

					$\operatorname{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane		99.4	mg/Kg	1	100	99	70 - 130

114-6400436

Work Order: 10031003 COG/Skelly 967

Page Number: 7 of 32 Lea County, NM

Sample: 224983 - AH-2 0-1'

Laboratory: Midland

Analysis:

TPH GRO

QC Batch: 68188 Prep Batch: 58349

Analytical Method: Date Analyzed:

S 8015B 2010-03-11

Sample Preparation: 2010-03-11 Prep Method: S 5035 AGAnalyzed By: AGPrepared By:

RI

Parameter	Flag	Result	Units	Dilution	RL
GRO		4.89	mg/Kg	1	1.00

					$\operatorname{Spike}$	Percent	Recovery
Surrogate	$\operatorname{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		2.29	mg/Kg	1	2.00	114	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.15	mg/Kg	1	2.00	108	61.7 - 131.1

Sample: 224984 - AH-2 1-1.5'

Laboratory:

Midland

Chloride (Titration) Analysis: OC Batch:

68198 Prep Batch: 58321

Analytical Method:

Date Analyzed:

SM 4500-Cl B 2010-03-12 Sample Preparation: 2010-03-11

Prep Method: Analyzed By:

ARPrepared By: AR

N/A

N/A

AR

AR

RL

RL

Parameter	Flag	Result	Units	Dilution	RL
Chloride		490	mg/Kg	50	4.00

Sample: 224985 - AH-2 2-2.5'

58321

Laboratory:

Prep Batch:

Midland

Analysis: QC Batch: 68198

Chloride (Titration) Analytical Method: Date Analyzed: Sample Preparation:

SM 4500-Cl B 2010-03-12

2010-03-11

Prep Method: Analyzed By:

Prepared By:

Result Parameter Flag Units RLDilution Chloride <200 mg/Kg 50 4.00

Sample: 224986 - AH-2 3-3.5'

Laboratory:

Midland

Analysis: Chloride (Titration)

QC Batch: 68198 Prep Batch: 58321

Analytical Method: Date Analyzed:

SM 4500-Cl B 2010-03-12 Sample Preparation: 2010-03-11

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

114-6400436

Work Order: 10031003 COG/Skelly 967

Page Number: 8 of 32 Lea County, NM

		KL			
Parameter	Flag	Result	Units	Dilution	$\operatorname{RL}$
Chloride		<200	mg/Kg	50	4.00

Sample: 224987 - AH-2 4-4.5'

Laboratory:

Midland

Analysis: Chloride (Titration)

QC Batch: 68198 Prep Batch: 58321 Analytical Method: SM 4500-Cl B

Date Analyzed: 2010-03-12 Sample Preparation: 2010-03-11

Prep Method: N/A

Analyzed By: ARPrepared By: AR

RT.

		102			
Parameter	Flag	$\operatorname{Result}$	$\operatorname{Units}$	Dilution	RL
Chloride		3160	mg/Kg	100	4.00

Sample: 224988 - AH-2 5-5.5'

Laboratory:

Midland

Chloride (Titration) Analysis:

QC Batch: 68198 Prep Batch: 58321

Analytical Method: SM 4500-Cl B Date Analyzed: 2010-03-12 Sample Preparation:

Prep Method: N/A Analyzed By: AR2010-03-11 Prepared By: AR

RL

RL

Parameter	Flag	Result	Units	Dilution	RL
Chloride		4150	mg/Kg	100	4.00

Sample: 224989 - AH-2 6-6.5'

Laboratory:

Midland

Chloride (Titration) Analysis: QC Batch: 68198 Prep Batch: 58321

Analytical Method: SM 4500-Cl B Date Analyzed: 2010-03-12 Sample Preparation: 2010-03-11

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

Parameter Flag Result Units Dilution RLChloride 4400 100 4.00 mg/Kg

Sample: 224990 - AH-2 7-7.5'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 68198 Prep Batch: 58321

Analytical Method: SM 4500-Cl B Date Analyzed: 2010-03-12 Sample Preparation: 2010-03-11

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

114-6400436

Work Order: 10031003 COG/Skelly 967

Page Number: 9 of 32 Lea County, NM

RL

Result Units Dilution RLParameter Flag 304 mg/Kg  $\overline{50}$ 4.00 Chloride

Sample: 224991 - AH-2 7.5-8'

Laboratory:

Midland

Chloride (Titration) Analysis:

QC Batch: 68199 Prep Batch: 58322 Analytical Method: Date Analyzed:

SM 4500-Cl B

2010-03-12 Sample Preparation: 2010-03-11 Prep Method: N/A Analyzed By: AR

AR

Prepared By:

RL

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

Sample: 224992 - AH-3 0-1'

Laboratory: Midland

BTEX Analysis: QC Batch: 68187 Prep Batch: 58349

Analytical Method: Date Analyzed:

S 8021B 2010-03-11 Sample Preparation: 2010-03-11

Prep Method: S 5035

Analyzed By: AGPrepared By: AG

RL

Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.0100	mg/Kg	1	0.0100
Toluene		< 0.0100	mg/Kg	1	0.0100
Ethylbenzene		< 0.0100	mg/Kg	1	0.0100
Xylene		< 0.0100	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.73	mg/Kg	1	2.00	86	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		1.91	mg/Kg	1	2.00	96	43.1 - 158.4

Sample: 224992 - AH-3 0-1'

Laboratory:

Midland

Chloride (Titration) Analysis:

QC Batch: 68199 Prep Batch: 58322 Analytical Method: Date Analyzed:

SM 4500-Cl B 2010-03-12 Sample Preparation: 2010-03-11

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

RL

Flag Result Units Dilution RLParameter 2160 Chloride mg/Kg 100 4.00

114-6400436

Work Order: 10031003 COG/Skelly 967

Page Number: 10 of 32 Lea County, NM

Sample: 224992 - AH-3 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 68138 58292 Prep Batch:

Analytical Method: Date Analyzed:

Mod. 8015B 2010-03-10

2010-03-10

Prep Method: N/A Analyzed By:

kg Prepared By: kg

Sample Preparation:

RLParameter Flag Result Units Dilution RLDRO < 50.0 mg/Kg 50.0

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane		96.6	mg/Kg	1	100	97	70 - 130

Sample: 224992 - AH-3 0-1'

Midland Laboratory:

TPH GRO Analysis: 68188 QC Batch: Prep Batch: 58349

Analytical Method: S 8015B

Date Analyzed: 2010-03-11 Sample Preparation: 2010-03-11 Prep Method: S 5035

Analyzed By:  $\mathbf{AG}$ Prepared By: AG

RL

Parameter Flag Result Units Dilution RL< 1.00  $\overline{GRO}$ mg/Kg 1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.33	mg/Kg	1	2.00	116	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.20	mg/Kg	1	2.00	110	61.7 - 131.1

Sample: 224993 - AH-3 1-1.5'

Midland Laboratory:

Chloride (Titration) Analysis:

Analytical Method:

SM 4500-Cl B 2010-03-12

Prep Method: N/A Analyzed By: AR

QC Batch: Prep Batch:

68199 58322 Date Analyzed: Sample Preparation:

2010-03-11

Prepared By: AR

RL

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

114-6400436

Work Order: 10031003 COG/Skelly 967

Page Number: 11 of 32 Lea County, NM

Sample: 224994 - AH-3 2-2.5'

Laboratory:

Midland

Analysis: QC Batch: Chloride (Titration)

68199 Prep Batch: 58322 Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2010-03-12

Prep Method:

Dilution

50

N/A Analyzed By: ARAR

RL

Flag Parameter Chloride

Result < 200 2010-03-11

Prepared By:

Units mg/Kg RL

Sample: 224995 - AH-4 0-1'

Laboratory: Midland

Analysis: QC Batch:

**BTEX** 68187 Prep Batch: 58349

Analytical Method: Date Analyzed:

S 8021B 2010-03-11 Sample Preparation: 2010-03-11 Prep Method: S 5035 Analyzed By:

AGPrepared By: AG

4.00

		$\operatorname{RL}$			
Parameter	Flag	Result	$\mathbf{Units}$	Dilution	RL
Benzene		< 0.0100	mg/Kg	1	0.0100
Toluene		< 0.0100	mg/Kg	1	0.0100
Ethylbenzene		< 0.0100	mg/Kg	1	0.0100
Xylene		< 0.0100	mg/Kg	1	0.0100

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.90	mg/Kg	1	2.00	95	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		2.08	mg/Kg	1	2.00	104	43.1 - 158.4

Sample: 224995 - AH-4 0-1'

Laboratory:

Midland

Analysis: QC Batch: Prep Batch: 58322

Chloride (Titration) 68199

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2010-03-12 2010-03-11

Prep Method: Analyzed By:

ARPrepared By: AR

N/A

RL

Flag Result Units Dilution RLParameter 1600 mg/Kg Chloride 50 4.00

114-6400436

Work Order: 10031003 COG/Skelly 967

Page Number: 12 of 32 Lea County, NM

Sample: 224995 - AH-4 0-1'

Laboratory:

Analysis:

Midland

TPH DRO - NEW

QC Batch: 68138 58292 Prep Batch:

Analytical Method:

Mod. 8015B

Date Analyzed: Sample Preparation:

2010-03-10 2010-03-10 Prep Method: N/A Analyzed By: kg

Prepared By: kg

RL

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

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane		105	mg/Kg	1	100	105	70 - 130

Sample: 224995 - AH-4 0-1'

Laboratory:

Midland

TPH GRO Analysis: QC Batch: 68188 Prep Batch: 58349

Analytical Method: Date Analyzed:

S 8015B 2010-03-11 Sample Preparation: 2010-03-11

Prep Method: S 5035

Analyzed By: AGPrepared By: AG

RL

Parameter	Flag	Result	Units	Dilution	RL
GRO		< 1.00	mg/Kg	1	1.00

					$_{ m Spike}$	Percent	Recovery
Surrogate	$\mathbf{F}$ lag	Result	Units	Dilution	Amount	Recovery	Limits
Triffuorotoluene (TFT)		2.53	mg/Kg	1	2.00	126	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.38	mg/Kg	1	2.00	119	61.7 - 131.1

Sample: 224996 - AH-4 1-1.5'

Laboratory:

Midland

Analysis: QC Batch: 68199 Prep Batch: 58322

Chloride (Titration)

Analytical Method: Date Analyzed:

SM 4500-Cl B 2010-03-12 Sample Preparation: 2010-03-11

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

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

Report Date: March 15, 2010 Work Order: 10031003 Page Number: 13 of 32 114-6400436 Lea County, NM COG/Skelly 967 Sample: 224997 - AH-4 2-2.5' Laboratory: Midland Prep Method: N/A Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B QC Batch: 68199 Date Analyzed: Analyzed By: AR2010-03-12 Prepared By: ARPrep Batch: 58322 Sample Preparation: 2010-03-11 RLResult Dilution RLParameter Flag Units 666 4.00Chloride mg/Kg 50 Sample: 224998 - AH-4 3-3.5' Laboratory: Midland Chloride (Titration) Prep Method: N/A Analysis: Analytical Method: SM 4500-Cl B QC Batch: 68199 Date Analyzed: 2010-03-12 Analyzed By: ARPrep Batch: 58322 Prepared By: ARSample Preparation: 2010-03-11 RLDilution RLParameter Flag Result Units 4.00Chloride 1070 mg/Kg 50 Sample: 224999 - AH-4 4-4.5' Laboratory: Midland Analysis: Chloride (Titration) Prep Method: N/A Analytical Method: SM 4500-Cl B QC Batch: 68199 Date Analyzed: 2010-03-12 Analyzed By: AR58322 Sample Preparation: Prepared By: ARPrep Batch: 2010-03-11 RLDilution RLParameter Flag Result Units <200 50 4.00Chloride mg/Kg Sample: 225000 - AH-4 5-5.5' Laboratory: Midland Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A AR QC Batch: 68199 Analyzed By: Date Analyzed: 2010-03-12 Prep Batch: 58322 Prepared By: ARSample Preparation: 2010-03-11

RL

Result

<200

Flag

Parameter

Chloride

RL

4.00

Dilution

50

Units

mg/Kg

114-6400436

Work Order: 10031003 COG/Skelly 967

Page Number: 14 of 32 Lea County, NM

Sample: 225001 - AH-4 6-6.5'

Laboratory:

Midland

Analysis: QC Batch: Chloride (Titration)

68200 Prep Batch: 58323

Date Analyzed:

Analytical Method:

SM 4500-Cl B

2010-03-12 Sample Preparation: 2010-03-11

Prep Method: N/A Analyzed By: AR.

Prepared By: AR

RL

Parameter Chloride

Result Flag < 200

Units mg/Kg Dilution 50 RL

4.00

Sample: 225002 - AH-5 0-1'

Laboratory: Midland

Analysis: QC Batch: **BTEX** 

68187 Prep Batch: 58349 Analytical Method:

Date Analyzed:

S 8021B 2010-03-11 Sample Preparation: 2010-03-11

Prep Method: S 5035 Analyzed By:

AGAGPrepared By:

RLFlag Result Units Dilution RLParameter < 0.100 mg/Kg 10 0.0100 Benzene Toluene < 0.100 mg/Kg 10 0.0100 Ethylbenzene < 0.100 mg/Kg 10 0.0100 1.27 mg/Kg 10 0.0100 Xylene

					Spike	Percent	Recovery
Surrogate	Flag	Result	$\mathbf{U}\mathbf{nits}$	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		9.80	mg/Kg	10	10.0	98	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		11.3	mg/Kg	10	10.0	113	43.1 - 158.4

Sample: 225002 - AH-5 0-1'

Laboratory:

Midland

Analysis: Chloride (Titration) 68200 QC Batch: Prep Batch: 58323

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2010-03-12 2010-03-11

Prep Method: N/A AR Analyzed By:

AR

Prepared By:

RL

Parameter Flag Result Units Dilution RL289 4.00 Chloride mg/Kg 50

114-6400436

Work Order: 10031003 COG/Skelly 967

Page Number: 15 of 32 Lea County, NM

Sample: 225002 - AH-5 0-1'

Laboratory:

Midland

Analysis:

TPH DRO - NEW

QC Batch: Prep Batch: 58292

68138

Analytical Method: Date Analyzed:

Mod. 8015B

2010-03-10

Prep Method: N/A Analyzed By:

kg

Sample Preparation: 2010-03-10

Prepared By: kg

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		n.L			
Parameter	Flag	Result	Units	Dilution	$\operatorname{RL}$
DRO		1930	mg/Kg	5	50.0

		•			Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	${f Amount}$	Recovery	Limits
n-Tricosane	1 .	416	mg/Kg	5	100	416	70 - 130

Sample: 225002 - AH-5 0-1'

Laboratory:

Midland

Analysis:

TPH GRO

QC Batch: Prep Batch: 58349

68188

Analytical Method:

Sample Preparation:

Date Analyzed:

S 8015B

2010-03-11 2010-03-11 Prep Method: S 5035

Analyzed By: AGPrepared By: AG

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		RL			
Parameter	Flag	Result	Units	Dilution	$\mathrm{RL}$
GRO		308	mg/Kg	10	1.00

Surrogate	Flag	Result	Units	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		13.2	mg/Kg	10	10.0	132	65.3 - 145
4-Bromofluorobenzene (4-BFB)	2	13.4	mg/Kg	10	10.0	134	61.7 - 131.1

Sample: 225003 - AH-5 1-1.5'

Laboratory:

Midland

Analysis: QC Batch:

Chloride (Titration)

68200 Prep Batch: 58323 Analytical Method: Date Analyzed:

SM 4500-Cl B 2010-03-12

2010-03-11

Prep Method: Analyzed By: Prepared By:

N/A AR

AR

RLParameter Flag Result Units Dilution RLChloride 219 mg/Kg 50 4.00

Sample Preparation:

<sup>&</sup>lt;sup>1</sup> High surrogate recovery due to peak interference.

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

Report Date: March 15, 2010 Work Order: 10031003 Page Number: 16 of 32 114-6400436 COG/Skelly 967 Lea County, NM Sample: 225004 - AH-5 2-2.5' Laboratory: Midland Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 68200 Date Analyzed: 2010-03-12 Analyzed By: ARSample Preparation: Prepared By: Prep Batch: 58323 2010-03-11 ARRLResult Units Dilution RLParameter Flag Chloride < 200 mg/Kg 50 4.00 Sample: 225005 - AH-5 3-3.5' Laboratory: Midland Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 68200 Analyzed By: ARDate Analyzed: 2010-03-12 Prepared By: ARPrep Batch: 58323 Sample Preparation: 2010-03-11 RLParameter Units Dilution RLFlag Result Chloride < 200 mg/Kg 50 4.00 Sample: 225006 - AH-5 4-4.5' Laboratory: Midland Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 68200 Date Analyzed: 2010-03-12 Analyzed By: ARPrep Batch: 58323 Sample Preparation: Prepared By: AR2010-03-11 RLResult Units Dilution RLParameter Flag Chloride 473 mg/Kg 50 4.00Sample: 225007 - AH-5 5-5.5' Laboratory: Midland N/A Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: Analysis: Analyzed By: ARQC Batch: 68200 Date Analyzed: 2010-03-12 Prep Batch: 58323 Sample Preparation: Prepared By: AR2010-03-11

RL

856

Units

mg/Kg

Dilution

 $\overline{50}$ 

Result

RL

4.00

Flag

Parameter

Chloride

Report Date: March 15, 2010 Work Order: 10031003 Page Number: 17 of 32 114-6400436 COG/Skelly 967 Lea County, NM Sample: 225008 - AH-5 6-6.5' Laboratory: Midland SM 4500-Cl B Analysis: Chloride (Titration) Analytical Method: Prep Method: N/A QC Batch: 68200 2010-03-12 Analyzed By: ARDate Analyzed: Sample Preparation: Prep Batch: 58323 2010-03-11 Prepared By: ARRLParameter Flag Result Units Dilution RLChloride 2640 mg/Kg 100 4.00Sample: 225009 - AH-5 6.5-7' Laboratory: Midland Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 68200 Date Analyzed: Analyzed By: AR2010-03-12 Prep Batch: 58323 Sample Preparation: 2010-03-11 Prepared By: ARRLParameter Flag Result Units Dilution RL8690 mg/Kg 100 4.00 Chloride Method Blank (1) QC Batch: 68138 QC Batch: Date Analyzed: 2010-03-10 Analyzed By: 68138 Prep Batch: 58292 QC Preparation: 2010-03-10 Prepared By: MDL Flag Result Units Parameter RLDRO < 5.86 mg/Kg 50 Spike Percent Recovery Units Dilution Amount Limits Surrogate Flag Result Recovery

Method Blank (1)	QC Batch: 68153
------------------	-----------------

n-Tricosane

87.9

QC Batch: Date Analyzed: 2010-03-10 Analyzed By: AG 68153 Prep Batch: 58275 QC Preparation: 2010-03-09 Prepared By:

mg/Kg

$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					
Benzene <0.00410 mg/Kg 0.01			MDL		
Benzene <0.00410 mg/Kg 0.01	Parameter	Flag	$\operatorname{Result}$	Units	$\mathrm{RL}$
	Benzene		< 0.00410	mg/Kg	0.01

1

100

88

continued ...

70 - 130

AG

114-6400436

Work Order: 10031003 COG/Skelly 967 Page Number: 18 of 32 Lea County, NM

method blank continued ...

		$\mathrm{MDL}$		
Parameter	Flag	Result	${f Units}$	RL
Toluene		< 0.00310	mg/Kg	0.01
Ethylbenzene		< 0.00240	$\mathrm{mg}/\mathrm{Kg}$	0.01
Xylene		< 0.00650	mg/Kg	0.01

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.86	mg/Kg	1	2.00	93	64.9 - 142.7
4-Bromofluorobenzene (4-BFB)		1.57	mg/Kg	1	2.00	78	43.9 - 141.9

Method Blank (1)

QC Batch: 68154

QC Batch: 68154 Prep Batch: 58275 Date Analyzed: 2010-03-10

QC Preparation: 2010-03-09

Analyzed By: AG Prepared By: AG

					$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		2.58	mg/Kg	1	2.00	129	66.2 - 145
4-Bromofluorobenzene (4-BFB)		1.85	${ m mg/Kg}$	1	2.00	92	62 - 120.5

Method Blank (1)

QC Batch: 68187

QC Batch: 68187 Prep Batch: 58349 Date Analyzed: 2010-03-11 QC Preparation: 2010-03-11

Analyzed By: AG Prepared By: AG

MDL Parameter Flag Result Units RLBenzene < 0.00410 mg/Kg 0.01 Toluene mg/Kg < 0.00310 0.01Ethylbenzene < 0.00240 mg/Kg 0.01 Xylene < 0.00650 mg/Kg 0.01

					Spike	Percent	Recovery
Surrogate	$\operatorname{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.83	mg/Kg	1	2.00	92	64.9 - 142.7
4-Bromofluorobenzene (4-BFB)		1.68	mg/Kg	1	2.00	84	43.9 - 141.9

Report Date: March 15, 2010 Work Order: 10031003 Page Number: 19 of 32 114-6400436 COG/Skelly 967 Lea County, NM Method Blank (1) QC Batch: 68188 QC Batch: Analyzed By: AG 68188 Date Analyzed: 2010-03-11 Prep Batch: 58349 QC Preparation: 2010-03-11 Prepared By: AG MDL Flag Parameter Result Units RLGRO < 0.396 mg/Kg Spike Percent Recovery Units Dilution Amount Recovery Limits Surrogate Flag Result Trifluorotoluene (TFT) 2.54 mg/Kg  $\overline{1}$ 2.00 127 66.2 - 145 4-Bromofluorobenzene (4-BFB) 1.98 mg/Kg 1 2.00 99 62 - 120.5 QC Batch: 68197 Method Blank (1) QC Batch: 68197 Date Analyzed: 2010-03-12 Analyzed By: ARPrep Batch: 58320 QC Preparation: 2010-03-11 Prepared By: ARMDL Parameter Flag Result Units RL< 2.18 Chloride mg/Kg Method Blank (1) QC Batch: 68198 QC Batch: 2010-03-12 Analyzed By: 68198 Date Analyzed: AR Prep Batch: 58321 QC Preparation: 2010-03-11 Prepared By: ARMDL Result Units RLParameter Flag Chloride < 2.18 mg/Kg

QC Batch: Prep Batch:		Date Analyzed: QC Preparation:	2010-03-12 2010-03-11		Analyzed By: Prepared By:	
		$\mathbf{M}$	DL			
Parameter	$\mathbf{Flag}$	Res	ult	Units		RL
Chloride		<2	.18	mg/Kg		4

Method Blank (1)

QC Batch: 68199

114-6400436

Work Order: 10031003 COG/Skelly 967

Page Number: 20 of 32 Lea County, NM

Method Blank (1)

QC Batch: 68200

QC Batch: Prep Batch: 58323

68200

Date Analyzed:

2010-03-12

QC Preparation: 2010-03-11

Analyzed By: AR

Prepared By: AR

MDL

Parameter Flag Result Units RLChloride < 2.18 mg/Kg 4

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

QC Batch:

68138

Date Analyzed:

2010-03-10

Analyzed By: kg

Prep Batch: 58292

QC Preparation:

2010-03-10

Prepared By:

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	Amount	Result	${\operatorname{Rec}}.$	Limit
DRO	225	mg/Kg	1	250	< 5.86	90	57.4 - 133.4

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

	LCSD			Spike	Matrix		${ m Rec.}$		$\operatorname{RPD}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	226	mg/Kg	1	250	< 5.86	90	57.4 - 133.4	0	20

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

	LCS	LCSD			$\mathbf{Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	$\mathrm{Rec}.$	Rec.	Limit
n-Tricosane	109	104	mg/Kg	1	100	109	104	70 - 130

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

QC Batch: Prep Batch: 58275

68153

Date Analyzed:

2010-03-10

QC Preparation: 2010-03-09

Analyzed By: AG

Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	${ m Rec.} \ { m Limit}$
Benzene	1.74	mg/Kg	$\frac{-2\pi}{1}$	2.00	< 0.00410	87	75.4 - 115.7
Toluene	1.74	mg/Kg	1	2.00	< 0.00310	87	78.4 - 113.6
Ethylbenzene	1.75	mg/Kg	1	2.00	< 0.00240	88	76 - 114.2
Xylene	5.23	mg/Kg	1	6.00	< 0.00650	87	76.9 - 113.6

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

	LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	1.80	mg/Kg	1	2.00	< 0.00410	90	75.4 - 115.7	3	20

 $continued \dots$ 

114-6400436

Work Order: 10031003 COG/Skelly 967

Page Number: 21 of 32 Lea County, NM

control spikes continued ...

	LCSD			$_{ m Spike}$	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Toluene	1.80	mg/Kg	1	2.00	< 0.00310	90	78.4 - 113.6	3	20
Ethylbenzene	1.81	mg/Kg	1	2.00	< 0.00240	90	76 - 114.2	3	20
Xylene	5.41	mg/Kg	1	6.00	< 0.00650	90	76.9 - 113.6	3	20

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

	LCS	LCSD			$\operatorname{Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.74	1.76	mg/Kg	1	2.00	87	88	65 - 142.9
4-Bromofluorobenzene (4-BFB)	2.01	2.02	mg/Kg	1	2.00	100	101	43.8 - 144.9

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

QC Batch:

68154

Date Analyzed:

2010-03-10

Analyzed By: AG

Prep Batch: 58275

QC Preparation: 2010-03-09

Prepared By: AG

	LCS			$\operatorname{Spike}$	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	16.3	mg/Kg	1	20.0	< 0.396	82	52.5 - 114.3

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

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	$\mathbf{Limit}$
GRO	15.6	mg/Kg	1	20.0	< 0.396	78	52.5 - 114.3	4	20

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

	LCS	LCSD			Spike	LCS	LCSD	${ m Rec.}$
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	${ m Rec.}$	Limit
Trifluorotoluene (TFT)	2.27	2.30	mg/Kg	1	2.00	114	115	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	2.12	2.14	mg/Kg	1	2.00	106	107	64.1 - 127.4

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

QC Batch:

Prep Batch: 58349

68187

Date Analyzed:

2010-03-11

Analyzed By: AG

Prepared By: AG QC Preparation: 2010-03-11

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	$_{ m Units}$	Dil.	Amount	Result	Rec.	Limit
Benzene	1.79	mg/Kg	1	2.00	< 0.00410	90	75.4 - 115.7
Toluene	1.78	mg/Kg	1	2.00	< 0.00310	89	78.4 - 113.6
Ethylbenzene	1.75	mg/Kg	1	2.00	< 0.00240	88	76 - 114.2
Xylene	5.26	mg/Kg	1	6.00	< 0.00650	88	76.9 - 113.6

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

114-6400436

Work Order: 10031003 COG/Skelly 967

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Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene .	1.82	mg/Kg	1	2.00	< 0.00410	91	75.4 - 115.7	2	20
Toluene	1.81	mg/Kg	1	2.00	< 0.00310	90	78.4 - 113.6	2	20
Ethylbenzene	1.82	mg/Kg	1	2.00	< 0.00240	91	76 - 114.2	4	20
Xylene	5.45	mg/Kg	1	6.00	< 0.00650	91	76.9 - 113.6	4	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.68	1.76	mg/Kg	1	2.00	84	88	65 - 142.9
4-Bromofluorobenzene (4-BFB)	1.89	2.01	${ m mg/Kg}$	1	2.00	94	100	43.8 - 144.9

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

QC Batch:

68188

Date Analyzed:

2010-03-11

Analyzed By: AG

Prep Batch: 58349

QC Preparation: 2010-03-11

Prepared By: AG

	LCS			Spike	Matrix		Rec.
Param	$\mathbf{Result}$	$\mathbf{Units}$	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$
GRO	16.3	mg/Kg	1	20.0	< 0.396	82	52.5 - 114.3

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

	LCSD			$\mathbf{S}$ pike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	16.6	mg/Kg	1	20.0	< 0.396	83	52.5 - 114.3	2	20

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

	LCS	LCSD			Spike	LCS	LCSD	${ m Rec.}$
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.39	2.18	mg/Kg	1	2.00	120	109	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	2.23	2.05	mg/Kg	1	2.00	112	102	64.1 - 127.4

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

QC Batch: Prep Batch: 58320

Date Analyzed:

2010-03-12

QC Preparation: 2010-03-11

Analyzed By: AR

Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	99.3	mg/Kg	1	100	< 2.18	99	85 - 115

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

114-6400436

Work Order: 10031003 COG/Skelly 967

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	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	${f Units}$	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$	RPD	Limit
Chloride	101	mg/Kg	1	100	< 2.18	101	85 - 115	2	20

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

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

QC Batch:

68198

Date Analyzed:

2010-03-12

Analyzed By: AR

Prepared By: AR

Prep Batch: 58321

QC Preparation: 2010-03-11

	LCS			$_{ m Spike}$	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	Amount	Result	${ m Rec.}$	Limit
Chloride	99.4	mg/Kg	1	100	< 2.18	99	85 - 115

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

	LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	$\mathbf{Dil}.$	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	101	mg/Kg	1	100	< 2.18	101	85 - 115	2	20

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

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

QC Batch:

68199 Prep Batch: 58322 Date Analyzed: QC Preparation: 2010-03-11

2010-03-12

Analyzed By: AR

Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	$\mathrm{Rec.}$	$\mathbf{Limit}$
Chloride	99.5	mg/Kg	1	100	< 2.18	100	85 - 115

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

	LCSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$	RPD	Limit
Chloride	101	mg/Kg	1	100	< 2.18	101	85 - 115	2	20

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

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

QC Batch:

68200 Prep Batch: 58323 Date Analyzed:

2010-03-12 QC Preparation: 2010-03-11

Analyzed By: AR Prepared By: AR

 $continued \dots$ 

114-6400436

Work Order: 10031003 COG/Skelly 967

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control spikes continued ...

Param	$rac{ ext{LCS}}{ ext{Result}}$	Units	Dil.	Spike Amount	$rac{ ext{Matrix}}{ ext{Result}}$	Rec.	Rec. Limit
Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	99.0	mg/Kg	1	100	< 2.18	99	85 - 115

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

	LCSD			Spike	Matrix		$\operatorname{Rec}$ .		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	99.9	mg/Kg	1	100	< 2.18	100	85 - 115	1	20

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

Matrix Spike (MS-1)

Spiked Sample: 224995

QC Batch:

68138

Date Analyzed:

2010-03-10

Analyzed By: kg

Prep Batch: 58292

QC Preparation: 2010-03-10

Prepared By:

	MS			$\operatorname{Spike}$	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO	198	mg/Kg	1	250	< 5.86	79	35.2 - 167.1

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

	MSD			$_{ m Spike}$	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	198	mg/Kg	1	250	< 5.86	79	35.2 - 167.1	0	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	Result	Result	Units	Dil.	Amount	${ m Rec.}$	Rec.	Limit
n-Tricosane	94.2	93.3	mg/Kg	1	100	94	93	70 - 130

Matrix Spike (MS-1)

Spiked Sample: 224758

QC Batch:

68153

Date Analyzed:

2010-03-10

Analyzed By: AG

Prep Batch: 58275

QC Preparation: 2010-03-09

Prepared By: AG

D	MS	TT 14	To:I	Spike	Matrix	D	Rec.
Param	Result	$\mathbf{U}\mathbf{nits}$	Dil.	Amount	$\operatorname{Result}$	$\mathrm{Rec}.$	${f Limit}$
Benzene	1.87	mg/Kg	1	2.00	< 0.00410	94	57.7 - 140.7
Toluene	1.91	mg/Kg	1	2.00	< 0.00310	96	53.4 - 146.6
Ethylbenzene	1.96	mg/Kg	1	2.00	< 0.00240	98	62.1 - 141.6
Xylene	5.91	mg/Kg	1	6.00	< 0.00650	98	61.2 - 142.7

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

114-6400436

Work Order: 10031003 COG/Skelly 967

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Param	$\begin{array}{c} \mathrm{MSD} \\ \mathrm{Result} \end{array}$	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.99	mg/Kg	1	2.00	< 0.00410	100	57.7 - 140.7	6	20
Toluene	2.02	mg/Kg	1	2.00	< 0.00310	101	53.4 - 146.6	6	20
Ethylbenzene	2.11	mg/Kg	1	2.00	< 0.00240	106	62.1 - 141.6	7	20
Xylene	6.32	mg/Kg	1	6.00	< 0.00650	105	61.2 - 142.7	7	20

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

	MS	MSD			$\mathbf{Spike}$	MS	MSD	$\mathrm{Rec}.$
Surrogate	Result	Result	Units	Dil.	${f Amount}$	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.70	2.11	mg/Kg	1	2	85	106	61.7 - 139.6
4-Bromofluorobenzene (4-BFB)	1.96	2.42	mg/Kg	1	2	98	121	49.6 - 146.7

Matrix Spike (MS-1)

Spiked Sample: 224691

QC Batch:

68154

Date Analyzed:

2010-03-10

Analyzed By: AG

Prep Batch: 58275

QC Preparation: 2010-03-09

Prepared By: AG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$
GRO	17.2	mg/Kg	1	20.0	< 0.396	86	10 - 198.3

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

	MSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	19.4	mg/Kg	1	20.0	< 0.396	97	10 - 198.3	12	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	Result	Result	Units	Dil.	${f Amount}$	Rec.	${ m Rec.}$	$\mathbf{Limit}$
Trifluorotoluene (TFT)	2.12	2.45	mg/Kg	1	2	106	122	65.5 - 143
4-Bromofluorobenzene (4-BFB)	2.13	2.47	mg/Kg	1	2	106	124	58.6 - 140

Matrix Spike (MS-1) Spiked Sample: 224995

QC Batch: Prep Batch: 58349

68187

Date Analyzed:

2010-03-11 QC Preparation: 2010-03-11

Analyzed By: AG Prepared By: AG

		MS			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$
Param		Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$
Benzene	3	1.65	mg/Kg	1	2.00	< 0.00410	82	57.7 - 140.7
Toluene		1.67	mg/Kg	1	2.00	< 0.00310	84	53.4 - 146.6
Ethylbenzene		1.67	mg/Kg	1	2.00	< 0.00240	84	62.1 - 141.6
$continued \dots$								

<sup>&</sup>lt;sup>3</sup>SPECIAL - MSD was run but not reported due to prep error (spiked with wrong spiking solution). •

114-6400436

Work Order: 10031003 COG/Skelly 967

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matrix spikes continued ...

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Xylene	5.02	mg/Kg	1	6.00	< 0.00650	84	61.2 - 142.7

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

	MSD			Spike	Matrix		$\mathrm{Re}c.$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$	RPD	Limit
Benzene	< 0.00410	mg/Kg	1	2.00	< 0.00410		57.7 - 140.7		20
Toluene	< 0.00310	mg/Kg	1	2.00	< 0.00310		53.4 - 146.6		20
Ethylbenzene	< 0.00240	mg/Kg	1	2.00	< 0.00240		62.1 - 141.6		20
Xylene	< 0.00650	mg/Kg	1	6.00	< 0.00650		61.2 - 142.7		20

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

	MS	MSD			$\mathbf{S}_{\mathbf{P}ike}$	MS	MSD	$\mathrm{Rec}.$
Surrogate	Result	Result	Units	Dil.	Amount	${ m Rec.}$	Rec.	Limit
Trifluorotoluene (TFT)	1.60	0.00	mg/Kg	1	2	80		61.7 - 139.6
4-Bromofluorobenzene (4-BFB)	1.79	0.00	mg/Kg	1	2	90		49.6 - 146.7

Matrix Spike (MS-1) Spiked Sample: 224992

QC Batch: 68188 Prep Batch: 58349 Date Analyzed: 2010-03-11 QC Preparation: 2010-03-11

Analyzed By: AG Prepared By: AG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	18.4	mg/Kg	1	20.0	< 0.396	92	10 - 198.3

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

		MSD			Spike	Matrix		${ m Rec.}$		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	•	18.5	mg/Kg	1	20.0	< 0.396	92	10 - 198.3	0	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	Result	Result	Units	Dil.	$\mathbf{Amount}$	Rec.	$\operatorname{Rec}$ .	$\mathbf{Limit}$
Trifluorotoluene (TFT)	2.17	1.58	mg/Kg	1	2	108	79	65.5 - 143
4-Bromofluorobenzene (4-BFB)	2.20	1.66	mg/Kg	1	2	110	83	58.6 - 140

Matrix Spike (MS-1) Spiked Sample: 224980

QC Batch: 68197 Date Analyzed:

2010-03-12

Analyzed By: AR Prepared By: AR

Prep Batch: 58320

QC Preparation: 2010-03-11

114-6400436

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	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	14200	mg/Kg	100	10000	4223	100	85 - 115

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	14400	mg/Kg	100	10000	4223	102	85 - 115	1	20

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

Matrix Spike (MS-1)

Spiked Sample: 224990

QC Batch: Prep Batch: 58321

68198

Date Analyzed:

QC Preparation:

2010-03-12 2010-03-11

Analyzed By: AR

Prepared By: AR.

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$
Chloride	10200	mg/Kg	100	10000	304	99	85 - 115

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

	MSD			$\operatorname{Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	$\mathbf{Limit}$
Chloride	10400	mg/Kg	100	10000	304	101	85 - 115	2	20

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

Matrix Spike (MS-1)

Spiked Sample: 225000

QC Batch:

68199 Prep Batch: 58322 Date Analyzed:

2010-03-12

QC Preparation: 2010-03-11 Analyzed By: AR

Prepared By: AR

MS Spike Matrix Rec. Param Result Units Dil. Result Limit  $\mathbf{A}$ mount Rec. 9950 100 10000 Chloride mg/Kg <218 100 85 - 115

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

	MSD			Spike	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	10100	mg/Kg	100	10000	<218	101	85 - 115	2	20

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

Matrix Spike (MS-1)

Spiked Sample: 225025

QC Batch: 68200 Prep Batch: 58323 Date Analyzed:

2010-03-12

Analyzed By: AR AR

QC Preparation: 2010-03-11

Prepared By:

114-6400436

Work Order: 10031003 COG/Skelly 967 Page Number: 28 of 32 Lea County, NM

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$
Chloride	11400	mg/Kg	100	10000	2840	86	85 - 115

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

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	 11600	mg/Kg	100	10000	2840	88	85 - 115	2	20

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

#### Standard (CCV-1)

QC Batch: 68138

Date Analyzed: 2010-03-10

Analyzed By: kg

			$\mathrm{CCVs}$	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	200	80	80 - 120	2010-03-10

#### Standard (CCV-2)

QC Batch: 68138

Date Analyzed: 2010-03-10

Analyzed By: kg

			$\operatorname{CCVs}$	CCVs	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	$\operatorname{Date}$
Param	$\operatorname{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	238	95	80 - 120	2010-03-10

#### Standard (CCV-3)

QC Batch: 68138

Date Analyzed: 2010-03-10

Analyzed By: kg

			$\mathrm{CCVs}$	$\operatorname{CCVs}$	$\operatorname{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	$\mathbf{U}\mathbf{nits}$	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	224	90	80 - 120	2010-03-10

#### Standard (CCV-4)

QC Batch: 68138

Date Analyzed: 2010-03-10

Analyzed By: kg

			$\mathrm{CCVs}$	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	$\mathbf{U}$ nits	Conc.	Conc.	Recovery	Limits	Analyzed
$\overline{\mathrm{DRO}}$		mg/Kg	250	222	. 89	80 - 120	2010-03-10

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Lea County, NM

Standard (CCV-1)

 $QC\ Batch{:}\quad 68153$ 

Date Analyzed: 2010-03-10

Analyzed By: AG

			$\mathrm{CCVs}$	CCVs	CCVs	Percent	
			$\operatorname{True}$	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0900	90	80 - 120	2010-03-10
Toluene		mg/Kg	0.100	0.0898	90	80 - 120	2010-03-10
Ethylbenzene		mg/Kg	0.100	0.0907	91	80 - 120	2010-03-10
Xylene		${ m mg/Kg}$	0.300	0.271	90	80 - 120	2010-03-10

Standard (CCV-2)

QC Batch: 68153

Date Analyzed: 2010-03-10

Analyzed By: AG

			$\begin{array}{c} { m CCVs} \\ { m True} \end{array}$	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0888	89	80 - 120	2010-03-10
Toluene		mg/Kg	0.100	0.0882	88	80 - 120	2010-03-10
Ethylbenzene		mg/Kg	0.100	0.0884	88	80 - 120	2010-03-10
Xylene		mg/Kg	0.300	0.264	88	80 - 120	2010-03-10

Standard (CCV-1)

QC Batch: 68154

Date Analyzed: 2010-03-10

Analyzed By: AG

			CCVs	$\operatorname{CCVs}$	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	0.979	98	80 - 120	2010-03-10

Standard (CCV-2)

QC Batch: 68154

Date Analyzed: 2010-03-10

Analyzed By: AG

			$\mathrm{CCVs}$	CCVs	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	$\mathbf{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.03	103	80 - 120	2010-03-10

Standard (CCV-1)

QC Batch: 68187

Date Analyzed: 2010-03-11

Analyzed By: AG

114-6400436

Work Order: 10031003 COG/Skelly 967 Page Number: 30 of 32 Lea County, NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0872	87	80 - 120	2010-03-11
Toluene		mg/Kg	0.100	0.0860	86	80 - 120	2010-03-11
Ethylbenzene		mg/Kg	0.100	0.0841	84	80 - 120	2010-03-11
Xylene		mg/Kg	0.300	0.254	85	80 - 120	2010-03-11

#### Standard (CCV-2)

QC Batch: 68187

Date Analyzed: 2010-03-11

Analyzed By: AG

			CCVs	CCVs	CCVs	Percent	D .
			$\operatorname{True}$	Found	$\operatorname{Percent}$	Recovery	$\operatorname{Date}$
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0905	90	80 - 120	2010-03-11
Toluene		mg/Kg	0.100	0.0895	90	80 - 120	2010-03-11
Ethylbenzene		mg/Kg	0.100	0.0877	88	80 - 120	2010-03-11
Xylene		mg/Kg	0.300	0.264	88	80 - 120	2010-03-11

#### Standard (CCV-3)

QC Batch: 68187

Date Analyzed: 2010-03-11

Analyzed By: AG

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0917	92	80 - 120	2010-03-11
Toluene		mg/Kg	0.100	0.0911	91	80 - 120	2010-03-11
Ethylbenzene		mg/Kg	0.100	0.0886	89	80 - 120	2010-03-11
Xylene		mg/Kg	0.300	0.266	89	80 - 120	2010-03-11

#### Standard (CCV-1)

QC Batch: 68188

Date Analyzed: 2010-03-11

Analyzed By: AG

			$\mathrm{CCVs}$	$\operatorname{CCVs}$	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.06	106	80 - 120	2010-03-11

#### Standard (CCV-2)

QC Batch: 68188

Date Analyzed: 2010-03-11

Analyzed By: AG

114-6400436

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			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.03	103	80 - 120	2010-03-11

#### Standard (CCV-3)

QC Batch: 68188

Date Analyzed: 2010-03-11

Analyzed By: AG

			CCVs True	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.03	103	80 - 120	2010-03-11

#### Standard (ICV-1)

QC Batch: 68197

Date Analyzed: 2010-03-12

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			$\operatorname{True}$	Found	Percent	Recovery	$\operatorname{Date}$
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	$\mathbf{Analyzed}$
Chloride		mg/Kg	100	98.5	98	85 - 115	2010-03-12

#### Standard (CCV-1)

QC Batch: 68197

Date Analyzed: 2010-03-12

Analyzed By: AR

			$\mathrm{CCVs}$	CCVs	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	$\mathbf{U}$ nits	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2010-03-12

#### Standard (ICV-1)

QC Batch: 68198

Date Analyzed: 2010-03-12

Analyzed By: AR

			$rac{ ext{ICVs}}{ ext{True}}$	ICVs Found	${ m ICVs} \ { m Percent}$	Percent Recovery	Date
Param	$\mathbf{Flag}$	${f Units}$	Conc.	Conc.	$\operatorname{Recovery}$	$\mathbf{Limits}$	$\mathbf{Analyzed}$
Chloride		mg/Kg	100	99.9	100	85 - 115	2010-03-12

#### Standard (CCV-1)

QC Batch: 68198

Date Analyzed: 2010-03-12

Analyzed By: AR

114-6400436

Work Order: 10031003 COG/Skelly 967 Page Number: 32 of 32

Lea County, NM

			CCVs True	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-03-12

#### Standard (ICV-1)

QC Batch: 68199

Date Analyzed: 2010-03-12

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2010-03-12

#### Standard (CCV-1)

QC Batch: 68199

Date Analyzed: 2010-03-12

Analyzed By: AR

			${ m CCVs} \ { m True}$	${ m CCVs} \ { m Found}$	$rac{ ext{CCVs}}{ ext{Percent}}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	98.4	98	85 - 115	2010-03-12

#### Standard (ICV-1)

QC Batch: 68200

Date Analyzed: 2010-03-12

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	98.5	98	85 - 115	2010-03-12

#### Standard (CCV-1)

QC Batch: 68200

Date Analyzed: 2010-03-12

Analyzed By: AR

			$\mathrm{CCVs}$	$\mathrm{CCVs}$	$\mathrm{CCVs}$	$\operatorname{Percent}$	
			True	Found	Percent	Recovery	Date
Param	$\mathbf{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		${ m mg/Kg}$	100	102	102	85 - 115	2010-03-12

Order #: 100 31003

An	<b>Analysis Request of Chain of Custody Reco</b>										r	1	_							PA	GE:				OF:			
, VI I	<u>~.,</u>			<u> </u>		1								$\dashv$	ANALYSIS REQUEST (Circle or Specify Method No.)													
						TETRA 1910 N. Big S Midland, Tex (432) 682-4559 •	Spring St.								05 (Ext to C35)		Cd Cr Pb Hg Se	0			١					TDS		
CLIENT NAM						SITE MANAGE			ERS			SER\	/ATIV	Ε	Ě		8 8			0/624	70/62					s, pH,		
COG PROJECT NO		138	!	OJEC COC	T NA	ME:	of Co, NA		CONTAIN	æ -	T				MOD ATX1005		ls Ag As	les	Volatiles	8240/826	1i. Vof. 82	809/		Sc.	(Air)	rs/Cation		
LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	gyun		E IDENTIFICATION		NUMBER OF CONTAINERS	FILTERED (Y/N)	HNO3	ICE	NONE		TIEN BOXIE	PAH 8270	RCRA Metals Ag	TCLP Volatiles	TCLP Semi Volatiles	GC.MS Vol.	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Chloride	<b>Gamma Spec.</b>	Alpha Beta (Air)	Major Anions/Cations, pH, TDS		
224980	3/4		5	ر	X A	DH - 1	0-1					X		]	XX								K			$\perp \downarrow$	$\perp$	
981					AA	4-1	1-15																$\parallel$	Ц				
982					$\ _{A}$	H-1	2-25																					
983						14-2	0-1'							}	XX								Ш					
984			$\prod$		1	4-2	1-15																					
985					AI	H-Z	2-25																$\parallel$					
986			Ш		A	H-Z	3-3.5		Ш														$\coprod$				$\perp$	
987			Ш		A	H-Z	4-45		Ш			Ш								$\perp$			$\coprod$			Ш	$\perp$	
988			Ш	Щ	A	H-Z	5-5-5		Ш			Ш			1	$oldsymbol{\perp}$				$oldsymbol{ol}}}}}}}}}}}}}}}}}}$			$\coprod$		$\perp$	$\perp \downarrow$	$\bot$	
989	<u> </u>		Y	<u> </u>	A	H-Z	RECEIVED BY: (Signature)		M			~											♦	$\coprod$		Ш		
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RELINQUISHED	My G				Tim Dat	ne: 1110	RECEIVED BY: (Signature)	·			Time: Date:			<u>'/º</u>		ہے ا		ELIVE	RED		S	1.			THEF	3:		
RECEIVING LAB	ORATORY:				Tim		RECEIVED BY: (Signature)				Time:					┪"		-K	_	 a va	_				R	USH C	harges	
CITY:		STATE:		PHO	NE:		DATE:		MMT	E:				<del></del>				2						_	<u>.                                    </u>	uthoriz Yes		No /-
7.6°	ih	400	<u></u>			REMARKS:  If total TPH.	excerd 5,000 mg	, ,	,	-	,				5	Ben.	.7/	les	FH	in o	ler p	/kg	±a	ph	4		erce	1015
يىڭىسىنى كىنى	Please	fill out all	copie	es -	Labo	oratory retains Yellow	v copy - Return Orgin	nal copy to Te	tra Tec	;h -	Proj	ect	Mana	ger	retai	ns P	nk c	рру	- Ac	cour	nting	rec	eives	Go	d co	ру.		

Ordv #: 10031003 Analysis Request of Chain of Custody Record OF: PAGE: **ANALYSIS REQUEST** (Circle or Specify Method No.) TETRA TECH (Ext. to C35) 8 8 1910 N. Big Spring St. 외 모 Midland, Texas 79705 8 8 (432) 682-4559 • Fax (432) 682-3946 ₹ GC.MS Semi. Vol. 8270/625 PCB's 8080/608 Pest. 808/608 CLIENT NAME: SITE MANAGER: GC.MS Vol. 8240/8260/624 **PRESERVATIVE** COG **METHOD** RCRA Metals Ag As E TCLP Metals Ag As E TCLP Semi Volatiles PROJECT NO .: PROJECT NAME: NUMBER OF CON FILTERED (Y/N) 114-640043 Gamma Spec. LAB I.D. MATRIX TIME DATE SAMPLE IDENTIFICATION HO3 NONE GRAB NUMBER CE 2249901 991 992 993 994 995 996 997 998 999 1600 Time: Date: SAMPLE SHIPPED BY: (Circle)

FEDEX Time: HAND DELIVERED OTHER: RELINCUISMED BY: (Signature) RECEIVED BY: (Signature) Date: TETRA TECH CONTACT PERSON: Results by: RECEIVING LABORATORY: RECEIVED BY: (Signature) RUSH Charges Authorized: ADDRESS: avair 2 CONTACT: PHONE: SAMPLE CONDITION WHEN RECEIVED: REMARKS: It total TPH exceed 5,000 mg/kg run desper samples #Brown exceeds 10 mg/kg

Order #: 10031003 Analysis Request of Chain of Custody Record PAGE: **ANALYSIS REQUEST** (Circle or Specify Method No.) TETRA TECH 8 8 (Ext. to C35) 1910 N. Big Spring St. 모 모 Midland, Texas 79705 2 (432) 682-4559 • Fax (432) 682-3946 5 5 GC.MS Vol. 8240/8260/624 GC.MS Semi. Vol. 8270/625 PCB's 8080/608 Pest. 808/608 CLIENT NAME: SITE MANAGER: PRESERVATIVE NUMBER OF CONTAINERS METHOD COG \$ \$ PROJECT NO .: PROJECT NAME: TCLP Metals Ag 114-6400434 Chloride Gamma Spec. FILTERED ( HCL LAB I.D. MATRIX COMP. GRAB DATE ICE NONE TIME SAMPLE IDENTIFICATION HNO3 NUMBER 232000 100 903 003 004 005 900 GO7 800 PCO RELINQUISHED BY: (Signature SAMPLED BY: (Print & Initial) 16110 RELINQUISHED BY: (Signatur RECEIVED BY: (Signature) SAMPLE SHIPPED BY: (Circle) FEDEX HAND DELIVERED RELINQUISHED BY: (Signature) RECEIVED BY: (Signature) TETRA TECH CONTACT PERSON: Results by: RECEIVING LABORATORY: RECEIVED BY: (Signature) ADDRESS:

TH Binzene exerceds 10mg/kg run dreper sample If that TPH exceeds 5,000 mg/kg run desper samples total BTEY excerds 50 mg/kg run desper samples Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

CONTACT:

SAMPLE CONDITION WHEN RECEIVED:

PHONE:

DATE:

Authorized:

# **Summary Report**

Ike Tavarez
Tetra Tech
1910 N. Big Spring Str

1910 N. Big Spring Street Midland, TX 79705 Report Date: April 21, 2010

Work Order: 10041412

Project Location: Lea County, NM Project Name: COG/Skelly 967 Project Number: 114-6400436

			Date	$\operatorname{Time}$	Date
Sample	Description	Matrix	Taken	Taken	Received
228497	SB-1 8'	soil	2010-04-12	00:00	2010-04-13
228498	SB-1 10'	soil	2010-04-12	00:00	2010-04-13
228499	SB-1 15'	soil	2010-04-12	00:00	2010-04-13
228500	SB-1 20'	soil	2010-04-12	00:00	2010-04-13

Sample: 228497 - SB-1 8'

Param	Flag	Result	Units	RL
Chloride		15600	mg/Kg	4.00

Sample: 228498 - SB-1 10'

Param	$\operatorname{Flag}$	Result	Units	RL
Chloride		15100	mg/Kg	4.00

Sample: 228499 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		689	mg/Kg	4.00

Sample: 228500 - SB-1 20'

Work Order: 10041412

Page Number: 2 of 2

Param	Flag	Result	$\mathbf{Units}$	RL
Chloride		<200	mg/Kg	4.00



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

Lubbock, Texas 79424 El Paso, Texas 79922

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806 • 794 • 1296 915 • 585 • 3443 432 • 689 • 6301

FAX 806 • 794 • 1298 FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

6015 Harris Parkway, Suite 110

Midland, Texas 79703 Ft. Worth, Texas-76132

817 • 201 • 5260

E-Mail: lab@traceanalysis.com

## Certifications

**WBENC:** 237019

HUB:

1752439743100-86536

**DBE:** VN 20657

NCTRCA WFWB38444Y0909

## **NELAP Certifications**

Lubbock: T104704219-08-TX

LELAP-02003

Kansas E-10317

T104704221-08-TX El Paso:

LELAP-02002

Midland: T104704392-08-TX

# Analytical and Quality Control Report

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

Report Date: April 21, 2010

Work Order: 10041412

Project Location: Lea County, NM Project Name: Project Number:

COG/Skelly 967 114-6400436

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

			Date	$\operatorname{Time}$	$\operatorname{Date}$
Sample	Description	Matrix	Taken	Taken	Received
228497	SB-1 8'	soil	2010-04-12	00:00	2010-04-13
228498	SB-1 10'	soil	2010-04-12	00:00	2010-04-13
228499	SB-1 15'	soil	2010-04-12	00:00	2010-04-13
228500	SB-1 20'	soil	2010-04-12	00:00	2010-04-13

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

Michael april

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

#### Standard Flags

 ${\bf B}\,$  -  $\,$  The sample contains less than ten times the concentration found in the method blank.

## Case Narrative

Samples for project COG/Skelly 967 were received by TraceAnalysis, Inc. on 2010-04-13 and assigned to work order 10041412. Samples for work order 10041412 were received intact at a temperature of 7.5 C.

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

		$\operatorname{Prep}$	Prep	$_{ m QC}$	Analysis
Test	Method	Batch	Date	Batch	$\mathbf{Date}$
Chloride (Titration)	SM 4500-Cl B	59238	2010-04-19 at 11:46	69269	2010-04-20 at 15:22
Chloride (Titration)	SM 4500-Cl B	59239	2010-04-19 at 11:47	69270	2010-04-20 at 15:23

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 10041412 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

114-6400436

Work Order: 10041412 COG/Skelly 967

Page Number: 4 of 7 Lea County, NM

## **Analytical Report**

Sample: 228497 - SB-1 8'

Laboratory:

Midland

Analysis: QC Batch: Chloride (Titration)

69269

Prep Batch: 59238

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B

2010-04-20 2010-04-19 Prep Method: N/A

Analyzed By: AR AR

Prepared By:

RL

Parameter Chloride

Flag

Result 15600

Units mg/Kg Dilution 100

RL4.00

Sample: 228498 - SB-1 10'

Laboratory:

Midland

Analysis:

Chloride (Titration)

Analytical Method:

SM 4500-Cl B

Prep Method: N/A

Analyzed By: ARAR

QC Batch: Prep Batch:

69269 59238 Date Analyzed: Sample Preparation:

2010-04-20 2010-04-19

Prepared By:

Parameter Chloride

Flag

RL Result 15100

Units mg/Kg Dilution 100

Dilution

RL

4.00

Sample: 228499 - SB-1 15'

Laboratory:

Midland

Analysis:

Chloride (Titration)

Analytical Method: Date Analyzed:

SM 4500-Cl B

Prep Method: N/A Analyzed By: AR

QC Batch: Prep Batch: 69270

Sample Preparation:

2010-04-20 2010-04-19

Prepared By: AR

59239

RLResult

689

Parameter Flag Chloride

Units

mg/Kg

RL4.00

Sample: 228500 - SB-1 20'

Laboratory: Midland

59239

Analysis: QC Batch:

Prep Batch:

Chloride (Titration) 69270

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2010-04-20

2010-04-19

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

 $continued \dots$ 

114-6400436

Work Order: 10041412 COG/Skelly 967

Page Number: 5 of 7 Lea County, NM

sample 228500 continued ...

Parameter	Flag	$rac{ ext{RL}}{ ext{Result}}$	${ m Units}$	Dilution	$_{ m RL}$
Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Method Blank (1)

QC Batch: 69269

QC Batch: 69269 Prep Batch: 59238 Date Analyzed: 2010-04-20 QC Preparation: 2010-04-19

Analyzed By: AR Prepared By:

MDL Result Units RLParameter Flag Chloride <2.18 mg/Kg 4

Method Blank (1)

QC Batch: 69270

QC Batch: Prep Batch: 59239

69270

Date Analyzed:

2010-04-20

Analyzed By: AR

QC Preparation: 2010-04-19 Prepared By: AR

MDL Result RLParameter Flag Units Chloride < 2.18mg/Kg

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 59238

69269

Date Analyzed: QC Preparation:

2010-04-20

2010-04-19

Analyzed By: ARPrepared By: AR

LCS Spike Matrix Rec. Limit Param Result Units Dil. Amount Result Rec. Chloride 98.6 1 100 < 2.18 99 85 - 115 mg/Kg

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

	LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	${ m Rec.}$	Limit	RPD	Limit
Chloride	99.9	mg/Kg	1	100	< 2.18	100	85 - 115	1	20

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

114-6400436

Work Order: 10041412 COG/Skelly 967

Page Number: 6 of 7 Lea County, NM

Laboratory Control Spike (LCS-1)

QC Batch:

69270

Date Analyzed:

2010-04-20

Analyzed By: AR

Prep Batch: 59239

QC Preparation: 2010-04-19

Prepared By:

AR

	LCS			$_{ m Spike}$	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	${ m Rec.}$	Limit
Chloride	99.3	mg/Kg	1	100	< 2.18	99	85 - 115

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

	LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	${f Limit}$	RPD	Limit
Chloride	101	mg/Kg	1	100	< 2.18	101	85 - 115	2	20

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

Matrix Spike (MS-1)

Spiked Sample: 228498

QC Batch:

69269

Date Analyzed:

2010-04-20

Analyzed By: AR Prepared By: AR

Prep Batch: 59238

QC Preparation: 2010-04-19

	MS			$_{ m Spike}$	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	24700	mg/Kg	100	10000	15100	96	85 - 115

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

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$	RPD	Limit
Chloride	25200	mg/Kg	100	10000	15100	101	85 - 115	2	20

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

Matrix Spike (MS-1)

Spiked Sample: 228628

QC Batch:

69270

Date Analyzed:

2010-04-20

Analyzed By: AR

Prep Batch: 59239

QC Preparation: 2010-04-19

Prepared By: AR

	MS			$\mathbf{S}$ pike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$
Chloride	19200	mg/Kg	100	10000	8620	106	85 - 115

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

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	19100	mg/Kg	100	10000	8620	105	85 - 115	0	20

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

114-6400436

Work Order: 10041412 COG/Skelly 967 Page Number: 7 of 7 Lea County, NM

Standard (ICV-1)

QC Batch: 69269

Date Analyzed: 2010-04-20

Analyzed By: AR

			ICVs True	ICVs Found	ICVs Percent	Percent	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Recovery Limits	Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-04-20

Standard (CCV-1)

QC Batch: 69269

Date Analyzed: 2010-04-20

Analyzed By: AR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	$\mathbf{Date}$
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	99.8	100	85 - 115	2010-04-20

Standard (ICV-1)

QC Batch: 69270

Date Analyzed: 2010-04-20

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			$\operatorname{True}$	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	99.5	100	85 - 115	2010-04-20

Standard (CCV-1)

QC Batch: 69270

Date Analyzed: 2010-04-20

Analyzed By: AR

			$\mathrm{CCVs}$	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
			$\operatorname{True}$	Found	Percent	Recovery	Date
Param	$\mathbf{Flag}$	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-04-20

Order #: 1004/4/2

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PROJECT N		36				NAME: - Skdly	Federal	/ #	967 TB		CONTA	Y/N)						9	8015 MOD.		Is Ag A	88	Volatile		8240/8	71. VOI. 6	88		į,	(Air)	ns/Catto			
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228497	4/12		S		X	SB-1	8'				1																	X						
498	4/12		S	1	X	SB-1	10'				1																	X						
499	4/12		S		X	SB-1	15'				1																	X			$oldsymbol{\perp}$			
800	4/12		ک	,		SB-1	20'				1																	X						
201	4/12		S	,	X	SB-1	25'				1																							
502	4/12		S		X	SBI	30'				1																							
503			S		X	SBI	40'				١																							
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RELINQUISHED	BY: (Signati	ıre)				Time:		=   R	ECEIVED BY: (Signature)			_	0	ime: late:					=	HA	ע טא	ELIV	ONTA		UPS	ON:				THEF	t: lesults	- hur		
RECEIVING LAB		Mic	llæ:	nd		Time:		 REC	EIVED BY: (Signature)					ime:					=-				Te							L				·
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# **Summary Report**

Ike Tavarez Tetra Tech

1910 N. Big Spring Street Midland, TX 79705

Report Date: November 23, 2010

Work Order: 10111928

Project Location: Lea County, NM

COG/Skelly 967

Project Name: Project Number:

114-6400436

•			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
251017	CS-1 0-1 (1' BEB)	soil	2010-11-11	00:00	2010-11-19
251018	CS-2 0-1 (1' BEB)	soil	2010-11-11	00:00	2010-11-19
251019	CS-3 0-1 (1' BEB)	soil	2010-11-11	00:00	2010-11-19
251020	CS-4 0-1 (15' BEB)	soil	2010-11-11	00:00	2010-11-19
251021	CS-5 0-1 (6' BEB)	soil	2010-11-12	00:00	2010-11-19

Sample: 251017 - CS-1 0-1 (1' BEB)

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 251018 - CS-2 0-1 (1' BEB)

Param	Flag	Result	Units	RL
Chloride		< 200	mg/Kg	4.00

Sample: 251019 - CS-3 0-1 (1' BEB)

Param	Flag	Result	Units	RL
Chloride		685	mg/Kg	4.00

Sample: 251020 - CS-4 0-1 (15' BEB)

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

Work Order: 10111928

Page Number: 2 of 2

Param	Flag	Result	Units	RL
Chloride		1850	mg/Kg	4.00

Sample: 251021 - CS-5 0-1 (6' BEB)

Param	$\operatorname{Flag}$	Result	Units	RL
Chloride		<200	mg/Kg	4.00



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

Lubbock, Texas 79424 El Paso, Texas 79922

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806 • 794 • 1296 915 • 585 • 3443 FAX 806 • 794 • 1298 FAX 915 • 585 • 4944

6015 Harris Parkway, Suite 110

Midland, Texas 79703 Ft. Worth, Texas 76132

432 • 689 • 6301 817 - 201 - 5260 FAX 432 • 689 • 6313

E-Mail: lab@traceanalysis.com

### Certifications

**WBENC:** 237019

HUB:

1752439743100-86536

**DBE:** VN 20657

NCTRCA

WFWB38444Y0909

### **NELAP Certifications**

Lubbock:

T104704219-08-TX

LELAP-02003

Kansas E-10317

El Paso: T104704221-08-TX

LELAP-02002

Midland:

T104704392-08-TX

## Analytical and Quality Control Report

Ike Tavarez Tetra Tech 1910 N. Big Spring Street

Report Date: November 23, 2010

Midland, TX, 79705

Work Order: 10111928

Project Location: Lea County, NM Project Name: Project Number:

COG/Skelly 967 114-6400436

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
251017	CS-1 0-1 (1' BEB)	soil	2010-11-11	00:00	2010-11-19
251018	CS-2 0-1 (1' BEB)	soil	2010-11-11	00:00	2010-11-19
251019	CS-3 0-1 (1' BEB)	soil	2010-11-11	00:00	2010-11-19
251020	CS-4 0-1 (15' BEB)	soil	2010-11-11	00:00	2010-11-19
251021	CS-5 0-1 (6', BEB)	soil	2010-11-12	00:00	2010-11-19

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 6 pages and shall not be reproduced except in its entirety, without written approval of

TraceAnalysis, Inc.

Michael april

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

#### Standard Flags

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

### Case Narrative

Samples for project COG/Skelly 967 were received by TraceAnalysis, Inc. on 2010-11-19 and assigned to work order 10111928. Samples for work order 10111928 were received intact at a temperature of 3.2 C.

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

		Prep	$\operatorname{Prep}$	$_{ m QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
Chloride (Titration)	SM 4500-Cl B	64825	2010-11-22 at 09:23	75586	2010-11-23 at 09:16

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 10111928 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

114-6400436

Work Order: 10111928 COG/Skelly 967

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## **Analytical Report**

Sample: 251017 - CS-1 0-1 (1' BEB)

Laboratory:

Midland

Analysis:

Chloride (Titration)

QC Batch: 75586 Prep Batch: 64825 Analytical Method:

Sample Preparation:

Date Analyzed:

Sample Preparation: 2010-11-22

SM 4500-Cl B 2010-11-23

2010-11-22

Prep Method: Analyzed By: Prepared By:

N/A AR AR

RL

Parameter Chloride

Flag

Result <200

Units mg/Kg Dilution

50

RL

4.00

Sample: 251018 - CS-2 0-1 (1' BEB)

Laboratory:

Midland

Analysis:

Chloride (Titration)

75586

Flag

Analytical Method: Date Analyzed:

SM 4500-Cl B 2010-11-23

Prep Method: N/A Analyzed By:

AR

QC Batch: Prep Batch: 64825

Result

Units

Prepared By:

AR

RL

Parameter Chloride

<200

mg/Kg

Dilution 50 RL

4.00

Sample: 251019 - CS-3 0-1 (1' BEB)

Laboratory:

Midland

Analysis: QC Batch:

Chloride (Titration)

75586 Prep Batch: 64825 Analytical Method:

Sample Preparation:

Date Analyzed:

SM 4500-Cl B 2010-11-23

2010-11-22

Prep Method: N/AAnalyzed By:

AR. Prepared By: AR

Parameter Chloride

Flag

RLResult 685

Units mg/Kg

Dilution 50

RL

4.00

Sample: 251020 - CS-4 0-1 (15' BEB)

Laboratory:

Midland

Analysis: QC Batch: Chloride (Titration)

Analytical Method: Date Analyzed:

SM 4500-Cl B 2010-11-23

Prep Method: N/AAnalyzed By: AR AR

Prep Batch: 64825

75586

Sample Preparation:

2010-11-22

Prepared By:

114-6400436

Work Order: 10111928

COG/Skelly 967

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		m RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		1850	mg/Kg	100	4.00

Sample: 251021 - CS-5 0-1 (6' BEB)

Laboratory:

Midland

Analysis: Chloride (Titration)

QC Batch: 75586 Prep Batch: 64825 Analytical Method:

Sample Preparation:

SM 4500-Cl B Date Analyzed:

2010-11-23 2010-11-22 Prep Method: N/A Analyzed By: ARPrepared By: AR

RL

4.00

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

Method Blank (1)

QC Batch: 75586

QC Batch: 75586 Date Analyzed: 2010-11-23 Analyzed By: AR

Prep Batch: 64825

QC Preparation: 2010-11-22

Prepared By: AR

MDL Parameter Flag Result Units RLChloride <2.18 mg/Kg 4

Laboratory Control Spike (LCS-1)

QC Batch:

75586

Prep Batch: 64825

Date Analyzed:

2010-11-23

QC Preparation: 2010-11-22 Analyzed By: AR Prepared By: AR

LCS Spike Matrix Rec. Result Dil. Param Units Amount Result Rec. Limit Chloride 97.6 mg/Kg 100 <2.18 98 85 - 115

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

LCSD Spike Matrix Rec. RPD Param Result Units Dil. Amount Result Limit RPD Limit Rec. Chloride 103 100 <2.18 103 85 - 115 20 mg/Kg 1 5

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

114-6400436

Work Order: 10111928 COG/Skelly 967

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Matrix Spike (MS-1)

Spiked Sample: 251022

QC Batch: Prep Batch: 64825

75586

Date Analyzed:

2010-11-23

QC Preparation: 2010-11-22

Analyzed By: AR

Prepared By: AR

	MS			$_{ m Spike}$	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	10400	mg/Kg	100	10000	368	100	85 - 115

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	10700	mg/Kg	100	10000	368	103	85 - 115	3	20

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

#### Standard (ICV-1)

QC Batch: 75586

Date Analyzed: 2010-11-23

Analyzed By: AR

Param	Flag	$\operatorname{Units}$	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2010-11-23

#### Standard (CCV-1)

QC Batch: 75586

Date Analyzed: 2010-11-23

Analyzed By: AR

			CCVs	CCVs	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	97.9	98	85 - 115	2010-11-23

~ XWO #: 10111928

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