

Highlander Environmental Corp.

Midland, Texas

August 7, 2007

Mr. Larry Johnson **Environmental Engineer Specialist** Oil Conservation Division, District 1 1625 North French Drive Hobbs, New Mexico 88240



Re: Assessment and Closure Report for the Cimarex Energy Co., Laughlin 5 #3 Tank Battery Release Located in Unit I, Section 5, Township 20 South, Range 37 East, Lea County, New Mexico.

Dear Mr. Johnson:

Highlander Environmental Corp. (Highlander) was contacted by Cimarex Energy Co. (Cimarex) to assess a spill from the Laughlin 5 #3 Tank Battery, located in Unit I, Section 5, Township 20 South, Range 37 East, Lea County, New Mexico (Site). The spill site coordinates are N 32° 36.040', W 103° 16.061'. The Site is shown on Figure 1.

Background

According to the State of New Mexico C-141 Initial Report, approximately 125 barrels of oil were released from a circulating pump failure at the tank battery which occurred on March 28, 2007. A total of 125 bbls were recovered. The State of New Mexico C-141 (Initial and Final) are included in Appendix C.

Groundwater and Regulatory

The New Mexico State Engineer's Office database showed 7 water wells located within Section 5, Township 20 South, Range 37 East, with a reported average depth to water of 38 feet below ground surface (bgs). The New Mexico State Engineer water well report is shown in Appendix A.

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 100 mg/kg.

Assessment and Remedial Activities

After a vacuum truck had picked up all of the fluids, Cimarex had a local dirt contractor remove the visually impacted soils and place them on plastic adjacent to the well. On April 12, 2007, Highlander personnel inspected and sampled the spill area. The spill area ran across a closed reserve pit for the Plantation Operating Britt-Laughlin Well # 6 and then east off of the common pad. The spill extended approximately 260' east of the pad at a width of 2' to 10'. 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. Samples were not collected across the closed reserve pit. Samples were analyzed for TPH analysis by EPA method 8015 modified, and chloride by EPA method 300.0. Selected samples were analyzed for BTEX by EPA Method 8021B. Copies of the laboratory analysis and chain-of-custody documentation are included in Appendix B. The sample locations and spill area is shown on Figure 2. The results of the sampling are summarized in Table 1.

Referring to Table 1, the 0-1' samples from AH-1, AH-2 and AH-5 exceeded the RRAL for TPH. All BTEX concentrations were below the RRAL. The chloride concentrations were elevated in the 0-1' samples in AH-1, AH-2 and AH-3, but decreased to below 250 mg/kg at 1.0'-1.5'. The areas around auger holes AH-1, AH-2 and AH-5 were excavated an additional foot with the soils added to the previous stockpiles.

On June 11, 2007 confirmation samples SP-1, SP-2 and SP-3 were collected and analyzed for TPH, BTEX and chloride. TPH and BTEX concentrations were below the RRAL. Chloride concentrations were below 250 mg/kg for SP-2 and SP-3 and were slightly above at 271 mg/kg at SP-1. Copies of the laboratory analysis and chain-of-custody documentation are included in Appendix B. The sample point locations are shown on Figure 3. The results of the sampling are summarized in Table 2.

Conclusions

The impacted soils have been excavated and stockpiled on the well pad. No remaining TPH or BTEX concentrations currently exceed the RRAL. The residual chloride concentrations do not appear to be an imminent threat to groundwater. The soil stockpiles will be removed and taken to an approved disposal and the excavation backfilled with clean fill material.



Based upon the results of the assessment work performed at this site, Cimarex requests closure of this Site. If you require any additional information or have any questions or comments concerning the assessment/closure report, please call at (432) 682-4559.

Respectfully submitted,

Highlander Environmental Corp.

Timothy M. Reed, P.G.

Vice President

cc: Evan Wauhob – Cimarex Energy Co. Bob Jennings – Cimarex Energy Co.

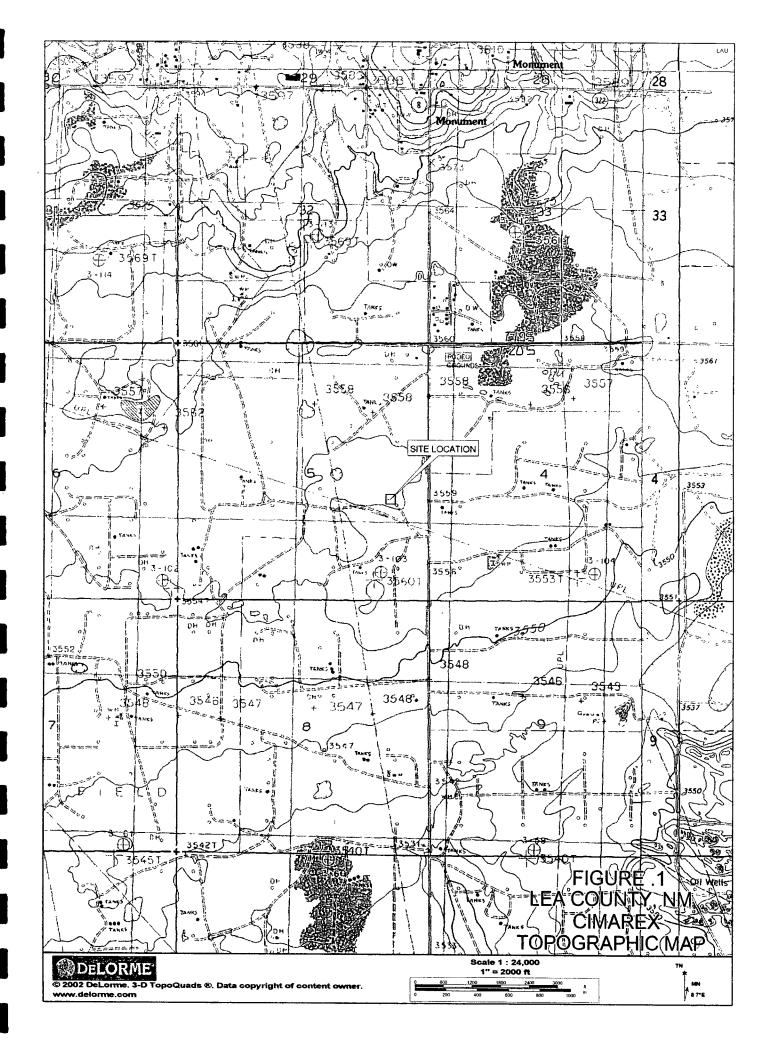
SITE INFORMATION

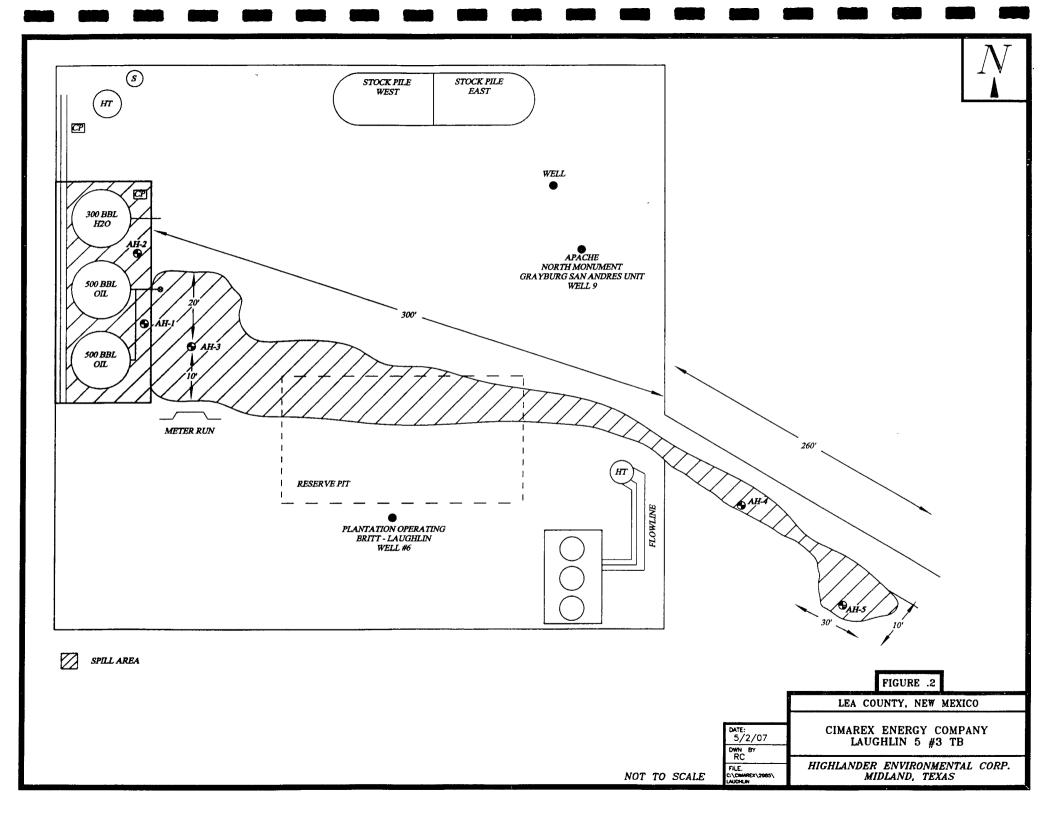
Report Type: ASSESSMENT & CLOSURE REPORT
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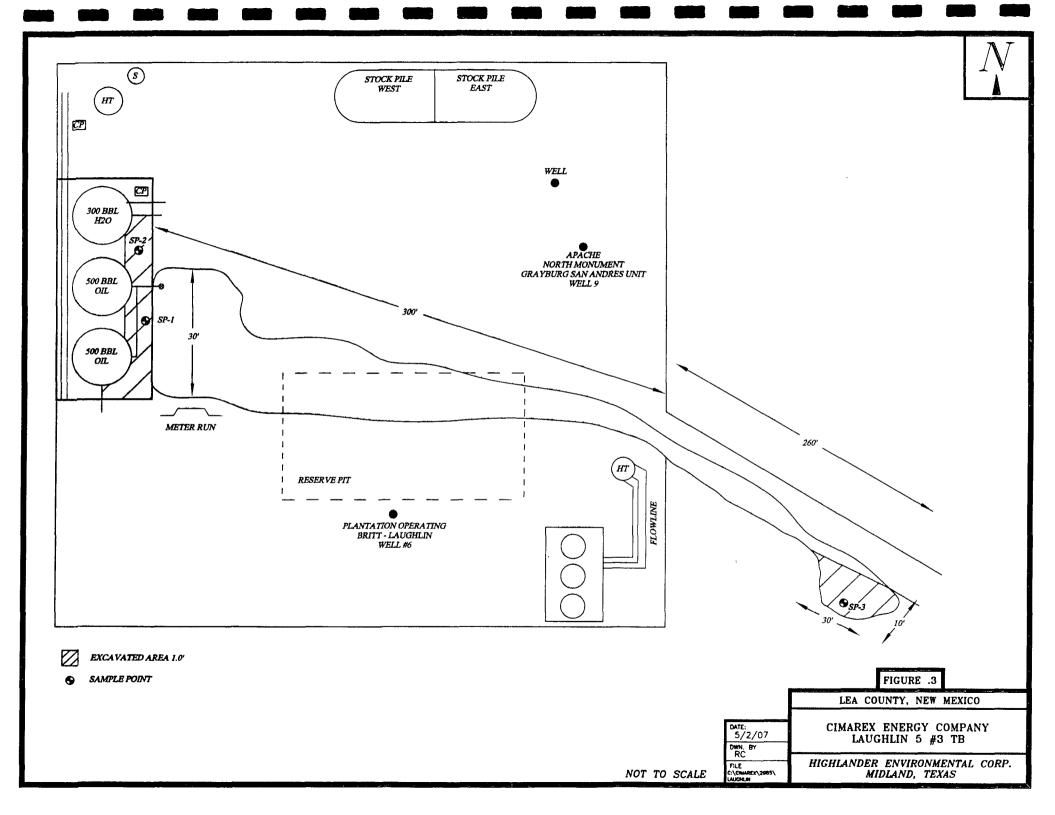
:	Repo	rt Type: ASS	ESSMENT & CLOSUF	RE REPORT				
Ceneral Site Info	ermedon:							
Site:		Laughlin 5 #3	Tank Battery					
Company:		Cimarex of Co						
Well Location:		Section 5, T20	S R37E					
Spill Location:		Section 5, T20	S R37E					
Unit Letter:		Unit JI						
Lease Number:			2011 C 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
County:		Lea						
Spill GPS:		32° 36.040′, 10						
Surface Owner:		Randy Crawfor	d					
Mineral Owner:								
Directions:				Monument, head south on 8 for 1.7 miles.				
		Turn right onto le	ease road. Take right fork for 0	0.01 miles to fork in road. Take right fork				
		200 yards to tanl	k battery.					
Release Data:		(Marine)						
Date Released:		3/28/2007						
Type Release:		Oil						
Source of Contar	nination:	Leak at circulating pump.						
Fluid Released:		125 barrels						
Fluids Recovered	<i>1:</i>	125 barrels						
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Official Commu	nication:	ene a levêr e cuasem	endre de la companya					
Name:	Hugo Naegle,	Jr.	Evan Wauhob	lke Tavarez				
Company:	Cimarex of Co	lorado	Cimarex of Colorado	Highlander Environmental Corp.				
Address:	300 W. Texas		508 W. Wall, Suite 600	1910 N. Big Spring				
P.O. Box	P.O.Box 1237							
City:	Eunice, New M	1exico	Midland, Texas 79701	Midland, Texas				
Phone number:	(505) 390-939	4	(432) 571-7800 (432) 682- 4559					
Email:	hnaegle@cim	narex	ewauhob@cimarex.com	itavarez@hec-enviro.com				

Depth to Groundwater:		Ranking Score					
<50 ft		20					
50-99 ft		10					
>100 ft.		0		Average Depth <50 L	38		
WellHead Protection:		Ranking Score		Site Data			
Water Source <1,000 ft., Private <2	200 ft.	20		None			
Water Source >1,000 ft., Private >200 ft.		0					
Surface Body of Water:		Ranking Score	Site Data				
<200 ft.		20	None				
200 ft - 1,000 ft.		10		None 🟒	34 - 12 - 45 ₆		
>1,000 ft.		0		\0\3°	A		
				25 25 25 35 S			
Total Ranking Score:		20			ner i		
Acce		ole Soil RRAL (m	ig/kg)	3	Raceived		
	Benzene	Total BTEX	TPH	Ř!	Rest S		
	10	50	100		DCD		

FIGURES







TABLES

Table 1 Cimarex Energy Laughlin 5 #3 TB Lea County, NM

Sample	Soi	l Status	- Date	Sample		TPH (mg/kg	<u>()</u>	Benzene	Toluene	Ethlybenzene	Xylene -	~ `Chloride´
. ID	Insitu	Removed	Sampled	Depth (ft)	DRO	GRO	. Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	Chloride (mg/kg)
AH-1		X	4/12/2007	0-1.0'	888	473	1,361	0.313	7.76	2.68	10.8	2,690
AH-1	X		4/12/2007	1'-1.5'	<50.0	7.36	7.36	-	-	-	-	16.1
AH-1	X		4/12/2007	2'-2.5'	-	-	-	-	-	-	-	14.9
AH-2		X	4/12/2007	0-1.0'	947	953	1,900	-	-	-	-	671
AH-2	X		4/12/2007	1'-1.5'	<50.0	9.10	9.10	-	-	-	-	11.6
AH-3	X		4/12/2007	0-1.0'	<50.0	4.12	4.12	<0.0100	<0.0100	<0.0100	<0.0100	539
AH-3	X		4/12/2007	1'-1.5'	-	-	-	-	-	-	-	2,390
AH-3	X		4/12/2007	2'-2.5'	-	-	-	_	-	-	-	222
AH-4	X		4/12/2007	0-1.0'	<50.0	9.31	9.31	<0.0100	<0.0100	<0.0100	0.0151	60.4
AH-4	X		4/12/2007	1'-1.5'	<50.0	2.15	2.15	-	-	-	-	-
AH-5		X	4/12/2007	0-1.0'	99.5	162	261.5				_	39.4
AH-5	X	^	4/12/2007	1'-1.5'	<50.0	4.65	4.65	-	-	-	-	-
Stockpile West		X	4/12/2007	Composite	11,600	2,310	13,910	0.418	39.0	20.0	66.1	3,100
Stockpile East		X	4/12/2007	Composite	12,200	3,480	15,680	0.301	30.7	18.5	63.2	2,790
	<u> </u>	() 11 1 1					l			<u> </u>	L	

⁽⁻⁾ Not Analyzed

Table 2 Cimarex Energy Laughlin 5 #3 TB Lea County, NM

Sample	Soils	s Status	Date	Sample	ř .	TPH (mg/kg	g)	Benzene	Toluene	Ethlybenzene	Xylene	Chloride
ID .	Insitu	Removed	Sampled	Depth (ft)	DRO	GRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
				,								
SP #1 0-1.0' BEB	X		6/11/2007	1.0'	<50.0	3.12	3.12	< 0.0100	< 0.0100	< 0.0100	< 0.0100	271
SP #2 0-1.0' BEB	X		6/11/2007	1.0'	<50.0	1.84	1.84	< 0.0100	< 0.0100	< 0.0100	< 0.0100	188
								·				
SP #3 0-1.0' BEB	X		6/12/2007	1.0'	<50.0	1.43	1.43	< 0.0100	< 0.0100	< 0.0100	< 0.0100	192
Stockpile Tank Battery		X	6/13/2007	Composite	6,920	2,700	9,620	-	-	-	-	160
Stockpile Pasture		X	6/13/2007	Composite	747	24.0	771	_		_	-	<50.0
			3. 12. 1207	- Composite	, , , ,	21.0	.,,,					- 9.0
	())	4 A II										

⁽⁻⁾ Not Analyzed

APPENDIX A

Water Well Data Average Depth to Groundwater (ft) Cimarex - Laughlin 5 #3 Tank Battery, Lea County, New Mexico

	19 S	outh	. 3	6 East				19 S	outh		37	East				19	South		88 East	
6	5	4	3	2	1	6	50	5	4 3	9 3	41	2	1	34	6	5	4	3. Ho	bbs.	1
7	8	9	10	11	12	7	43	8 42	9	10	43	11 2	2 12	63	7	8	9	10	11	12
18	17	16	15	14	13	18	53		16	15		14	13	46	18	17	16	15	14	13
19	20	21	22	23	24	19	48	65 20	21 3	46 33 22	38	20 23	24	\dashv	19	20	21	22	23	24
30	29	28	27	26	25	30		29	81 Page (C/2)	~		26	25	-1	30	29	28	27	26	25
31	32	33	34	35	36	31	24	32 2 32	nent 33		22	35	36		31	32	33	34	35	36
	20 S	outh		36 East		·			outh			East				20	South		38 East	
6 3	2 5	4	3	2 92	1	6	37		4 22	3		2	1		6	5	4	3	2	1
	28	4			40	<u> </u>		38	_	4			1		<u> </u>					
7	8	9 3	8 10	11	12	7	36	8 3	5 9	10		11	12	- 1	7	8	9	10	11	12
	33	 	15	14	29	18		17	16	15		14	13	78	18	17	16	15	14	13
18	17	16	115		13	18		17	16	115		14	13	/B	18	17	110	15	14	13
34	20	21	22	23	24	19	35	20	21	22		23	24	\dashv	19	20	21	22	23	24
	1	ļ	27	20.400	25	30		29	28	27		26	25		30	29	28	27	26	25
30	29	28	21	26 1 06	25	30		29	1	21		20	25		30	29	28	21	26	25
31	32	33	34	170 35	36	31		32	33	34		35	36		31	32	33	34	35	36
31	170]~~	١	122	00			"	198	٦		55	150		"	٦	33	37	100	100
	1170			1,125					1100											
	21 S	outh		35 East				21 5	outh		36	East				2	1 South	;	37 East	
6	5	4	3	2	1	6		5	4	3		2	1		6	73 5	4	75 3	2	1
7	8	9	10	11	12	7		8	9	10 20		11	12		7	8	9	10	11	12
18	17	16	15	14	13	18		17	16	15		14	13		18	17	16	15	14	13
	1"	'~	1.	1		10		l	195	1.0		`	,,,			71	70	["	1''	1
19	20	21	22	23	24	19		20	21	22		23130	24	7	19	20	21	22	53 23	24
30	29	28	27	26	25	30		29	28	27		150 26	25		30	98 29	28	رِي <mark>27 ال</mark> م	26	25
31	32	33	34	35	36	31		32	33	34		150 35	36		31	85 32	71 £	·: 76	35	36

⁸⁸ New Mexico State Engineers Well Reports

¹⁰⁵ USGS Well Reports

⁹⁰ Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6) Geology and Groundwater Resources of Eddy County, NM (Report 3)

³⁴ NMOCD - Groundwater Data

New Mexico Office of the State Engineer POD Reports and Downloads

	Township: 20S	Range: 37E	Sections:	
	NAD27 X:	Y:	Zone:	Search Radius:
County:	Ba	sin:		Number: Suffix:
Owner Na	me: (First)	(Last)		○Non-Domestic ○Domestic ⊚Al

AVERAGE DEPTH OF WATER REPORT 08/07/2007

								·(Depth	Water in	Feet)
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
L	20S	37E	04				1	22	22	22
L	20S	37E	05				7	32	46	38
L	20S	37E	06				8	35	40	37
L	20S	37E	07				4	34	38	36
L	20S	37E	80				10	30	38	35
L	20S	37E	13				2	70	85	78
L	20S	37E	19				6	35	35	35
L	20S	37E	28				2	40	40	40
L	20S	37E	33				2	120	275	198

Record Count: 42

APPENDIX B

Report Date: May 7, 2007 2985

Summary Report

Ike Tavarez

Highlander Environmental Services

1910 N Big Spring Street Midland, TX, 79705

Report Date: May 7, 2007

Work Order: 7041709

Project Location: Lea County, NM

Project Name:

Cimarex/Laughlin 5 #3 TB

Project Number:

2985

			Date	$_{ m Time}$	Date
Sample	Description	Matrix	Taken	Taken	Received
121908	AH-1 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121909	AH-1 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17
121910	AH-1 (2.0-2.5')	soil	2007-04-12	00:00	2007-04-17
121911	AH-2 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121912	AH-2 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17
121914	AH-3 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121915	AH-3 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17
121916	AH-3 (2.0-2.5')	soil	2007-04-12	00:00	2007-04-17
121917	AH-4 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121918	AH-4 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17
121920	AH-5 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121921	AH-5 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17

			BTEX		MTBE	TPH DRO	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	DRO	GRO
Sample - Field Code	(mg/kg)	(mg/kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/kg)
121908 - AH-1 (0-1.0')	0.313	7.76	2.68	10.8		888	473
121909 - AH-1 (1.0-1.5')						< 50.0	7.36
121911 - AH-2 (0-1.0')						947	953
121912 - AH-2 (1.0-1.5')					ĺ	< 50.0	9.10
121914 - AH-3 (0-1.0')	< 0.0100	< 0.0100	< 0.0100	< 0.0100		< 50.0	4.12
121917 - AH-4 (0-1.0')	< 0.0100	< 0.0100	< 0.0100	0.0151		< 50.0	9.31
121918 - AH-4 (1.0-1.5')						< 50.0	2.15
121920 - AH-5 (0-1.0')						99.5	162
121921 - AH-5 (1.0-1.5')						< 50.0	4.65

Sample: 121908 - AH-1 (0-1.0')

Param	Flag	Result	Units	RL
Chloride		269 0	mg/Kg	1.00

Sample: 121909 - AH-1 (1.0-1.5')

Report Date: May 7, 2007 Work Order: 7041709 Page Number: 2 of 2 2985 Cimarex/Laughlin 5 #3 TB Lea County, NM Units RLParam Result Flag Chloride 16.1 mg/Kg 1.00 Sample: 121910 - AH-1 (2.0-2.5') Units RLParam Flag Result Chloride 14.9mg/Kg 1.00Sample: 121911 - AH-2 (0-1.0') Param Flag Result Units RLChloride 671 mg/Kg 1 00 Sample: 121912 - AH-2 (1.0-1.5') Param Result Units RLFlag Chloride 11.6 mg/Kg 1.00 Sample: 121914 - AH-3 (0-1.0') Param Result Units RLFlag Chloride 539 1.00 mg/KgSample: 121915 - AH-3 (1.0-1.5') RLResult Units Param Chloride 2390 mg/Kg 1.00 Sample: 121916 - AH-3 (2.0-2.5') Param Result Units RLFlag Chloride 222 mg/Kg 1.00

Sample: 121917 - AH-4 (0-1.0')

Param	Flag	Result	Units	RL
Chloride		60.4	${ m mg/Kg}$	1.00

Sample: 121920 - AH-5 (0-1.0')

Param	Flag	Result	Units	RL
Chloride		39.4	m mg/Kg	1.00

¹Sample reran May 4, 2007, result confirmed •

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

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



6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basın Street, Suite A1 6015 Harris Parkway, Suite 110

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

Ft. Worth, Texas 76132

800 • 378 • 1296 888 • 588 • 3443

915 • 585 • 3443 432 • 689 • 6301 FAX 806 • 794 • 1298 FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

817 • 201 • 5260

806 • 794 • 1296

E-Mail lab@traceanalysis.com

Analytical and Quality Control Report

Ike Tavarez Highlander Environmental Services 1910 N. Big Spring Street Midland, TX, 79705

Report Date: May 7, 2007

Work Order: 7041709

Project Location: Lea County. NM

Project Name:

Cimarex/Laughlin 5 #3 TB

Project Number:

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
121908	AH-1 (0-1.0°)	soil	2007-04-12	00:00	2007-04-17
121909	AH-1 (1.0-1.5')	soil	2007-04-12	00.00	2007-04-17
121910	AH-1 (2 0-2.5')	soil	2007-04-12	00:00	2007-04-17
121911	AH-2 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121912	AH-2 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17
121914	AH-3 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121915	AH-3 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17
121916	AH-3 (2.0-2.5')	soil	2007-04-12	00:00	2007-04-17
121917	AH-4 (0-1.0°)	soil	2007-04-12	00:00	2007-04-17
121918	AH-4 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17
121920	AH-5 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121921	AH-5 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17

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

Dr. Blair Leftwich, Director

Standard Flags

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

Case Narrative

Samples for project 'Cimarex/Laughlin 5 #3 TB' were received by TraceAnalysis. Inc. on 2007-04-17 and assigned to work order 7041709. Samples for work order 7041709 were received intact without headspace and at a temperature of 4 deg C.

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

Test	Method
BTEX	S 8021B
Chloride (IC)	E 300.0
TPH DRO	Mod. 8015B
TPH GRO	S 8015B

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 7041709 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

Report Date: May 7, 2007

2985

Work Order: 7041709 Cımarex/Laughlın 5 #3 TB Page Number. 3 of 24 Lea County, NM

Analytical Report

Sample: 121908 - AH-1 (0-1.0')

BTEX Analysis: QC Batch: 36564Prep Batch: 31714

Analytical Method: S 8021B 2007-04-18 Date Analyzed: 2007-04-18 Sample Preparation

Prep Method: S 5035 Analyzed By. Prepared By-

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Benzene		0.313	mg/Kg	1	0.0100
Toluene		7.76	m mg/Kg	1	0.0100
Ethylbenzene		2.68	${ m mg/Kg}$	1	0.0100
Xylene		10.8	m mg/Kg	1	0.0100

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.746	mg/Kg	1	1.00	75	26 - 117.8
4-Bromofluorobenzene (4-BFB)	1	1.49	${ m mg/Kg}$	1	1.00	149	51.1 - 119.1

Sample: 121908 - AH-1 (0-1.0')

Chloride (IC) Analysis: QC Batch: 36632 Prep Batch 31771

Analytical Method: E 300.0 2007-04-19 Date Analyzed. Sample Preparation:

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

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		2690	mg/Kg	100	1.00

Sample: 121908 - AH-1 (0-1.0')

TPH DRO Analysis. QC Batch: 36623 Prep Batch: 31763

Analytical Method: Mod. 8015B Date Analyzed: 2007-04-18 Sample Preparation: 2007-04-18

Prep Method· N/A Analyzed By: AG Prepared By: AG

		RL			
Parameter	Flag	Result	Units	Dilution	RL
DRO		888	mg/Kg	1	50.0
					_

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane	2	339	mg/Kg	1	150	226	32.9 - 167

Sample: 121908 - AH-1 (0-1.0')

TPH GRO Analysis: QC Batch. 36628 Prep Batch: 31766

Analytical Method: S 8015B Date Analyzed: 2007-04-20 Sample Preparation: 2007-04-20

Prep Method: S 5035 Analyzed By: Prepared By:

¹High surrogate recovery due to peak interference

²High surrogate recovery due to peak interference.

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			RL						
Parameter	Flag		Result		Units		Dilution		RL
GRO			473		${ m mg/Kg}$		50		1.00
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Reco Lin	overy nits
Trifluorotolue	ene (TFT)		45.2	mg/Kg	50	50.0	90	52.4 -	123.7
4-Bromofluor	robenzene (4-BFB)		51.2	mg/Kg	50	50.0	102	67.5 -	140.3
Sample: 12	1909 - AH-1 (1.)	0-1.5')							
Analysis:	Chloride (IC)		Analyti	cal Method	E 300.0		Prep l	Method [.]	N/A
QC Batch:	36782			nalyzed:	2007-04-	25		zed By:	m AR
Prep Batch:	31907		Sample	Preparation	ı.		Prepa	red By:	AR
			RL						
Parameter	Flag		Result		Units		Dilution		RL
Chloride	В		16.1		mg/Kg		5		1.00
QC Batch: Prep Batch:	36623 31763		_	lyzed: reparation:	2007-04-18 2007-04-18		•	zed By: red By:	AG AG
			RL						
Parameter	Flag		Result		Units		Dilution		RL
DRO		,	< 50.0	·-··	mg/Kg		1		50.0
Surrogate	Flag	Result	Units	Dilı	ıtıon	Spike Amount	Percent Recovery		overy
n-Triacontan								11	mits
	e	220	mg/Kg		1	150	147		mits - 167
Sample: 12 Analysis QC Batch: Prep Batch:	1909 - AH-1 (1.4 TPH GRO 36562		Analytica Date Ana	l Method:			147 Prep Me	32.9 ethod: \$	5 5035
Analysis QC Batch: Prep Batch:	1909 - AH-1 (1.0 TPH GRO 36562 31714	0-1.5')	Analytica Date Ana Sample P RL	l Method:	S 8015B 2007-04-18 2007-04-18		Prep Mo Analyze Prepare	32.9 ethod: \$	S 5035
Analysis QC Batch: Prep Batch: Parameter	1909 - AH-1 (1.4 TPH GRO 36562	0-1.5')	Analytica Date Ana Sample P RL Result	l Method:	S 8015B 2007-04-18 2007-04-18 Units		Prep Mo Analyze Prepare	32.9 ethod: \$	3 5035 ss ss
Analysis QC Batch: Prep Batch:	1909 - AH-1 (1.4 TPH GRO 36562 31714 Flag	0-1.5')	Analytica Date Ana Sample P RL	l Method:	S 8015B 2007-04-18 2007-04-18	150	Prep Me Analyze Prepare Dilution	32.9 ethod: S d By s d By s	- 167 3 5035 ss ss RL 1.00
Analysis QC Batch: Prep Batch:	1909 - AH-1 (1.4 TPH GRO 36562 31714 Flag	0-1.5')	Analytica Date Ana Sample P RL Result	l Method:	S 8015B 2007-04-18 2007-04-18 Units		Prep Mo Analyze Prepare	32.9 ethod: S d By s d By s	3 5035 ss ss
Analysis QC Batch: Prep Batch: Parameter GRO Surrogate Trifluorotolue	1909 - AH-1 (1.0 TPH GRO 36562 31714 Flag	0-1.5') Flag	Analytica Date Ana Sample P RL Result 7.36	l Method: lyzed. reparation:	S 8015B 2007-04-18 2007-04-18 Units mg/Kg	150 Spike	Prep Mo Analyze Prepare Dilution 1 Percent	32.9 ethod: S d By s d By s d By s	3 5035 ss ss RL 1.00

Report Date:	May	7,	2007
2985			

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Sample	121910 -	Δ H_1	(2.0-2.5')
Sample:	141910 -	AII-I	14.0-4.0 1

Analysis [.]	Chloride (IC)
QC Batch:	36782
Prep Batch:	31907

Analytical Method: E 300.0 Date Analyzed 2007-04-25 Sample Preparation: Prep Method: N/A Analyzed By: AR Prepared By: AR

		RL
arameter	Flac	Result

Parameter	Flag	Result	Units	Dilution	RL
Chloride	В	14.9	m mg/Kg	5	1.00

Sample: 121911 - AH-2 (0-1.0')

Analysis:	Chloride (IC)
QC Batch:	36665
Prep Batch:	31798

Analytical Method: E 300.0 Date Analyzed 2007-04-20 Sample Preparation. Prep Method· N/A Analyzed By: AR Prepared By· AR

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		671	m mg/Kg	50	1.00

Sample: 121911 - AH-2 (0-1.0')

Analysis:	TPH DRO
QC Batch:	36623
Prep Batch	31763

Analytical Method: Mod. 8015B
Date Analyzed: 2007-04-18
Sample Preparation: 2007-04-18

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

		RL			
Parameter	Flag	Result	Units	Dilution	RL
DRO		947	mg/Kg	1	50.0

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane	3	294	mg/Kg	1	150	196	32.9 - 167

Sample: 121911 - AH-2 (0-1.0')

Analysis:	TPH GRO
QC Batch:	36628
Prep Batch:	31766

Analytical Method: S 8015B Date Analyzed: 2007-04-20 Sample Preparation: 2007-04-20

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

		m RL			
Parameter	Flag	Result	Units	Dilution	RL
GRO		953	m mg/Kg	50	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		42.2	mg/Kg	50	50.0	84	52.4 - 123.7
4-Bromofluorobenzene (4-BFB)		65.0	mg/Kg	50	50.0	130	67.5 - 140.3

³High surrogate recovery due to peak interference.

Sample:	121912	- AH-2	(1.0-1.5')
---------	--------	--------	------------

Analysis
QC Batch:
Prep Batch

Chloride (IC) 36782 31907

Analytical Method Date Analyzed: Sample Preparation

E 300.0 2007-04-25 Prep Method. N/A Analyzed By-AR Prepared By AR

Parameter	Flag	Result	Units	Dilution	RL
Chloride	В	11.6	mg/Kg	ð	1.00

Sample: 121912 - AH-2 (1.0-1.5')

Analysis [.]	
QC Batch:	

TPH DRO 36623 Prep Batch: 31763

Analytical Method Date Analyzed.

Sample Preparation:

RL

RL

Mod 8015B 2007-04-18 2007-04-18

Prep Method· N/A \overline{AG} Analyzed By: Prepared By: AG

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-Triacontane		201	${ m mg/Kg}$	1	150	134	32.9 - 167

Sample: 121912 - AH-2 (1.0-1.5')

Analysis:	TPH GRO
QC Batch	36562
Pron Batch	31714

Analytical Method: S 8015B Date Analyzed 2007-04-18 Sample Preparation 2007-04-18

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

RLFlag Parameter Result Units Dilution RLGRO 9.10 mg/Kg 1.00 1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.805	mg/Kg	1	1.00	80	52.4 - 123.7
4-Bromofluorobenzene (4-BFB)		1.10	mg/Kg	1	1.00	110	67.5 - 140.3

Sample: 121914 - AH-3 (0-1.0')

Analysis	BTEX
QC Batch:	36564
Prep Batch	31714

Analytical Method: S 8021B Date Analyzed: 2007-04-18 Sample Preparation: 2007-04-18

Prep Method: S 5035 Analyzed By. ss Prepared By: ss

		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	m mg/Kg	1	0.0100
				, ,	

continued ...

sample 121914 continued . .

			RI	J				
Parameter	Flag		Resul	t	Units	Ι	Dilution	RL
Xylene			< 0.0100)	mg/Kg		1	0.0100
Surrogate	I	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.903	mg/Kg	1	1.00	90	26 - 117.8
4-Bromofluorobenzene	(4-BFB)		0.874	${ m mg/Kg}$	1	1.00	87	51.1 - 119.1

Sample: 121914 - AH-3 (0-1.0')

Analysis:	Chloride (IC)	Analytical Metho	od: E 300.0	Prep Method	: N/A
QC Batch:	36665	Date Analyzed	2007-04-20	Analyzed By	: AR
Prep Batch:	31798	Sample Preparat	ion:	Prepared By	AR.
		RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		539	mg/Kg	10	1.00

Sample: 121914 - AH-3 (0-1.0')

Analysis ¹ QC Batch: Prep Batch:	TPH DRO 36623 31763		Analytical M Date Analyze Sample Prepa	ed· 2007-0	4-18	Analyz	Method: N/A sed By AG ed By AG
			RL				
Parameter	Fla	ıg:	Result	Uni	its	Dilution	R
DRO			< 50.0	mg/I	ζg	1	50.
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontan	e	244	m mg/Kg	1	150	163	32.9 - 16

Sample: 121914 - AH-3 (0-1.0')

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	36562	Date Analyzed:	2007-04-18	Analyzed By:	SS
Prep Batch	31714	Sample Preparation:	2007-04-18	Prepared By:	SS

Parameter I	Flag		$ m RL \ Result$		Units		Dilution	RL
GRO	В		4.12		mg/Kg		1	1.00
_						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	\mathbf{Amount}	Recovery	Limits
Trifluorotoluene (TFT)			0.795	mg/Kg	1	1.00	80	52.4 - 123.7
4-Bromofluorobenzene (4-B	FB)		1.07	${ m mg/Kg}$	1	1.00	107	67.5 - 140.3

Sample: 121915 - AH-3 (1.0-1.5')

${ m Analysis} \cdot$	Chloride (IC)
QC Batch	36782
Prep Batch:	31907

Analytical Method: E 300.0 Date Analyzed: 2007-04-25 Sample Preparation: Prep Method N/A Analyzed By: AR Prepared By: AR

		RL
arameter	Flag	Result

Parameter	Flag	Result	Units	Dilution	RL
Chloride	4	2390	mg/Kg	100	1.00

Sample: 121916 - AH-3 (2.0-2.5')

Analysis.	Chloride (IC)
QC Batch	36980
Prep Batch:	32081

Analytical Method: E 300.0 Date Analyzed 2007-05-04 Sample Preparation Prep Method· N/A Analyzed By· AR Prepared By· AR

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		222	mg/Kg	5	1.00

Sample: 121917 - AH-4 (0-1.0')

Analysis:	BTEX
QC Batch:	36564
Prep Batch.	31714

Analytical Method S 8021B
Date Analyzed 2007-04-18
Sample Preparation: 2007-04-18

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

		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	m mg/Kg	1	0.0100
Xylene		0.0151	m mg/Kg	1	0.0100

					$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.908	mg/Kg	1	1.00	91	26 - 117.8
4-Bromofluorobenzene (4-BFB)		0.888	mg/Kg	1	1.00	89	51.1 - 119.1

Sample: 121917 - AH-4 (0-1.0')

Analysis.	Chloride (IC)
QC Batch:	36633
Prep Batch:	31772

Analytical Method: E 300.0 Date Analyzed: 2007-04-19 Sample Preparation:

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

RL

Parameter	Flag	Result	Units	Dilution	RL
Chloride		60.4	m mg/Kg	5	1.00

⁴Sample reran May 4, 2007, result confirmed •

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Sample: 121917 - AH-4 (0-1.0')

Analysis TPH DRO QC Batch: 36623 Prep Batch: 31763 Analytical Method. Mod 8015B Date Analyzed: 2007-04-18 Sample Preparation: 2007-04-18

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

RL Parameter Flag Result

Spike Percent Recovery Result Units Dilution Amount Recovery Limits Surrogate Flag 206150 137 32.9 - 167 11-Triacontane mg/Kg 1

Sample: 121917 - AH-4 (0-1.0')

Analysis TPH GRO QC Batch: 36562 Prep Batch: 31714 Analytical Method: S 8015B
Date Analyzed: 2007-04-18
Sample Preparation: 2007-04-18

Prep Method S 5035 Analyzed By. ss Prepared By. ss

Spike Percent Recovery Units Surrogate Flag Result Dilution Recovery Amount Limits Trifluorotoluene (TFT) 0.812 mg/Kg 1 1.00 81 52.4 - 123.7 4-Bromofluorobenzene (4-BFB) 1.09 mg/Kg 1 1.00 109 67.5 - 140.3

Sample: 121918 - AH-4 (1.0-1.5')

Analysis. TPH DRO QC Batch: 36623 Prep Batch: 31763 Analytical Method Mod. 8015B
Date Analyzed 2007-04-18
Sample Preparation 2007-04-18

Prep Method· N/A Analyzed By: AG Prepared By: AG

Percent Spike Recovery Flag Result Units Dilution Amount Surrogate Recovery Limits n-Triacontane 200 mg/Kg 1 150133 32.9 - 167

Sample: 121918 - AH-4 (1.0-1.5')

Analysis: TPH GRO QC Batch: 36562 Prep Batch. 31714 Analytical Method· S 8015B
Date Analyzed· 2007-04-18
Sample Preparation: 2007-04-18

Prep Method: S 5035 Analyzed By: ss Prepared By: ss Report Date. May 7, 2007 2985

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_			RL						
Parameter	$\frac{\text{Flag}}{B}$		Result		Units		Dilution		RI
GRO			2.15		mg/Kg		1		1.00
		,		**	700	Spike	Percent		overy
Surrogate	(BDB)	Flag	Result	Units	Dilution	Amount	Recovery		nits
Trifluorotolu	robenzene (4-BFB)		0.801 1 03	mg/Kg mg/Kg	1 1	$\frac{1.00}{1.00}$	80 103		- 123.′ - 140.;
4 Bromondo	TOBERDER (T DI D)		1 00	1116/116		1.00	100	01.0	110.6
Sample: 12	21920 - AH-5 (0-	1.0')							
Analysis [.]	Chloride (IC)		Analyt	ical Method:	E 300.0		Prep l	Method.	N/A
QC Batch:	36633			nalyzed·	2007-04-	19		zed By	AR
Prep Batch:	31772		Sample	Preparation	J.		Prepa	red By	AR
			RL						
Parameter	Flag		Result		Units		Dilution		RI
Chloride		I	39.4		mg/Kg		5		1.00
Analysis: QC Batch:	TPH DRO 36623		Date Ana		Mod 8015 2007-04-18	В	Analy	Method zed By:	AG
•	36623		Date Ana Sample P			В	Analy		N/A AG AG
QC Batch: Prep Batch:	36623 31763		Date Ana Sample P	alyzed:	2007-04-18 2007-04-18	В	Analy Prepa	zed By:	AG AG
QC Batch: Prep Batch: Parameter	36623		Date Ana Sample P	alyzed:	2007-04-18	В	Analy	zed By:	AG AG RJ
QC Batch: Prep Batch: Parameter	36623 31763 Flag		Date Ana Sample P RL Result	alyzed: Preparation.	2007-04-18 2007-04-18 Units mg/Kg	B Spike	Analy Prepa Dilution	zed By: red By:	AG
QC Batch: Prep Batch: Parameter DRO Surrogate	36623 31763 Flag Flag	Result	Date Ana Sample P RL Result 99.5	alyzed: Preparation. Dilu	2007-04-18 2007-04-18 Units mg/Kg	Spike Amount	Analy Prepa Dilution 1 Percent Recovery	zed By: red By: Rec	AG AG RI 50.
QC Batch:	36623 31763 Flag Flag	Result 190	Date Ana Sample P RL Result 99.5	alyzed: Preparation. Dilu	2007-04-18 2007-04-18 Units mg/Kg	Spike	Analy Prepa Dilution 1 Percent	zed By: red By: Rec	AG AG RI 50.1
QC Batch: Prep Batch: Parameter DRO Surrogate n-Triacontar	36623 31763 Flag Flag	190	Date Ana Sample P RL Result 99.5	alyzed: Preparation. Dilu	2007-04-18 2007-04-18 Units mg/Kg	Spike Amount	Analy Prepa Dilution 1 Percent Recovery	zed By: red By: Rec	AG AG Solvery imits
QC Batch: Prep Batch: Parameter DRO Surrogate n-Triacontar Sample: 12 Analysis:	36623 31763 Flag Flag P 21920 - AH-5 (0-1)	190	Date Ana Sample P RL Result 99.5 Units mg/Kg	alyzed: reparation. Dilu	2007-04-18 2007-04-18 Units mg/Kg	Spike Amount	Analy Prepa Dilution 1 Percent Recovery 127	zed By: red By: Rec	AG AG 80. 50. covery imits 9 - 16
QC Batch: Prep Batch: Parameter DRO Surrogate n-Triacontar Sample: 12 Analysis: QC Batch.	36623 31763 Flag Flag 1920 - AH-5 (0-1) TPH GRO 36628	190	Date Ana Sample P RL Result 99.5 Units mg/Kg Analytica Date Ana	Dilu Dilu B Method:	2007-04-18 2007-04-18 Units mg/Kg ation 1 S 8015B 2007-04-20	Spike Amount	Analy Prepa Dilution 1 Percent Recovery 127 Prep Me Analyze	zed By: red By: Rec Li 32.9	AG AG Solvery imits 9 - 16
QC Batch: Prep Batch: Parameter DRO Surrogate n-Triacontar Sample: 12 Analysis:	36623 31763 Flag Flag P 21920 - AH-5 (0-1)	190	Date Ana Sample P RL Result 99.5 Units mg/Kg Analytica Date Ana	alyzed: reparation. Dilu	2007-04-18 2007-04-18 Units mg/Kg	Spike Amount	Analy Prepa Dilution 1 Percent Recovery 127	zed By: red By: Rec Li 32.9	AG AG AG Solvery imits 9 - 16
QC Batch: Prep Batch: Parameter DRO Surrogate n-Triacontar Sample: 12 Analysis: QC Batch. Prep Batch:	Flag Flag Flag Flag Flag Flag 7 Flag 8 Flag 7 Flag 7 Flag 7 Flag 7 Flag 7 Flag 8 Flag 7 Flag 8 Flag 7 Flag 8 Flag 8 Flag 8 Flag 8 Flag 8 Flag Flag	190 1.0')	Date Ana Sample P RL Result 99.5 Units mg/Kg Analytica Date Ana Sample P	Dilu Dilu B Method:	2007-04-18 2007-04-18 Units mg/Kg ation 1 S 8015B 2007-04-20 2007-04-20	Spike Amount	Analy Prepa Dilution 1 Percent Recovery 127 Prep Me Analyze Prepare	zed By: red By: Rec Li 32.9	AG AG Sovery imits 9 - 16
QC Batch: Prep Batch: Parameter DRO Surrogate n-Triacontar Sample: 12 Analysis: QC Batch. Prep Batch:	36623 31763 Flag Flag 1920 - AH-5 (0-1) TPH GRO 36628	190 1.0')	Date Ana Sample P RL Result 99.5 Units mg/Kg Analytica Date Ana Sample P RL Result	Dilu Dilu B Method:	2007-04-18 2007-04-18 Units mg/Kg ation 1 S 8015B 2007-04-20 2007-04-20 Units	Spike Amount	Analy Prepa Dilution 1 Percent Recovery 127 Prep Me Analyze Prepare	zed By: red By: Rec Li 32.9	AG R. 50. Covery mits - 16
QC Batch: Prep Batch: Parameter DRO Surrogate n-Triacontar Sample: 12 Analysis: QC Batch.	Flag Flag Flag Flag Flag Flag 7 Flag 8 Flag 7 Flag 7 Flag 7 Flag 7 Flag 7 Flag 8 Flag 7 Flag 8 Flag 7 Flag 8 Flag 8 Flag 8 Flag 8 Flag 8 Flag Flag	190 1.0')	Date Ana Sample P RL Result 99.5 Units mg/Kg Analytica Date Ana Sample P	Dilu Dilu B Method:	2007-04-18 2007-04-18 Units mg/Kg ation 1 S 8015B 2007-04-20 2007-04-20	Spike Amount 150	Analy Prepa Dilution 1 Percent Recovery 127 Prep Me Analyze Prepare Dilution 20	Red By: Red By: 32.9 ethod: d By: d By:	R. 50. Covery mits 9 - 16
QC Batch: Prep Batch: Parameter DRO Surrogate n-Triacontar Sample: 12 Analysis: QC Batch. Prep Batch: Parameter GRO	Flag Flag Flag Flag Flag Flag 7 Flag 8 Flag 7 Flag 7 Flag 7 Flag 7 Flag 7 Flag 8 Flag 7 Flag 8 Flag 7 Flag 8 Flag 8 Flag 8 Flag 8 Flag 8 Flag Flag	190	Date Ana Sample P RL Result 99.5 Units mg/Kg Analytica Date Ana Sample P RL Result 162	Dilu Dilu B Method: alyzed: creparation:	2007-04-18 2007-04-18 Units mg/Kg ation 1 S 8015B 2007-04-20 2007-04-20 Units mg/Kg	Spike Amount 150	Analy Prepa Dilution 1 Percent Recovery 127 Prep Me Analyze Prepare Dilution 20 Percent	Received By: Re	AG AG RJ 50. Covery S 503
QC Batch: Prep Batch: Parameter DRO Surrogate n-Triacontar Sample: 12 Analysis: QC Batch. Prep Batch:	36623 31763 Flag Flag 1920 - AH-5 (0-1) TPH GRO 36628 31766 Flag	190 1.0')	Date Ana Sample P RL Result 99.5 Units mg/Kg Analytica Date Ana Sample P RL Result	Dilu Dilu B Method:	2007-04-18 2007-04-18 Units mg/Kg ation 1 S 8015B 2007-04-20 2007-04-20 Units	Spike Amount 150	Analy Prepa Dilution 1 Percent Recovery 127 Prep Me Analyze Prepare Dilution 20	Received By: Re	R 50. Covery S 503 S 503 S 503 S 503 R 1.0

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Sample: 121921 - AH-5 (1.0-1.5')

Analysis TPH DRO QC Batch 36623 Prep Batch: 31763 Analytical Method Mod. 8015B
Date Analyzed: 2007-04-18
Sample Preparation 2007-04-18

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

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

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		175	${ m mg/Kg}$	1	150	117	32.9 - 167

Sample: 121921 - AH-5 (1.0-1.5')

Analysis TPH GRO QC Batch: 36567 Prep Batch: 31719 Analytical Method: S 8015B
Date Analyzed: 2007-04-18
Sample Preparation: 2007-04-18

Prep Method. S 5035 Analyzed By: ss Prepared By: ss

Parameter	Flag		RL Result		Units		Dilution	RL
GRO	В		4.65		m mg/Kg		1	1.00
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits

Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.787	mg/Kg	1	1.00	79	52.4 - 123.7
-4-Bromofluorobenzene (4-BFB)		1.03	${ m mg/Kg}$	1	1.00	103	67.5 - 140.3

Method Blank (1) QC Batch: 36562

QC Batch 36562 Prep Batch 31714 Date Analyzed: 2007-04-18 QC Preparation: 2007-04-18

Analyzed By ss Prepared By: ss

		MDL		
Parameter	Flag	Result	Units	RL
GRO		0.935	mg/Kg	1

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.901	mg/Kg	1	1.00	90	52.4 - 123.7
4-Bromofluorobenzene (4-BFB)		0.910	${ m mg/Kg}$	1	1.00	91	67.5 - 140.3

Method Blank (1) QC Batch: 36564

QC Batch: 36564 Prep Batch: 31714 Date Analyzed: 2007-04-18 QC Preparation: 2007-04-18 Analyzed By: ss Prepared By: ss Report Date. May 7, 2007 2985

 $\overline{\text{GRO}}$

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			P	MDL			
Parameter	Flag			esult	U	nits	RL
Benzene			< 0.0	0110	mg	g/Kg	0.01
Toluene			< 0.0	0150	mg	g/Kg	0.01
Ethylbenzene			< 0.0	0160	mg	g/Kg	0.01
Xylene			< 0.0	0410	mg	g/Kg	0.01
							_
G.	771	D 1	**	75.41	Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution		Recovery	Limits
Trifluorotoluene (TFT)		0.893	mg/Kg		1.00	89	62.6 - 117.6
4-Bromofluorobenzene	(4-BFB)	0.768	mg/Kg	1	1 00	77	53.9 - 125.1
Method Blank (1)	QC Batch: 36567						
QC Batch: 36567		Date Ar	nalvzed:	2007-04-18		An	alyzed By: ss
Prep Batch: 31719			paration	2007-04-18			pared By: ss
110p Batton 01,10		w ₍ C 1 10)	1,001 001011	2001 03 10		***	parea 2, bb
			MI)L			
Parameter	Flag		Resu	ılt	Ur	nits	RL
GRO			0.741			/Kg	1
					G 43	~	-
0	T-1	T. 1			Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution		Recovery	Limits
Trifluorotoluene (TFT)		0.905	mg/Kg		1.00	90	52.4 - 123.7
4-Bromofluorobenzene	(4-BFB)	0.932	m mg/Kg	1	1 00	93	67.5 - 140.3
Method Blank (1) QC Batch: 36623 Prep Batch: 31763	QC Batch: 36623	Date An QC Prep	alyzed: paration:	2007-04-18 2007-04-18			yzed By· AG ared By· AG
			MI)Τ.			
Parameter	Flag		Resi		Ur	nits	RL
DRO				5.0		/Kg	50
_		** .	•-		Spike	Percent	Recovery
	lag Result	Units		lution	Amount	Recovery	Limits
n-Triacontane	178	mg/Kg		1	150	119	44.7 - 133.6
Method Blank (1) QC Batch: 36628 Prep Batch: 31766	QC Batch: 36628	Date Ar QC Prej	paration:	2007-04-20 2007-04-20			alyzed By: ss epared By: ss
December	T.		MI			•.	
Parameter	Flag		Resi		Uı	RL	

< 0.739

mg/Kg

1

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Percent Recovery Spike Flag Result Units Dilution Amount Recovery Limits Surrogate 0 880 1.00 88 52.4 - 123.7 Trifluorotoluene (TFT) mg/Kg 1 67.5 - 140.3 0.974 mg/Kg 1.00 97 4-Bromofluorobenzene (4-BFB) 1

Matrix Blank (1) QC Batch: 36632

QC Batch: 36632 Date Analyzed: 2007-04-19 Analyzed By: AR Prep Batch: 31771 QC Preparation: 2007-04-19 Prepared By: AR

Matrix Blank (1) QC Batch: 36633

QC Batch 36633 Date Analyzed: 2007-04-19 Analyzed By. AR Prep Batch 31772 QC Preparation 2007-04-19 Prepared By: AR

Matrix Blank (1) QC Batch: 36665

QC Batch: 36665 Date Analyzed: 2007-04-20 Analyzed By: AR
Prep Batch: 31798 QC Preparation: 2007-04-20 Prepared By: AR

Matrix Blank (1) QC Batch: 36782

QC Batch 36782 Date Analyzed: 2007-04-25 Analyzed By AR Prep Batch: 31907 QC Preparation. 2007-04-25 Prepared By: AR

Matrix Blank (1) QC Batch: 36980

QC Batch: 36980 Date Analyzed: 2007-05-04 Analyzed By: AR
Prep Batch: 32081 QC Preparation: 2007-05-04 Prepared By: AR

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		MDL		
Parameter	Flag	Result	Units	RL
Chloride		3.18	mg/Kg	1

Laboratory Control Spike (LCS-1)

QC Batch 36562 Prep Batch 31714 Date Analyzed: 2007-04-18 QC Preparation: 2007-04-18 Analyzed By: ss Prepared By: ss

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	LCS			Spike	Matrix		Rec
Param	Result	Units	Dil	Amount	Result	Rec	Limit
GRO	7.58	${ m mg/Kg}$	1	10.0	< 0.739	76	57.7 - 102 5

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil	Amount	Result	Rec.	Limit	RPD	Limit
GRO	7.93	mg/Kg	1	10.0	< 0.739	79	57.7 - 102.5	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)	1.15	1.17	mg/Kg	1	1.00	115	117	36.8 - 152.5
4-Bromofluorobenzene (4-BFB)	0.998	0.995	${ m mg/Kg}$	1	1.00	100	100	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch 36564 Prep Batch: 31714 Date Analyzed: 2007-04-18 QC Preparation 2007-04-18 Analyzed By: ss Prepared By: ss

	LCS			Spike	Matrix		Rec
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	0.863	mg/Kg	1	1.00	< 0.00110	86	68.6 - 123.4
Toluene	0.870	${ m mg/Kg}$	1	1.00	< 0.00150	87	74.6 - 119.3
Ethylbenzene	0.853	mg/Kg	1	1.00	< 0.00160	85	72.3 - 126.2
Xylene	2.57	${ m mg/Kg}$	1	3.00	< 0.00410	86	76.5 - 121.6

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
Benzene	0.838	mg/Kg	1	1.00	< 0.00110	84	68.6 - 123.4	3	20
Toluene	0.850	${ m mg/Kg}$	1	1.00	< 0.00150	85	74.6 - 119.3	2	20
Ethylbenzene	0.844	${ m mg/Kg}$	1	1.00	< 0.00160	84	72.3 - 126.2	1	20
Xylene	2.54	mg/Kg	11	3.00	< 0.00410	85	76.5 - 121.6	1	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	Rec.	Rec.	\mathbf{Limit}
Trifluorotoluene (TFT)	0.824	0.849	${ m mg/Kg}$	1	1.00	82	85	64.1 - 118.2
4-Bromofluorobenzene (4-BFB)	0.814	0.820	mg/Kg	1	1.00	81	82	68.7 - 125.8

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Laboratory Control Spike (LCS-1)

QC Batch: 36567 Prep Batch: 31719 Date Analyzed: 2007-04-18 QC Preparation: 2007-04-18 Analyzed By: ss Prepared By: ss

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec	Limit
GRO	7.43	mg/Kg	1	10.0	< 0.739	74	57.7 - 102.5

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.	Limit	RPD	Limit
GRO	7.97	mg/Kg	1	10.0	< 0.739	80	57.7 - 102.5	7	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)	1.15	1.17	mg/Kg	1	1.00	115	117	36 8 - 152.5
4-Bromofluorobenzene (4-BFB)	0.991	0.992	${ m mg/Kg}$	1	1.00	99	99	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch 36623 Prep Batch 31763 Date Analyzed 2007-04-18 QC Preparation: 2007-04-18 Analyzed By: AG Prepared By: AG

	LCS			Spike	Matrix		${ m Re} \epsilon$
Param	Result	Units	Dil	Amount	Result	Rec.	Limit
DRO	283	mg/Kg	1	250	<14.6	113	47.5 - 144.1

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

	LCSD			Spike	Matrix		Rec		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	285	mg/Kg	1	250	<14.6	114	47.5 - 144.1	1	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	$_{ m Units}$	Dil.	Amount	Rec	Rec.	Limit
n-Triacontane	193	189	mg/Kg	1	150	129	126	57.3 - 131.6

Laboratory Control Spike (LCS-1)

QC Batch: 36628 Prep Batch: 31766 Date Analyzed: 2007-04-20 QC Preparation: 2007-04-20

Analyzed By: ss Prepared By: ss

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	7.53	mg/Kg	1	10.0	< 0.739	75	57.7 - 102.5

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

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Rec.	RPD

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	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec	Limit	RPD	Limit
GRO	7.42	mg/Kg	1	10.0	< 0.739	74	57.7 - 102.5	2	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec	Rec	$_{ m Limit}$
Trifluorotoluene (TFT)	0.815	0 811	mg/Kg	1	1.00	82	81	36.8 - 152.5
4-Bromofluorobenzene (4-BFB)	1.05	1.04	mg/Kg	1	1.00	105	104	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch 36632Prep Batch: 31771

Date Analyzed 2007-04-19 QC Preparation: 2007-04-19 Analyzed By: AR Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil	Amount	Result	Rec.	Limit
Chloride	14.9	mg/Kg	1	12.5	1.8	105	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	15.0	mg/Kg	1	12.5	1.8	106	90 - 110]	

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

Laboratory Control Spike (LCS-1)

QC Batch Prep Batch 31772 Date Analyzed 2007-04-19 QC Preparation: 2007-04-19

Analyzed By: AR Prepared By. AR

	LCS			Spike	Matrix		Rec
Param	Result	Units	Dil	Amount	Result	Rec.	Limit
Chloride	14.9	${ m mg/Kg}$	1	12.5	1.9332	104	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil	Amount	Result	Rec	Limit	RPD	Limit
Chloride	14.7	mg/Kg	1	12.5	1.9332	102	90 - 110	1	

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: 36665 Prep Batch 31798

2007-04-20 Date Analyzed QC Preparation: 2007-04-20

Analyzed By. AR Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	\mathbf{Units}	Dil.	Amount	Result	Rec.	Limit
Chloride	14.9	mg/Kg	1	12.5	2.289	101	90 - 110

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

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Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec	Rec. Limit	RPD	RPD Limit
Chloride	14.9	mg/Kg	1	12.5	2.289	101	90 - 110	0	

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

Laboratory Control Spike (LCS-1)

OC Batch Prep Batch: 31907

Date Analyzed

2007-04-25

QC Preparation: 2007-04-25

Analyzed By: AR Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	14.8	mg/Kg	1	12.5	2.0156	102	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	14.8	mg/Kg	1	12.5	2.0156	102	90 - 110	0	

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

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 32081

36980

Date Analyzed:

2007-05-04 QC Preparation: 2007-05-04 Analyzed By. AR Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	$_{ m Units}$	Dil.	Amount	Result	Rec	Limit
Chloride	14.9	mg/Kg	1	12.5	2.0971	102	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	14.9	mg/Kg	1	12.5	2.0971	102	90 - 110	0	

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

Matrix Spike (MS-1) Spiked Sample 121898

QC Batch:

36562 Prep Batch: 31714 Date Analyzed QC Preparation:

2007-04-18 2007-04-18 Analyzed By: ss Prepared By: ss

	MS			\mathbf{Spike}	Matrix		Rec.
Param	 Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}
GRO	 8.64	m mg/Kg	1	10.0	8.64	0	10 - 141.5

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

⁵Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control

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matrix spikes con:	tonound	

made, and opinion containable		MSD	T. T	D.11	Spike	Matrix	70	Rec	DDD	RPD
Param		Result	Units	Dil	Amount	Result	Rec.	Limit	RPD	Limit
		MSD			Spike	Matrix		Rec		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	6	6.81	mg/Kg	1	10 0	8.64	0	10 - 141.5	24	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	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.732	0.755	mg/Kg	1	1	73	76	40 - 125.3
4-Bromofluorobenzene (4-BFB)	1.17	1.19	mg/Kg	1	1	117	119	86.7 - 144 5

Matrix Spike (MS-1) Spiked Sample: 121917

QC Batch 36564 Prep Batch 31714 Date Analyzed: 2007-04-18 QC Preparation: 2007-04-18 Analyzed By ss Prepared By ss

	MS			Spike	Matrix		Rec
Param	Result	Units .	Dil.	Amount	Result	Rec.	Limit
Benzene	0.881	mg/Kg	1	1.00	< 0.00110	88	64 4 - 115.7
Toluene	0.916	${ m mg/Kg}$	1	1.00	< 0.00150	92	57.8 - 124 4
Ethylbenzene	0.931	mg/Kg	1	1.00	< 0.00160	93	64.8 - 125.8
Xylene	2.82	mg/Kg	1	3.00	0.0151	93	65.2 - 121.8

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

Param	MSD Result	Units	Dil	Spike Amount	Matrıx Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.888	mg/Kg	1	1.00	< 0.00110	89	64.4 - 115.7	1	20
Toluene	0.938	mg/Kg	1	1 00	< 0.00150	94	57.8 - 124.4	2	20
Ethylbenzene	0.977	mg/Kg	1	1.00	< 0.00160	98	64.8 - 125.8	5	20
Xvlene	2.97	mg/Kg	1	3.00	0.0151	98	65.2 - 121.8	5	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	Rec	Rec.	Limit
Trifluorotoluene (TFT)	0.823	0.888	mg/Kg	1	1	82	89	52.8 - 121.7
4-Bromofluorobenzene (4-BFB)	0.868	0 875	mg/Kg	1	1	87	88	66.7 - 131.9

Matrix Spike (MS-1) Spiked Sample: 121909

QC Batch: 36623 Prep Batch: 31763 Date Analyzed: 2007-04-18 QC Preparation: 2007-04-18 Analyzed By: AG Prepared By: AG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}
DRO	271	mg/Kg	1	250	<14.6	108	11.7 - 152.3

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

⁶Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control

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Param		MSD Result	Units	Dil	Spike Amount	Matrix Result	Rec.	Re Lir	ec mit	RPD	RPD Limi
DRO		248	mg/Kg		250	<14.6	99	11.7 -	152.3	9	20
Percent recovery is based	on the spil	ke result.	RPD is	based on	the spike a	nd spike d	uplicate	result			
	MS	MSD)			Spike	λ	AS	MSD		Rec.
Surrogate	Result	Resul		Units	Dil	Amount		ec.	Rec		Limit
n-Triacontane	190	178	r	ng/Kg	1	150	1	27	119	1	7 - 163.
Matrix Spike (MS-1)	Spiked S	ample 11			200-2						
QC Batch: 36632 Prep Batch: 31771				nalyzed [.] eparation:	2007-04-1 2007-04-1					lyzed B pared B	
		M	S			Spike	\mathbf{N}	Iatrix			Rec.
Param		Resi		Units	Dil.	Amount		Result	Re		Limit
Chloride		391		mg/Kg	100	1250		692.32	97	<u>-</u>	90 - 11
Percent recovery is based	on the spil	ke result.	RPD is	based on	the spike a	nd spike d	uplicate	result			
_		MSD			Spike	Matrix			Rec.		RPI
Param		Result	Units		Amount	Result	Rec	~	imit	RPD	Lim
		3900	mg/K	g 100	1250	2692.32	97	90	- 110	0	
Percent recovery is based Matrix Spike (MS-1)			RPD 18 21930	based on	·		uplicate	e result.		lygod B	v A.E
Chloride Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633 Prep Batch: 31772		ke result.	RPD is 21930 Date A	<u> </u>	the spike a 2007-04- 2007-04-	19	uplicate	e result	Ana	lyzed B pared B	
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633		ke result.	RPD is 21930 Date A QC Pro	based on	2007-04-	19 19			Ana		y: AF
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633 Prep Batch: 31772		ke result. ample: 1:	RPD is 21930 Date A QC Pro	based on nalyzed eparation	2007-04- 2007-04-	19 19 Spike	Ŋ	4atrix	Ana Prep	pared B	y: AF Rec.
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633 Prep Batch: 31772		ke result. ample: 1: M: Res	RPD is 21930 Date A QC Pro S ult	based on analyzed eparation.	2007-04- 2007-04- Dil	19 19 Spike Amount	N F	Aatrix Result	Ana Prer Re	pared B	y: AF Rec. Limit
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633 Prep Batch: 31772 Param Chloride	Spiked S	e result. ample: 13 Mi Ress	RPD 18 21930 Date A QC Pro	based on analyzed- eparation- Units mg/Kg	2007-04- 2007-04- Dil.	19 19 Spike Amount 1250	N F	Aatrix Result 164.22	Ana Prep Re	pared B	y: AI Rec. Limit
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633 Prep Batch: 31772 Param Chloride	Spiked S	MS Ress 254 Re result.	RPD 18 21930 Date A QC Pro	based on analyzed- eparation- Units mg/Kg	2007-04- 2007-04- Dil. 100	Spike Amount 1250 nd spike d	N F	Aatrix Result 164.22 e result	Ana Prep Re	pared B	Rec. Limit 90 - 11
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633 Prep Batch: 31772 Param Chloride Percent recovery is based	Spiked S	MS Result. MS Result. MSD	RPD 18 21930 Date A QC Pro S ult 40 RPD is	based on analyzed- eparation- Units mg/Kg based on	2007-04- 2007-04- Dil. 100 the spike a	Spike Amount 1250 nd spike d Matrix	N F 11 uplicate	Aatrix Result 164.22 e result I	Ana Prep Re 11	pared B	Rec. Limit 90 - 1
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633 Prep Batch: 31772 Param Chloride Percent recovery is based	Spiked S	Mines result. Mines result. MSD Result	RPD 18 21930 Date A QC Pro S ult 40 RPD is	based on analyzed- eparation Units mg/kg based on Dil.	2007-04- 2007-04- Dil. 100 the spike a Spike Amount	Spike Amount 1250 nd spike d Matrix Result	M F 11 uplicate Rec	Aatrix Result 164.22 e result I	Ana Prep Re 11 Rec.	pared B	Rec. Limit 90 - 11
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633	Spiked S	Mines Result. MSD Result 2390	RPD is 21930 Date A QC Pro S ult 40 RPD is Units mg/K	based on analyzed eparation Units mg/Kg based on Dil. g 100	2007-04- 2007-04- Dil. 100 the spike a Spike Amount 1250	Spike Amount 1250 nd spike d Matrix Result 1164.22	M F 1: uplicate Rec 98	Matrix Result 164.22 e result . L . 90	Ana Prep Rec amit - 110	pared B	Rec. Limit 90 - 1
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633 Prep Batch: 31772 Param Chloride Percent recovery is based Param Chloride Percent recovery is based	Spiked S on the spil	Mines Result. MSD Result 2390	RPD is 21930 Date A QC Pros Sult 40 RPD is Units mg/K RPD is	based on analyzed eparation Units mg/Kg based on Dil. g 100	2007-04- 2007-04- Dil. 100 the spike a Spike Amount 1250	Spike Amount 1250 nd spike d Matrix Result 1164.22	M F 1: uplicate Rec 98	Matrix Result 164.22 e result . L . 90	Ana Prep Rec amit - 110	pared B	Rec. Limi
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633 Prep Batch: 31772 Param Chloride Percent recovery is based Param Chloride Percent recovery is based Matrix Spike (MS-1)	Spiked S on the spil	Mines Result. MSD Result 2390 Re result.	RPD is 21930 Date A QC Pros Sult 40 RPD is Units mg/K RPD is	based on Units mg/kg based on Dil. g 100 based on	2007-04- 2007-04- Dil. 100 the spike a Spike Amount 1250 the spike a	Spike Amount 1250 nd spike d Matrix Result 1164.22 nd spike d	M F 1: uplicate Rec 98	Matrix Result 164.22 e result . L . 90	Ana Prep Re 11 Rec. amit - 110	oc. 0 RPD 6	Rec. Limit 90 - 1
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633 Prep Batch: 31772 Param Chloride Percent recovery is based Param Chloride Percent recovery is based Matrix Spike (MS-1) QC Batch. 36665	Spiked S on the spil	Mines Result. MSD Result 2390 Re result.	RPD 18 21930 Date A QC Pro Sult 40 RPD is Units mg/K RPD is 21911 Date A	based on analyzed eparation Units mg/Kg based on Dil. g 100	2007-04-2007-04-2007-04-2007-04-2007-04-2	Spike Amount 1250 nd spike d Matrix Result 1164.22 nd spike d	M F 1: uplicate Rec 98	Matrix Result 164.22 e result . L . 90	Ana Prep Re 11 Rec. amit - 110	pared B	y: Al Rec. Lum: 90 - 1: RP Lim
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633 Prep Batch: 31772 Param Chloride Percent recovery is based Param Chloride Percent recovery is based Matrix Spike (MS-1) QC Batch. 36665	Spiked S on the spil	Mines Result. MSD Result 2390 Re result.	RPD is 21930 Date A QC Pro Sult 40 RPD is Units mg/K RPD is 21911 Date A QC Pro	based on Units mg/Kg based on Dil. g 100 based on	2007-04-2007-04-2007-04-2007-04-2007-04-2	Spike Amount 1250 nd spike d Matrix Result 1164.22 nd spike d	M F 1) uplicate Rec 98 uplicate	Matrix Result 164.22 e result . L . 90	Ana Prep Re 11 Rec. amit - 110	oc. 0 RPD 6	y: AF Rec. Lumt 90 - 11 RP: Lim
Percent recovery is based Matrix Spike (MS-1) QC Batch: 36633 Prep Batch: 31772 Param Chloride Percent recovery is based Param Chloride Percent recovery is based Matrix Spike (MS-1) QC Batch. 36665	Spiked S on the spil	MSD Result 2390 Re result. ample: 15	RPD is 21930 Date A QC Pro S ult 40 RPD is Units mg/K, RPD is 21911 Date A QC Pro S	based on Units mg/Kg based on Dil. g 100 based on	2007-04-2007-04-2007-04-2007-04-2007-04-2	Spike Amount 1250 nd spike d Matrix Result 1164.22 nd spike d	A Property of the Property of	Aatrix Result 164.22 e result . L 90 e result	Ana Prep Re 11 Rec. amit - 110	opared B RPD 6 lyzed B boared B	y: AF Rec. Lumit 90 - 11 RPl Lim

⁷Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control

Report Date: May 7, 2007

2985

Work Order: 7041709 Cimarex/Laughlin 5 #3 TB Page Number: 20 of 24 Lea County, NM

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec	Limit	RPD	$_{ m Limit}$
Chloride	1360	mg/Kg	50	625	671.223	110	90 - 110	155	

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

Matrix Spike (MS-1)

Spiked Sample 121915

QC Batch: Prep Batch: 31907

36782

Date Analyzed.

2007-04-25

Analyzed By: AR

QC Preparation. 2007-04-25 Prepared By: AR

	MS			Spike	Matrix		Rec
Param	Result	Units	Dil	Amount	Result	Rec	Limit
Chloride	3600	mg/Kg	100	1250	2394.96	96	90 - 110

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.	Lımit	RPD	Limit
Chloride	3550	mg/Kg	100	1250	2394.96	92	90 - 110	1	

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

Matrix Spike (MS-1)

Spiked Sample:

QC Batch: Prep Batch: 32081

36980

Date Analyzed: QC Preparation

2007-05-04 2007-05-04 Analyzed By: AR

Prepared By AR.

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil	Amount	Result	Rec	Limit
Chloride	8	3800	mg/Kg	100	1250	2428.91	110	90 - 110

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	9	3610	mg/Kg	100	1250	2428.91	94	90 - 110	5	

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

Standard (ICV-1)

QC Batch: 36562

Date Analyzed. 2007-04-18

Analyzed By: ss

			ICVs True	$\begin{array}{c} \rm ICVs \\ \rm Found \end{array}$	ICVs Percent	Percent Recovery	Date
Param	Flag	\mathbf{Units}	Conc.	Conc .	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.09	109	85 - 115	2007-04-18

Standard (CCV-1)

QC Batch: 36562

Date Analyzed: 2007-04-18

Analyzed By: ss

⁸MS/MSD for sample 121915, not reported in this batch. •

⁹MS/MSD for sample 121915, not reported in this batch. •

Report Date. May 7, 2007 2985

Work Order: 7041709 Cımarex/Laughlın 5 #3 TB Page Number: 21 of 24 Lea County, NM

Param	Flag	Units	CCVs True Conc	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.874	87	85 - 115	2007-04-18

Standard (ICV-1)

QC Batch: 36564

Date Analyzed 2007-04-18

Analyzed By: ss

			ICVs True	ICVs Found	${ m ICVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0864	86	85 - 115	2007-04-18
Toluene		${ m mg/Kg}$	0 100	0.0882	88	85 - 115	2007-04-18
Ethylbenzene		mg/Kg	0 100	0.0867	87	85 - 115	2007-04-18
Xylene		mg/Kg	0.300	0.262	87	85 - 115	2007-04-18

Standard (CCV-1)

QC Batch: 36564

Date Analyzed: 2007-04-18

Analyzed By: ss

			CCVs	CCVs	CCVs	Percent	
		•	True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0 0888	89	85 - 115	2007-04-18
Toluene		${ m mg/Kg}$	0 100	0.0898	90	85 - 115	2007-04-18
Ethylbenzene		${ m mg/Kg}$	0.100	0.0887	89	85 - 115	2007-04-18
Xylene		${ m mg/Kg}$	0.300	0 266	89	85 - 115	2007-04-18

Standard (ICV-1)

QC Batch: 36567

Date Analyzed: 2007-04-18

Analyzed By: ss

			ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.02	102	85 - 115	2007-04-18

Standard (CCV-1)

QC Batch: 36567

Date Analyzed: 2007-04-18

Analyzed By: ss

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		m mg/Kg	1.00	1.04	104	85 - 115	2007-04-18

Standard (ICV-1)

QC Batch: 36623

Date Analyzed: 2007-04-18

Analyzed By: AG

Report Date: May 7, 2007 2985

Work Order: 7041709 Cımarex/Laughlin 5 #3 TB Page Number: 22 of 24 Lea County, NM

2300			Omar.	est/ Baugiiiii 6 4	F0 1.D		
Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	287	115	85 - 115	2007-04-18
Standard	(CCV-1)						
QC Batch	36623		Date Ana	lyzed 2007-0-	4-18	Anal	yzed By· AG
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	249	100	85 - 115	2007-04-18
Standard	(CCV-2)						
QC Batch	36623		Date Ana	dyzed 2007-0	4-18	Anal	yzed By: AG
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	249	100	85 - 115	2007-04-18
Standard QC Batch	(ICV-1) 36628		Date An	alyzed 2007-()4-20	An	alyzed By· ss
			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.10	110	85 - 115	2007-04-20
Standard	(CCV-1)						
QC Batch:	36628		Date An	alyzed: 2007-0)4-20	An	alyzed By: ss
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc	Conc	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.03	103	85 - 115	2007-04-20
Standard	(ICV-1)						
QC Batch:	36632		Date Ana	dyzed: 2007-0	4-19	Anal	yzed By: AR
			ICVs	ICVs	ICVs	Percent	
			-	TD1	Percent	Dougram	Date
			${ m True}$	Found	rercent	Recovery	
Param Chloride	Flag	Units mg/Kg	True Conc. 12.5	Conc.	Recovery 99	Limits 90 - 110	Analyzed 2007-04-19

Report Date 2985	te. May 7, 200	7		k Order 70417 x/Laughlin 5 #			umber: 23 of 24 Lea County, NM
Standard	(CCV-1)						
QC Batch.	36632		Date Anal	yzed: 2007-04	1-19	Anal	yzed By AR
			CCVs True	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	12.5	12.4	100	90 - 110	2007-04-19
Standard	(ICV-1)						
QC Batch	36633		Date Anal	yzed· 2007-04	l-1 9	Anal	yzed By AR
			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	12.5	12.4	100	90 - 110	2007-04-19
Standard QC Batch:	,		Date Anal	yzed: 2007-04	1 -19	Anal	yzed By· AR
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	12.5	12.5	100	90 - 110	2007-04-19
Standard	(ICV-1)						
QC Batch:	36665		Date Anal	yzed· 2007-04	4-20	Anal	yzed By AR
			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride	· · · · · · · · · · · · · · · · · · ·	mg/Kg	12.5	12.2	98	90 - 110	2007-04-20
Standard	(CCV-1)						
QC Batch:	` '		Date Anal	yzed: 2007-04	4-20	Anal	yzed By. AR
			CCVs	CCVs	CCVs	Percent	
			True				Date
Param	Flag	Units		Found Conc.	Percent Recovery	Recovery Limits	$egin{array}{c} ext{Date} \ ext{Analyzed} \end{array}$

Standard (ICV-1)

QC Batch: 36782 Date Analyzed: 2007-04-25 Analyzed By: AR

2985			Cimare	ex/Laughlin 5 #	±3 TB	I	Lea County, NM
Param Chloride	Flag	Units mg/Kg	ICVs True Conc 12.5	ICVs Found Conc 12.2	ICVs Percent Recovery 97	Percent Recovery Limits 90 - 110	Date Analvzed 2007-04-25
Standard	(CCV-1)						
QC Batch	36782		Date Anal	lyzed 2007-04	1-25	Anal	yzed By: AR
Param Chloride	Flag	Units mg/Kg	CCVs True Conc. 12.5	CCVs Found Conc	CCVs Percent Recovery	Percent Recovery Limits 90 - 110	Date Analyzed 2007-04-25
Standard	(ICV-1)	0, 0					
QC Batch:	36980		Date Anal	lyzed: 2007-05	5-04	Anal	yzed By· AR
					T. C. T.	TD	
Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Param Chloride	Flag	Units mg/Kg	True	Found	Percent	Recovery	
			True Conc.	Found Conc.	Percent Recovery	Recovery Limits	Analyzed
Chloride	(CCV-1)		True Conc. 12.5	Found Conc.	Percent Recovery 97	Recovery Limits 90 - 110	Analyzed
Chloride Standard	(CCV-1)		True Conc. 12.5	Found Conc. 12.2	Percent Recovery 97	Recovery Limits 90 - 110	Analyzed 2007-05-04

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121908	4/12/07				44-1	(0-	1.0	′)			1				χ		X		X									X				
09			S	X	tH-1	(1.5	2'-1	-5')			1				X				X													
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Analysis Request and Chain of Custody Record								****	PAGE: 7 OF: 7 ANALYSIS REQUEST						C	F;	2	
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Midland, Texas							730.005		E E									
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LAB I.D. DATE TIME ENTRE SAMPLE IDENT			HCL	ICE	MIEX 8020/802	MTBE 802		RCRA Metals Ag	TCLP Metals A	TCLP Sem	RCI	GC.MS Yol. B240/ GC.MS Semi. Vol.	PC3's 8080/808	Pest. 308/808 BOD, TSS, pH.	Gamma Spec.	Alpha Bota PLM (Asbest		
1219184/1207 S XAH-4 (1.0'-1.5		1		Х			Χ̈́											
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Work Order: 7041712 Cimarex/Laughlin 5 #3 TB Page Number: 1 of 1 Lea County, NM

Summary Report

Ike Tavarez

Highlander Environmental Services

1910 N. Big Spring Street Midland, TX, 79705

Report Date: April 23, 2007

Work Order: 7041712

Project Location: Lea County, NM

Project Name:

Cimarex/Laughlin 5 #3 TB

e,

Project Number:

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
121925	Stockpile West	soil	2007-04-12	00:00	2007-04-17
121926	Stockpile East	soil	2007-04-12	00:00	2007-04-17

]	BTEX	MTBE	TPH DRO	TPH GRO	
	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
121925 - Stockpile West	0.418	39.0	20.0	66.1	< 0.0500	11600	2310
121926 - Stockpile East	0.301	30.7	18.5	63.2	< 0.0200	12200	3480

Sample: 121925 - Stockpile West

Param	Flag	Result	Units	RL
Chloride		3100	mg/Kg	1.00

Sample: 121926 - Stockpile East

Param	Flag	Result	Units	RL
Chloride		2790	mg/Kg	1.00

Work Order: 7041709 Cimarex/Laughlin 5 #3 TB Page Number: 1 of 2 Lea County, NM

Summary Report

Ike Tavarez

Highlander Environmental Services

1910 N. Big Spring Street Midland, TX, 79705 Report Date: April 23, 2007

Work Order: 7041709

Project Location: Lea County, NM

Project Name: Cimarex/Laughlin 5 #3 TB

Project Number: 2985

	,		Date	$_{ m Time}$	Date
Sample	Description	Matrix	Taken	Taken	Received
121908	AH-1 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121909	AH-1 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17
121911	AH-2 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121912	AH-2 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17
121914	AH-3 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121917	AH-4 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121918	AH-4 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17
121920	AH-5 (0-1.0')	soil	2007-04-12	00:00	2007-04-17
121921	AH-5 (1.0-1.5')	soil	2007-04-12	00:00	2007-04-17

			BTEX	MTBE	TPH DRO	TPH GRO	
	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	DRO	$_{ m GRO}$
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
121908 - AH-1 (0-1:0') 121909 - AH-1 (1:0'1:5')					<0.0100 €	€888° <500	473
121911 - AH-2 (0-1.0')	A Commence of the second of th		The state of the s	2000年7月2月2日 1985年	The second secon	947	953
121912 - AH-2 (1.0-1.5')						< 50.0	9.10
Î21914==AH-3 (0-1.0°)	E2€0:0100	< 0.0100	>>=<0:0100	※<0.0100₩	≈≈<0:0100 _≈	<50.0	A.12
121917 - AH-4 (0-1.0')	< 0.0100	< 0.0100	< 0.0100	0.0151	< 0.0100	< 50.0	9.31
121918 - AH-4 (1.0-1.5')						< 50.0	2.15
121920 - AH-5 (0-1:0) - 5 121921 - AH-5 (1.0-1:5)	Acres & Mile Lines St. St. St. St.					49.5	162

Sample: 121908 - AH-1 (0-1.0')

Param	Flag	Result	Units	RL
Chloride		2690	mg/Kg	1.00

Sample: 121911 - AH-2 (0-1.0')

Param	Flag	Result	Units	RL
Chloride		671	mg/Kg	1.00

Report Date: Apri 2985	1 23, 2007	Work Order: 7041709 Cimarex/Laughlin 5 #3 TB		Page Number: 2 of 2 Lea County, NM
Sample: 121914	- AH-3 (0-1.0')			
Param	Flag	Result	Units	RL
Chloride		539	mg/Kg	1.00
Sample: 121917	, ,			
Param	Flag	Result	Units	RL
Chloride		60.4	mg/Kg	1.00
Sample: 121920	- AH-5 (0-1.0')			
Param	Flag	Result	Units	RL
Chloride		39.4	mg/Kg	1.00

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 1 of 2 Lea County, NM

Summary Report

Tim Reed

Highlander Environmental Services

1910 N. Big Spring Street Midland, TX, 79705

Report Date: June 26, 2007

Work Order: 7061525

Project Location: Lea County, NM

Project Name:

Cimarex/Laughlin 5 #3 TB

Project Number: 2985

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
127582	SP #1 0-1.0' BEB (1.0)	soil	2007-06-11	00:00	2007-06-15
127583	SP #2 0-1.0' BEB (1.0)	soil	2007-06-11	00:00	2007-06-15
127584	SP #3 0-1.0' BEB (1.0)	soil	2007-06-12	00:00	2007-06-15
127585	Stockpile Tank Battery	soil	2007-06-13	00:00	2007-06-15
127586	Stockpile Pasture	soil	2007-06-13	00:00	2007-06-15

	BTEX			MTBE	TPH DRO	TPH GRO	
	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
127582 - SP #1 0-1.0' BEB (1.0)	< 0.0100	< 0.0100	< 0.0100	< 0 0100		< 50.0	3.12
127583 - SP #2 0-1.0' BEB (1.0)	< 0.0100	< 0.0100	< 0.0100	< 0.0100		< 50.0	1.84
127584 - SP #3 0-1.0' BEB (1.0)	< 0.0100	< 0.0100	< 0.0100	< 0.0100		< 50.0	1.43
127585 - Stockpile Tank Battery						6920	2700
127586 - Stockpile Pasture						747	24.0

Sample: 127582 - SP #1 0-1.0' BEB (1.0)

Param	Flag	Result	Units	RL
Chloride		271	mg/Kg	2.00

Sample: 127583 - SP #2 0-1.0' BEB (1.0)

Param	Flag	Result	${f Units}$	RL
Chloride		188	mg/Kg	2.00

Sample: 127584 - SP #3 0-1.0' BEB (1.0)

Param	Flag	Result	Units	RL
Chloride		192	mg/Kg	2.00

Report Date: June 26, 2007 2985

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 2 of 2 Lea County, NM

Sample: 127585 - Stockpile Tank Battery

Param	Flag	Result	Units	RL
Chloride		160	mg/Kg	2.00

Sample: 127586 - Stockpile Pasture

Param	Flag	Result	Units	RL
Chloride		< 50.0	mg/Kg	2.00



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432 • 689 • 6301 FAX 432 • 689 • 6313

817 • 201 • 5260

Analytical and Quality Control Report

Tim Reed Highlander Environmental Services 1910 N. Big Spring Street Midland, TX, 79705

Report Date: June 26, 2007

7061525 Work Order:

Project Location: Lea County, NM

Project Name:

Cimarex/Laughlin 5 #3 TB

Project Number: 2985

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
$\overline{127582}$	SP #1 0-1.0' BEB (1.0)	soil	2007-06-11	00:00	2007-06-15
127583	SP #2 0-1.0' BEB (1.0)	soil	2007-06-11	00:00	2007-06-15
127584	SP #3 0-1.0' BEB (1.0)	soil	2007-06-12	00:00	2007-06-15
127585	Stockpile Tank Battery	soil	2007-06-13	00:00	2007-06-15
127586	Stockpile Pasture	soil	2007-06-13	00:00	2007-06-15

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

Dr. Blair Leftwich, Director

Michael al

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

Case Narrative

Samples for project Cimarex/Laughlin 5 #3 TB were received by TraceAnalysis, Inc. on 2007-06-15 and assigned to work order 7061525. Samples for work order 7061525 were received intact at a temperature of 2.5 deg C.

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

Test	Method
BTEX	S 8021B
Chloride (Titration)	SM 4500-Cl B
TPH DRO	Mod. 8015B
TPH GRO	S 8015B

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 7061525 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.

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB

Analytical Report

Sample: 127582 - SP #1 0-1.0' BEB (1.0)

Analysis: QC Batch: Prep Batch: 33238

BTEX 38402

Analytical Method: Date Analyzed:

Sample Preparation:

S 8021B

2007-06-21

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

Page Number: 3 of 19

Lea County, NM

RLParameter Flag Result Units Dilution RLBenzene < 0.0100 mg/Kg 0.0100 Toluene < 0.0100 mg/Kg 0.0100 Ethylbenzene < 0.0100 mg/Kg 1 0.0100 Xylene < 0.0100 mg/Kg 0.0100

					$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.900	mg/Kg	1	1.00	90	26 - 117.8
4-Bromofluorobenzene (4-BFB)		0.975	mg/Kg ·	1	1.00	98	51.1 - 119.1

Sample: 127582 - SP #1 0-1.0' BEB (1.0)

Analysis: QC Batch: Chloride (Titration)

Analytical Method: Date Analyzed:

SM 4500-Cl B 2007-06-18

Prep Method: N/A Analyzed By: AR

38276 Prep Batch: 33139

Sample Preparation:

Prepared By:

		m RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		271	mg/Kg	25	2.00

Sample: 127582 - SP #1 0-1.0' BEB (1.0)

Analysis:

TPH DRO

38384

Analytical Method:

Mod. 8015B 2007-06-20

Prep Method: N/A Analyzed By:

QC Batch: Prep Batch: 33157 Date Analyzed: Sample Preparation: 2007-06-18

Prepared By:

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		162	mg/Kg	1	150	108	32.9 - 167

Sample: 127582 - SP #1 0-1.0' BEB (1.0)

Analysis: QC Batch:

Prep Batch:

TPH GRO 38457

33281

Analytical Method: Date Analyzed: Sample Preparation:

S 8015B 2007-06-21 2007-06-21 Prep Method: S 5035 Analyzed By: Prepared By:

	Cimarex/ Daughini 5 #5 1D	Lea Country, TVIVI
2985	Cimarex/Laughlin 5 #3 TB	Lea County, NM

Parameter	Flag		$ m RL \ Result$		Units		Dilution	RL
GRO			3.12		mg/Kg		1	1.00
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (T	FT)	1225	0.795	mg/Kg	1	1.00	80	52.4 - 123.7
4-Bromofluorobenz			0.978	m mg/Kg	1	1.00	98	67.5 - 140.3

Sample: 127583 - SP #2 0-1.0' BEB (1.0)

Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	38402	Date Analyzed:	2007-06-21	Analyzed By:	$_{ m JW}$
Prep Batch:	33238	Sample Preparation:		Prepared By:	JW

		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	m mg/Kg	1	0.0100

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.914	mg/Kg	1	1.00	91	26 - 117.8
4-Bromofluorobenzene (4-BFB)		0.995	${ m mg/Kg}$	1	1.00	100	51.1 - 119.1

Sample: 127583 - SP #2 0-1.0' BEB (1.0)

Analysis: QC Batch: Prep Batch:	Chloride (Titration) 38277 33141	Analytical Method Date Analyzed: Sample Preparation	2007-06-18	Prep Method: Analyzed By: Prepared By:	AR
		m RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		188	mg/Kg	25	2.00

Sample: $127583 - SP \# 2 \ 0-1.0$ ' BEB (1.0)

Analysis: QC Batch: Prep Batch:	TPH DRO 38384 33157		Analytical Mo Date Analyze Sample Prepa	d: 2007-0	6-20	Analyz	Method: N/A ted By: red By:
Th.	DI		RL			Dil . :	D.1
Parameter	Fla	ag	Result	Uni	its	Dilution	RL
DRO		· · · · · · · · · · · · · · · · · · ·	<50.0	mg/I	ζg	1	50.0
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane	e	184	mg/Kg	1	150	123	32.9 - 167

2985

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 5 of 19 Lea County, NM

Sample: 127583 - SP #2 0-1.0' BEB (1.0)

Analysis: QC Batch:

TPH GRO 38457 Prep Batch: 33281

Analytical Method: Date Analyzed:

S 8015B 2007-06-21 Sample Preparation: 2007-06-21 Prep Method: S 5035 Analyzed By: JW JW Prepared By:

RL

Parameter	Flag	Result	Units	Dilution	RL
GRO		1.84	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.802	mg/Kg	1	1.00	80	52.4 - 123.7
4-Bromofluorobenzene (4-BFB)		0.971	mg/Kg	1	1.00	97	67.5 - 140.3

Sample: 127584 - SP #3 0-1.0' BEB (1.0)

Analysis: QC Batch:

Prep Batch:

BTEX 38402 33238

Analytical Method: Date Analyzed:

S 8021B 2007-06-21 Prep Method: S 5035 Analyzed By: JWPrepared By: JW

Sample Preparation: ъī

		N.L			
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

					Spike	Percent	Recovery
Surrogate	Flag	Result	$_{ m Units}$	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.893	mg/Kg	1	1.00	89	26 - 117.8
4-Bromofluorobenzene (4-BFB)		0.976	mg/Kg	1	1.00	98	51.1 - 119.1

Sample: $127584 - SP \# 3 \ 0-1.0$ ' BEB (1.0)

Analysis:

Chloride (Titration)

QC Batch: 38277 Prep Batch: 33141 Analytical Method: Date Analyzed:

SM 4500-Cl B 2007-06-18 Sample Preparation:

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

		m RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		192	mg/Kg	25	2.00

Sample: 127584 - SP #3 0-1.0' BEB (1.0)

Analysis: QC Batch:

TPH DRO 38384 Prep Batch: 33157

Analytical Method: Date Analyzed: Sample Preparation:

Mod. 8015B 2007-06-20 2007-06-18

Prep Method: N/A Analyzed By:

Prepared By:

Report Date: June 26, 2007 2985

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		172	mg/Kg	1	150	115	32.9 - 167

Sample: 127584 - SP #3 0-1.0' BEB (1.0)

Analysis: TPH GRO QC Batch: 38457 Prep Batch: 33281 Analytical Method: S 8015B
Date Analyzed: 2007-06-21
Sample Preparation: 2007-06-21

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

Page Number: 6 of 19

Lea County, NM

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	${f Amount}$	Recovery	Limits
Trifluorotoluene (TFT)		0.795	mg/Kg	1	1.00	80	52.4 - 123.7
4-Bromofluorobenzene (4-BFB)		0.958	mg/Kg	1	1.00	96	67.5 - 140.3

Sample: 127585 - Stockpile Tank Battery

33141

Analysis: QC Batch: Prep Batch: Chloride (Titration) 38277

Analytical Method: SM 4500-Cl B
Date Analyzed: 2007-06-18
Sample Preparation:

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

Sample: 127585 - Stockpile Tank Battery

Analysis: TPH DRO QC Batch: 38472 Prep Batch: 33294 Analytical Method: Mod. 8015B
Date Analyzed: 2007-06-24
Sample Preparation: 2007-06-24

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

					\mathbf{Spike}	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		229	mg/Kg	10	150	153	32.9 - 167

2985

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 7 of 19 Lea County, NM

Sample: 127585 - Stockpile Tank Battery

Analysis: QC Batch:

TPH GRO 38482 Prep Batch: 33303

Analytical Method: Date Analyzed: Sample Preparation:

S 8015B

2007-06-25

Prep Method: S 5035 Analyzed By: JWPrepared By: JW

RL

Parameter	Flag	Result	Units	Dilution	RL
GRO		2700	mg/Kg	50	1.00

Surrogate	Flag	Result	Units	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		36.5	mg/Kg	50	50.0	73	52.4 - 123.7
4-Bromofluorobenzene (4-BFB)	1	122	$_{ m mg/Kg}$	50	50.0	244	67.5 - 140.3

Sample: 127586 - Stockpile Pasture

Analysis:

Chloride (Titration)

Analytical Method: Date Analyzed:

SM 4500-Cl B 2007-06-18

Prep Method: N/A Analyzed By: AR

RL

2.00

QC Batch: 38277 Prep Batch: 33141

Sample Preparation:

RL

Prepared By: AR

Parameter	Flag	Result
Chloride		< 50.0

Units Dilution mg/Kg 25

Sample: 127586 - Stockpile Pasture

Analysis: QC Batch:

TPH DRO 38384 Prep Batch: 33157

Analytical Method: Date Analyzed:

Mod. 8015B 2007-06-20

Units

mg/Kg

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

RLResult Parameter Flag DRO 747

Sample Preparation: 2007-06-18

> Dilution RL50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	2	275	mg/Kg	1	150	183	32.9 - 167

Sample: 127586 - Stockpile Pasture

Analysis: QC Batch:

Prep Batch: 33284

TPH GRO 38460

Analytical Method: Date Analyzed:

Sample Preparation:

S 8015B 2007-06-22 Prep Method: S 5035 Analyzed By: JWPrepared By: JW

RL

Parameter	Flag	Result	Units	Dilution	RL
GRO		24.0	mg/Kg	1	1.00

¹High surrogate recovery due to peak interference.

²High surrogate recovery due to peak interference.

Report Date: June 26, 2007 2985

Work Order: 7061525 Cimarex/Laughlin $5~\#3~\mathrm{TB}$

Page Number: 8 of 19 Lea County, NM

Surrogate	Flag	Result	Units	Dilution	Spike Amou			-
Trifluorotoluene (TF		0.843	mg/Kg	1	1.00	84		123.7
4-Bromofluorobenzen	e (4-BFB)	1.13	mg/Kg	1	1.00	113	8 67.5 -	140.3
Method Blank (1)	QC Batch: 38276							
QC Batch: 38276 Prep Batch: 33139		Date Anal QC Prepar	•	007-06-18 007-06-18			Analyzed By: Prepared By:	AR AR
ттер васси. затаз		QO I Topas	awon. 2	01-00-10			repared by.	1110
.	T.V		MDL			TT 1.		DI
Parameter	Flag		Result			Units		$\frac{\text{RL}}{2}$
Chloride			<0.500			mg/Kg		
Method Blank (1)	QC Batch: 38277							
QC Batch: 38277		Date Anal		007-06-18			Analyzed By:	AR
Prep Batch: 33141		QC Prepar	ration: 2	007-06-18			Prepared By:	AR
			MDL	ı				
Parameter	Flag		Result			Units		RL
Chloride			< 0.500)		mg/Kg		2
Method Blank (1) QC Batch: 38384 Prep Batch: 33157	QC Batch: 38384	Date An QC Prep		2007-06-20 2007-06-18			Analyzed l Prepared I	
			MDL	ı				
Parameter	Flag		Result			Units		RL
DRO			<14.6	·		mg/Kg		50
Surrogate	Flag Result	Units	Dilu	tion	Spike Amount	Percent Recover		overy nits
n-Triacontane	116	mg/Kg			150	77	44.7 -	133.6
Method Blank (1) QC Batch: 38402	QC Batch: 38402	Date Anal	wad: 9	007-06-21			Analyzed By:	JW
Prep Batch: 33238		QC Prepa		007-06-21			Prepared By:	JW
•			M	DL			1	
Parameter	Flag		Res			Units		RL
Benzene Toluene			<0.001 <0.001			mg/Kg		0.01
Ethylbenzene			< 0.001			mg/Kg mg/Kg		0.01
Xylene			< 0.004			mg/Kg		0.01
								-

Report Date: June 26, 2007 2985

Flag

 ${\bf Result}$

140

Units

mg/Kg

Dilution

Surrogate n-Triacontane Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 9 of 19 Lea County, NM

	T.I.	T 1:	TT	T311	Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	DED)	0.904	mg/Kg	1	1.00	90	62.6 - 117.6
4-Bromofluorobenzene (4	-broj	0.854	mg/Kg	1	1.00	85	53.9 - 125.1
Method Blank (1)	QC Batch: 38457						
QC Batch: 38457		Date An	alvzed: 20	007-06-21		Analy	zed By: JW
Prep Batch: 33281			-	007-06-21			red By: JW
_	T31		MDL				D.T.
Parameter	Flag		Result		Uni		RL
<u>GRO</u>			< 0.739		mg/	Kg	1
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.929	mg/Kg	1	1.00	93	52.4 - 123.7
			mg/Kg	1	1.00	84	67.5 - 140.3
	QC Batch: 38460	0.835	mg/ Kg	1	1.00		51.13
Method Blank (1) QC Batch: 38460		Date An	<u> </u>	007-06-22	1.00	Analy	zed By: JW red By: JW
Method Blank (1) QC Batch: 38460		Date An	alyzed: 20	007-06-22 007-06-22	1.00	Analy	zed By: JW
Method Blank (1) QC Batch: 38460 Prep Batch: 33284		Date An	alyzed: 20 paration: 20 MDL Result	007-06-22 007-06-22	Uni	. Analy Prepa	zed By: JW
Method Blank (1) QC Batch: 38460 Prep Batch: 33284 Parameter	QC Batch: 38460	Date An	alyzed: 20 paration: 20 MDL	007-06-22 007-06-22		. Analy Prepa its	zed By: JW red By: JW
Method Blank (1) QC Batch: 38460 Prep Batch: 33284 Parameter	QC Batch: 38460	Date An	alyzed: 20 paration: 20 MDL Result	007-06-22 007-06-22	Uni	. Analy Prepa its	zed By: JW red By: JW RI
Method Blank (1) QC Batch: 38460 Prep Batch: 33284 Parameter GRO Surrogate	QC Batch: 38460	Date An QC Prep Result	alyzed: 20 aration: 20 MDL Result <0.739 Units	007-06-22 007-06-22 Dilution	Uni mg/ Spike Amount	. Analy Prepa its Kg Percent Recovery	rzed By: JW red By: JW RI 1 Recovery Limits
Method Blank (1) QC Batch: 38460 Prep Batch: 33284 Parameter GRO Surrogate Trifluorotoluene (TFT)	QC Batch: 38460 Flag	Date An QC Prep	alyzed: 20 paration: 20 MDL Result <0.739 Units mg/Kg	007-06-22 007-06-22 Dilution	Uni mg/ Spike Amount 0.100	. Analy Prepa its Kg Percent Recovery 90	rzed By: JW red By: JW RI 1 Recovery Limits 52.4 - 123.7
Method Blank (1) QC Batch: 38460 Prep Batch: 33284 Parameter GRO Surrogate Trifluorotoluene (TFT)	QC Batch: 38460 Flag	Date An QC Prep Result	alyzed: 20 aration: 20 MDL Result <0.739 Units	007-06-22 007-06-22 Dilution	Uni mg/ Spike Amount	. Analy Prepa its Kg Percent Recovery	rzed By: JW red By: JW RI 1 Recovery Limits
Method Blank (1) QC Batch: 38460 Prep Batch: 33284 Parameter GRO Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4	QC Batch: 38460 Flag	Date An QC Prep	alyzed: 20 paration: 20 MDL Result <0.739 Units mg/Kg	007-06-22 007-06-22 Dilution	Uni mg/ Spike Amount 0.100	. Analy Prepa its Kg Percent Recovery 90	rzed By: JW red By: JW RI 1 Recovery Limits 52.4 - 123.7
Method Blank (1) QC Batch: 38460 Prep Batch: 33284 Parameter GRO Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4) Method Blank (1) QC Batch: 38472	QC Batch: 38460 Flag Flag Flag	Date An QC Prep Result 0.0900 0.0852	alyzed: 20 paration: 20 MDL Result <0.739 Units mg/Kg mg/Kg mg/Kg	007-06-22 007-06-22 Dilution	Uni mg/ Spike Amount 0.100	. Analy Prepared Its Kg Percent Recovery 90 85	rzed By: JW red By: JW RI 1 Recovery Limits 52.4 - 123.7 67.5 - 140.3
Method Blank (1) QC Batch: 38460 Prep Batch: 33284 Parameter GRO Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4) Method Blank (1) QC Batch: 38472	QC Batch: 38460 Flag Flag Flag	Date An QC Prep Result 0.0900 0.0852	alyzed: 20 paration: 20 MDL Result <0.739 Units mg/Kg mg/Kg mg/Kg alyzed: 20 paration: 20	Dilution 1 1 007-06-24 007-06-24	Uni mg/ Spike Amount 0.100	. Analy Prepared Its Kg Percent Recovery 90 85	rzed By: JW red By: JW RI 1 Recovery Limits 52.4 - 123.7 67.5 - 140.3
Prep Batch: 33284 Parameter GRO Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4 Method Blank (1) QC Batch: 38472	QC Batch: 38460 Flag Flag Flag	Date An QC Prep Result 0.0900 0.0852	alyzed: 20 paration: 20 MDL Result <0.739 Units mg/Kg mg/Kg mg/Kg	Dilution 1 1 007-06-24 007-06-24	Uni mg/ Spike Amount 0.100	. Analy Prepared Its Kg Percent Recovery 90 85 Analy Prepared	rzed By: JW red By: JW RI Recovery Limits 52.4 - 123.7 67.5 - 140.3

Spike Amount

150

Percent

Recovery

93

 ${\bf Recovery}$

Limits 44.7 - 133.6

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 10 of 19 Lea County, NM

Method Blank (1)

QC Batch: 38482

QC Batch: Prep Batch: 33303

2985

38482

Date Analyzed: QC Preparation: 2007-06-25

2007-06-25

Analyzed By: JW Prepared By: JW

MDL

Parameter \overline{GRO}

Flag

Result < 0.739

Units mg/Kg RL

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.882	mg/Kg	1	1.00	88	52.4 - 123.7
4-Bromofluorobenzene (4-BFB)		0.841	mg/Kg	1	1.00	84	67.5 - 140.3

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 33139

38276

Date Analyzed: QC Preparation:

2007-06-18 2007-06-18

Analyzed By: AR Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	97.0	mg/Kg	1	100	< 0.500	97	85 - 115

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Chloride	97.9	mg/Kg	1	100	< 0.500	98	85 - 115	1	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:

38277 Prep Batch: 33141 Date Analyzed: QC Preparation: 2007-06-18

2007-06-18

Analyzed By: AR Prepared By: AR.

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	97.2	mg/Kg	1	100	< 0.500	97	85 - 115

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	$_{ m Limit}$
Chloride	98.1	mg/Kg	1	100	< 0.500	98	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:

38384 33157 Date Analyzed: QC Preparation:

2007-06-20 2007-06-18

Analyzed By: Prepared By:

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 11 of 19 Lea County, NM

LCS Spike Matrix Rec. Result Units Dil. Amount Result Rec. Limit Param <14.6 DRO 250 mg/Kg 250 100 47.5 - 144.1

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	263	mg/Kg	1	250	<14.6	105	47.5 - 144.1	5	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Triacontane	153	166	mg/Kg	1	150	102	111	57.3 - 131.6

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 38402

Date Analyzed:

2007-06-21

Analyzed By: JW

33238 QC Preparation: 2007-06-21 Prepared By: JW

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}
Benzene	0.939	mg/Kg	1	1.00	< 0.00110	94	68.6 - 123.4
Toluene	0.961	mg/Kg	1	1.00	< 0.00150	96	74.6 - 119.3
Ethylbenzene	0.933	mg/Kg	1	1.00	< 0.00160	93	72.3 - 126.2
Xylene	2.82	${ m mg/Kg}$	1	3.00	< 0.00410	94	76.5 - 121.6

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	0.786	mg/Kg	1	1.00	< 0.00110	79	68.6 - 123.4	18	20
Toluene	0.926	mg/Kg	1	1.00	< 0.00150	93	74.6 - 119.3	4	20
Ethylbenzene	0.925	mg/Kg	1	1.00	< 0.00160	92	72.3 - 126.2	1	20
Xylene	2.79	mg/Kg	1	3.00	< 0.00410	93	76.5 - 121.6	1	20

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

Surrogate	$rac{ ext{LCS}}{ ext{Result}}$	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.815	0.817	mg/Kg	1	1.00	82	82	64.1 - 118.2
4-Bromofluorobenzene (4-BFB)	0.920	0.913	mg/Kg	1	1.00	92	91	68.7 - 125.8

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 33281

38457

Date Analyzed: QC Preparation: 2007-06-21

2007-06-21

Analyzed By: JW Prepared By: JW

	LCS			$_{ m Spike}$	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	9.23	mg/Kg	1	10.0	< 0.739	92	57.7 - 102.5

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

2985

Surrogate

n-Triacontane

Result

158

Result

159

Units

mg/Kg

Dil.

Amount

150

Rec.

105

Rec.

106

Limit

57.3 - 131.6

17

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 12 of 19 Lea County, NM

LCSD Spike Matrix Rec. RPD Result Units Dil. Amount Result Rec. Limit RPD Limit Param GR.O 9.60 mg/Kg 10.0 < 0.73996 57.7 - 102.5 20 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. LCS LCSD LCSD Spike LCS Rec. Surrogate Result Result Units Dil. Amount Rec. Rec. Limit Trifluorotoluene (TFT) 1.16 1.14 114 36.8 - 152.5 mg/Kg 1.00 116 1 4-Bromofluorobenzene (4-BFB) 0.9981.00 1 1.00 100 100 70 - 130 mg/Kg Laboratory Control Spike (LCS-1) QC Batch: 38460 Date Analyzed: 2007-06-22 Analyzed By: JW 2007-06-22 Prep Batch: 33284 QC Preparation: Prepared By: LCS Spike Matrix Rec. Result Dil. Param Units Amount Result Rec. Limit \overline{GRO} 7.90 mg/Kg 10.0 < 0.739 $\overline{79}$ 57.7 - 102.5 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. LCSD Spike Matrix RPD Rec. Result Dil. Result RPD Param Units Amount Rec. Limit Limit **GRO** 7.43 10.0 < 0.739 $\overline{74}$ 20 mg/Kg 57.7 - 102.5 6 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) 1.18 0.809 mg/Kg 1 1.00 118 81 36.8 - 152.5 4-Bromofluorobenzene (4-BFB) 0.912 0.921 mg/Kg 1.00 92 70 - 130 1 91 Laboratory Control Spike (LCS-1) QC Batch: 38472 Date Analyzed: 2007-06-24 Analyzed By: Prep Batch: 33294 QC Preparation: 2007-06-24 Prepared By: LCS Spike Matrix Rec. Amount Param Result Units Dil. Result Rec. Limit DRO 232 250 <14.6 mg/Kg 93 47.5 - 144.1 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 Limit RPD Result Rec. Limit $\overline{\text{DRO}}$ 239 mg/Kg 250 <14.6 96 47.5 - 144.1 3 20 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. LCS LCSD LCS LCSD Spike Rec.

2985

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 13 of 19 Lea County, NM

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:

38482 33303 Date Analyzed: QC Preparation:

2007-06-25 2007-06-25

Analyzed By: Prepared By: JW

LCS Spike Matrix Rec. Result Dil. Param Units Amount Result Rec. Limit GRO 7.79 mg/Kg 10.0 < 0.73978 57.7 - 102.5

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

LCSD RPD Spike Matrix Rec. Result Units Dil. Limit RPD Param Amount Result Rec. Limit 7.13 $\overline{\text{GRO}}$ mg/Kg 10.0 < 0.739 71 57.7 - 102.5 20 9

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

LCS LCSD LCS LCSD Rec. Spike Result Result Units Dil. Amount Rec. Rec. Limit Surrogate Trifluorotoluene (TFT) 1.17 0.804mg/Kg 1 1.00 11780 36.8 - 152.5 4-Bromofluorobenzene (4-BFB) 0.9390.930mg/Kg 1 1.00 94 93 70 - 130

Matrix Spike (MS-1)

Spiked Sample: 127582

QC Batch: 38276 Prep Batch: 33139 Date Analyzed:

2007-06-18

Analyzed By: AR Prepared By:

QC Preparation: 2007-06-18

MS Spike Matrix Rec. Result Units Dil. Result Param Amount Rec. Limit 2660 25 Chloride mg/Kg 2500 271.028 96 85 - 115

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

MSD Spike Matrix RPD Rec. Param Result Units Dil. Result RPD Amount Rec. Limit Limit Chloride 2680 mg/Kg 25 2500 271.028 96 85 - 115 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: 127586

QC Batch: Prep Batch:

38277 33141

Date Analyzed: QC Preparation:

2007-06-18

2007-06-18

Analyzed By: AR. Prepared By: AR.

MS Spike Rec. Matrix Param Result Units Dil. Amount Result Limit Rec. Chloride 2540 mg/Kg 25 97.726 2500 98 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 2560 mg/Kg 25 2500 97.726 102 85 - 115 20

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

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB

Page Number: 14 of 19 Lea County, NM

Matrix Spike (MS-1)

Spiked Sample: 127573

QC Batch: Prep Batch: 33157

38384

Date Analyzed: QC Preparation: 2007-06-18

2007-06-20

Analyzed By: Prepared By:

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO	251	mg/Kg	1	250	<14.6	100	11.7 - 152.3

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

,	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	276	mg/Kg	1	250	<14.6	110	11.7 - 152.3	10	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	Rec.	Rec.	Limit
n-Triacontane	136	145	mg/Kg	1	150	91	97	17 - 163.1

Matrix Spike (MS-1) Spiked Sample: 127642

QC Batch: Prep Batch: 33238

38402

Date Analyzed:

2007-06-21 QC Preparation: 2007-06-21 Analyzed By: JW Prepared By: JW

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	1.10	mg/Kg	1	1.00	< 0.00110	110	64.4 - 115.7
Toluene	1.16	$_{ m mg/Kg}$	1	1.00	< 0.00150	116	57.8 - 124.4
Ethylbenzene	1.18	mg/Kg	1	1.00	< 0.00160	118	64.8 - 125.8
Xylene	3.59	mg/Kg	1	3.00	< 0.00410	120	65.2 - 121.8

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	0.973	mg/Kg	1	1.00	< 0.00110	97	64.4 - 115.7	12	20
Toluene	1.03	mg/Kg	1	1.00	< 0.00150	103	57.8 - 124.4	12	20
Ethylbenzene	1.03	mg/Kg	1	1.00	< 0.00160	103	64.8 - 125.8	14	20
Xylene	3.26	mg/Kg	1	3.00	< 0.00410	109	65.2 - 121.8	10	20

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

Surrogate	$rac{ ext{MS}}{ ext{Result}}$	MSD Result	Units	Dil.	Spike Amount	$rac{MS}{Rec.}$	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.791	0.797	mg/Kg	1	1	79	80	52.8 - 121.7
4-Bromofluorobenzene (4-BFB)	0.950	0.972	mg/Kg	1	1	95	97	66.7 - 131.9

Matrix Spike (MS-1) Spiked Sample: 127642

QC Batch:

Prep Batch: 33281

38457

Date Analyzed:

QC Preparation:

2007-06-21 2007-06-21

Analyzed By: JW Prepared By: JW

Work Order: 7061525

Cimarex/Laughlin 5 #3 TB

Page Number: 15 of 19 Lea County, NM

	MS			_	_	ike		atrix			Rec.
Param	Resu		nits	Dil.		ount		sult	Rec.		Limit
GRO	41.4	m,	g/Kg	1	1(0.0	36.	6192	48	10	- 141.5
Percent recovery is based on the s	pike result.	RPD is b	ased on	the spike	and sp	ike dup	licate	result			
	MSD			Spike	Ma	trix		R	lec.		RPD
Param	Result	Units	Dil.	Amount			Rec.		mit	RPD	Limit
GRO	43.4	mg/Kg	1	10.0	36.	6192	68	10 -	141.5	5	20
Percent recovery is based on the s	pike result.	RPD is b	ased on	the spike	and sp	oike dup	licate	e result			
	M	S M	SD			Spik	е	MS	MSD	J	Rec.
Surrogate	Res	ult Re	sult	Units	Dil.	Amou		Rec.	Rec.	L	imit
Trifluorotoluene (TFT)	0.6	66 0.0	616 ı	ng/Kg	1	1		67	62	40 -	- 125.3
4-Bromofluorobenzene (4-BFB)	3 4 1.4	9 1.	52 1	ng/Kg	1	1		149	152	86.7	- 144.5
Matrix Spike (MS-1) Spike	d Sample: 12	7628									
- , , -	a bampie. 12										
QC Batch: 38460		Date An		2007-0						yzed By	
Prep Batch: 33284		QC Prep	aration:	2007-0	5-22				Prep	ared By	: JW
D.	MS		т •.	T>:1	_	oike		atrix	T.		Rec.
Param GRO	Resu 7.27		Jnits	Dil.		ount		esult	Rec.		Limit - 141.5
Percent recovery is based on the s			g/Kg	the grile		0.0		.75	15		141.8
refrent recovery is based on the s		IU D IS U	ased on	_		_	ncau				
D	MSD	TT., t4 -	Dil	Spike		atrix	D		lec.	DDD	RPD
Param GRO	Result 7.38	Units	Dil.	Amoun 10.0		sult .75	Rec.		imit	RPD	Limi
		mg/Kg	1				16		141.5		20
Percent recovery is based on the s	spike resuit.	KPD is p	ased on	tne spike	e and sp	эке аир	ncate	e result	•		
	MS	MS				Spike	!	MS	MSD]	${ m Rec.}$
Surrogate	Resul			Jnits	Dil.	Amoui	nt	Rec.	Rec.		Limit
Trifluorotoluene (TFT)	0.763			ıg/Kg	1	1		76	72		- 125.3
4-Bromofluorobenzene (4-BFB)	1.01	1.0	3 m	ıg/Kg	1	1		101	103	86.7	<u>- 144.</u>
Matrix Spike (MS-1) Spike	d Sample: 12	28343									
QC Batch: 38472		Date An	alyzed:	2007-0	6-24				Anal	yzed By	: AG
Prep Batch: 33294		QC Prep	aration:	2007-0	6-24				Prep	ared By	r: AG
					C :	leo	Ma	trix		-	Rec.
	MS				Spi	Ke	IVI	PLIV			nec.
Param DRO	MS Resu		Inits	Dil.	Amo		Res		Rec.		Limit

Spike

Amount

250

Dil.

1

Units

mg/Kg

Matrix

Result

<14.6

Rec.

112

 ${\rm Re}c.$

Limit

11.7 - 152.3

RPD

Limit

20

RPD

13

 MSD

Result

279

Param

DRO

³High surrogate recovery due to peak interference. ⁴High surrogate recovery due to peak interference.

2985

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 16 of 19 Lea County, NM

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.	Rec.	\mathbf{Limit}
n-Triacontane	128	137	mg/Kg	1	150	85	91	17 - 163.1

Spiked Sample: 127639 Matrix Spike (MS-1)

QC Batch: Prep Batch: 33303

38482

Date Analyzed:

2007-06-25

QC Preparation: 2007-06-25

Analyzed By: JW

Prepared By: JW

	MS			\mathbf{Spike}	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	1970	mg/Kg	50	500	1816.24	31	10 - 141.5

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

		MSD			Spike	Matrix		Rec.		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	5	1850	mg/Kg	50	500	1816.24	7	10 - 141.5	6	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	Rec.	Rec.	Limit
Trifluorotoluene (TFT)		32.6	31.8	mg/Kg	50	50	65	64	40 - 125.3
4-Bromofluorobenzene (4-BFB)	6 7	85.8	80.2	mg/Kg	50	50	172	160	86.7 - 144.5

Standard (ICV-1)

QC Batch: 38276

Date Analyzed: 2007-06-18

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	98.1	98	85 - 115	2007-06-18

Standard (CCV-1)

QC Batch: 38276

Date Analyzed: 2007-06-18

Analyzed By: AR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2007-06-18

Standard (ICV-1)

QC Batch: 38277

Date Analyzed: 2007-06-18

Analyzed By: AR

⁵Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

⁶High surrogate recovery due to peak interference.

⁷High surrogate recovery due to peak interference.

2985

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 17 of 19 Lea County, NM

			ICVs	ICVs	ICVs	Percent	D .
			True	Found	$\operatorname{Percent}$	${ m R.ecovery}$	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride	•	mg/Kg	100	99.7	100	85 - 115	2007-06-18

Standard (CCV-1)

QC Batch: 38277

Date Analyzed: 2007-06-18

Analyzed By: AR

			CCVs True	CCVs Found	$\begin{array}{c} { m CCVs} \\ { m Percent} \end{array}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2007-06-18

Standard (CCV-1)

QC Batch: 38384

Date Analyzed: 2007-06-20

Analyzed By:

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	272	109	85 - 115	2007-06-20

Standard (CCV-2)

QC Batch: 38384

Date Analyzed: 2007-06-20

Analyzed By:

			CCVs True	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	250	100	85 - 115	2007-06-20

Standard (ICV-1)

QC Batch: 38402

Date Analyzed: 2007-06-21

Analyzed By: JW

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene	8	mg/Kg	1.00	0.767	77	85 - 115	2007-06-21
Toluene		mg/Kg	1.00	0.906	91	85 - 115	2007-06-21
Ethylbenzene		mg/Kg	1.00	0.879	88	85 - 115	2007-06-21
Xylene		${ m mg/Kg}$	3.00	2.64	88	85 - 115	2007-06-21

Standard (CCV-1)

QC Batch: 38402

Date Analyzed: 2007-06-21

Analyzed By: JW

⁸Benzene outside of control limits on CCV(ICV). CCV(ICV) component average is 0.85 which is within acceptable range. This is acceptable by Method 8000.

Report Date: June 26, 2007 2985

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 18 of 19 Lea County, NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	1.00	0.867	87	85 - 115	2007-06-21
Toluene		mg/Kg	1.00	0.882	88	85 - 115	2007-06-21
Ethylbenzene		mg/Kg	1.00	0.847	85	85 - 115	2007-06-21
Xylene		mg/Kg	3.00	2.55	85	85 - 115	2007-06-21

Standard (ICV-1)

QC Batch: 38457

Date Analyzed: 2007-06-21

Analyzed By: JW

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	\mathbf{Flag}	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO	·	mg/Kg	1.00	0.874	87	85 - 115	2007-06-21

Standard (CCV-1)

QC Batch: 38457

Date Analyzed: 2007-06-21

Analyzed By: JW

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	0.971	97	85 - 115	2007-06-21

Standard (ICV-1)

QC Batch: 38460

Date Analyzed: 2007-06-22

Analyzed By: JW

			ICVs	ICVs	ICVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.11	111	85 - 115	2007-06-22

Standard (CCV-1)

QC Batch: 38460

Date Analyzed: 2007-06-22

Analyzed By: JW

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	0.917	92	85 - 115	2007-06-22

Standard (CCV-2)

QC Batch: 38472

Date Analyzed: 2007-06-24

Analyzed By: AG

Report Date: June 26, 2007 2985

Work Order: 7061525 Cimarex/Laughlin 5 #3 TB Page Number: 19 of 19 Lea County, NM

			CCVs True	$\begin{array}{c} { m CCVs} \\ { m Found} \end{array}$	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	241	96	85 - 115	2007-06-24

Standard (CCV-3)

QC Batch: 38472

Date Analyzed: 2007-06-24

Analyzed By: AG

			CCVs True	· CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	238	95	85 - 115	2007-06-24

Standard (ICV-1)

QC Batch: 38482

Date Analyzed: 2007-06-25

Analyzed By: JW

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	0.963	96	85 - 115	2007-06-25

Standard (CCV-1)

QC Batch: 38482

 $Date\ Analyzed:\ \ 2007\text{-}06\text{-}25$

Analyzed By: JW

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
$\overline{\text{GRO}}$		mg/Kg	1.00	1.01	101	85 - 115	2007-06-25

Work order, 7061525

Analysis Request and Chain of Custoe	dy Record	PAGE: OF:			
		ANALYSIS REQUEST (Circle or Specify Method No.)			
HIGHLANDER ENVIRONMENTAL 1910 N. Big Spring St.	CORP.	2			
Midland, Texas 79705		Pb Hg Pd Hg			
	(432) 682-3946				
CLIENT NAME: CIMATEX SITE MANAGER: IKE TUVUTCZ	PRESERVATIVE METHOD	2 8 As Ba Cd Cr 3 As Ba Cd Cr			
PROJECT NO.: 2985 PROJECT NAME: Cinarex/Laughlin 5 #3 TB	(A)	1 (802 1 (808 1 (808 14 As			
LAB I.D. DATE TIME ENGINE SAMPLE IDENTIFICATION SAMPLE IDENTIFICATION	NUMBER OF FILTERED (Y, HCL HNO3 ICE NONE	ETEX BOZO/602 MTBB 8020/602 THE 8020/602 FAH 6270 RCTA Wetals Ag As Ba Cd TCIP Wetals Ag As Ba Cd TCIP Volatiles TCIP Semi Voletiles RCI GC.MS Semi. Vol. 6270/622 FCIS Semi. Vol. 6270/622 FCIS Semi. Vol. 6270/622 FCIS Semi. Vol. 6270/622 GG.MS Semi. Vol. 6270/622 FCIS Semi. FCI			
127582 411/07 5 X SP # 1 0-1.0' BEB (1.0')	II X	XX			
583 6/11/07 5 X SP #2 0-1.0' BEB (1.0')	II X				
584 6/12/07 S XSP #3 0-1.0' BEB (1.0')	/ X	* X X			
585 6/13/07 SX Stockpile TUAK Buttery	X X				
586 6/13/07 SX Stockpile Pasture	J X				
RELINQUISHED BY: (Signature) Date: 6/15/07 RECEIVED BY: (Signature) Time: 11'.35	Date:	SAMPLED BY. (Print, & Sign), Date: 6/15/01 (1697 Cyler & Kolf Hamson Time:			
RELINQUISHED BY: (Signature) Date: RECRIVED BY: (Signature)	Date:	SAMPLE SHIPPED BY: (Circle) FEDEK BUS AIRBILL #			
RELINQUISHED BY: (Signature) Date: RECEIVED BY: (Signature)	Tate:	AND DELIVERED UPS OTHER:			
RECEIVING LABORATORY: 1/4/6 RECEIVED BY: (Signature)		HIGHLANDER CONTACT PERSON:			
CITY: M. a land STATE: The ZIP:	TDIE: 11'. 35	Lile availed Authorized:			
SAMPLE CONDITION WHEN RECEIVED: MATRIX: W-Water A-Air SD-Solle					
2.5 C S-Sull SL-Sludge 0-Other	Taning and I for				

Please Fill out all copies - Laboratory retains yellow copy - Return original copy to Highlander Environmental Corp. - Project Manager retains pink copy - Accounting receives Gold copy.

APPENDIX C

District 1
1625 N. French Dr, Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources

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

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

Release Notification and Corrective Action

						OPERA	OR		💢 Initia	l Report	⊠ Final	Report
Name of Co	mpany	Cimarex Ene	rgy Co.	of Colorado		Contact	Zeno Farri:	s '				
					Telephone N							
Facility Name Laughlin 5 No. 3					Facility Typ	e 300 bbl oil	tank					
Surface Owner State Mineral Owner					State			Lease N	lo. V0-5	271-0001		
LOCATION OF RELEASE												
Unit Letter	Section	Township	Range	Feet from the		/South Line	Feet from the	East/	West Line		County	
Г	5	208	37E	2100		South	740		East		Lea	
L	1	203					<u>. </u>		Last	1	0,	
Latitude 326023 N Longitude 1032731 W												
				NAT	URE	OF REL						
Type of Rele						Volume of				ecovered	125 bbls	
Source of Re	iease						l Hour of Occurrer , 12:00 am to 6:00		Da	8:15 am	of Discovery	1
Was Immedi	ate Notice (Given?				If YES, To						
		\boxtimes	Yes [No 🗌 Not Re	equired	Malcolm (Coombs (landowne	er), Lar	ry Johnson	(NMOCD)		
By Whom?						Date and I				anders 8:30	am 03-28-07	
Was a Water	course Rea	ched?	Yes ⊠] No		If YES, Ve	olume Impacting th	he Wat	ercourse.			
If a Waterco	urse was Im	pacted, Descr	ibe Fully.	*								
			•									
									∵ ;			
		lem and Reme						• • • •				
There was ar	ı oil spill w	hile the tank b	ottom was	being circulated.					G.			
		and Cleanup										
							called to suck up t	the spil	l, a gang wa	as called in	to clean the tar	nks,
and a backno	be was nired	to pick conta	minated s	oil and put on plas	stic. Mi	icro-Blaze wi	i be sprayed.					
I hereby cert	ify that the	information g	ven above	is true and comp	lete to 1	he best of my	knowledge and u	ndersta	nd that pur	suant to NM	OCD rules and	d
regulations a	III operators	are required to	o report a	nd/or file certain r	elease r	notifications a	nd perform correct arked as "Final Re	tive ac	tions for rel	eases which	may endanger	r tar
should their	operations l	have failed to	dequately	investigate and r	emedia	te contaminat	ion that pose a thre	eat to g	round wate	r. surface w	ater, human he	ealth
or the enviro	nment. In a	addition, NMC	CD accep	otance of a C-141	report o	loes not reliev	e the operator of r	respons	sibility for c	ompliance	with any other	
federal, state	, or local la	ws and/or regi	ılations.		r		OH GOM	anni	I A TOTAL	DIVIO	^>.	
	-	~		,			OIL CONS	SEK!	ATION	DIVISIO	<u>JN</u>	
Signature:		eno F	<u>-au</u>	<u></u>			Enviren	Fir	٨			
Printed Nam	e: Zeno I	Farris				Approved by	District Supervisor	- Y	عدل	12-		
Title: Mar	ager Opera	tions Adminis	tration			Approval Da	te: 6-5:07		Expiration	Date:		
E-mail Addr	E-mail Address: zfarris@cimarex.com						f Approval:			Attached	i 🗌	
Date: 03-2	29-07		Ph	one: 972-443 - 6	489	***************************************						
* Attack Add	4: 1 CL -	etc If Necess								-		

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

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			Rele	ease Notific	ation	and Co	orrective A	ction	· · ·	
						OPERA	TOR	☐ Initi	al Report Final Rep	
Name of Company Cimarex Energy Co. of Colorado						Contact Zeno Farris				
Address		PO Box 140)907; Irvi	ng, TX 75014		Telephone N				
Facility Name Laughlin 5 No. 3]	Facility Typ	e 300 bbl oi	l tank		
Surface Owner State Mineral Owner					wner	State		Lease 1	No. V0-5271-0001	
				LOCA	TION	OF REI	LEASE			
Unit Letter	Section	Township	Range	Feet from the	North/	th/South Line Feet from the East/West			County	
I	I 5 20S 37E 2100					South 740 East Lea			Lea	
				Latitude 3260	023 N	Longitud	de 1032731 V	<u>V</u>		
				NAT	URE	OF RELI	EASE			
Type of Rele						Volume of			Recovered 125 bbls	
Source of Re	lease						Hour of Occurre		ate and Hour of Discovery	
Oil tank Was Immedia	at- Nindian (2:9				03-28-07	12:00 am to 6:00	am	8:15 am 03-28-07	
was militedia	ate Notice (Yes [No Not Rec	quired			er), Larry Johnson	(NMOCD)	
By Whom?	Hugo Nae	gele				Date and H	lour Coombs 9:	45 am 03-28-07. S	Sanders 8:30 am 03-28-07	
Was a Water							lume Impacting the			
			Yes 🛛	No			, ,			
		em and Reme nile the tank b		n Taken * being circulated						
All oil was sp	pilled into d		and on lo					the spill, a gang w	as called in to clean the tanks,	
regulations a public health should their or or the environ	Il operators or the environerations homent. In a	are required tronment. The ave failed to a	o report are acceptant adequately OCD accep	nd/or file certain re ce of a C-141 report investigate and re	lease not t by the mediate	otifications are NMOCD me contaminati	nd perform correct at ked as "Final Reconstruction that pose a three the operator of r	tive actions for rel eport" does not rel eat to ground wate responsibility for c	suant to NMOCD rules and eases which may endanger ieve the operator of liability r, surface water, human health ompliance with any other	
Signature:	2	eno F	an	, —			OIL CONS	SERVATION	DIVISION	
Printed Name: Zeno Farris						Approved by District Supervisor:				
Title: Man	ager Operat	ions Adminis	tration			Approval Date: Expiration Date:		Date:		
E-mail Address: zfarris@cimarex.com					Conditions of Approval:			Attached		
Date: 03-2	9-07		Pho	one: 972-443-64	89				-	

^{*} Attach Additional Sheets If Necessary

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Attach Additional Sheets If Necessary

State of New Mexico Energy Minerals and Natural Resources

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

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Release Notification and Corrective Action OPERATOR Initial Report Final Report Name of Company Cimarex Energy Co. of Colorado Contact Zeno Farris PO Box 140907; Irving TX 75014 Telephone No. 972-443-6489 Address Laughlin 5 No. 3 Facility Type 300 bbl oil tank Facility Name Mineral Owner State Lease No. V0-5271-0001 State Surface Owner LOCATION OF RELEASE North/South Line Unit Letter Section Township Range Feet from the Feet from the East/West Line 5 **20S** 37E 2100 South 740 East Lea Latitude 326023 N Longitude 1032731 W NATURE OF RELEASE Type of Release Oil Volume of Release 125 bbls Volume Recovered 125 bbls Source of Release Oil tank Date and Hour of Occurrence Date and Hour of Discovery 03-28-07, 12:00 a.m. to 6:00a.m. 8:15 am 03-28-07 If YES, To Whom? Was Immediate Notice Given? Malcolm Coombs (landowner), Larry Johnson (NMOCD) By Whom? Date and Hour Coombs 9:45 am 03-28-07, Sanders 8:30 am 03-28-07 Was a Watercourse Reached? If YES, Volume Impacting the Watercourse. ☐ Yes ☐ No If a Watercourse was Impacted, Describe Fully.* Describe Cause of Problem and Remedial Action Taken.* (See Attached Initial C-141) There was an oil spill while the tank bottom was being circulated Describe Area Affected and Cleanup Action Taken.* All oil was spilled into dikes (65 bbls) and on location (60 bbls). A vacuum truck picked up all the fluids. Cimarex had a local dirt contractor remove the visually impacted soils. Highlander Environmental personnel inspected and sampled the spill area. The impacted areas exceeding the RRAL were excavated and hauled to proper disposal. A final closure report was prepared and submitted to the NMOCD. I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. **OIL CONSERVATION DIVISION** Signature: Jan 7 Wanter Approved by District Supervisor: Printed Name: Evan L Wauhob Production Superintendent Approval Date: Title: **Expiration Date:** E-mail Address: ewauhob@cimarex.com Conditions of Approval: Attached Phone: 432-571-7848