SITE INFORMATION **Report Type: Closure Report** General Site Information: Pickett/Exxon Common 8 Federal #1 TB Site: Company: COG Operating LLC Section, Township and Range Unit A Sec 8 T25S R29E Lease Number: API-30-015-25894 County: **Eddy County** GPS: 32.14971° N 103.99183° W Surface Owner: Federal Mineral Owner: From the post office in Malaga, NM, travel south on Hwy 285 3.8 miles, turn left on Whitehorn Directions: Road and travel 4.0 miles, turn left and travel 1.8 miles, at caliche pit on right turn left and travel 3.5 miles, turn left and travel 2.0 miles, turn right and travel 0.3 miles to site. Release Data: Date Released: 9/27/2011 Type Release: Produced Water Source of Contamination: Tank Fluid Released: 10 bbls Fluids Recovered: 8 bbls Official Communication: Name: Pat Ellis Ike Tavarez Company: COG Operating, LLC Tetra Tech Address: 550 W. Texas Ave. Ste. 1300 1910 N. Big Spring P.O. Box City: Midland Texas, 79701 Midland, Texas Phone number: (432) 686-3023 (432) 682-4559 Fax: (432) 684-7137 Email: pellis@conchoresources.com ike.tavarez@tetratech.com

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

Acceptable Soil RRAL (mg/kg)

Benzene

10

Total BTEX

50

TPH

1,000

JAN 1 4 2013

NMOCD ARTESIA



January 7, 2013

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

Re: Closure Request for the COG Operating LLC., Pickett/Exxon Common 8 Federal #1 Tank Battery, Unit A, Section 8, Township 25 South, Range 29 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Pickett/Exxon Common 8 Federal #1 Tank Battery located in Unit A, Section 8, Township 25 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.14971°, W 103.99183°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on September 27, 2011, and released approximately ten (10) barrels of produced fluid from a broken valve on top of the tank. To alleviate the problem, COG personnel repaired the valve. Eight (8) barrels of standing fluids were recovered. The spill was contained inside the firewall of the facility and measured an approximate length of 40.0', with a width of 2.0' to 4.0'. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 8. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 75' below surface. The groundwater data is shown in Appendix B.



Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 1,000 mg/kg.

Soil Assessment and Analytical Results

On November 2, 2011, Tetra Tech personnel inspected and sampled the spill area. Auger hole (AH-1) was installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole location is shown on Figure 3.

Referring to Table 1, none of the samples exceeded the RRAL for BTEX. However, all of the samples exceeded the RRAL for TPH to a depth of 5-5.0' below surface and not vertically defined. Deeper samples were not collected due to a dense caliche formation. In addition, the chloride concentrations detected do not appear to an environmental concern.

Assessment and Closure Activities

Prior to excavating the impacted soil, a backhoe trench was installed to a depth of 9.0' below surface. The trench results are shown in Table 1. The TPH concentration was not vertically defined with a bottom sample of 3,511 mg/kg at 9.0' below surface. Based on the results, Tetra Tech installed two (2) boreholes to define the extents. The borehole results are summarized in Table 1. The area of BH-1 did not show an impact to the soils above the TPH RRAL. However, BH-2 did show TPH above the RRAL at 0-1' and 2-3' and was vertically defined below the RRAL at 4-5' below surface. Based on the results, the hydrocarbon impact appeared to be limited and confined to the area of AH-1 and BH-2.



Tetra Tech personnel supervised the excavation of the site. Due to the proximity to lines and production tanks, the impacted area was excavated to a depth of 5.0' below surface for safety concerns and measured approximately 3' x 15'. The excavated area and depth are highlighted in Table 1 and shown on Figure 4. Approximately 30 cubic yards of soil were excavated and transported to the R360 facility for proper disposal.

Once excavated, confirmation samples were collected for the excavation and the excavation bottom and sidewalls were all below the RRAL for TPH and BTEX. The sampling results are summarized in Table 1. Based on the results, the excavation was capped with clay material and backfilled with clean soil to grade.

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

Respectfully submitted,

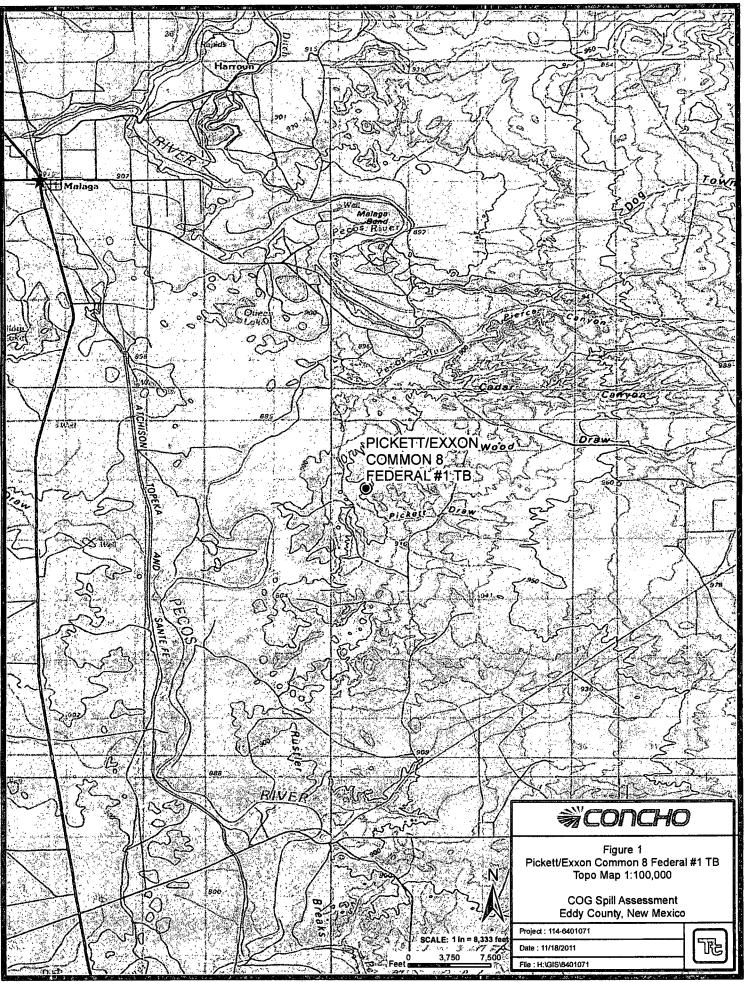
TETRA TECH

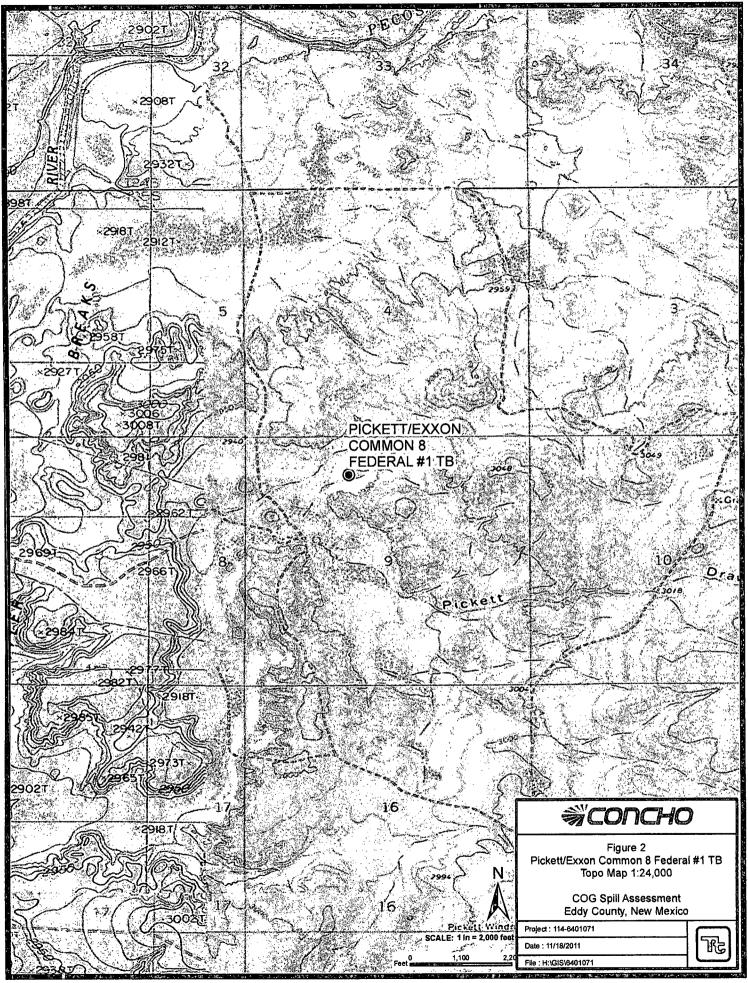
Ike Tavarez Project Manager

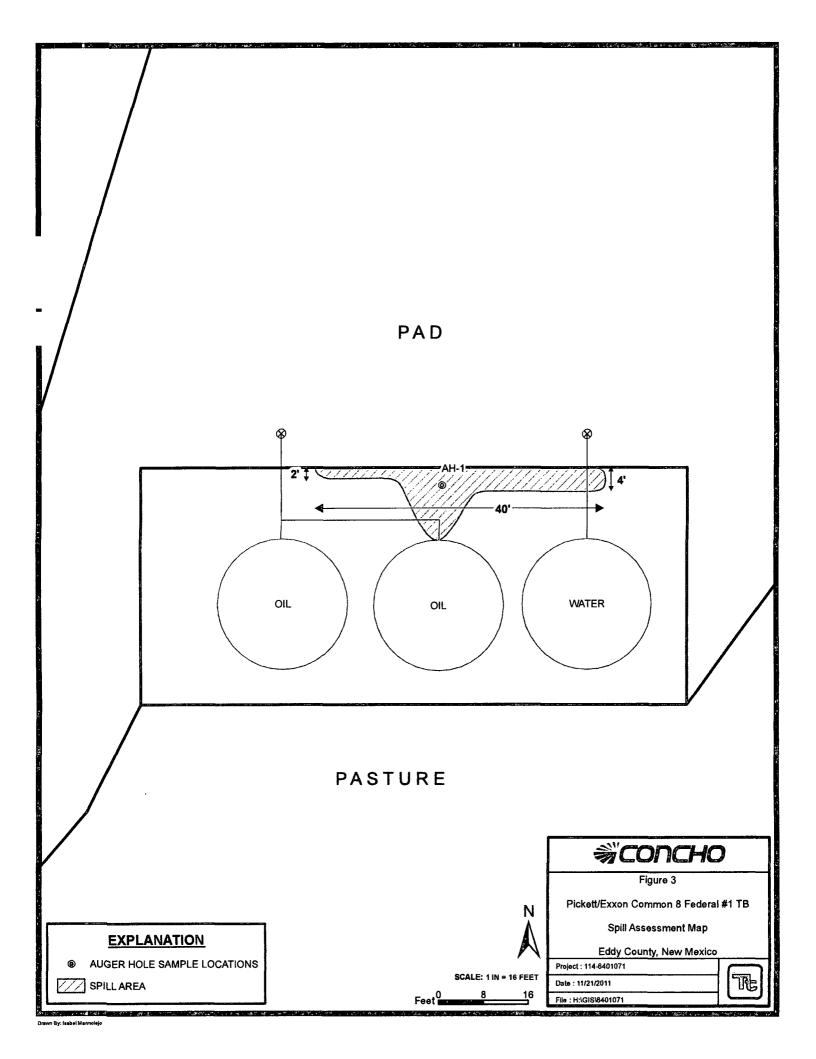
cc: Pat Ellis - COG

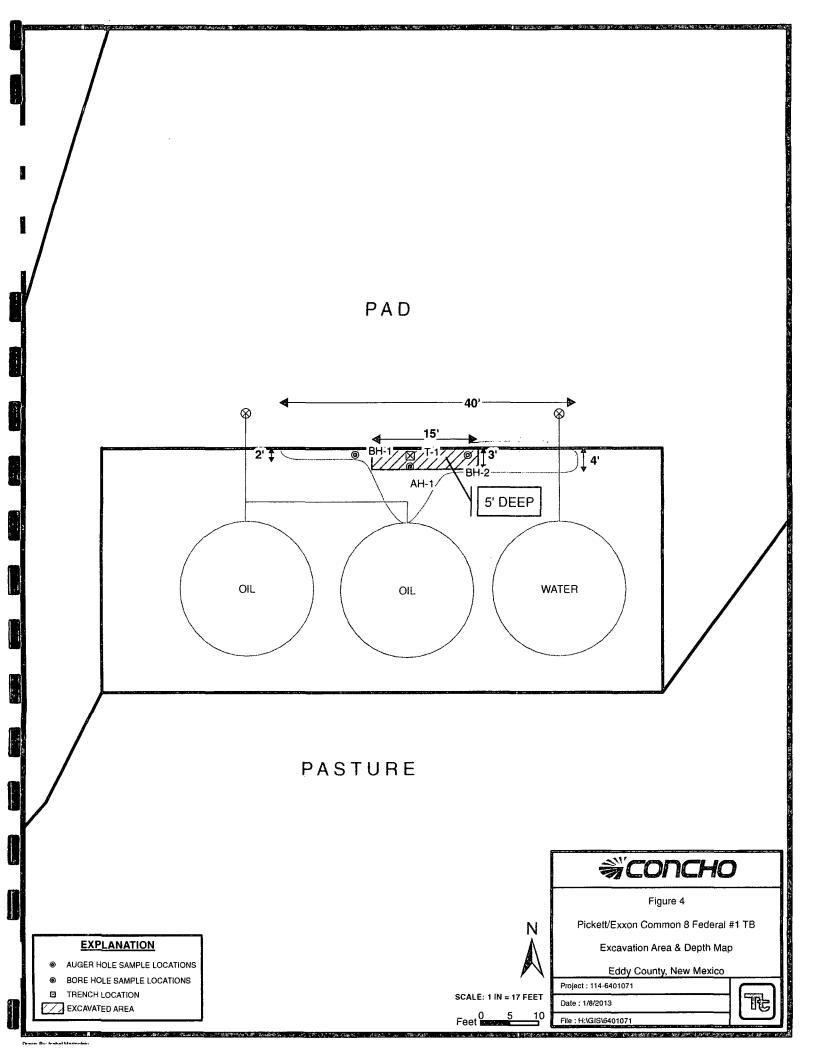
cc: Terry Gregston - BLM

Figures









Tables

Table 1 COG Operating LLC n Common 8 Federal #1 Tank Ba

Pickett-Exxon Common 8 Federal #1 Tank Battery Eddy County, New Mexico

	Sample	Sample	Depth	Soil	Status	T	PH (mg/k	(g)	Benzene	Toluene	Ethlybenzene	Xylene	Total BTEX	Chloride
Sample ID	Date	Depth (ft)	(BEB)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-1	11/2/2011	0-1	. 4"		X	191-	995	. 1,186	<0.100 <	<0.100	<0.100	~ 0.233 <i>;</i> ~	. 0.233	339
	11	1-1.5			Χ΄,	272	2,310	2,582						<200
	11	2-2.5		7 A 1 2	X	968	2,630	3,598						<200
	11	· 3-3;5		Wall or	* X	3,100	2,410	5,510			V. E. E. S.			
	"	4-4.5		i Ozasiai	- X	3,100	1,810	4,910						
	, ,	5-5.5			X	2,410	1,950	4,360				rantini paraga Paragantan Paragantan		
Trench-1	2/22/2012	* 3		17.48.	X	2,300	6,930	9,230	7 8 8 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					-
	11	5			- X	1,340	1,450	2,790	. 0.629	. 1.25	1.86	49.5	53.2	-
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	i i	7	-	Х		726	1,060	1,786	-	-	-	-	-	-
	и	8	-	Х		943	2,540	3,483	-	_	-	-	-	-
	. 0	9	-	Х		791	2,720	3,511	-	-	-	-	-	-
BH-1 west of trench	4/17/2012	0-1	-	Х		158	464	622	<0.0200	<0.0200	<0.0200	0.293	0.293	-
	u	4-5	-	Х		45.8	221	267	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	-
	1)	9-10	-	Х		6.02	<50.0	6.02	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	-
BH-2 east of trench	4/17/2012	0-1			X 5	95.1	1,680	1,775	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	
	и	2-3			. X .	1,220	1,360	2,580						
	n	4-5			X	81.1	209	290	<0.0200	<0.0200	₹0.0200	0.316	∮∜0.316 <u>/</u>	
	11	9-10		Х		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<u> </u>
CS-1 Bottom Hole	5/22/2012	5	-	Х		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	-
CS-1 North Wall	ri e	-	-	Х		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	-
CS-1 South Wall	н	-	-	Х		11.7	1,290	1,302	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	-
CS-1 East Wall	11	-	-	Х		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	-
CS-1 West Wall	11	-	-	X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	-

(--)

Not Analyzed

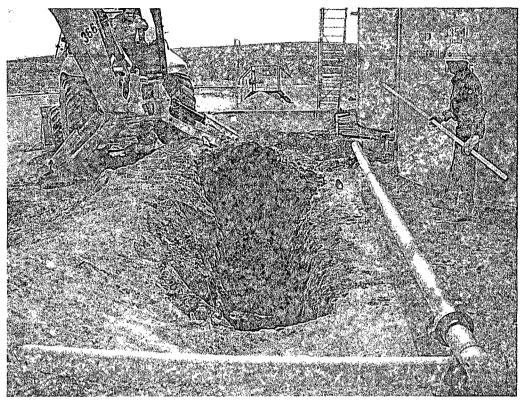
11.3

Excavation Depths

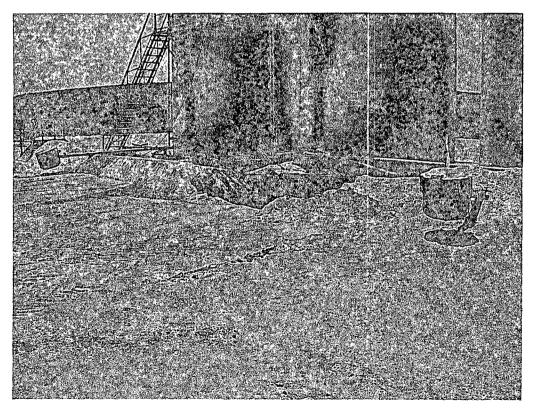
Photos

COG Operating LLC Pickett/Exxon Common 8 Federal #1 TB Eddy County, New Mexico





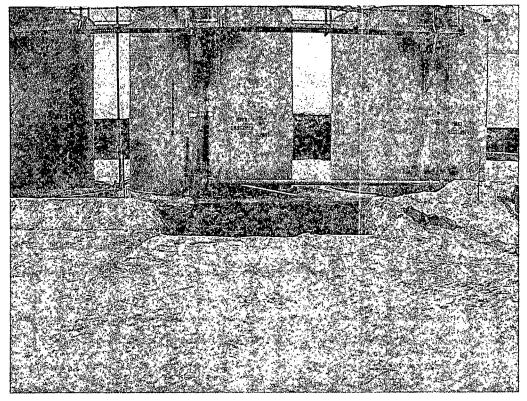
View of excavation



View of excavation

COG Operating LLC Pickett/Exxon Common 8 Federal #1 TB Eddy County, New Mexico





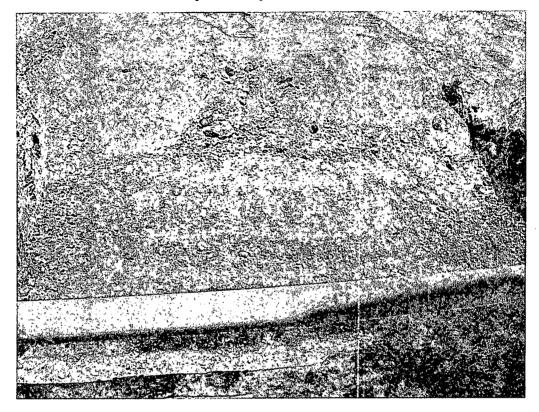
View of excavation



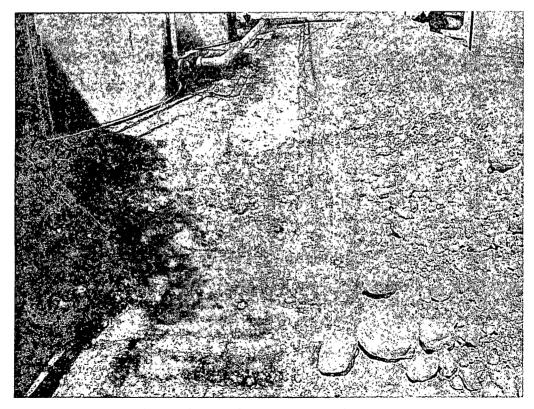
View of excavation clay capping

COG Operating LLC Pickett/Exxon Common 8 Federal #1 TB Eddy County, New Mexico





View of clay cap



View of backfilled excavation

Appendix A

<u>District I</u> 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

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

District IV

State of New Mexico Energy Minerals and Natural Resources

JAN 14 2013

RECEIVED

Form C-141 Revised October 10, 2003

Submit 2 Copies to appropriate
District Office in accordance
WMOCD ARTESIA with Rule 116 on back

side of form

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

Release Notification and Corrective Action

			Neit	ase mount	auo	n anu Cu	orrective A	CHOII				
						OPERA	ΓOR	Initi	al Report	\boxtimes	Final Report	
Name of Co	mpany	COG	Operatin	g LLC		Contact	P	at Ellis				
				and, Texas 7970	1	Telephone N	lo. (432)	230-0077				
Facility Nan				Federal #1 TB		Facility Typ		ank battery				
Surface Ow	ner: Fede i	al		Mineral O	wner			Lease 1	No. (API#)	30-015	5-25894	
				LOCA	TIO	N OF REI	LEASE					
Unit Letter A	Section 8	Township 25S	Range 29E	Feet from the		n/South Line	Feet from the	East/West Line	County	Eddy	,	
	Latitude N 32 08.983° Longitude W 103 59.512° NATURE OF RELEASE											
Type of Relea	Type of Release: Produced Water						Release 10 bbls	Volume	Recovered 8	bbls		
Source of Rel	lease: Tank					Date and H 09/27/2011	our of Occurrenc		Hour of Dis			
Was Immedia	ite Notice (Yes 🛚	No 🛛 Not Red	quired	If YES, To	Whom?					
By Whom?						Date and H						
Was a Watero	Was a Watercourse Reached? ☐ Yes ☑ No						lume Impacting t	he Watercourse.				
If a Watercou	rse was Im	pacted, Descri	be Fully.*									
Describe Cau	se of Proble	em and Remed	lial Actior	Taken.*					,			
Broken valve	and nipple	on load line o	n top of th	e tanks. The fault	y conn	nections have t	een replaced with	h new ones.				
Describe Area	a Affected a	and Cleanup A	ction Tak	en.*								
				nples to define the ckfilled to grade w								
regulations al public health should their o	l operators or the envir perations h ment. In a	are required to onment. The ave failed to a ddition, NMO	report an acceptanc dequately CD accept	is true and comple d/or file certain rele e of a C-141 repor investigate and res tance of a C-141 re	lease n t by th mediat	notifications and e NMOCD ma e contamination	nd perform correct arked as "Final Re on that pose a thre	tive actions for rel eport" does not rel eat to ground wate	eases which ieve the oper r, surface wa	may end ator of l ter, hun	danger liability nan health	
Signature:		14	7				OIL CONS	SERVATION	DIVISIO	N		
Printed Name	: Ike Tavar	ez (agent for (COG)			Approved by	District Superviso	or:				
Title: Project	Manager					Approval Date	e:	Expiration	Expiration Date:			
E-mail Addre	ss: Ike.Tava	arez@TetraTe	ch.com	=		Conditions of	Approval:		Attached			
Date: /-	7-1	?	Phone:	(432) 682-4559								

^{*} Attach Additional Sheets If Necessary

<u>District 1</u> 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 <u>District IV</u> 1220 S. St. Francis Dr., Santa Fe, NM 87505

Name of Company

COG OPERATING LLC

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

Final Report

Pat Ellis

Release Notification and Corrective Action

Contact

OPERATOR

	Telephone No. 432-230-0077								
Facility Name Pickett/Exxon Common 8 Federal #1 TB	Facility Type Tank Battery								
Surface Owner Federal Mineral Owner		Lease N	lo. (API#) 30-015-25894						
LOCATIO	N OF RELEASE								
	/South Line Feet from the	East/West Line	County Eddy						
Latitude 32 08.983	Longitude 103 59.512								
NATURE OF RELEASE									
Type of Release Produced water	Volume of Release 10bbls	Volume R	ecovered 8bbls						
Source of Release Tank	Date and Hour of Occurrence 09/27/2011	1	Hour of Discovery 1 1:00 p.m.						
Was Immediate Notice Given? ☐ Yes ☐ No ☐ Not Required ☐ If YES, To Whom?									
By Whom? Date and Hour									
Was a Watercourse Reached? ☐ Yes ☒ No ☐ If YES, Volume Impacting the Watercourse.									
f a Watercourse was Impacted, Describe Fully.*									
Describe Cause of Problem and Remedial Action Taken.*			ļ						
Broken valve and nipple on load line on top of tanks. The faulty connecti-	ons have been replaced with ne	w ones.							
Describe Area Affected and Cleanup Action Taken.*									
Initially 10bbls of produced water were released from the broken connecti	ions on top of the tank and we v	vere able to recover	r 8bbls with a vacuum truck.						
All released fluid was contained inside the facility berm walls. The spill a to disposal. Tetra Tech will sample the spill site are to delineate any possi									
to the NMOCD/BLM for approval prior to any significant remediation wo		sase and we will pr	escan a remediation work plan						
I hereby certify that the information given above is true and complete to the	ne best of my knowledge and ur	derstand that pursi	uant to NMOCD rules and						
regulations all operators are required to report and/or file certain release no	otifications and perform correct	ive actions for rele	ases which may endanger						
public health or the environment. The acceptance of a C-141 report by the should their operations have failed to adequately investigate and remediate									
or the environment. In addition, NMOCD acceptance of a C-141 report de	oes not relieve the operator of re	esponsibility for co	mpliance with any other						
federal, state, or local laws and/or regulations.	OII CONS	ERVATION	DIVISION						
	OIL COILD	VERY VILLOTT	DIVIDIOIT						
Signature:	A St. Dissila Co	_							
Printed Name: Josh Russo	Approved by District Superviso	г: 							
Title: HSE Coordinator	Approval Date:	roval Date: Expiration Date:							
E-mail Address: jrusso@conchoresources.com	Conditions of Approval:	Attached							
Date: 10/10/2011 Phone: 432-212-2399									
Attach Additional Sheets If Necessary									

Appendix B

Water Well Data Average Depth to Groundwater (ft) COG - Pickett/Exxon Common 8 Federal #1 Tank Battery Eddy County, New Mexico

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	New Mexico State Engineers Well Reports
	USGS Well Reports
	Geology and Groundwater Conditions in Southern Eddy, County, NM
图	NMOCD - Groundwater Data
	Site Location - Pickett/Exxon Common 8 Federal #1 Tank Battery

Appendix C

Report Date: November 15, 2011 Work Order: 11110403

Summary Report

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

Report Date: November 15, 2011

Page Number: 1 of 2

Work Order: 11110403

Project Location: Eddy Co., NM

Project Name: COG/Pickett-Exxon Common 8 Federal #1 TB

Project Number: 114-6401071

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
281505	AH-1 0-1' (4 in. BEB)	soil	2011-11-02	00:00	2011-11-03
281506	AH-1 1-1.5' (4 in. BEB)	soil	2011-11-02	00:00	2011-11-03
281507	AH-1 2-2.5' (4 in. BEB)	soil	2011-11-02	00:00	2011-11-03
281508	AH-1 3-3.5' (4 in. BEB)	soil	2011-11-02	00:00	2011-11-03
281509	AH-1 4-4.5' (4 in. BEB)	soil	2011-11-02	00:00	2011-11-03
281510	AH-1 5-5.5' (4 in. BEB)	soil	2011-11-02	00:00	2011-11-03

		В	TEX		TPH DRO - NEW	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
281505 - AH-1 0-1' (4 in. BEB)	<0.100 Qr	<0.100 Qr	<0.100 Qr	0.233 Qr	995	191
281506 - AH-1 1-1.5' (4 in. BEB)					2310	272
281507 - AH-1 2-2.5' (4 in. BEB)					2630	968
281508 - AH-1 3-3.5' (4 in. BEB)					2410	3100
281509 - AH-1 4-4.5' (4 in. BEB)					1810	3100
281510 - AH-1 5-5.5' (4 in. BEB)					1950 Qs	2410 Qs

Sample: 281505 - AH-1 0-1' (4 in. BEB)

Param	Flag	Result	Units	RL
Chloride		339	mg/Kg	4

Sample: 281506 - AH-1 1-1.5' (4 in. BEB)

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Report Date: November 15, 2011 Work Order: 11110403 Page Number: 2 of 2

Sample: 281507 - AH-1 2-2.5' (4 in. BEB)

Param	Flag	Result	${f Units}$	RL
Chloride		<200	mg/Kg	4



6701 Aberdoen Avenue, Seite 9 200 East Sunset Road, Suite E.

5002 Basin Street, Suite AT 6015 Harris Parkway, Suite 110 - Et Worth, Texas 76132

El Paso, Texas 79922 Midiand, lexas 79703

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NCTRCA DBE**NELAP** DoD LELAP WBE Oklahoma ISO 17025 Kansas

Analytical and Quality Control Report

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

Report Date: November 15, 2011

Work Order: 11110403

Project Location: Eddy Co., NM

Project Name:

COG/Pickett-Exxon Common 8 Federal #1 TB

Project Number: 114-6401071

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

			Date	rme	Date
Sample	Description	Matrix	Taken	Taken	Received
281505	AH-1 0-1' (4 in. BEB)	soil	2011-11-02	00:00	2011-11-03
281506	AH-1 1-1.5' (4 in. BEB)	soil	2011-11-02	00:00	2011-11-03
281507	AH-1 2-2.5' (4 in. BEB)	soil	2011-11-02	00:00	2011-11-03
281508	AH-1 3-3.5' (4 in. BEB)	soil	2011-11-02	00:00	2011-11-03
281509	AH-1 4-4.5' (4 in. BEB)	soil	2011-11-02	00:00	2011-11-03
281510	AH-1 5-5.5' (4 in. BEB)	soil	2011-11-02	00:00	2011-11-03

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

Michael abel

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

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Case Narrative

Samples for project COG/Pickett-Exxon Common 8 Federal #1 TB were received by TraceAnalysis, Inc. on 2011-11-03 and assigned to work order 11110403. Samples for work order 11110403 were received intact at a temperature of 4.3 C.

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

		Prep	Prep	$_{ m QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	73143	2011-11-04 at 12:45	86134	2011-11-05 at 02:47
Chloride (Titration)	SM 4500-Cl B	73222	2011-11-07 at 09:37	86236	2011-11-09 at 10:59
TPH DRO - NEW	S 8015 D	73148	2011-11-04 at 13:42	86138	2011-11-04 at 13:42
TPH DRO - NEW	S 8015 D	73224	2011-11-08 at 09:48	86234	2011-11-08 at 09:48
TPH DRO - NEW	S 8015 D	73262	2011-11-09 at 10:39	86283	2011-11-09 at 10:39
TPH DRO - NEW	S 8015 D	73341	2011-11-11 at 11:02	86366	2011-11-11 at 11:02
TPH DRO - NEW	S 8015 D	73404	2011-11-14 at 14:09	86448	2011-11-14 at 14:09
TPH GRO	S 8015 D	73143	2011-11-04 at 12:45	86135	2011-11-05 at 03:14
TPH GRO	S 8015 D	73217	2011-11-08 at 09:45	86282	2011-11-09 at 14:16
TPH GRO	S 8015 D	73286	2011-11-10 at 13:55	86316	2011-11-10 at 16:05
TPH GRO	S 8015 D	73337	2011-11-11 at 11:35	86361	2011-11-11 at 12:43

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 11110403 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: 11110403

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 6 of 34 Eddy Co., NM

AG

AG

Analytical Report

Sample: 281505 - AH-1 0-1' (4 in. BEB)

Laboratory: Midland

Prep Batch:

114-6401071

BTEX Analysis: QC Batch: 86134 73143

Analytical Method: S 8021B Date Analyzed:

2011-11-05 Sample Preparation:

S 5035 Prep Method: Analyzed By: Prepared By: 2011-11-04

RLFlag Parameter Cert Result Units Dilution RL0.0200 Benzene Qr,U < 0.100 mg/Kg 5 Qr,U 1 Toluene 5 0.0200 Qr,U < 0.100 mg/Kg Qr,U 0.0200 Ethylbenzene 5 Qr,U< 0.100 mg/Kg Qr,U 5 0.0200 Xylene Qr0.233mg/Kg Qr

						Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			4.84	mg/Kg	5	5.00	97	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			5.11	mg/Kg	5	5.00	102	70.6 - 179

Sample: 281505 - AH-1 0-1' (4 in. BEB)

Laboratory: Midland

Prep Batch:

Analysis: Chloride (Titration) QC Batch: 86236 73222

Analytical Method: Date Analyzed: Sample Preparation: SM 4500-Cl B 2011-11-09

2011-11-07

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

RLParameter RLFlag Cert Result Units Dilution Chloride 339 mg/Kg 4.00

Sample: 281505 - AH-1 0-1' (4 in. BEB)

Laboratory: Midland

Prep Batch:

TPH DRO - NEW Analysis: QC Batch: 86138 73148

Analytical Method: S 8015 D Date Analyzed: 2011-11-04 Sample Preparation: 2011-11-04 Prep Method: N/A Analyzed By: kg Prepared By: kg

RLParameter Result Dilution RLFlag Cert Units DRO 995 50.0 mg/Kg 1

114-6401071

Work Order: 11110403

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 7 of 34

Eddy Co., NM

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	$_{ m Limits}$
n-Tricosane	Qar	Qsr		200	mg/Kg	1	100	200	67.5 - 147.1

Sample: 281505 - AH-1 0-1' (4 in. BEB)

Laboratory:

Midland

Analysis:

86135

TPH GRO

Analytical Method:

S 8015 D

Prep Method: S 5035

QC Batch: Prep Batch:

Parameter

GRO

73143

Date Analyzed: Sample Preparation:

2011-11-05 2011-11-04

Analyzed By: AG Prepared By: AG

Cert Flag

1

RLResult 191 mg/Kg

Dilution RL2.00 5

Surrogate	Flag	Cert	Result	Units	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			4.85	mg/Kg	5	5.00	97	30 - 134.6
4-Bromoffuorobenzene (4-BFB)			4.81	mg/Kg	5	5.00	96	22.4 - 149

Sample: 281506 - AH-1 1-1.5' (4 in. BEB)

Laboratory:

Midland

Analysis:

Chloride (Titration)

Analytical Method:

SM 4500-Cl B

Prep Method: N/A

QC Batch: Prep Batch:

86236 73222 Date Analyzed: Sample Preparation:

2011-11-09 2011-11-07

Analyzed By: ARPrepared By: AR

Flag Parameter Cert Ū

RLResult Units Dilution RL<200 mg/Kg 50 4.00

Units

Sample: 281506 - AH-1 1-1.5' (4 in. BEB)

U

Laboratory:

QC Batch:

Parameter

DRO

Chloride

Midland

Analysis: TPH DRO - NEW

86234 Prep Batch: 73224

Analytical Method: Date Analyzed:

Sample Preparation:

S 8015 D 2011-11-08 2011-11-08 Prep Method: N/A Analyzed By: kg

kg

Prepared By:

Flag

RL

Cert Result Units Dilution RL2310 $\overline{\mathrm{mg/Kg}}$ 50.0

114-6401071

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 8 of 34 Eddy Co., NM

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		214	mg/Kg	1	100	214	67.5 - 147.1

Sample: 281506 - AH-1 1-1.5' (4 in. BEB)

Laboratory:

Midland

Analysis: TPH GRO QC Batch: 86282 Prep Batch: 73217 Analytical Method: S 8015 D Date Analyzed: 2011-11-09

Sample Preparation: 2011-11-09

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

						Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			19.2	mg/Kg	20	20.0	96	30 - 134.6
4-Bromofluorobenzene (4-BFB)			18.2	mg/Kg	20	20.0	91	22.4 - 149

Sample: 281507 - AH-1 2-2.5' (4 in. BEB)

Laboratory: Midland

Analysis: Chlorid QC Batch: 86236 Prep Batch: 73222

Chloride (Titration)

Analytical Method: SM 4500-Cl B

86236

Date Analyzed: 2011-11-09

Sample: 281507 - AH-1 2-2.5' (4 in. BEB)

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8
QC Batch: 86283 Date Analyzed: 20
Prep Batch: 73262 Sample Preparation: 20

Analytical Method: S 8015 D Prep Method: N/A
Date Analyzed: 2011-11-09 Analyzed By: kg
Sample Preparation: 2011-11-09 Prepared By: kg

114-6401071

Work Order: 11110403

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 9 of 34

Eddy Co., NM

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		202	mg/Kg	1	100	202	67.5 - 147.1

Sample: 281507 - AH-1 2-2.5' (4 in. BEB)

Laboratory:

Prep Batch:

Midland

Analysis: QC Batch:

86282 73217

TPH GRO Analytical Method: Date Analyzed:

S 8015 D 2011-11-09

S 5035 Prep Method: Analyzed By: AG

Sample Preparation: 2011-11-09

Prepared By: AG

RL

Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO		1	968	mg/Kg	20	2.00

						Spike	Percent	Recovery	
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)			19.4	mg/Kg	20	20.0	97	30 - 134.6	
4-Bromofluorobenzene (4-BFB)			22.4	mg/Kg	20	20.0	112	22.4 - 149	

Sample: 281508 - AH-1 3-3.5' (4 in. BEB)

Laboratory: Midland

Analysis:

Prep Batch:

TPH DRO - NEW QC Batch: 86366

73341

Analytical Method: Date Analyzed: Sample Preparation:

S 8015 D 2011-11-11 2011-11-11 Prep Method: N/A Analyzed By: kg Prepared By: kg

RL

Cert Result Parameter Flag Units Dilution RL2410 DRO mg/Kg 50.0 1

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qar	Qsr		255	mg/Kg	1	100	255	67.5 - 147.1

Sample: 281508 - AH-1 3-3.5' (4 in. BEB)

Laboratory: Midland

Analysis: TPH GRO QC Batch: 86316 Prep Batch: 73286

Analytical Method: S 8015 D Date Analyzed: 2011-11-10 Sample Preparation: 2011-11-10

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

Report Date: November 15, 2011 114-6401071

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 10 of 34 Eddy Co., NM

Prep Method: N/A

Prep Method: S 5035

AG

AG

Analyzed By:

Prepared By:

				RL				
Parameter	Flag	Cert		Result	Un	its	Dilution	RL
GRO		1		3100	mg/l	⟨g	20	2.00
						Spike	Percent	Recovery
Surrogate	Fla	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			19.7	mg/Kg	20	20.0	98	30 - 134.6
4-Bromofluorobenzene (4-BFB)			28.4	mg/Kg	20	20.0	142	22.4 - 149

Sample: 281509 - AH-1 4-4.5' (4 in. BEB)

Laboratory: Midland

TPH DRO - NEW Analysis:

Analytical Method: QC Batch: 86366

Prep Batch: 73341 Sample Preparation:

Analyzed By: Date Analyzed: 2011-11-11 kg Prepared By: 2011-11-11 kg

S 8015 D

			KL	•		
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO		1	1810	mg/Kg	1	50.0
				Spike	Percent	Recovery

						Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane Q	sr Qsr		168	mg/Kg	1	100	168	67.5 - 147.1

Sample: 281509 - AH-1 4-4.5' (4 in. BEB)

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D QC Batch: 86316 Date Analyzed: 2011-11-10 Prep Batch: 73286 Sample Preparation: 2011-11-10

RLParameter Cert Dilution Flag Result Units RLGRO 3100 20 2.00 mg/Kg 1

						Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			19.8	mg/Kg	20	20.0	99	30 - 134.6
4-Bromofluorobenzene (4-BFB)			29.2	mg/Kg	20	20.0	146	22.4 - 149

Report Date: November 15, 2011 114-6401071

Work Order: 11110403 Page Number: 11 of 34 COG/Pickett-Exxon Common 8 Federal #1 TB Eddy Co., NM

Sample: 281510 - AH-1 5-5.5' (4 in. BEB)

Laboratory:

Midland

Analysis: TPH DRO - NEW Analytical Method:

S 8015 D

Prep Method: N/A

QC Batch: Prep Batch: 73404

86448

Date Analyzed: Sample Preparation: 2011-11-14

2011-11-14

Analyzed By: kg

Prepared By: kg

				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
DRO	Qs	Qs	1	1950	mg/Kg	1	50.0

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		173	mg/Kg	1	100	173	67.5 - 147.1

Sample: 281510 - AH-1 5-5.5' (4 in. BEB)

Laboratory:

Prep Batch:

Midland

73337

TPH GRO Analysis: QC Batch: 86361

Analytical Method: Date Analyzed:

Sample Preparation:

S 8015 D

2011-11-11 2011-11-11 Prep Method: S 5035

Analyzed By: AG Prepared By:

RLResult Parameter Flag Cert Units Dilution RLGRO 2410 Qs mg/Kg 50 2.00 Qв 1

						$\mathbf{S}_{\mathbf{pike}}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			48.2	mg/Kg	50	50.0	96	30 - 134.6
4-Bromofluorobenzene (4-BFB)			56.1	mg/Kg	50	50.0	112	22.4 - 149

Report Date: November 15, 2011 114-6401071

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 12 of 34 Eddy Co., NM

Method Blanks

Method Blank (1)

QC Batch: 86134

QC Batch:

86134

Date Analyzed:

2011-11-05

Analyzed By: AG

Prep Batch: 73143

QC Preparation: 2011-11-04

Prepared By: AG

			MDL		
Parameter	Flag	Cert	Result	Units	RL
Benzene		1	< 0.0118	mg/Kg	0.02
Toluene		1	< 0.00600	mg/Kg	0.02
Ethylbenzene		1	< 0.00850	mg/Kg	0.02
Xylene		1	< 0.00613	mg/Kg	0.02

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.88	mg/Kg	1	2.00	94	65.9 - 111.8
4-Bromofluorobenzene (4-BFB)			1.67	mg/Kg	1	2.00	84	48.4 - 123.1

Method Blank (1)

QC Batch: 86135

QC Batch: 86135 Prep Batch: 73143 Date Analyzed: QC Preparation:

2011-11-05 2011-11-04

Analyzed By: AG Prepared By: AG

			MDL		
Parameter	Flag	Cert	Result	Units	$_{-}$ RL
GRO		1	0.915	mg/Kg	2

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		·····	1.90	mg/Kg	1	2.00	95	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.60	mg/Kg	1	2.00	80	52.4 - 130

Method Blank (1)

QC Batch: 86138

QC Batch: 86138 Prep Batch: 73148 Date Analyzed: 2011-11-04 QC Preparation: 2011-11-04

Analyzed By: kg Prepared By: kg

114-6401071

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 13 of 34

Eddy Co., NM

Parameter		F	lag	Cert		MDL tesult	Units	RL
DRO				1	•	<14.5	mg/Kg	50
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			114	mg/Kg	1	100	114	52.7 - 133.8

Method Blank (1)

QC Batch: 86234

QC Batch: 86234 Prep Batch: 73224 Date Analyzed: 2011-11-08 QC Preparation: 2011-11-08 Analyzed By: kg Prepared By: kg

Parameter Flag Cert Result Units RL

DRO 1 <14.5 mg/Kg 50

Spike Percent Recovery

						\mathbf{Spike}	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			99.3	mg/Kg	1	100	99	52.7 - 133.8

Method Blank (1)

QC Batch: 86236

QC Batch: 86236 Prep Batch: 73222 Date Analyzed: QC Preparation:

2011-11-09 2011-11-07 Analyzed By: AR Prepared By: AR

Method Blank (1)

QC Batch: 86282

QC Batch: 86282 Prep Batch: 73217 Date Analyzed: 2011-11-09 QC Preparation: 2011-11-08 Analyzed By: AG Prepared By: AG

Report Date: November 15, 2011

114-6401071

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 14 of 34 Eddy Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	$egin{array}{c} { m Spike} \ { m Amount} \end{array}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		*****	1.93	mg/Kg	1	2.00	96	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.64	mg/Kg	1	2.00	82	52.4 - 130

Method Blank (1)

QC Batch: 86283

QC Batch: 86283 Prep Batch: 73262 Date Analyzed: 2011-11-09 QC Preparation: 2011-11-09 Analyzed By: kg Prepared By: kg

Parameter Flag Cert Result Units RL
DRO 1 <14.5 mg/Kg 50

Spike Percent Recovery

Surrogate Flag Cert Result Units Dilution Amount Recovery Limits

n-Tricosane 90.4 mg/Kg 1 100 90 52.7 - 133.8

Method Blank (1)

QC Batch: 86316

QC Batch: 86316 Prep Batch: 73286 Date Analyzed: 2 QC Preparation: 2

2011-11-10 2011-11-10 Analyzed By: AG Prepared By: AG

 Parameter
 Flag
 Cert
 Result
 Units
 RL

 GRO
 1
 1.26
 mg/Kg
 2

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.93	mg/Kg	1	2.00	96	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.79	mg/Kg	1	2.00	90	52.4 - 130

Method Blank (1)

QC Batch: 86361

QC Batch: 86361 Prep Batch: 73337 Date Analyzed: 2011-11-11 QC Preparation: 2011-11-11

Analyzed By: AG Prepared By: AG

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 15 of 34 Eddy Co., NM

Parameter	Flag		Cert		MDL Result		Units	RL
GRO			1		1.11		mg/Kg	2
						Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	${f Units}$	Dilution	${f Amount}$	Recovery	Limits
Trifluorotoluene (TFT)			1.88	mg/Kg	1	2.00	94	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.72	mg/Kg	1	2.00	86	52.4 - 130

Method Blank (1)

QC Batch: 86366

QC Batch: 86366 Prep Batch: 73341

6366

Date Analyzed: QC Preparation:

2011-11-11 2011-11-11 Analyzed By: kg

Prepared By: kg

			MDL		
Parameter	\mathbf{Flag}	Cert	Result	Units	RL
DRO		1	<14.5	mg/Kg	50
					_

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			91.1	mg/Kg	1	100	91	52.7 - 133.8

Method Blank (1)

QC Batch: 86448

QC Batch: 86448 Prep Batch: 73404 Date Analyzed: 2011-11-14 QC Preparation: 2011-11-14 Analyzed By: kg Prepared By: kg

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			93.2	mg/Kg	1	100	93	52.7 - 133.8

Report Date: November 15, 2011

114-6401071

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 16 of 34 Eddy Co., NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch:

86134

Date Analyzed:

2011-11-05

Analyzed By: AG

Prep Batch: 73143

QC Preparation:

2011-11-04

Prepared By: AG

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	2.03	mg/Kg	1	2.00	< 0.0118	102	77.4 - 121.7
Toluene		1	1.98	mg/Kg	1	2.00	< 0.00600	99	88.6 - 121.6
Ethylbenzene		1	1.93	mg/Kg	1	2.00	< 0.00850	96	74.3 - 117.9
Xylene		1	5.83	mg/Kg	1	6.00	< 0.00613	97	73.4 - 118.8

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	${f F}$	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	2.01	mg/Kg	1	2.00	< 0.0118	100	77.4 - 121.7	1	20
Toluene		1	1.97	mg/Kg	1	2.00	< 0.00600	98	88.6 - 121.6	0	20
Ethylbenzene		1	1.89	mg/Kg	1	2.00	< 0.00850	94	74.3 - 117.9	2	20
Xylene		1	5.74	mg/Kg	1	6.00	< 0.00613	96	73.4 - 118.8	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	$egin{array}{c} ext{Spike} \ ext{Amount} \end{array}$	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.92	1.90	mg/Kg	1	2.00	96	95	65.5 - 116.7
4-Bromofluorobenzene (4-BFB)	1.93	1.94	mg/Kg	1	2.00	96	97	56.2 - 132.1

Laboratory Control Spike (LCS-1)

QC Batch:

86135

Date Analyzed:

2011-11-05

Analyzed By: AG

Prep Batch: 73143

QC Preparation: 2011-11-04

Prepared By: AG

			LCS			Spike	Matrix		Rec.		
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit		
GRO		1	17.8	mg/Kg	1	20.0	< 0.753	89	60.9 - 105.4		

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

 $continued \dots$

Work Order: 11110403

COG/Pickett-Exxon Common 8 Federal #1 TB

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control	snikes	continued		

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	$\mathbf{U}_{\mathbf{nits}}$	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	18.2	mg/Kg	1	20.0	< 0.753	91	60.9 - 105.4	2	20

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

	LCS	LCSD			Spike	LCS	LCSD	${ m Rec.}$
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.97	1.96	mg/Kg	1	2.00	98	98	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.78	1.79	mg/Kg	1	2.00	89	90	56.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 86138 Prep Batch: 73148 Date Analyzed: 2011-11-04 QC Preparation: 2011-11-04 Analyzed By: kg Prepared By: kg

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	282	mg/Kg	1	250	<14.5	113	64.5 - 146.9

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	290	mg/Kg	1	250	<14.5	116	64.5 - 146.9	3	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	\mathbf{Units}	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	131	135	mg/Kg	1	100	131	135	65.3 - 135.8

Laboratory Control Spike (LCS-1)

QC Batch: 86234 Prep Batch: 73224 Date Analyzed: 2011-11-08 QC Preparation: 2011-11-08 Analyzed By: kg Prepared By: kg

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	248	mg/Kg	1	250	<14.5	99	64.5 - 146.9

Work Order: 11110403

COG/Pickett-Exxon Common 8 Federal #1 TB

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	259	mg/Kg	1	250	<14.5	104	64.5 - 146.9	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
n-Tricosane	112	115	mg/Kg	1	100	112	115	65.3 - 135.8

Laboratory Control Spike (LCS-1)

QC Batch:

86236

Date Analyzed:

2011-11-09

Analyzed By: AR

Prep Batch: 73222

QC Preparation: 2011-11-07

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			97.8	mg/Kg	1	100	< 3.85	98	85 - 115

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			106	mg/Kg	1	100	< 3.85	106	85 - 115	8	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:

86282

Date Analyzed:

2011-11-09

Analyzed By: AG

Prep Batch: 73217

QC Preparation: 2011-11-08

Prepared By: AG

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	19.4	mg/Kg	1	20.0	< 0.753	97	60.9 - 105.4

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	18.8	mg/Kg	1	20.0	< 0.753	94	60.9 - 105.4	3	20

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

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.96	1.96	mg/Kg	1	2.00	98	98	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.78	1.81	mg/Kg	1	2.00	89	90	56.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 73262

86283

Date Analyzed: QC Preparation:

2011-11-09 2011-11-09 Analyzed By: kg

Prepared By:

LCS Spike Matrix Rec. \mathbf{F} Param Result Units Dil. Amount Result Rec. Limit 64.5 - 146.9 DRO 243 mg/Kg 250 < 14.5

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	247	mg/Kg	1	250	<14.5	99	64.5 - 146.9	2	20

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

	LCS	LCSD			$_{ m Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	93.0	92.9	mg/Kg	1	100	93	93	65.3 - 135.8

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:

86316 73286

Date Analyzed: QC Preparation:

2011-11-10 2011-11-10

Analyzed By: AG Prepared By: AG

LCS Spike Matrix Rec. Result Units Dil. Param Amount Result Rec. Limit GRO 19.3 mg/Kg 20.0 < 0.753 96 60.9 - 105.4

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	19.6	mg/Kg	1	20.0	< 0.753	98	60.9 - 105.4	2	20

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

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mg/Kg

1

2.00

96

96

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control spikes continued								
••••••••••••••••••••••••••••••••••••••	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Triffuorotoluene (TFT)	1.93	1.98	mg/Kg	1	2.00	96	99	61.9 - 142

1.92

Laboratory Control Spike (LCS-1)

4-Bromofluorobenzene (4-BFB)

QC Batch: 86361 Prep Batch: 73337 Date Analyzed: 2011-11-11 QC Preparation: 2011-11-11 Analyzed By: AG Prepared By: AG

56.2 - 132

			LCS			Spike	Matrix		Rec.
Param	${f F}$	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	18.7	mg/Kg	1	20.0	< 0.753	94	60.9 - 105.4

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

1.91

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	19.5	mg/Kg	1	20.0	< 0.753	98	60.9 - 105.4	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)	1.96	1.94	mg/Kg	1	2.00	98	97	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.88	1.87	mg/Kg	1	2.00	.94	94	56.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 86366 Prep Batch: 73341 Date Analyzed: 2011-11-11 QC Preparation: 2011-11-11 Analyzed By: kg Prepared By: kg

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	255	mg/Kg	1	250	<14.5	102	64.5 - 146.9

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

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control spikes continued											
P			LCSD			Spike	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	265	mg/Kg	1	250	<14.5	106	64.5 - 146.9	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
n-Tricosane	96.4	98.1	mg/Kg	1	100	96	98	65.3 - 135.8

Laboratory Control Spike (LCS-1)

QC Batch: Date Analyzed: 86448 Prep Batch: 73404

2011-11-14 QC Preparation: 2011-11-14 Analyzed By: kg Prepared By: kg

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	259	mg/Kg	1	250	<14.5	104	64.5 - 146.9

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	231	mg/Kg	1	250	<14.5	92	64.5 - 146.9	11	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-Tricosane	97.8	88.5	mg/Kg	1	100	98	88	65.3 - 135.8

Matrix Spike (MS-1) Spiked Sample: 281552

QC Batch: 86134 Prep Batch: 73143 Date Analyzed: 2011-11-05 QC Preparation: 2011-11-04

Analyzed By: AG Prepared By: AG

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	2.24	mg/Kg	1	2.00	< 0.0118	112	69.4 - 123.6
Toluene		1	2.23	mg/Kg	1	2.00	< 0.00600	112	75.4 - 134.3

Work Order: 11110403

COG/Pickett-Exxon Common 8 Federal #1 TB

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matrix spikes continued ...

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Ethylbenzene		1	2.32	mg/Kg	1	2.00	< 0.00850	116	58.8 - 133.7
Xylene		1	6.98	mg/Kg	1	6.00	< 0.00613	116	57 - 134.2

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

				MSD			Spike	Matrix		Rec.		RPD
Param		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	Qr	Qr	1	1.72	mg/Kg	1	2.00	< 0.0118	86	69.4 - 123.6	26	20
'Toluene	Qr	Qr	1	1.70	mg/Kg	1	2.00	< 0.00600	85	75.4 - 134.3	27	20
Ethylbenzene	Qr	$\mathbf{Q}\mathbf{r}$	1	1.76	mg/Kg	1	2.00	< 0.00850	88	58.8 - 133.7	27	20
Xylene	Qr	Qr	1	5.30	mg/Kg	1_	6.00	< 0.00613	_88	57 - 134.2	27	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)	1.94	1.94	mg/Kg	1	2	97	97	79.4 - 141.1
4-Bromofluorobenzene (4-BFB)	2.07	2.04	mg/Kg	1	2	104	102	71 - 167

Matrix Spike (MS-1) Spiked Sa

IS-1) Spiked Sample: 281555

QC Batch: 86135 Prep Batch: 73143 Date Analyzed: 2011-11-05 QC Preparation: 2011-11-04 Analyzed By: AG Prepared By: AG

			MS			Spike	Matrix		Rec.
Param	${f F}$	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	19.9	mg/Kg	1	20.0	3.68	81	61.8 - 114

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	22.0	mg/Kg	1	20.0	3.68	92	61.8 - 114	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
Trifluorotoluene (TFT)	1.95	1.95	mg/Kg	1	2	98	98	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	2.01	2.02	mg/Kg	1	2	100	101	37.3 - 162

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114-6401071

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Eddy Co., NM

Matrix Spike (MS-1)

Spiked Sample: 281552

F

MS

Result

125

 \mathbf{C}

QC Batch: 86138 Prep Batch: 73148 Date Analyzed: 2011-11-04 QC Preparation: 2011-11-04

Units

mg/Kg

Analyzed By: kg Prepared By: kg

Param DRO

MS Spike Matrix Rec. Result Units Dil. Amount Result Rec. Limit 293 mg/Kg 250 23.1108 38.8 - 153.3

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

Param DRO

RPD MSD Spike Matrix Rec. \mathbf{C} RPD \mathbf{F} Result Units Dil. Amount Result Rec. Limit Limit 250112 38.8 - 153.3 20 302 mg/Kg 23.13

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

Surrogate n-Tricosane

MSD Result 122

Spike Dil. Amount 1 100

MS MSD Rec Rec.

125

122

Rec. Limit 54.6 - 149.8

Matrix Spike (MS-1) Spiked Sample: 281579

QC Batch: Prep Batch:

86234 73224

Date Analyzed:

QC Preparation:

2011-11-08 2011-11-08 Analyzed By: kg

Rec.

MS

Rec.

97

Prepared By:

Param DRO

MS F C Result 222

Units mg/Kg

Dil. Amount Matrix Result <14.5

Rec. Rec. Limit

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

Param

MSD C Result

Units Dil. mg/Kg

Spike Matrix Amount Result

Rec.

38.8 - 153.3

DRO 239 250 96 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate

n-Tricosane

MS MSD Result Result 97.3 105

Units Dil.

mg/Kg

< 14.5

Spike

Amount

100

Spike

250

38.8 - 153.3

MSD

Rec.

105

Limit

89

RPD Limit 20

Rec.

Limit

54.6 - 149.8

RPD

Matrix Spike (MS-1) Spiked Sample: 281549

QC Batch:

86236

Date Analyzed:

2011-11-09

Analyzed By: AR Prepared By:

Prep Batch: 73222

QC Preparation:

2011-11-07

1

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 24 of 34 Eddy Co., NM

_			MS			Spike	Matrix	_	Rec.
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			9130	mg/Kg	100	10000	<385	88	79.4 - 120.6

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

			MSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			9780	mg/Kg	100	10000	<385	95	79.4 - 120.6	7	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: 281579

QC Batch: 86282

2011-11-09 Date Analyzed:

Analyzed By: AG

Prep Batch: 73217

QC Preparation: 2011-11-08

Prepared By: AG

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	17.6	mg/Kg	1	20.0	2.72	74	61.8 - 114

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	21.0	mg/Kg	1	20.0	2.72	91	61.8 - 114	18	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	\mathbf{Units}	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.95	1.94	mg/Kg	1	2	98	97	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	1.95	1.98	mg/Kg	1	2	98	99	37.3 - 162

Matrix Spike (MS-1) Spiked Sample: 281940

QC Batch: 86283 Prep Batch: 73262

2011-11-09 Date Analyzed: QC Preparation: 2011-11-09 Analyzed By: kg Prepared By: kg

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	229	mg/Kg	1	250	<14.5	92	38.8 - 153.3

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

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 25 of 34 Eddy Co., NM

Param	\mathbf{F}	С	${ m MSD}$ Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	235	mg/Kg	1	250	<14.5	94	38.8 - 153.3	3	20
Percent recovery is base	ed on the spike	res	ult. RPD	is based	on the	spike and	spike dup	olicate	result.		
Percent recovery is base	ed on the spike MS		ult. RPD MSD		on the	e spike and	spike dup Spike	olicate : M		I	Rec.
Percent recovery is base Surrogate	-	S)	on the	spike and Dil.	-		IS MSD		Rec. imit

Matrix Spike (MS-1) Spiked Sample: 282016

QC Batch: 86316 Prep Batch: 73286

Date Analyzed: QC Preparation:

2011-11-10 2011-11-10 Analyzed By: AG Prepared By: AG

MS Spike Matrix Rec. F \mathbf{C} Result Units Dil. Amount Result Limit Param Rec. 20.2 20.0 4.02 81 61.8 - 114 GRO mg/Kg

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

			MSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	21.9	mg/Kg	1	20.0	4.02	110	61.8 - 114	8	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)	1.91	1.96	mg/Kg	1	2	96	98	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	2.06	2.09	mg/Kg	1	2	103	104	37.3 - 162

Matrix Spike (MS-1) Spiked Sample: 282104

QC Batch: 86361 Prep Batch: 73337

Date Analyzed:

2011-11-11 2011-11-11 QC Preparation:

Analyzed By: AG Prepared By: AG

MS Spike Matrix Rec. Param F C Result Units Dil. Amount Result Rec. Limit GRO 24.8 mg/Kg 20.0 3.14 108 61.8 - 114

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

 $continued \dots$

Work Order: 11110403 Page Number: 26 of 34 Report Date: November 15, 2011 Eddy Co., NM COG/Pickett-Exxon Common 8 Federal #1 TB 114-6401071 matrix spikes continued ... MSD Spike Matrix Rec. RPD Result F \mathbf{C} Units Dil. Amount Result Rec. Limit RPD Limit Param MSD Spike Matrix Rec. RPD F C Result Units Dil. Amount Result Rec. Limit RPD Limit Param 61.8 - 114 GRO Qs 25.9 mg/Kg 20.0 3.14 114 20 Qв Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. MSD MS MSD Rec. MS Spike Dil. Limit Result Units Amount Rec. Rec. Surrogate Result Trifluorotoluene (TFT) 1.94 1.93 mg/Kg 1 2 97 96 29.4 - 161.72 4-Bromofluorobenzene (4-BFB) 2.04 2.03 mg/Kg 1 102 102 37.3 - 162Matrix Spike (MS-1) Spiked Sample: 282104 QC Batch: 86366 Date Analyzed: 2011-11-11 Analyzed By: kg 2011-11-11 Prepared By: Prep Batch: 73341 QC Preparation: Spike Matrix Rec. MS F \mathbf{C} Result Units Dil. Amount Result Limit Rec. Param 222 250 46.7 70 38.8 - 153.3 DRO mg/Kg Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. Spike RPD MSD Rec. Matrix \mathbf{F} Dil. Result Rec. Limit **RPD** Param C Result Units Amount Limit DRO 250 46.7 63 38.8 - 153.3 8 20 204 mg/Kg 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-Tricosane 87.9 75.4 mg/Kg 1 100 88 75 54.6 - 149.8

QC Batch: Prep Batch:	86448 73404			Date Analyzed: 2011-11-14 QC Preparation: 2011-11-14							yzed By: kg ared By: kg
n			т.	a	MS	TT-:4-	Da	Spike	Matrix	D.	Rec.
Param			ħ.	\mathbf{C}	\mathbf{Result}	Units	Dil.	Amount	Result	${ m Rec.}$	Limit
DRO		Qs	Qs	1	9750	mg/Kg	5	250	9750	0	38.8 - 153.3

Spiked Sample: 282214

Matrix Spike (MS-1)

Work Order: 11110403

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 27 of 34 Eddy Co., NM

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

				MSD			Spike	Matrix		Rec.		RPD
Param		${f F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	Qs	Qs	1	8780	mg/Kg	5	250	9750	0	38.8 - 153.3	10	20

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

			MS	MSD			$_{ m Spike}$	MS	MSD	${ m Rec}.$
Surrogate			Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	Qar	Qsr	598	533	mg/Kg	5	100	598	533	54.6 - 149.8

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 28 of 34 Eddy Co., NM

Calibration Standards

Standard (CCV-1)

QC Batch: 86134

Date Analyzed: 2011-11-05

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.101	101	80 - 120	2011-11-05
Toluene		1	mg/Kg	0.100	0.0981	98	80 - 120	2011-11-05
Ethylbenzene		1	mg/Kg	0.100	0.0959	96	80 - 120	2011-11-05
Xylene		1	mg/Kg	0.300	0.289	96	80 - 120	2011-11-05

Standard (CCV-2)

QC Batch: 86134

Date Analyzed: 2011-11-05

Analyzed By: AG

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/Kg	0.100	0.0921	92	80 - 120	2011-11-05
Toluene		1	mg/Kg	0.100	0.0888	89	80 - 120	2011-11-05
Ethylbenzene		1	mg/Kg	0.100	0.0859	86	80 - 120	2011-11-05
Xylene		1	mg/Kg	0.300	0.260	87	80 - 120	2011-11-05

Standard (CCV-1)

QC Batch: 86135

Date Analyzed: 2011-11-05

Analyzed By: AG

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
$\overline{\text{GRO}}$		1	mg/Kg	1.00	1.07	107	80 - 120	2011-11-05

Standard (CCV-2)

QC Batch: 86135 Date Analyzed: 2011-11-05 Analyzed By: AG

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 29 of 34

				CCVs True	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	\mathbf{Flag}	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.15	115	80 - 120	2011-11-05

Standard (CCV-1)

QC Batch: 86138

Date Analyzed: 2011-11-04

Analyzed By: kg

				CCVs True	CCVs Found	$\begin{array}{c} { m CCVs} \\ { m Percent} \end{array}$	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	266	106	80 - 120	2011-11-04

Standard (CCV-2)

QC Batch: 86138

Date Analyzed: 2011-11-04

Analyzed By: kg

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	\mathbf{Flag}	Cert	Units	$\operatorname{Conc.}$	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	237	95	80 - 120	2011-11-04

Standard (CCV-3)

QC Batch: 86234

Date Analyzed: 2011-11-08

Analyzed By: kg

				\mathbf{CCVs}	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	\mathbf{Flag}	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	242	97	80 - 120	2011-11-08

Standard (CCV-4)

QC Batch: 86234

Date Analyzed: 2011-11-08

Analyzed By: kg

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 30 of 34 Eddy Co., NM

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	262	105	80 - 120	2011-11-08

Standard (ICV-1)

QC Batch: 86236

Date Analyzed: 2011-11-09

Analyzed By: AR

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	96.6	97	85 - 115	2011-11-09

Standard (CCV-1)

QC Batch: 86236

Date Analyzed: 2011-11-09

Analyzed By: AR

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	103	103	85 - 115	2011-11-09

Standard (CCV-1)

QC Batch: 86282

Date Analyzed: 2011-11-09

Analyzed By: AG

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	\mathbf{Flag}	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.15	115	80 - 120	2011-11-09

Standard (CCV-2)

QC Batch: 86282

Date Analyzed: 2011-11-09

Analyzed By: AG

Work Order: 11110403

Page Number: 31 of 34

COG/Pickett-Exxon Common 8 Federal #1 TB

Eddy Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.10	110	80 - 120	2011-11-09

Standard (CCV-3)

QC Batch: 86282

Date Analyzed: 2011-11-09

Analyzed By: AG

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.19	119	80 - 120	2011-11-09

Standard (CCV-1)

QC Batch: 86283

Date Analyzed: 2011-11-09

Analyzed By: kg

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	255	102	80 - 120	2011-11-09

Standard (CCV-2)

QC Batch: 86283

Date Analyzed: 2011-11-09

Analyzed By: kg

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	250	100	80 - 120	2011-11-09

Standard (CCV-1)

QC Batch: 86316

Date Analyzed: 2011-11-10

Analyzed By: AG

Work Order: 11110403

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 32 of 34

Eddy Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO	0	1	mg/Kg	1.00	1.14	114	80 - 120	2011-11-10

Standard (CCV-2)

QC Batch: 86316

Date Analyzed: 2011-11-10

Analyzed By: AG

		~ .	/.	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	\mathbf{Flag}	Cert	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.14	114	80 - 120	2011-11-10

Standard (CCV-1)

QC Batch: 86361

Date Analyzed: 2011-11-11

Analyzed By: AG

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.16	116	80 - 120	2011-11-11

Standard (CCV-2)

QC Batch: 86361

Date Analyzed: 2011-11-11

Analyzed By: AG

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.16	116	80 - 120	2011-11-11

Standard (CCV-1)

QC Batch: 86366

Date Analyzed: 2011-11-11

Analyzed By: kg

Work Order: 11110403 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 33 of 34

Eddy Co., NM

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	\mathbf{Flag}	Cert	\mathbf{Units}	Conc.	Conc.	Recovery	\mathbf{Limits}	Analyzed
DRO		1	mg/Kg	250	252	101	80 - 120	2011-11-11

Standard (CCV-2)

QC Batch: 86366

Date Analyzed: 2011-11-11

Analyzed By: kg

				CCVs True	CCVs Found	$\begin{array}{c} ext{CCVs} \\ ext{Percent} \end{array}$	Percent Recovery	Date
				irue	round	rercent	necovery	Date
Param	\mathbf{Flag}	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	257	103	80 - 120	2011-11-11

Standard (CCV-1)

QC Batch: 86448

Date Analyzed: 2011-11-14

Analyzed By: kg

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	258	103	80 - 120	2011-11-14

Standard (CCV-2)

QC Batch: 86448

Date Analyzed: 2011-11-14

Analyzed By: kg

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	256	102	80 - 120	2011-11-14

Work Order: 11110403 Report Date: November 15, 2011 Page Number: 34 of 34 COG/Pickett-Exxon Common 8 Federal #1 TB 114-6401071

Eddy Co., NM

Appendix

Report Definitions

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

Laboratory Certifications

	Certifying	Certification	Laboratory
\mathbf{C}	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-10-TX	Midland

Standard Flags

- F Description
- Analyte detected in the corresponding method blank above the method detection
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Surrogate recovery outside of laboratory limits.
- The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.

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

WO # 1110403

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Report Date: June 12, 2012 Work Order: 12061109 Page Number: 1 of 1

Summary Report

Ike Tavarez Tetra Tech 1910 N. Big Spring Street

1910 N. Big Spring Street Midland, TX 79705

Report Date: June 12, 2012

Work Order: 12061109

Project Location: Eddy Co., NM

Project Name: COG/Pickett-Exxon Common 8 Federal #1 TB

Project Number: 114-6401071

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
300652	CS-1 Bottom Hole 5' (AH-1)	soil	2012-05-22	00:00	2012-06-11
300653	CS-1 North Wall (AH-1)	soil	2012-05-22	00:00	2012-06-11
300654	CS-1 South Wall (AH-1)	soil	2012-05-22	00:00	2012-06-11
300655	CS-1 East Wall (AH-1)	soil	2012-05-22	00:00	2012-06-11
300656	CS-1 West Wall (AH-1)	soil	2012-05-22	00:00	2012-06-11

]	BTEX		TPH DRO - NEW	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
300652 - CS-1 Bottom Hole 5' (AH-1)	< 0.0200	< 0.0200	< 0.0200	< 0.0200	< 50.0	< 2.00
300653 - CS-1 North Wall (AH-1)	< 0.0200	< 0.0200	< 0.0200	< 0.0200	< 50.0	< 2.00
300654 - CS-1 South Wall (AH-1)	< 0.0200	< 0.0200	< 0.0200	< 0.0200	1290	11.7
300655 - CS-1 East Wall (AH-1)	< 0.0200	< 0.0200	< 0.0200	< 0.0200	< 50.0	< 2.00
300656 - CS-1 West Wall (AH-1)	< 0.0200	< 0.0200	< 0.0200	< 0.0200	< 50.0	< 2.00



6701 Aberdeen Avenue, Svite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite Af (BioAquatic) 2501 Mayes Rd., Suite 100 Lubbock. Texas 79424 El Paso. Texas 79922 Midland. Texas 79703 Carroliton Texas 75006 806-794-1296 915-585-3443 432-689-6301 FAX 806 - 794 - 1298 FAX 915 - 585 - 4944 FAX 432-689-6313

972-242-7750

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

Certifications Oklahoma ISO 17025 NELAP DoD LELAP WBE HUB NCTRCA DBE Kansas

Analytical and Quality Control Report

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

Report Date: June 12, 2012

Work Order: 12061109

Project Location: Eddy Co., NM

Project Name:

COG/Pickett-Exxon Common 8 Federal #1 TB

Project Number:

114-6401071

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

		Date	Time	Date
Description	Matrix	Taken	Taken	Received
CS-1 Bottom Hole 5' (AH-1)	soil	2012-05-22	00:00	2012-06-11
CS-1 North Wall (AH-1)	soil	2012-05-22	00:00	2012-06-11
CS-1 South Wall (AH-1)	soil	2012-05-22	00:00	2012-06-11
CS-1 East Wall (AH-1)	soil	2012-05-22	00:00	2012-06-11
CS-1 West Wall (AH-1)	soil	2012-05-22	00:00	2012-06-11
	CS-1 Bottom Hole 5' (AH-1) CS-1 North Wall (AH-1) CS-1 South Wall (AH-1) CS-1 East Wall (AH-1)	CS-1 Bottom Hole 5' (AH-1) soil CS-1 North Wall (AH-1) soil CS-1 South Wall (AH-1) soil CS-1 East Wall (AH-1) soil	Description Matrix Taken CS-1 Bottom Hole 5' (AH-1) soil 2012-05-22 CS-1 North Wall (AH-1) soil 2012-05-22 CS-1 South Wall (AH-1) soil 2012-05-22 CS-1 East Wall (AH-1) soil 2012-05-22	Description Matrix Taken Taken CS-1 Bottom Hole 5' (AH-1) soil 2012-05-22 00:00 CS-1 North Wall (AH-1) soil 2012-05-22 00:00 CS-1 South Wall (AH-1) soil 2012-05-22 00:00 CS-1 East Wall (AH-1) soil 2012-05-22 00:00

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

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

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Case Narrative

Samples for project COG/Pickett-Exxon Common 8 Federal #1 TB were received by TraceAnalysis, Inc. on 2012-06-11 and assigned to work order 12061109. Samples for work order 12061109 were received intact at a temperature of 6.0 C.

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

	•	Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	78057	2012-06-11 at 12:00	92011	2012-06-11 at 11:24
TPH DRO - NEW	S 8015 D	78050	2012-06-11 at 12:00	92001	2012-06-11 at 12:44
TPH GRO	S 8015 D	78057	2012-06-11 at 12:00	92012	2012-06-11 at 11:50

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 12061109 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.

Samples received out of hold time. Client still wants samples to be analyzed.

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

114-6401071

Work Order: 12061109 COG/Pickett-Exxon Common 8 Federal #1 TB

Analytical Report

Sample: 300652 - CS-1 Bottom Hole 5' (AH-1)

Laboratory: M

Midland

Analysis: BTEX QC Batch: 92011 Prep Batch: 78057 Analytical Method: S 8021B
Date Analyzed: 2012-06-11
Sample Preparation: 2012-06-11

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

Page Number: 4 of 18

Eddy Co., NM

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	< 0.0200	mg/Kg	1	0.0200
Toluene	υ	1	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1	< 0.0200	mg/Kg	1	0.0200
Xylene	U	1	< 0.0200	mg/Kg	1	0.0200

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.25	mg/Kg	1	2.00	112	70 - 135.4
4-Bromofluorobenzene (4-BFB)			2.55	${ m mg/Kg}$	1	2.00	128	53.6 - 158.9

Sample: 300652 - CS-1 Bottom Hole 5' (AH-1)

Laboratory: Midland

Analysis: TPH DRO - NEW QC Batch: 92001 Prep Batch: 78050 Analytical Method: S 8015 D
Date Analyzed: 2012-06-11
Sample Preparation: 2012-06-11

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

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

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			95.7	mg/Kg	1	100	96	49.3 - 157.5

Sample: 300652 - CS-1 Bottom Hole 5' (AH-1)

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 92012 Date Analyzed: 2012-06-11 Analyzed By: AG Prep Batch: 78057 Sample Preparation: 2012-06-11 Prepared By: AG

Work Order: 12061109

114-6401071 COG/Pickett-Exxon Common 8 Federal #1 TB Eddy Co., NM

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Parameter	Flag	Cert		RL Result	U:	nits	Dilution	RL
GRO	U	1		< 2.00	mg/Kg		1	2.00
						Spike	Percent	Recovery
Surrogate	Flag	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.00	mg/Kg	1	2.00	100	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	45.1 - 162.2

Sample: 300653 - CS-1 North Wall (AH-1)

Laboratory: Midland

Prep Method: S 5035 Analysis: **BTEX** Analytical Method: S 8021B Analyzed By: AGQC Batch: 92011 Date Analyzed: 2012-06-11 Sample Preparation: Prepared By: Prep Batch: 78057 AG 2012-06-11

RLFlag Parameter Cert Result Units Dilution RLBenzene mg/Kg 0.0200 < 0.0200 1 U 1 Toluene U < 0.0200 mg/Kg 1 0.0200 1 Ethylbenzene < 0.0200 mg/Kg 1 0.0200 U Xylene < 0.0200 mg/Kg 1 0.0200

						$_{ m Spike}$	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.51	mg/Kg	1	2.00	126	70 - 135.4
4-Bromofluorobenzene (4-BFB)			2.91	mg/Kg	1	2.00	146	53.6 - 158.9

Sample: 300653 - CS-1 North Wall (AH-1)

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: Analyzed By: 92001 Date Analyzed: 2012-06-11 \mathbf{AG} Prep Batch: 78050 Sample Preparation: 2012-06-11 Prepared By: AG

Surrogato	Flag	Cont	Dogult	Units	Dilution	Spike	Percent	Recovery Limits
Surrogate	riag	Cert	Result		Dirucion	Amount	Recovery	Limits
n-Tricosane			96.3	mg/Kg	1	100	96	49.3 - 157.5

Work Order: 12061109

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 6 of 18 Eddy Co., NM

Sample: 300653 - CS-1 North Wall (AH-1)

Laboratory: Midland

114-6401071

Analysis: TPH GRO QC Batch: 92012 Prep Batch: 78057 Analytical Method: S 8015 D
Date Analyzed: 2012-06-11
Sample Preparation: 2012-06-11

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

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.19	mg/Kg	1	2.00	110	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.02	mg/Kg	_ 1	2.00	101	45.1 - 162.2

Sample: 300654 - CS-1 South Wall (AH-1)

Laboratory:

Midland

Analysis: BTEX QC Batch: 92011 Prep Batch: 78057 Analytical Method: S 8021B
Date Analyzed: 2012-06-11
Sample Preparation: 2012-06-11

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

RLResult Units Dilution Parameter Flag Cert RL< 0.0200 0.0200 Benzene mg/Kg 1 υ mg/Kg Toluene < 0.0200 1 0.0200 υ Ethylbenzene < 0.0200 mg/Kg 1 0.0200U < 0.0200 Xylene mg/Kg 1 0.0200U

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.06	mg/Kg	1	2.00	103	70 - 135.4
4-Bromofluorobenzene (4-BFB)			2.49	mg/Kg	1	2.00	124	53.6 - 158.9

Sample: 300654 - CS-1 South Wall (AH-1)

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: Date Analyzed: 2012-06-11 Analyzed By: 92001 AGPrep Batch: 78050 Sample Preparation: 2012-06-11 Prepared By: AG

Work Order: 12061109

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 7 of 18 Eddy Co., NM

						RL			
Parameter			Flag	Cert	R	lesult	Units	Dilution	RL
DRO				1		1290	mg/Kg	1	50.0
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	${f Units}$	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qar		203	mg/Kg	1	100	203	49.3 - 157.5

Sample: 300654 - CS-1 South Wall (AH-1)

Laboratory:

114-6401071

Midland

Analysis:

TPH GRO

QC Batch: 92012 Prep Batch: 78057

Analytical Method:

S 8015 D 2012-06-11

Date Analyzed: Sample Preparation: 2012-06-11 Prep Method: S 5035

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

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO		1	11.7	mg/Kg	1	2.00

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.78	mg/Kg	1	2.00	89	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.91	$_{ m mg/Kg}$	1	2.00	_96	45.1 - 162.2

Sample: 300655 - CS-1 East Wall (AH-1)

Laboratory:

Midland

Analysis: BTEX QC Batch: 92011 Prep Batch: 78057

Analytical Method: Date Analyzed: Sample Preparation: 2012-06-11

S 8021B 2012-06-11 Prep Method: S 5035 Analyzed By: AGPrepared By: AG

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	< 0.0200	mg/Kg	1	0.0200
Toluene	υ	1	< 0.0200	${ m mg/Kg}$	1	0.0200
Ethylbenzene	U	1	< 0.0200	${ m mg/Kg}$	1	0.0200
Xylene	U	1	< 0.0200	mg/Kg	1	0.0200

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				2.62	mg/Kg	1	2.00	131	70 - 135.4
4-Bromofluorobenzene (4-BFB)	Qar	Qar		3.43	mg/Kg	1	2.00	172	53.6 - 158.9

Report Date: June 12, 2012 114-6401071

Work Order: 12061109

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 8 of 18 Eddy Co., NM

Sample: 300655 - CS-1 East Wall (AH-1)

Laboratory: Analysis:

Midland

TPH DRO - NEW

92001

Analytical Method:

S 8015 D

2012-06-11

Analyzed By:

AG

Prep Method: N/A

QC Batch: Prep Batch:

78050

Date Analyzed: Sample Preparation:

2012-06-11

Prepared By:

AG

RL

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

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			97.7	mg/Kg	1	100	98	49.3 - 157.5

Sample: 300655 - CS-1 East Wall (AH-1)

Laboratory:

Midland

Analysis: QC Batch:

Prep Batch:

TPH GRO

92012 78057 Analytical Method: Date Analyzed:

S 8015 D

2012-06-11

2012-06-11

Prep Method: S 5035

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

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			17.17			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	U	1	< 2.00	mg/Kg	1	2.00

Sample Preparation:

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.28	mg/Kg	1	2.00	114	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.47	mg/Kg	1	2.00	124	45.1 - 162.2

Sample: 300656 - CS-1 West Wall (AH-1)

Laboratory:

Midland

Analysis: QC Batch:

Prep Batch:

BTEX

92011 78057

Analytical Method: Date Analyzed:

S 8021B

2012-06-11

Sample Preparation:

2012-06-11

Prep Method: S 5035 Analyzed By:

Prepared By:

AG AG

RL

			1023			
Parameter	Flag	Cert	Result	Units	Dilution	$_{ m RL}$
Benzene	U	1	< 0.0200	mg/Kg	1	0.0200
Toluene	U	1	< 0.0200	${ m mg/Kg}$	1	0.0200
Ethylbenzene	U	1	< 0.0200	mg/Kg	1	0.0200

Report Date: June 12, 2012 114-6401071

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COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 9 of 18 Eddy Co., NM

sample 300656 continued ...

Parameter	Flag	Cert		$ m RL \ Result$	Uı	nits	Dilution	m RL	
Xylene	U	1		< 0.0200	mg/Kg		1	0.0200	
						Spike	Percent	Recovery	
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)			2.30	mg/Kg	1	2.00	115	70 - 135.4	
4-Bromofluorobenzene (4-BFB)			2.91	mg/Kg	1	2.00	146	53.6 - 158.9	

Sample: 300656 - CS-1 West Wall (AH-1)

Laboratory: Midland

Analysis: TPH DRO - NEW

92001

Analytical Method:

S 8015 D 2012-06-11 Prep Method: N/A Analyzed By: AG

QC Batch: 92 Prep Batch: 78

78050

Date Analyzed: Sample Preparation:

2012-06-11

Prepared By: AG

						Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			93.9	mg/Kg	1	100	94	49.3 - 157.5

Sample: 300656 - CS-1 West Wall (AH-1)

Laboratory: Midland

Analysis: TPH GRO
QC Batch: 92012
Prep Batch: 78057

Analytical Method: S
Date Analyzed: 20
Sample Preparation: 20

S 8015 D Prep Method: S 5035 2012-06-11 Analyzed By: AG 2012-06-11 Prepared By: AG

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1	2.00	98	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	45.1 - 162.2

Report Date: June 12, 2012 114-6401071

Work Order: 12061109 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 10 of 18 Eddy Co., NM

Method Blanks

Method Blank (1)

QC Batch: 92001

QC Batch:

92001

Date Analyzed:

2012-06-11

Analyzed By: AG

Units

mg/Kg

Prep Batch: 78050

QC Preparation: 2012-06-11

Prepared By: AG

RL

50

			\mathtt{MDL}
Parameter	Flag	Cert	Result
DRO		1	<14.5

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			76.6	mg/Kg	1	100	77	52 - 140.8

Method Blank (1)

QC Batch: 92011

QC Batch: Prep Batch: 78057

92011

Date Analyzed: QC Preparation:

2012-06-11 2012-06-11 Analyzed By: AG Prepared By: AG

			\mathtt{MDL}		
Parameter	Flag	Cert	Result	Units	RL
Benzene		1	< 0.00470	mg/Kg	0.02
Toluene		1	< 0.00980	mg/Kg	0.02
Ethylbenzene		1	< 0.00500	mg/Kg	0.02
Xylene		1	< 0.0170	mg/Kg	0.02

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1	2.00	98	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.79	mg/Kg	1	2.00	90	51.3 - 122.4

Method Blank (1)

QC Batch: 92012

QC Batch: Prep Batch:

92012 78057 Date Analyzed: QC Preparation: 2012-06-11

2012-06-11

Analyzed By: AG Prepared By: AG

Report Date: June 12, 2012 114-6401071

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Parameter	Flag		Cert		$rac{ ext{MDL}}{ ext{Result}}$		Units	RL
GRO			1				2	
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.76	mg/Kg	1	2.00	88	78.6 - 131
4-Bromofluorobenzene (4-BFB)			1.28	mg/Kg	1	2.00	64	51 - 130

Report Date: June 12, 2012 114-6401071

Work Order: 12061109 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 12 of 18 Eddy Co., NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch:

92001

Date Analyzed:

2012-06-11

Analyzed By: AG

Prep Batch: 78050

QC Preparation: 2012-06-11

Prepared By: AG

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	243	mg/Kg	1	250	<14.5	97	62 - 128.3

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	239	mg/Kg	1	250	<14.5	96	62 - 128.3	2	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.	Limit
n-Tricosane	93.6	92.7	mg/Kg	1	100	94	93	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 78057

92011

Date Analyzed: QC Preparation: 2012-06-11

2012-06-11

Analyzed By: AG Prepared By: AG

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	2.11	mg/Kg	1	2.00	< 0.00470	106	86.5 - 124.9
Toluene		1	2.14	mg/Kg	1	2.00	< 0.00980	107	84.7 - 122.5
Ethylbenzene		1	2.15	mg/Kg	1	2.00	< 0.00500	108	79.4 - 118.9
Xylene		1	6.48	mg/Kg	1	6.00	< 0.0170	108	77.5 - 119

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	2.11	mg/Kg	1	2.00	< 0.00470	106	86.5 - 124.9	0	20
Toluene		1	2.14	mg/Kg	1	2.00	< 0.00980	107	84.7 - 122.5	0	20
Ethylbenzene		1	2.18	mg/Kg	1	2.00	< 0.00500	109	79.4 - 118.9	1	20
Xylene		1	6.50	mg/Kg	1	6.00	< 0.0170	108	77.5 - 119	0	20

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

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Eddy Co., NM

Surrogate	LCS Result	LCSD Result	Units	Dil.	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.06	2.20	mg/Kg	1	2.00	103	110	73.9 - 127
4-Bromofluorobenzene (4-BFB)	2.46	2.57	mg/Kg	1	2.00	123	128	65.4 - 149.9

Laboratory Control Spike (LCS-1)

QC Batch:

114-6401071

92012

Date Analyzed:

2012-06-11

Analyzed By: AG

Prepared By: AG

Prep Batch: 78057

QC Preparation: 2012-06-11

			LCS			$_{ m Spike}$	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	18.0	mg/Kg	1	20.0	<1.22	90	65.3 - 105.7

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	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	19.6	mg/Kg	1	20.0	<1.22	98	65.3 - 105.7	8	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)	1.87	1.96	mg/Kg	1	2.00	94	98	79 - 131.2
4-Bromofluorobenzene (4-BFB)	1.74	1.88	mg/Kg	1	2.00	87	94	56.4 - 136.6

Matrix Spike (MS-1) Spiked Sample: 300652

QC Batch:

92001

Prep Batch: 78050

Date Analyzed:

2012-06-11

QC Preparation: 2012-06-11

Analyzed By: AG

Prepared By: AG

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	229	mg/Kg	1	250	20.5	83	45.5 - 127

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

			MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	238	mg/Kg	1	250	20.5	87	45.5 - 127	4	20

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

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Surrogate	$rac{ ext{MS}}{ ext{Result}}$	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	94.8	96.8	mg/Kg	1	100	95	97	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 300656

QC Batch: Prep Batch: 78057

92011

Date Analyzed:

2012-06-11 QC Preparation: 2012-06-11

Analyzed By: AG Prepared By: AG

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	\mathbf{Units}	Dil.	Amount	Result	Rec.	Limit
Benzene		1	2.04	mg/Kg	1	2.00	< 0.00470	102	69.3 - 159.2
Toluene		1	2.16	mg/Kg	1	2.00	< 0.00980	108	68.7 - 157
Ethylbenzene		1	2.43	mg/Kg	1	2.00	< 0.00500	122	71.6 - 158.2
Xylene		1	7.29	mg/Kg	1	6.00	< 0.0170	122	70.8 - 159.8

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	2.02	mg/Kg	1	2.00	< 0.00470	101	69.3 - 159.2	1	20
Toluene		1	2.12	mg/Kg	1	2.00	< 0.00980	106	68.7 - 157	2	20
Ethylbenzene		1	2.39	mg/Kg	1	2.00	< 0.00500	120	71.6 - 158.2	2	20
Xylene		1	7.25	mg/Kg	1	6.00	< 0.0170	121	70.8 - 159.8	1	20

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

	MS	MSD			\mathbf{Spike}	MS	MSD	Rec.	
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit	
Trifluorotoluene (TFT)	2.34	3.05	mg/Kg	1	2	117	152	71.4 - 133.9	
4-Bromofluorobenzene (4-BFB) Qer Qer	3.39	4.43	mg/Kg	1	2	170	222	72.6 - 144.1	

Matrix Spike (MS-1) Spiked Sample: 300652

QC Batch: 92012 Prep Batch: 78057

Date Analyzed: QC Preparation:

2012-06-11 2012-06-11 Analyzed By: AG Prepared By: AG

			MS			$_{ m Spike}$	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	18.6	mg/Kg	1	20.0	<1.22	93	28.2 - 157.2

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

Report Date: June 12, 2012 114-6401071

Work Order: 12061109

COG/Pickett-Exxon Common 8 Federal #1 TB

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			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	20.4	mg/Kg	1	20.0	<1.22	102	28.2 - 157.2	9	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)	2.27	2.14	mg/Kg	1	2	114	107	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	2.39	2.24	mg/Kg	1	2	120	112	77.9 - 122.4

Report Date: June 12, 2012

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Work Order: 12061109

COG/Pickett-Exxon Common 8 Federal #1 TB

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Calibration Standards

Standard (CCV-1)

QC Batch: 92001

Date Analyzed: 2012-06-11

Analyzed By: AG

				CCVs True	CCVs Found	CCVs $\operatorname{Percent}$	Percent Recovery	Date
Param	Flag	Cert	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	238	95	80 - 120	2012-06-11

Standard (CCV-2)

QC Batch: 92001

Date Analyzed: 2012-06-11

Analyzed By: AG

				$rac{ ext{CCVs}}{ ext{True}}$	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	232	93	80 - 120	2012-06-11

Standard (CCV-1)

QC Batch: 92011

Date Analyzed: 2012-06-11

Analyzed By: AG

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.103	103	80 - 120	2012-06-11
Toluene		1	mg/kg	0.100	0.105	105	80 - 120	2012-06-11
Ethylbenzene		1	mg/kg	0.100	0.109	109	80 - 120	2012-06-11
Xylene		1	mg/kg	0.300	0.332	111	80 - 120	2012-06-11

Standard (CCV-2)

QC Batch: 92011

Date Analyzed: 2012-06-11

Analyzed By: AG

Report Date: June 12, 2012 114-6401071

Work Order: 12061109

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 17 of 18 Eddy Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.116	116	80 - 120	2012-06-11
Toluene		1	mg/kg	0.100	0.116	116	80 - 120	2012-06-11
Ethylbenzene		1	mg/kg	0.100	0.118	118	80 - 120	2012-06-11
Xylene		1	mg/kg	0.300	0.353	118	80 - 120	2012-06-11

Standard (CCV-1)

 $QC\ Batch:\ 92012$

Date Analyzed: 2012-06-11

Analyzed By: AG

				$rac{ ext{CCVs}}{ ext{True}}$	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	\mathbf{Units}	Conc.	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.07	107	80 - 120	2012-06-11

Standard (CCV-2)

QC Batch: 92012

Date Analyzed: 2012-06-11

Analyzed By: AG

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.10	110	80 - 120	2012-06-11

Report Date: June 12, 2012 114-6401071

Work Order: 12061109 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 18 of 18 Eddy Co., NM

Appendix

Report Definitions

Name	Definition
$\overline{ ext{MDL}}$	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

\mathbf{C}	Certifying Authority	Certification Number	Laboratory Location
$\overline{\underline{\mathbf{C}}}$			Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-11-3	Midland

Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.

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

- 12061109	<u> </u>															1
Analysis Request of Cha	in of Custogy	Re	CO	rd							AGE:)	U	工	
					\dashv		•	(Ci			IS RE			.)		
TETRA 1910 N. Big Si Midland, Texa (432) 682-4559 • F	pring St. s 79705				11	15 (Ext. to C35)	d Cr Pb Hg Se d Vr Pd Hg Se									
CLIENT NAME: SITE MANAGER:		SH SH		ERVATIVE		1X1005	Ba Cd Ba Cd			3260/624 8270/625				F.		
PROJECT NO.: PROJECT NAME: 114-6401071 COG Pickett / Exron LAB I.D. NUMBER 2012 SAMPLE	Cammen8 col # 1 TB Eddy Co, NA IDENTIFICATION	NUMBER OF CONTAINERS FILTERED (Y/N) HCI	8	NONE	(80218)	el el	RCRA Metals Ag As TCLP Metals Ag As	tiles	RCI	<u>ب</u> و	PCB's 8080/608	Chloride	Gamma Spec. Alpha Beta (Air)	PLM (Asbestos) Major Anions/Cations, pH, TDS		
300647 5/22 5 x CS-1 Sorter	· (AHI)			Y	\forall			1	00	1		\prod	T			
650 1 1 1 1 1 2'	(AH-1)							1/2	1			\prod	T			Ш
65/	(AH-1)								Z		T	\prod	1			
652 C5-1 Bottom Ha	/		11		X	X					\prod	\prod				\prod
653	all (AHI)				X	X		\prod			\prod	\prod				
654 CS-1 South We					X	У			\prod		П	Π				
655 15-1 Fast Wall	(Att-1)				X	X			\prod			\prod				
656 + 4 PS-1 West West		Y		4	X	X		\prod			\prod	\prod			П	
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ADDRESS: ZIP: ZIP:	CEIVED BY: (Signature)					-].			7	ava	rel			RUSH C	zed:	1
CONTACT: March PHONE: DATE DATE DATE DATE DATE DATE DATE DATE	E:	TIME:				-]								Yes		No
1.0° 1241, TAT																

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

Report Date: April 26, 2012 Work Order: 12042013 Page Number: 1 of 1

Summary Report

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

Report Date: April 26, 2012

Work Order: 12042013

Project Location: Eddy Co., NM

Project Name: COG/Pickett-Exxon Common 8 Federal #1 TB

Project Number: 114-6401071

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
294750	BH-1 @ AH-1 (west of trench) 0-1'	soil	2012-04-17	00:00	2012-04-20
294752	BH-1 @ AH-1 (west of trench) 4-5'	soil	2012-04-17	00:00	2012-04-20
294754	BH-1 @ AH-1 (west of trench) 9-10'	soil	2012-04-17	00:00	2012-04-20
294757	BH-2 @ AH-1 (east of trench) 0-1'	soil	2012-04-17	00:00	2012-04-20
294758	BH-2 @ AH-1 (east of trench) 2-3'	soil	2012-04-17	00:00	2012-04-20
294759	BH-2 @ AH-1 (east of trench) 4-5'	soil	2012-04-17	00:00	2012-04-20
294761	BH-2 @ AH-1 (east of trench) 9-10'	soil	2012-04-17	00:00	2012-04-20

	В	TEX		TPH DRO - NEW	TPH GRO
	Benzene Toluene E	thylbenzene >	Kylene	DRO	GRO
Sample - Field Code	(mg/Kg) (mg/Kg)	(mg/Kg) (mg/Kg)	(mg/Kg)	(mg/Kg)
294750 - BH-1 @ AH-1 (west of trench) 0-1'	< 0.0200 < 0.0200	< 0.0200	0.293	464	158
294752 - BH-1 @ AH-1 (west of trench) 4-5'	<0.0200<0.0200	< 0.0200 <	0.0200	221	45.8
294754 - BH-1 @ AH-1 (west of trench) 9-10'	< 0.0200 < 0.0200	< 0.0200 <	0.0200	< 50.0	6.02
294757 - BH-2 @ AH-1 (east of trench) 0-1'	< 0.0200 < 0.0200	< 0.0200 <	0.0200	1680	95.1
294758 - BH-2 @ AH-1 (east of trench) 2-3'				1360 Qs	1220 Qr,Qs
294759 - BH-2 @ AH-1 (east of trench) 4-5'	< 0.0200 < 0.0200	< 0.0200	0.316	209	81.1
294761 - BH-2 @ AH-1 (east of trench) 9-10'	< 0.0200 < 0.0200	< 0.0200 <	0.0200	< 50.0	< 2.00



6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 (BioAquatic) 2501 Mayes Rd., Suite 100

El Paso. Midland. Carroliton,

Texas 79922 Texas 79703 Texas 75006 915-585-3443 432-689-6301 FAX 915 -585 -4944 FAX 432 689 6313

972-242-7750

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

Certifications

NCTRCA NELAP DoD LELAP Kansas Oklahoma ISO 17025 DBE

Analytical and Quality Control Report

Ike Tavarez

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

Report Date: April 26, 2012

Work Order: 12042013

Project Location: Eddy Co., NM

Project Name:

COG/Pickett-Exxon Common 8 Federal #1 TB

Project Number:

114-6401071

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
294750	BH-1 @ AH-1 (west of trench) 0-1'	soil	2012-04-17	00:00	2012-04-20
294752	BH-1 @ AH-1 (west of trench) 4-5'	soil	2012-04-17	00:00	2012-04-20
294754	BH-1 @ AH-1 (west of trench) 9-10'	soil	2012-04-17	00:00	2012-04-20
294757	BH-2 @ AH-1 (east of trench) 0-1'	soil	2012-04-17	00:00	2012-04-20
294758	BH-2 @ AH-1 (east of trench) 2-3'	soil	2012-04-17	00:00	2012-04-20
294759	BH-2 @ AH-1 (east of trench) 4-5'	soil	2012-04-17	00:00	2012-04-20
294761	BH-2 @ AH-1 (east of trench) 9-10'	soil	2012-04-17	00:00	2012-04-20

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

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

Michael april

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

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Case Narrative
Analytical Report 6 Sample 294750 (BH-1 @AH-1 (west of trench) 0-1') 6 Sample 294752 (BH-1 @AH-1 (west of trench) 4-5') 7 Sample 294754 (BH-1 @AH-1 (west of trench) 9-10') 8 Sample 294757 (BH-2 @AH-1 (east of trench) 0-1') 9 Sample 294758 (BH-2 @AH-1 (east of trench) 2-3') 10 Sample 294759 (BH-2 @AH-1 (east of trench) 4-5') 12 Sample 294761 (BH-2 @AH-1 (east of trench) 9-10') 12
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QC Batch 90454 - Method Blank (1)
QC Batch 90493 - Method Blank (1)
QC Batch 90514 - Method Blank (1)
QC Batch 90515 - Method Blank (1)
QC Batch 90553 - Method Blank (1)
QC Batch 90612 - Method Blank (1)
Laboratory Control Spikes
QC Batch 90453 - LCS (1)
QC Batch 90454 - LCS (1)
QC Batch 90493 - LCS (1)
QC Batch 90514 - LCS (1)
QC Batch 90515 - LCS (1)
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QC Batch 90553 - LCS (1)
QC Batch 90612 - LCS (1) 20
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QC Batch 90454 - CCV (3)
QC Batch 90493 - CCV (1)
QC Batch 90493 - CCV (2)
OC Batch 90514 - CCV (1)

QC Batch 90514 - CCV (2	2) .		 	 									 			 					
QC Batch 90515 - CCV (1	.) .		 	 	 								 								
QC Batch 90515 - CCV (2	·) .		 	 	 								 			 					
QC Batch 90553 - CCV (2	·) .			 	 								 					. ,			
QC Batch 90553 - CCV (3	ί) .		 	 	 											 					
QC Batch 90612 - CCV (1	.) .			 	 																
QC Batch 90612 - CCV (2	·) .	٠																			
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Laboratory Certifications				 	 																
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Attachments																					

Case Narrative

Samples for project COG/Pickett-Exxon Common 8 Federal #1 TB were received by TraceAnalysis, Inc. on 2012-04-20 and assigned to work order 12042013. Samples for work order 12042013 were received intact at a temperature of 0.9 C.

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

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	76742	2012-04-20 at 10:25	90453	2012-04-20 at 12:30
BTEX	S 8021B	76795	2012-04-23 at 09:39	90514	2012-04-23 at 09:55
TPH DRO - NEW	S 8015 D	76782	2012-04-23 at 15:14	90493	2012-04-23 at 15:14
TPH DRO - NEW	S 8015 D	76815	2012-04-24 at 13:11	90553	2012-04-24 at 14:58
TPH GRO	S 8015 D	76742	2012-04-20 at 10:25	90454	2012-04-20 at 12:57
TPH GRO	S 8015 D	76795	2012-04-23 at 09:39	90515	2012-04-23 at 10:23
TPH GRO	S 8015 D	76879	2012-04-25 at 10:55	90612	2012-04-25 at 11:39

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 12042013 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: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 6 of 30 Eddy Co., NM

Prep Method: S 5035

Analytical Report

Sample: 294750 - BH-1 @ AH-1 (west of trench) 0-1'

Laboratory: Midland

Analysis:

QC Batch:

114-6401071

BTEX 90453 Prep Batch: 76742

Analytical Method: S 8021B Date Analyzed: 2012-04-20 Sample Preparation:

Analyzed By: 2012-04-20 Prepared By:

			RL			
Parameter	Flag	Cert	\mathbf{Result}	Units	Dilution	RL
Benzene	U	1	< 0.0200	mg/Kg	1	0.0200
Toluene	υ	1	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1	< 0.0200	mg/Kg	1	0.0200
Xylene		1	0.293	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.65	mg/Kg	1	2.00	132	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.75	mg/Kg	1	2.00	138	63.6 - 158.9

Sample: 294750 - BH-1 @ AH-1 (west of trench) 0-1'

Laboratory: Midland

TPH DRO - NEW Analysis: QC Batch: 90493 Prep Batch: 76782

Analytical Method: S 8015 D Date Analyzed: 2012-04-23 Sample Preparation: 2012-04-23

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

RLFlag Result Parameter Cert Units Dilution RL $\overline{\text{DRO}}$ 464 50.0 mg/Kg

							\mathbf{Spike}	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		222	mg/Kg	1	100	222	49.3 - 157.5

Sample: 294750 - BH-1 @ AH-1 (west of trench) 0-1'

Laboratory: Midland

Analysis: TPH GRO Analytical Method: Prep Method: S 5035 S 8015 D QC Batch: Date Analyzed: 2012-04-20 Analyzed By: 90454 tc Prep Batch: 76742 Sample Preparation: 2012-04-20 Prepared By:

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

	Page Number: 7 of 30
TB	Eddy Co., NM

				RL				
Parameter	\mathbf{Flag}	Cert		Result	U	$_{ m nits}$	Dilution	RL
GRO		1		158	mg/	/Kg	1	2.00
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.64	mg/Kg	1	2.00	132	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.82	mg/Kg	1	2.00	141	45.1 - 162.2

Sample: 294752 - BH-1 @ AH-1 (west of trench) 4-5'

Laboratory: N

Midland

Analysis: BTEX QC Batch: 90453 Prep Batch: 76742 Analytical Method: Date Analyzed:

Sample Preparation:

S 8021B 2012-04-20 2012-04-20 Prep Method: S 5035

Analyzed By: tc Prepared By: tc

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	< 0.0200	mg/Kg	1	0.0200
Toluene	υ	1	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene	υ	1	< 0.0200	mg/Kg	1	0.0200
Xylene	U	1	< 0.0200	mg/Kg	1	0.0200

_			_			Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.14	mg/Kg	1	2.00	107	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	63.6 - 158.9

Sample: 294752 - BH-1 @ AH-1 (west of trench) 4-5'

Laboratory: Mi

Midland

Analysis: TPH DRO - NEW QC Batch: 90493
Prep Batch: 76782

Analytical Method: Date Analyzed: S 8015 D 2012-04-23 2012-04-23 Prep Method: N/A Analyzed By: DA Prepared By: DA

Sample Preparation:

							Spike	Percent	Recovery
Surrogate		\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qar	Qsr		164	mg/Kg	1	100	164	49.3 - 157.5

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 8 of 30 Eddy Co., NM

Sample: 294752 - BH-1 @ AH-1 (west of trench) 4-5'

Laboratory: Midland

114-6401071

Analysis: TPH GRO QC Batch: 90454

Analytical Method: Date Analyzed:

S 8015 D 2012-04-20 Prep Method: S 5035 Analyzed By: tc

Prep Batch: 76742

Sample Preparation: 2012-04-20

Prepared By: tc

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO		1	45.8	mg/Kg	1	2.00

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.19	mg/Kg	1	2.00	110	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	45.1 - 162.2

Sample: 294754 - BH-1 @ AH-1 (west of trench) 9-10'

Laboratory:

Midland

Analysis: **BTEX** QC Batch: 90453 Prep Batch: 76742

Analytical Method: Date Analyzed:

S 8021B 2012-04-20 Sample Preparation: 2012-04-20 Prep Method: S 5035 Analyzed By:

Prepared By:

Parameter	Flag	Cert	Result	Units	Dilution	m RL
Benzene	υ	1	< 0.0200	mg/Kg	1	0.0200
Toluene	U	1	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene	υ	1	< 0.0200	mg/Kg	1	0.0200
Xylene	U	1	< 0.0200	mg/Kg	1	0.0200

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.83	mg/Kg	1	2.00	92	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.75	mg/Kg	11	2.00	88	63.6 - 158.9

Sample: 294754 - BH-1 @ AH-1 (west of trench) 9-10'

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: 90493 Date Analyzed: 2012-04-23 Analyzed By: DA Prep Batch: 76782 Sample Preparation: 2012-04-23 Prepared By: DA

114-6401071

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 9 of 30

Prep Method: S 5035

tc

tc

2.00

Analyzed By:

Prepared By:

1

Eddy Co., NM

Parameter		Flag	Cert	F	RL lesult	Units	Dilution	m RL	
DRO	U		1		< 50.0		1	50.0	
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
n-Tricosane			131	mg/Kg	1	100	131	49.3 - 157.5	

Sample: 294754 - BH-1 @ AH-1 (west of trench) 9-10'

Laboratory: Midland

 $\overline{\text{GRO}}$

Analysis: TPH GRO Analytical Method: S 8015 D
QC Batch: 90454 Date Analyzed: 2012-04-20
Prep Batch: 76742 Sample Preparation: 2012-04-20

RL Parameter Flag Cert Result Units Dilution RL

6.02

mg/Kg

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.83	mg/Kg	1	2.00	92	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.65	mg/Kg	1	2.00	82	45.1 - 162.2

Sample: 294757 - BH-2 @ AH-1 (east of trench) 0-1'

Laboratory: Midland

S 8021B Prep Method: S 5035 Analysis: BTEX Analytical Method: QC Batch: 90453 Date Analyzed: 2012-04-20 Analyzed By: tcPrep Batch: 76742 2012-04-20 Prepared By: Sample Preparation:

RLParameter Result Units Dilution RLFlag Cert Benzene mg/Kg < 0.0200 0.0200 1 U 1 Toluene < 0.0200 mg/Kg 1 0.0200 υ 1 Ethylbenzene mg/Kg < 0.0200 1 0.0200 U Xylene < 0.0200 mg/Kg 1 0.0200

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		<u> </u>	2.13	mg/Kg	1	2.00	106	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	63.6 - 158.9

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 10 of 30 Eddy Co., NM

Sample: 294757 - BH-2 @ AH-1 (east of trench) 0-1'

Laboratory:

114-6401071

Midland

Analysis: TPH DRO - NEW

Analytical Method: 90493

Date Analyzed: 2012-04-23

S 8015 D

Prep Method: N/A Analyzed By: DA

QC Batch: Prep Batch:

76782

Sample Preparation: 2012-04-23 Prepared By:

DA

RLDilution RLFlag Cert Result Units Parameter 1680 DRO mg/Kg 50.0

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qer		365	mg/Kg	1	100	365	49.3 - 157.5

Sample: 294757 - BH-2 @ AH-1 (east of trench) 0-1'

Laboratory:

Midland

Analysis: TPH GRO Analytical Method:

S 8015 D 2012-04-20 Prep Method: S 5035 Analyzed By: tc

QC Batch: 90454 Prep Batch:

76742

Date Analyzed: Sample Preparation:

2012-04-20

Prepared By: tc

RLCert Result Units Dilution RLParameter Flag 95.1 2.00 GRO mg/Kg 1 1

						\mathbf{Spike}	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.18	mg/Kg	1	2.00	109	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.04	mg/Kg	1	2.00	102	45.1 - 162.2

Sample: 294758 - BH-2 @ AH-1 (east of trench) 2-3'

Laboratory:

Midland

Analysis: TPH DRO - NEW QC Batch: 90553

Analytical Method:

S 8015 D 2012-04-24 Prep Method: N/A Analyzed By: DA

Prep Batch: 76815 Date Analyzed: Sample Preparation:

2012-04-24

Prepared By: DA

RL

Parameter Flag Cert Result Units Dilution RL1360 DRO 50.0 mg/Kg Qв 1

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 11 of 30 Eddy Co., NM

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qar	Qsr		293	mg/Kg	1	100	293	49.3 - 157.5

Sample: 294758 - BH-2 @ AH-1 (east of trench) 2-3'

Laboratory:

Midland

Analysis: TPH GRO QC Batch: 90612

Analytical Method:

S 8015 D 2012-04-25 Prep Method: S 5035 Analyzed By: tc

Prep Batch: 76879

Date Analyzed: Sample Preparation: 2012-04-25

Prepared By: tc

			m RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	Qr,Qs	1	1220	mg/Kg	10	2.00

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			10.2	mg/Kg	10	10.0	102	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			13.1	mg/Kg	10	10.0	131	45.1 - 162.2

Sample: 294759 - BH-2 @ AH-1 (east of trench) 4-5'

Laboratory: Midland

Analysis: BTEX QC Batch: 90453 Prep Batch: 76742

Analytical Method: S 8021B Date Analyzed: 2012-04-20 Sample Preparation: 2012-04-20

Prep Method: S 5035 Analyzed By: tcPrepared By: tc

			m RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	υ	1	< 0.0200	mg/Kg	1	0.0200
Toluene	U	1	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1	< 0.0200	mg/Kg	1	0.0200
Xylene		1	0.316	mg/Kg	1	0.0200

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.76	mg/Kg	1	2.00	88	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	63.6 - 158.9

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

Sample: 294759 - BH-2 @ AH-1 (east of trench) 4-5'

Laboratory: Midland

114-6401071

Analysis: TPH DRO - NEW

QC Batch: 90493 Prep Batch: 76782 Analytical Method: Date Analyzed:

S 8015 D 2012-04-23 Sample Preparation: 2012-04-23 Prep Method: N/A Analyzed By:

Page Number: 12 of 30

Eddy Co., NM

DA Prepared By: DA

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO		1	209	mg/Kg	1	50.0

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qar	Qer		164	mg/Kg	1	100	164	49.3 - 157.5

Sample: 294759 - BH-2 @ AH-1 (east of trench) 4-5'

Laboratory: Midland

Analysis: TPH GRO QC Batch: 90454 Prep Batch: 76742

Analytical Method: S 8015 D Date Analyzed:

2012-04-20 Sample Preparation: 2012-04-20 Prep Method: S 5035

Analyzed By: tc Prepared By:

			m RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO		1	81.1	mg/Kg	1	2.00

			-			Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.72	mg/Kg	1	2.00	86	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.85	mg/Kg	1	2.00	92	45.1 - 162.2

Sample: 294761 - BH-2 @ AH-1 (east of trench) 9-10'

Laboratory: Midland

Analysis: BTEX QC Batch: 90514 Prep Batch: 76795

Analytical Method: S 8021B Date Analyzed: 2012-04-23 Sample Preparation: 2012-04-23 Prep Method: S 5035 Analyzed By: tc Prepared By: tc

RLParameter Flag Cert Result Units Dilution RLBenzene < 0.0200 mg/Kg 0.0200 Toluene < 0.0200 mg/Kg 1 0.0200U 1 < 0.0200 Ethylbenzene mg/Kg 1 0.0200 U

continued ...

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 13 of 30

Prep Method:

Analyzed By:

Prep Method: S 5035

tc

N/A

DA

DA

Eddy Co., NM

sample 294761 continued ...

				RL				
Parameter	Flag	Cert		Result	U	nits	Dilution	RL
Xylene	ប	1		< 0.0200	mg/Kg		1	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.31	mg/Kg	1	2.00	116	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.23	mg/Kg	1	2.00	112	63.6 - 158.9

Sample: 294761 - BH-2 @ AH-1 (east of trench) 9-10'

Laboratory: Midland

Analytical Method: Analysis: TPH DRO - NEW

QC Batch: 90493 Date Analyzed: 2012-04-23

Prep Batch: 76782 Sample Preparation: 2012-04-23

Prepared By: RL

Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	ט	1	< 50.0	mg/Kg	1	50.0
				Spike	Percent	Recovery

S 8015 D

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			134	mg/Kg	1	100	134	49.3 - 157.5

Sample: 294761 - BH-2 @ AH-1 (east of trench) 9-10'

Midland Laboratory:

Analytical Method: Analysis: TPH GRO S 8015 D QC Batch: 90515 Date Analyzed: Prep Batch:

2012-04-23 Analyzed By: Prepared By: 76795 Sample Preparation: 2012-04-23

RLResult Units Dilution Parameter Flag Cert RL< 2.00GRO U mg/Kg 2.00

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.42	mg/Kg	1	2.00	121	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.12	mg/Kg	1	2.00	106	45.1 - 162.2

Work Order: 12042013 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 14 of 30 Eddy Co., NM

Method Blanks

Method Blank (1)

QC Batch: 90453

QC Batch:

90453

Date Analyzed:

2012-04-20

Analyzed By: tc

Prep Batch: 76742

QC Preparation: 2012-04-20

Prepared By: tc

			\mathtt{MDL}		
Parameter	Flag	Cert	Result	Units	RL
Benzene		1	< 0.00470	mg/Kg	0.02
Toluene		1	< 0.00980	mg/Kg	0.02
Ethylbenzene		1	< 0.00500	mg/Kg	0.02
Xylene		1	< 0.0170	mg/Kg	0.02

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.00	mg/Kg	1	2.00	100	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1	2.00	97	55.9 - 112.4

Method Blank (1)

QC Batch: 90454

QC Batch:

90454

Date Analyzed:

2012-04-20

Analyzed By: tc

Prep Batch: 76742

QC Preparation: 2012-04-20

QC Preparation:

Prepared By: tc

			\mathtt{MDL}		
Parameter	Flag	Cert	Result	Units	RL
GRO		1	<1.22	mg/Kg	2

						Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.03	mg/Kg	1	2.00	102	78.6 - 111
4-Bromofluorobenzene (4-BFB)			1.81	mg/Kg	1	2.00	90	55 - 100

Method Blank (1)

QC Batch: 90493

QC Batch: Prep Batch: 76782

90493

Date Analyzed:

2012-04-23 2012-04-23 Analyzed By: DA Prepared By: DA

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 15 of 30 Eddy Co., NM

MDL Result Units RLParameter Flag Cert DRO <14.5 mg/Kg 50 Spike Percent Recovery Recovery Surrogate Flag Cert Result Units Dilution Amount Limits n-Tricosane 118 mg/Kg 1 100 118 52 - 140.8

Method Blank (1)

QC Batch: 90514

QC Batch: 90514 Prep Batch: 76795

Date Analyzed: QC Preparation:

2012-04-23 2012-04-23

Analyzed By: tc Prepared By:

MDL Parameter Flag Cert Result Units RLBenzene < 0.00470 mg/Kg 0.02 mg/Kg 0.02 Toluene < 0.00980 < 0.00500 mg/Kg 0.02Ethylbenzene < 0.0170 0.02 mg/Kg Xylene

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.16	mg/Kg	1	2.00	108	78 - 123.6
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	55.9 - 112.4

Method Blank (1)

QC Batch: 90515

QC Batch: Prep Batch:

90515

76795

Date Analyzed:

2012-04-23

2012-04-23

Analyzed By: tc Prepared By:

QC Preparation:

MDL Parameter Cert Result Units RLFlag GRO <1.22 mg/Kg $\overline{2}$

						Spike	Percent	Recovery	
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)			2.22	mg/Kg	1	2.00	111	78.6 - 111	
4-Bromofluorobenzene (4-BFB)			1.97	mg/Kg	1	2.00	98	55 - 100	

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

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Eddy Co., NM

Method Blank (1)

QC Batch: 90553

QC Batch: Prep Batch: 76815

90553

Date Analyzed:

2012-04-24

2012-04-24

Analyzed By: DA

Prepared By: DA

QC Preparation:

Parameter DRO

Flag

Cert

MDL Result

Units

RL50

1

<14.5

mg/Kg

118

mg/Kg

Recovery

52 - 140.8

Surrogate	
n-Tricosane	

Flag

Result Units 118 mg/Kg Dilution 1

Spike Amount 100

Percent Recovery Limits

Method Blank (1)

QC Batch: 90612

Cert

QC Batch:

90612

Date Analyzed:

2012-04-25

Analyzed By: tc

Prep Batch:

76879

QC Preparation:

2012-04-25

Prepared By:

MDL

Result < 1.22

Units RL

Parameter	Flag		Cert		
GRO		-	1		
a .	T31	~ .	5 1.	77 1.	-

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.70	mg/Kg	1	2.00	85	78.6 - 111
4-Bromofluorobenzene (4-BFB)			1.52	mg/Kg	1	2.00	76	55 - 100

Work Order: 12042013 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 17 of 30 Eddy Co., NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch:

114-6401071

90453Prep Batch: 76742

Date Analyzed:

2012-04-20 QC Preparation: 2012-04-20 Analyzed By: tc

Prepared By: tc

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	2.14	mg/Kg	1	2.00	< 0.00470	107	86.5 - 124.9
Toluene		1	2.16	mg/Kg	1	2.00	< 0.00980	108	84.7 - 122.5
Ethylbenzene		1	2.17	mg/Kg	1	2.00	< 0.00500	108	79.4 - 118.9
Xylene		1	6.49	mg/Kg	1	6.00	< 0.0170	108	79.5 - 118.9

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	2.09	mg/Kg	1	2.00	< 0.00470	104	86.5 - 124.9	2	20
Toluene		1	2.09	mg/Kg	1	2.00	< 0.00980	104	84.7 - 122.5	3	20
Ethylbenzene		1	2.09	mg/Kg	1	2.00	< 0.00500	104	79.4 - 118.9	4	20
Xylene		1	6.29	mg/Kg	1	6.00	<0.0170	105	79.5 - 118.9	3	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.76	1.95	mg/Kg	1	2.00	88	98	73.9 - 127
4-Bromofluorobenzene (4-BFB)	1.74	1.93	mg/Kg	1	2.00	87	96	70.4 - 119.9

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 76742

90454

Date Analyzed:

2012-04-20 QC Preparation: 2012-04-20 Analyzed By: tc Prepared By: tc

			LCS			Spike	Matrix		Rec.
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	17.8	mg/Kg	1	20.0	<1.22	89	68.3 - 105.7

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

 $continued \dots$

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

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control spikes continued . . .

114-6401071

Param	F	С	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	17.6	mø/Kø	1	20.0	<1.22	88	68.3 - 105.7	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	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.98	1.83	mg/Kg	1	2.00	99	92	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.85	1.74	mg/Kg	1	2.00	92	87	66.4 - 106.6

Laboratory Control Spike (LCS-1)

QC Batch:

90493

Date Analyzed:

2012-04-23

Analyzed By: DA

Prep Batch: 76782

QC Preparation:

2012-04-23

Prepared By: DA

			LCS			Spike	Matrix		Rec.	
Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	
DRO		1	255	mg/Kg	1	250	<14.5	102	62 - 128.3	

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	252	mg/Kg	1	250	<14.5	101	62 - 128.3	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	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	134	127	mg/Kg	1	100	134	127	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch:

90514

Date Analyzed:

2012-04-23

Analyzed By: tc

Prep Batch: 76795

QC Preparation: 2012-04-23

Prepared By: tc

LCS Spike Matrix Rec. Limit Param \mathbf{F} \mathbf{C} Result Units Dil. Amount Result Rec. Benzene 2.22 mg/Kg $\overline{1}$ 2.00 < 0.00470 111 86.5 - 124.9

 $continued \dots$

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 19 of 30 Eddy Co., NM

control	spikes	continued			
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			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Toluene		1	2.22	mg/Kg	1	2.00	< 0.00980	111	84.7 - 122.5
Ethylbenzene		1	2.18	mg/Kg	1	2.00	< 0.00500	109	79.4 - 118.9
Xylene		1	6.54	mg/Kg	11	6.00	< 0.0170	109	79.5 - 118.9

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}	RPD	Limit
Benzene		1	2.22	mg/Kg	1	2.00	< 0.00470	111	86.5 - 124.9	0	20
Toluene		1	2.20	mg/Kg	1	2.00	< 0.00980	110	84.7 - 122.5	1	20
Ethylbenzene		1	2.20	mg/Kg	1	2.00	< 0.00500	110	79.4 - 118.9	1	20
Xylene		1	6.56	mg/Kg	1	6.00	< 0.0170	109	79.5 - 118.9	0	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.85	1.74	mg/Kg	ĩ	2.00	92	87	73.9 - 127
4-Bromofluorobenzene (4-BFB)	1.87	1.78	mg/Kg	1	2.00	94	89	70.4 - 119.9

Laboratory Control Spike (LCS-1)

QC Batch:

Prep Batch: 76795

Date Analyzed:

2012-04-23

QC Preparation: 2012-04-23

Analyzed By: tc Prepared By: tc

			LCS			Spike	Matrix		Rec.
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	18.5	mg/Kg	1	20.0	<1.22	92	68.3 - 105.7

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

			LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	17.3	mg/Kg	1	20.0	<1.22	86	68.3 - 105.7	7	20

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

	LCS	LCSD			$_{ m Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.05	1.98	mg/Kg	1	2.00	102	99	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.88	1.85	mg/Kg	1	2.00	94	92	66.4 - 106.6

Work Order: 12042013 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 20 of 30 Eddy Co., NM

Laboratory Control Spike (LCS-1)

QC Batch:

114-6401071

90553

Date Analyzed:

2012-04-24

Analyzed By: DA

Prepared By: DA

Prep Batch: 76815

QC Preparation:

2012-04-24

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	242	mg/Kg	1	250	<14.5	97	62 - 128.3

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	262	mg/Kg	1	250	<14.5	105	62 - 128.3	8	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-Tricosane	117	125	mg/Kg	1	100	117	125	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch:

90612

Date Analyzed:

2012-04-25

Analyzed By: tc

Prep Batch: 76879

QC Preparation: 2012-04-25

Prepared By: tc

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	17.1	mg/Kg	1	20.0	<1.22	86	68.3 - 105.7

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

			LCSD			Spike	Matrix		Rec .		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	17.3	mg/Kg	1	20.0	<1.22	86	68.3 - 105.7	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.	Limit
Trifluorotoluene (TFT)	1.91	1.97	mg/Kg	1	2.00	96	98	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.78	1.83	mg/Kg	1	2.00	89	92	66.4 - 106.6

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

Matrix Spike (MS-1) Spiked Sample: 294696

QC Batch: 90453 Prep Batch: 76742

114-6401071

Date Analyzed: 2012-04-20 QC Preparation: 2012-04-20

Analyzed By: tc Prepared By: tc

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Eddy Co., NM

			MS			Spike	Matrix		Rec.
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	1.72	mg/Kg	1	2.00	< 0.00470	86	69.3 - 159.2
Toluene		1	1.76	mg/Kg	1	2.00	< 0.00980	88	68.7 - 157
Ethylbenzene		1	1.82	mg/Kg	1	2.00	< 0.00500	91	71.6 - 158.2
Xylene		1	5.43	mg/Kg	11	6.00	<0.0170	_90	70.8 - 159.8

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	2.01	mg/Kg	1	2.00	< 0.00470	100	69.3 - 159.2	16	20
Toluene		1	2.04	mg/Kg	1	2.00	< 0.00980	102	68.7 - 157	15	20
Ethylbenzene		1	2.12	mg/Kg	1	2.00	< 0.00500	106	71.6 - 158.2	15	20
Xylene		1	6.32	mg/Kg	1	6.00	< 0.0170	105	70.8 - 159.8	15	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	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.94	2.06	mg/Kg	1	2	97	103	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	1.89	2.02	mg/Kg	1	2	94	101	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 294448

QC Batch: 90454 Prep Batch: 76742 Date Analyzed: 2012-04-20 QC Preparation: 2012-04-20 Analyzed By: tc Prepared By: tc

			MS			Spike	Matrix		Rec.
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	23.0	mg/Kg	1	20.0	<1.22	115	28.2 - 157.2

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

			MSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	\mathbf{Limit}
GRO		1	19.6	mg/Kg	1	20.0	<1.22	98	28.2 - 157.2	16	20

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

 $continued \dots$

114-6401071

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

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matrix spikes continued								
	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.40	2.08	$_{ m mg/Kg}$	1	2	120	104	75.5 - 122.3

Matrix Spike (MS-1)

Spiked Sample: 294761

QC Batch: 90493 Prep Batch: 76782 Date Analyzed: QC Preparation:

2012-04-23 2012-04-23 Analyzed By: DA

Prepared By: DA

MS Spike Matrix Rec. Param F \mathbf{C} Result Units Dil. Amount Result Rec. Limit 45.5 - 127 DRO 253 mg/Kg 250 <14.5 101

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

			MSD			Spike	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	255	mg/Kg	1	250	<14.5	102	45.5 - 127	1	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-Tricosane	127	125	mg/Kg	1	100	127	125	45.4 - 145.8

Matrix Spike (MS-1)

Spiked Sample: 294840

QC Batch: Prep Batch: 90514 76795 Date Analyzed:

2012-04-23

QC Preparation:

2012-04-23

Analyzed By: tc Prepared By: tc

Param	${f F}$	\mathbf{C}	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.24	mg/Kg	1	2.00	< 0.00470	112	69.3 - 159.2
Toluene		1	2.25	mg/Kg	1	2.00	< 0.00980	112	68.7 - 157
Ethylbenzene		1	2.32	mg/Kg	1	2.00	< 0.00500	116	71.6 - 158.2
Xylene		1	7.01	mg/Kg	1	6.00	< 0.0170	117	70.8 - 159.8

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

114-6401071

Work Order: 12042013 COG/Pickett-Exxon Common 8 Federal #1 TB

RPD MSD Spike Matrix Rec. C Result Dil. Amount Result Rec. Limit RPD Limit \mathbf{F} Units Param < 0.00470 69.3 - 159.2 20 Benzene 2.25 mg/Kg 2.00 112 Toluene 2.28 mg/Kg 1 2.00 < 0.00980 114 68.7 - 1571 20 Ethylbenzene 2.35 mg/Kg 1 2.00 < 0.00500 118 71.6 - 158.2 1 20 Xylene 7.06 mg/Kg 1 6.00 < 0.0170 118 70.8 - 159.8 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)	2.17	2.30	mg/Kg	1	2	108	115	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	2.17	2.30	mg/Kg	1	2	108	115	72.6 - 144.1

Matrix Spike (MS-1)

Spiked Sample: 294761

QC Batch:

90515

Date Analyzed:

2012-04-23

Analyzed By: tc

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Eddy Co., NM

Prep Batch: 76795

QC Preparation: 2012-04-23

Prepared By: tc

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	19.5	mg/Kg	1	20.0	<1.22	98	28.2 - 157.2

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	21.6	mg/Kg	1	20.0	<1.22	108	28.2 - 157.2	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	${ m Rec.}$	Rec.	Limit
Trifluorotoluene (TFT)	2.15	2.24	mg/Kg	1	2	108	112	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	2.00	2.09	mg/Kg	1	2	100	104	77.9 - 122.4

Matrix Spike (MS-1)

Spiked Sample: 295039

QC Batch:

90553

Date Analyzed:

2012-04-24

Prep Batch: 76815 QC Preparation: 2012-04-24 Analyzed By: DA Prepared By: DA

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	\mathbf{Dil} .	Amount	Result	Rec.	Limit
DRO		1	2340	mg/Kg	5	250	2210	52	45.5 - 127

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

Page Number: 24 of 30 Eddy Co., NM

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

				MSD			Spike	Matrix		Rec.		RPD
Param		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	Qs	Q _B	1	2700	mg/Kg	5	250	2210	196	45.5 - 127	14	20

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

			MS	MSD			\mathbf{Spike}	MS	MSD	Rec.
Surrogate			Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	Qsr	Qar	378	411	mg/Kg	5	100	378	411	45.4 - 145.8

Matrix Spike (MS-1)

Spiked Sample: 295158

QC Batch: 90612

Date Analyzed:

2012-04-25

Analyzed By: tc

Prep Batch: 76879

QC Preparation: 2012-04-25

Prepared By: tc

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	6340	mg/Kg	50	500	5925.95	83	28.2 - 157.2

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

				MSD			Spike	Matrix		${ m Rec.}$		RPD
Param		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	Qr,Qs	Qr,Qs	1	7790	mg/Kg	50	500	5925.95	373	28.2 - 157.2	20	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)	51.2	51.0	mg/Kg	50	50	102	102	75.5 - 122.3
4-Bromofluorobenzene (4-BFB) Qsr Qsr	66.2	65.4	mg/Kg	50	50	132	131	77.9 - 122.4

Work Order: 12042013

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Calibration Standards

Standard (CCV-1)

QC Batch: 90453

Date Analyzed: 2012-04-20

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.105	105	80 - 120	2012-04-20
Toluene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-20
Ethylbenzene		1	mg/kg	0.100	0.108	108	80 - 120	2012-04-20
Xylene		1	mg/kg	0.300	0.324	108	80 - 120	2012-04-20

Standard (CCV-2)

QC Batch: 90453

Date Analyzed: 2012-04-20

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.108	108	80 - 120	2012-04-20
Toluene		1	mg/kg	0.100	0.107	107	80 - 120	2012-04-20
Ethylbenzene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-20
Xylene		1	mg/kg	0.300	0.315	105	80 - 120	2012-04-20

Standard (CCV-3)

QC Batch: 90453

Date Analyzed: 2012-04-20

Analyzed By: tc

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0998	100	80 - 120	2012-04-20
Toluene		1	mg/kg	0.100	0.0991	99	80 - 120	2012-04-20
Ethylbenzene		1	mg/kg	0.100	0.0974	97	80 - 120	2012-04-20
Xylene		I	mg/kg	0.300	0.289	96	80 - 120	2012-04-20

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COG/Pickett-Exxon Common 8 Federal #1 TB

Standard (CCV-1)

QC Batch: 90454 Date Analyzed: 2012-04-20

Analyzed By: tc

				CCVs	CCVs	CCVs	Percent	~ .
				True	Found	Percent	$\operatorname{Recovery}$	\mathbf{Date}
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.996	100	80 - 120	2012-04-20

Standard (CCV-2)

QC Batch: 90454

Date Analyzed: 2012-04-20

Analyzed By: tc

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	\mathbf{Flag}	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.03	103	80 - 120	2012-04-20

Standard (CCV-3)

QC Batch: 90454

Date Analyzed: 2012-04-20

Analyzed By: tc

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.875	88	80 - 120	2012-04-20

Standard (CCV-1)

QC Batch: 90493

Date Analyzed: 2012-04-23

Analyzed By: DA

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	238	95	80 - 120	2012-04-23

Standard (CCV-2)

QC Batch: 90493 Date Analyzed: 2012-04-23 Analyzed By: DA

114-6401071

Work Order: 12042013

COG/Pickett-Exxon Common 8 Federal #1 TB

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Eddy Co., NM

Domon	Flor	Cont	Units	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	\mathbf{Limits}	Analyzed
DRO		1	mg/Kg	250	247	99	80 - 120	2012-04-23

Standard (CCV-1)

QC Batch: 90514

Date Analyzed: 2012-04-23

Analyzed By: tc

				${ m CCVs}$	CCVs Found	$\begin{array}{c} { m CCVs} \\ { m Percent} \end{array}$	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.110	110	80 - 120	2012-04-23
Toluene		1	mg/kg	0.100	0.109	109	80 - 120	2012-04-23
Ethylbenzene		1	mg/kg	0.100	0.107	107	80 - 120	2012-04-23
Xylene		1	mg/kg	0.300	0.320	107	80 - 120	2012-04-23

Standard (CCV-2)

QC Batch: 90514

Date Analyzed: 2012-04-23

Analyzed By: tc

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-23
Toluene		1	mg/kg	0.100	0.104	104	80 - 120	2012-04-23
Ethylbenzene		1	mg/kg	0.100	0.103	103	80 - 120	2012-04-23
Xylene		1	mg/kg	0.300	0.308	103	80 - 120	2012-04-23

Standard (CCV-1)

QC Batch: 90515

Date Analyzed: 2012-04-23

Analyzed By: tc

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.03	103	80 - 120	2012-04-23

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Eddy Co., NM

Standard (CCV-2)

QC Batch: 90515

114-6401071

Date Analyzed: 2012-04-23

Analyzed By: tc

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.08	108	80 - 120	2012-04-23

Standard (CCV-2)

QC Batch: 90553

Date Analyzed: 2012-04-24

Analyzed By: DA

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	236	94	80 - 120	2012-04-24

Standard (CCV-3)

QC Batch: 90553

Date Analyzed: 2012-04-24

Analyzed By: DA

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	253	101	80 - 120	2012-04-24

Standard (CCV-1)

QC Batch: 90612

Date Analyzed: 2012-04-25

Analyzed By: tc

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.07	107	80 - 120	2012-04-25

Standard (CCV-2)

QC Batch: 90612

Date Analyzed: 2012-04-25

Analyzed By: tc

Work Order: 12042013

 ${
m COG/Pickett-Exxon}$ Common 8 Federal #1 TB

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	$\begin{array}{c} \text{Date} \\ \text{Analyzed} \end{array}$
GRO		1	mg/Kg	1.00	1.18	118	80 - 120	2012-04-25

Report Date: April 26, 2012 114-6401071 COG/Picke

Work Order: 12042013 COG/Pickett-Exxon Common 8 Federal #1 TB Page Number: 30 of 30

Eddy Co., NM

Appendix

Report Definitions

Name	Definition
$\overline{ ext{MDL}}$	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

	Certifying	Certification	Laboratory
\mathbf{C}	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-11-3	Midland

Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit.
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.

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

12042013

Analysis Request of Chain of Custody Record											PAGE: / OF: 2																				
Analysis request of origin of oustody record												ANALYSIS REQUEST (Circle or Specify Method No.)																			
TETRATECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946													اِ	(EXI. 10 C33)	Cd Cr Pb Hg Se	Vr Pd Hg									TDS						
CLIENT NAME: SITE MANAGE COG The							ia: Tavarez		ERS	1		SER	VATIV IOD	Έ	1	00171	Ba	Ba			30/624	70/625				1	s, pH, TDS				
PROJECT N	'/	PR) () ()	ECT	NAME: HH/EXXON G	Fed #1	CONTAIN	<u> </u>						MOL	ils Ag As	als Ag As	Volatiles		8240/826	ni. Vol. 82	909/		96.	(Air)	ns/Cation						
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Analysis Request of Chain of Custody Record																		PAC	E:	7	_		OF:	2					
- Indigated and an ordered and a second												ANALYSIS REQUEST (Circle or Specify Method No.)																	
TETRATECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3940								3							TX1005 (Ext. to C35)	Cr Pb Hg	ול									TDS			
CLIENT NAM	ME: 206		,		SITE MANAGER: The Tawer					PRESERVATIVE METHOD						Ba	Ba Cd			60/624	270/625					ns, pH,			
PROJECT NO.: //4-6401071				PROJECT NAME: Project NAME: Picket+/Exxon Comes 8 Fed #1											ĕ Ø	s Ag As	ls Ag As	es	voiatiles	8240/82	il. Vol. 8;	90 80		, S	(Air)	s/Cation			
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						RECEIVED BY: (Signature)								TETRA TECH CONTACT PERSON							2-		RUSH Charges Authorized:						
CONTACT: PHONE: DATE: SAMPLE CONDITION WHEN RECEIVED: REMARKS:									_ TIME:									 -								Yes		No	
	Please f	ill out all	copie	s -	Labora	atory retains Yellow	copy - Return Orgi	nal copy to Tetr	a Tech	-	Proie	ct M	anag	er ret	ains I	Pink	COD	v -	Acc	ount	ina i	ece	ves	Gold	d co	ру.			