SITE INFORMATION

Report Type: Closure Report 2-RP 879

General Site Information:

Site:	**Empire J Federal #3 Well Site**					
Company:	**Alamo Permian Resources, LLC.**					
Section, Township and Range	**Sec 1**	**T18S**	**R26E**			
Lease Number:	**API-30-015-00169**					
County:	**Eddy County**					
GPS:	**32.77773° N**			**104.32771° W**		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	In Riverside, travel south on CR 201 (Chalk Bluff) for 3.9 miles, turn right and travel 0.5 miles to cattle guard, stay right and travel 0.9 miles, stay right and travel 0.5 miles to site.					

Release Data:

Date Released:	Unknown
Type Release:	Produced Water
Source of Contamination:	500 bbl frac tank
Fluid Released:	5 bbls oil and 15 bbls water
Fluids Recovered:	0 bbls

Official Communication:

Name:	Steven Mastin			Ike Tavarez
Company:	Alamo Permian Resources, LLC.			Tetra Tech
Address:	415 W. Wall St. Suite 500			1910 N. Big Spring
P.O. Box				
City:	Midland Texas			Midland, Texas
Phone number:	(432) 557-5847			(432) 682-4559
Fax:				
Email:				ike.tavarez@tetratech.com

Ranking Criteria

Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	**20**	
50-99 ft	10	
>100 ft.	0	

WellHead Protection:	***Ranking Score***	***Site Data***
Water Source <1,000 ft., Private <200 ft.	*20*	
Water Source >1,000 ft., Private >200 ft.	***0***	*0*

Surface Body of Water:	***Ranking Score***	***Site Data***
<200 ft.	*20*	
200 ft - 1,000 ft.	10	
>1,000 ft.	**0**	0

Total Ranking Score:	**20**

Acceptable Soil RRAL (mg/kg)

Benzene	***Total BTEX***	***TPH***
10	50	100

TETRA TECH

June 12, 2012

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

Re: Closure Report for the Alamo Permian Resources, LLC., Empire J Federal #3 Well Site, Unit H, Section 1, Township 18 South, Range 26 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by Alamo Permian Resources, LLC (Alamo) to assess and remediate a spill from the Empire J Federal #3 Well Site located Unit H, Section 1, Township 18 South, Range 26 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32° 46' 40.40", W 104° 19' 39.11". The site location is shown on Figures 1 and 2.

Background

According to the C-141, a leak occurred on a frac tank and released approximately 5 barrels of oil and produced water. The release was discovered on August 16, 2011 and the date of the release is not known. No fluid was recovered for the release. The spill occurred at the Alamo Empire J Federal #3 Well Pad and migrated approximately 400' down a steep hillside. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 1. Based on the site location, the area shows a shallow depth to groundwater ranging from 25.0' to 50.0' below surface. The New Mexico Office of the State Engineer reports

Tetra Tech
1910 North Big Spring, Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

showed a well in Section 2, with a depth to groundwater of approximately 50.0' below surface. In addition, the NMOCD groundwater map also shows an average depth to groundwater of 50.0' in this area. The average depth to ground water map 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 100 mg/kg.

Soil Assessment and Analytical Results

On August 22, 2011, Tetra Tech personnel inspected and sampled the spill area. A total of seven (7) auger holes (AH-1 through AH-7) were installed using a stainless steel hand auger to assess the impacted soils. In addition, background samples were collected at the site for chloride evaluation. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole and spill area are shown on Figure 3.

Referring to Table 1, all of the samples exceeded the RRAL for TPH. The BTEX concentrations were all below the RRAL for benzene and total BTEX. Elevated chloride concentrations at 0-1'were detected in the areas of auger holes (AH-3, AH-4, AH-5, AH-6 and AH-7), with chlorides ranging from 2.670 mg/kg to 6,030 mg/kg. The chloride impact was not vertically defined.

Remedial Activities

Based on the data, Tetra Tech personnel supervised the excavation of the site. A total of 220 cubic yards of soil were excavated and hauled to proper disposal. The excavation depth ranged from 1.0' to 1.5' below surface. The excavation areas are highlighted in Table 1 and shown on Figure 4.

TETRA TECH

Once excavated, confirmation samples were collected from the excavated areas. The confirmation results are shown in Table 2. Referring to Table 2, all of the TPH concentrations were below the RRAL, except for the area of CS-6. Confirmation sample CS-6 showed a TPH of 1,912 mg/kg and additional excavation in this area could not be achieved due to the dense formation and safety concerns down the steep hillside. Elevated chlorides were detected in the areas of CS-1 and CS-2, with chlorides of 8,330 mg/kg and 7,660 mg/kg, respectively. The samples collected in these areas were taken in a closed reserve pit.

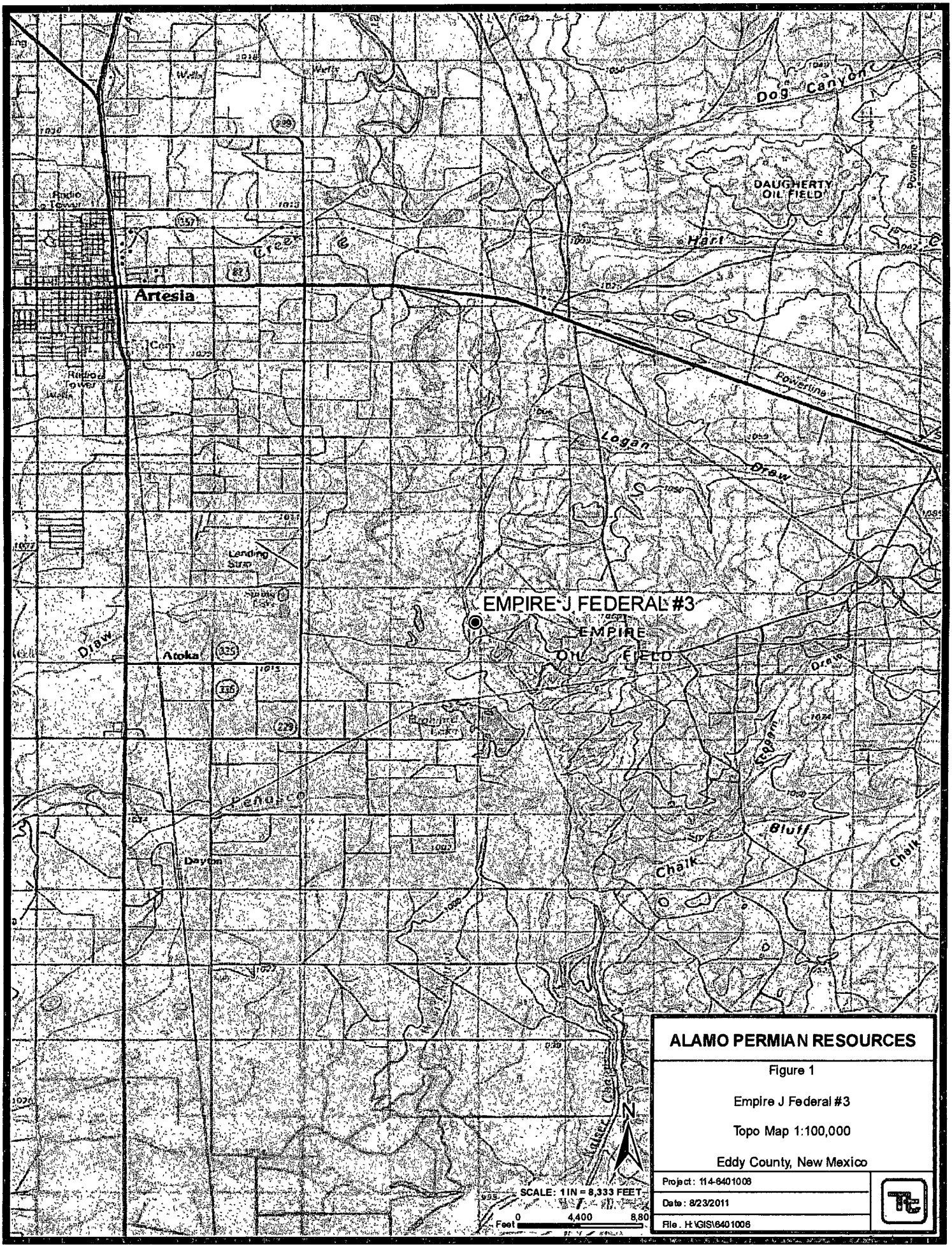
Based on the remedial activities performed, Alamo request closure of the site. A copy of the C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the remedial activities, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez, PG
Project Manager

cc: BLM - Jennifer Van Curen
BLM – James Amos
HeLM Oil – Michael Stewart
HelM Oil – Hollie Lamb
Alamo

FIGURES



ALAMO PERMIAN RESOURCES

Figure 1

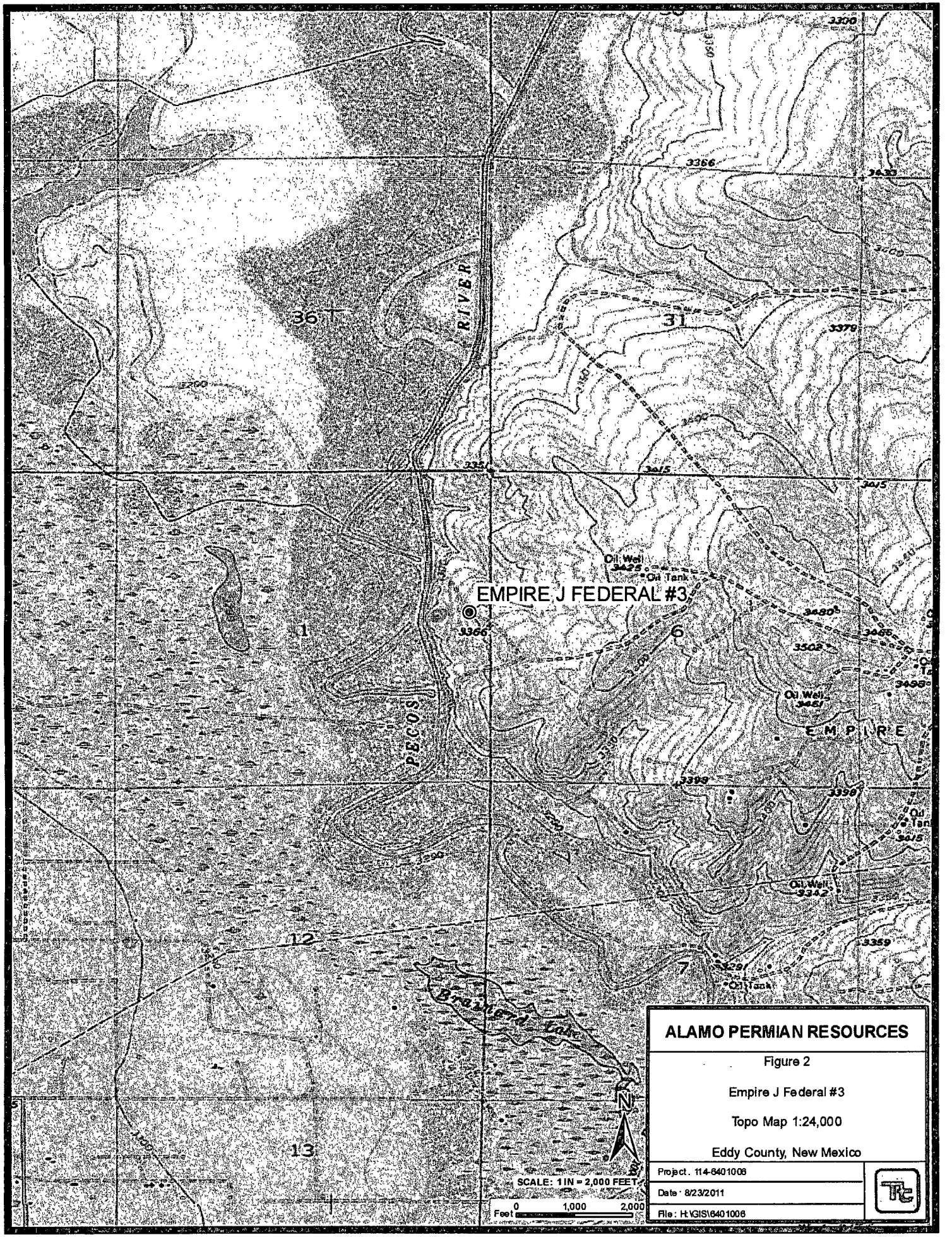
Empire J Federal #3

Topo Map 1:100,000

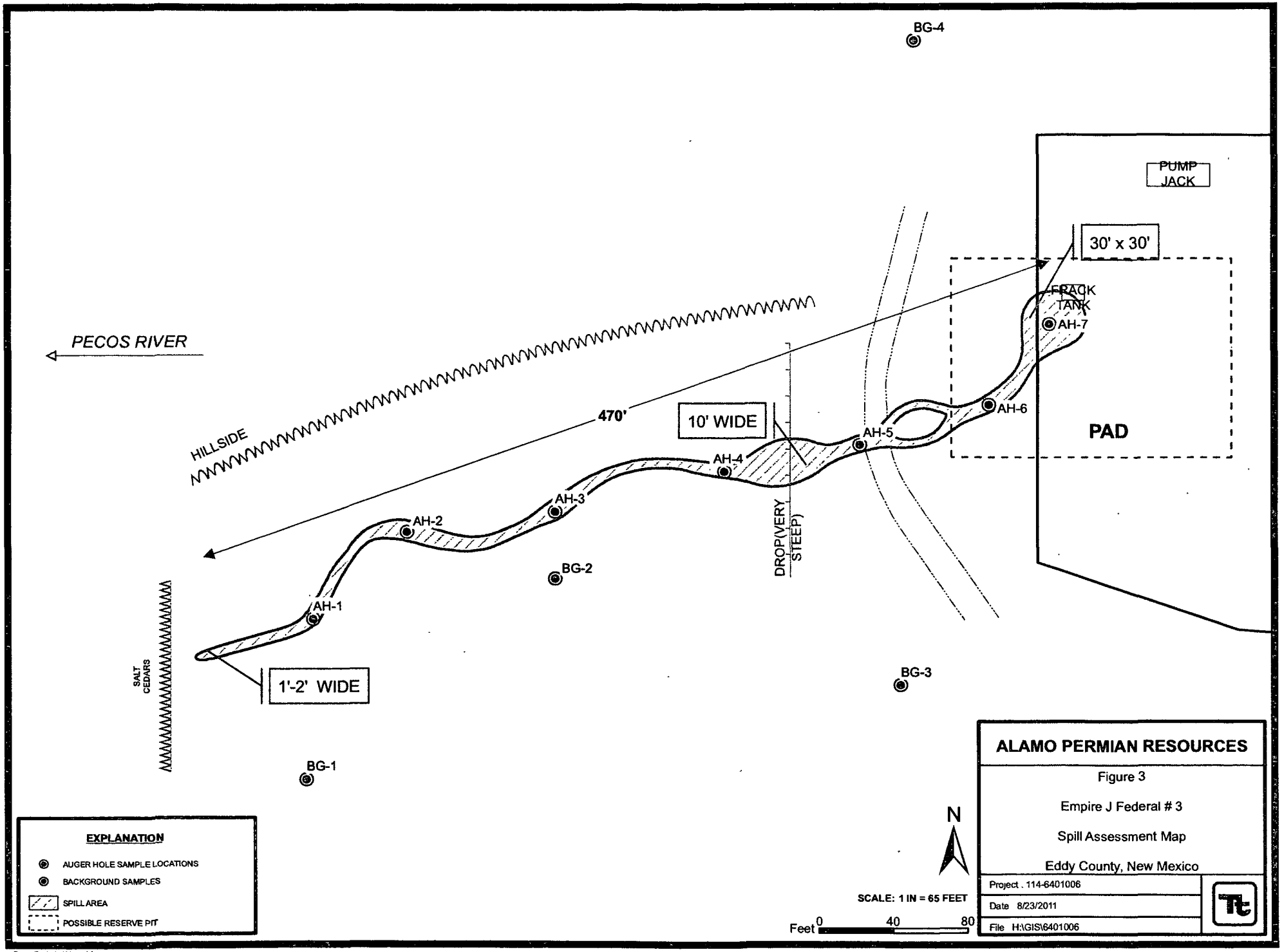
Eddy County, New Mexico

Project: 114-6401006	
Date: 8/23/2011	
File: H:\GIS\6401006	

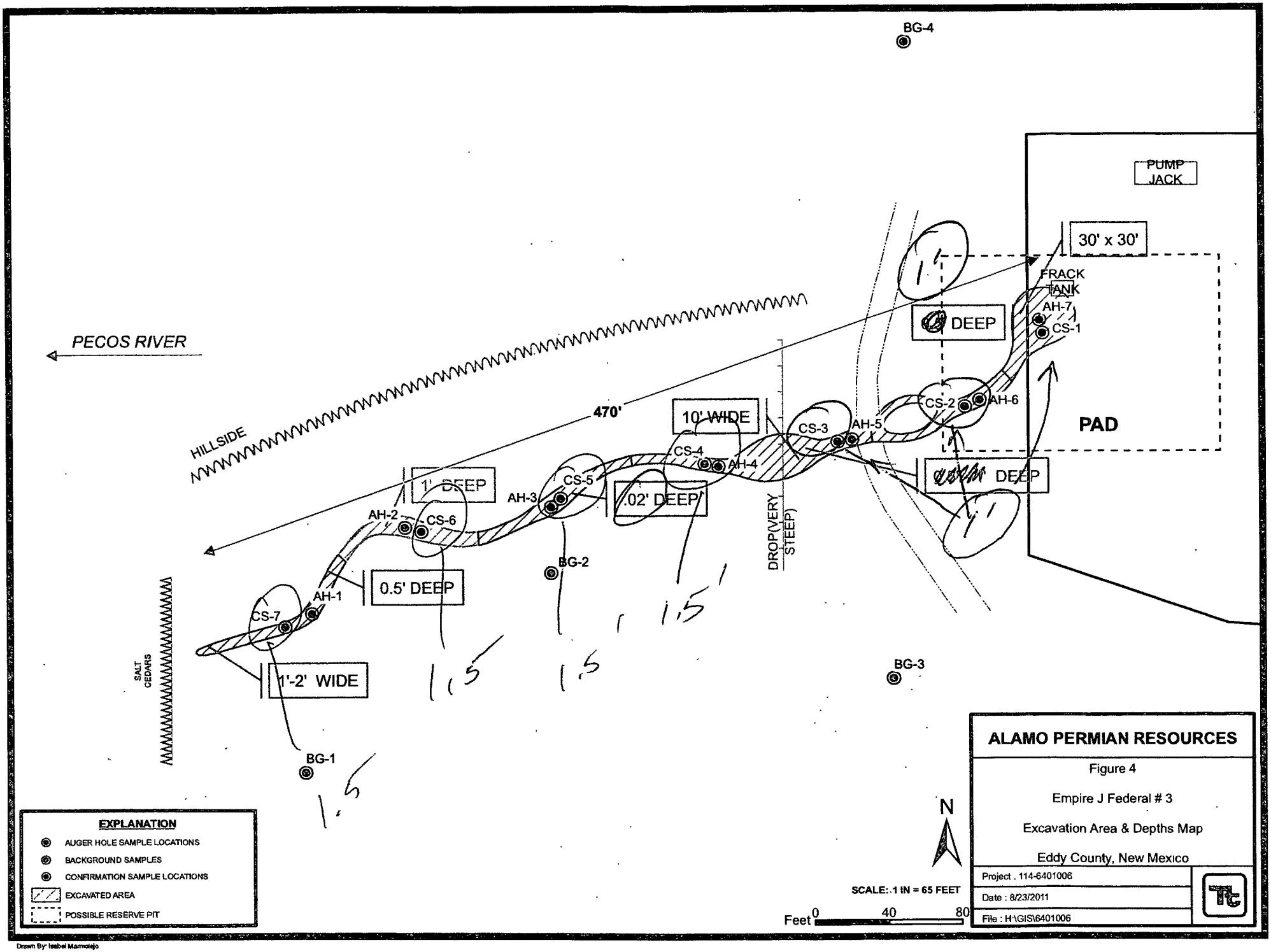
Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo

TABLES

Table 1
Alamo Permian Resources
Empire J Federal #3
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	8/22/2011	0-0.5'		X	101	37,400	37,501	<0.400	0.764	<0.400	2.34	3.104	<200
AH-2	8/22/2011	0-1'		X	132	15,500	15,632	<0.200	0.458	0.330	0.928	1.716	429
	"	1-1.5'	X		8.89	266	275	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
	"	2-2.5'	X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
AH-3	8/22/2011	0-0.2'		X	88.7	21,900	21,989	<0.400	<0.400	<0.400	<0.400	<0.400	2,670
AH-4	8/22/2011	0-0.1'		X	<100	25,600	25,600	<1.00	<1.00	<1.00	<1.00	<1.00	8,220
AH-5	8/22/2011	0-0.5'		X	25.5	19,400	19,426	<0.200	<0.200	<0.200	<0.200	<0.200	3,270
AH-6	8/22/2011	0-1'		X	2.23	410	412	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	6,030
AH-7	8/22/2011	0-0.3'		X	<40.0	13,200	13,200	<0.400	<0.400	<0.400	<0.400	<0.400	4,920
BG-1	8/22/2011	-	X		-	-	-	-	-	-	-	-	<200
BG-2	8/22/2011	-	X		-	-	-	-	-	-	-	-	981
BG-3	8/22/2011	-	X		-	-	-	-	-	-	-	-	<200
BG-4	8/22/2011	-	X		-	-	-	-	-	-	-	-	<200

(--) Not Analyzed

Excavated Depths

Table 2
Alamo Permian Resources
Empire J Federal #3
Confirmation Sampling
EDDY COUNTY, NEW MEXICO

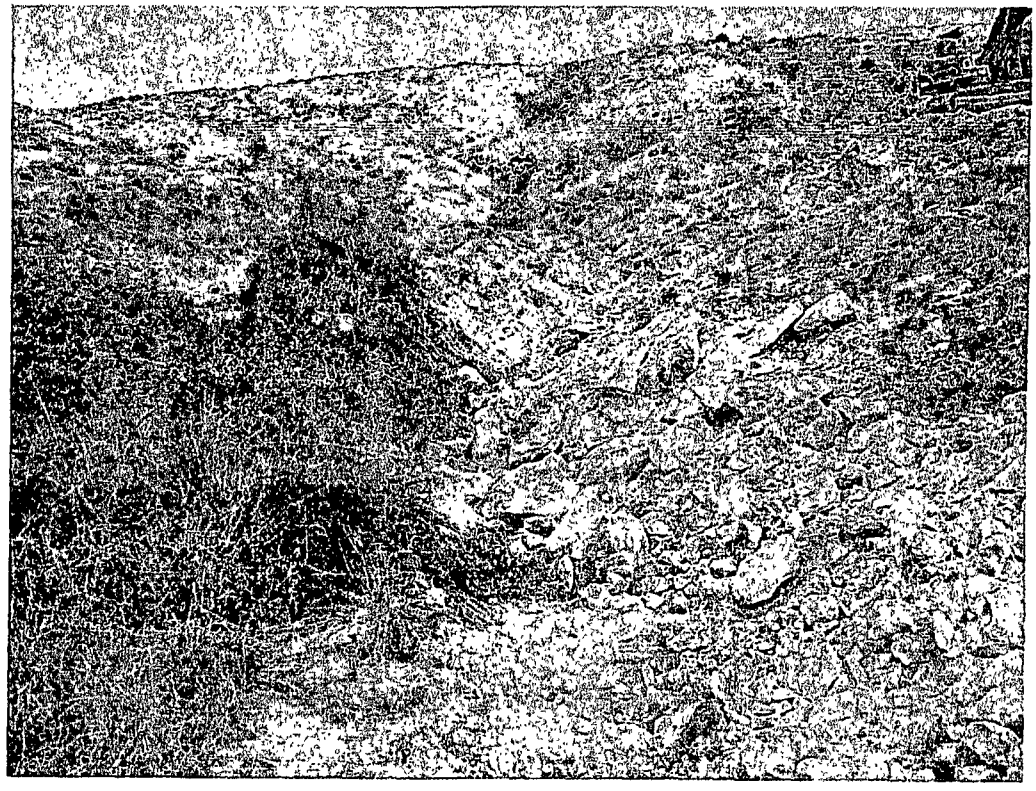
Sample ID		Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
					In-Situ	Removed	DRO	GRO	Total					
Reserve Pit Area														
CS-1	Bottom Hole	9/8/2011	0-1	1'	X		<50.0	5.98	5.98	-	-	-	-	**8,330**
CS-2	Bottom Hole	9/8/2011	0-1	1'	X		<50.0	<2 00	<50 0	-	-	-	-	**7,660**
Steep Runoff Area														
CS-3	Bottom Hole	9/8/2011	0-1	1'	X		<50.0	<2.00	<50.0	-	-	-	-	<200
CS-4	Bottom Hole	9/8/2011	0-1	1.5'	X		<50.0	<2.00	<50.0	-	-	-	-	<200
CS-5	Bottom Hole	9/8/2011	0-1	1.5'	X		<50.0	<2.00	<50.0	-	-	-	-	<200
CS-6	Bottom Hole	9/8/2011	0-1	1.5'	X		1,910	2.27	**1,912**	-	-	-	-	<200
CS-7	Bottom Hole	9/8/2011	0-1	1.5'	X		<50.0	<2.00	<50.0	-	-	-	-	<200

BEB Below Excavation Bottom
(--) Not Analyzed

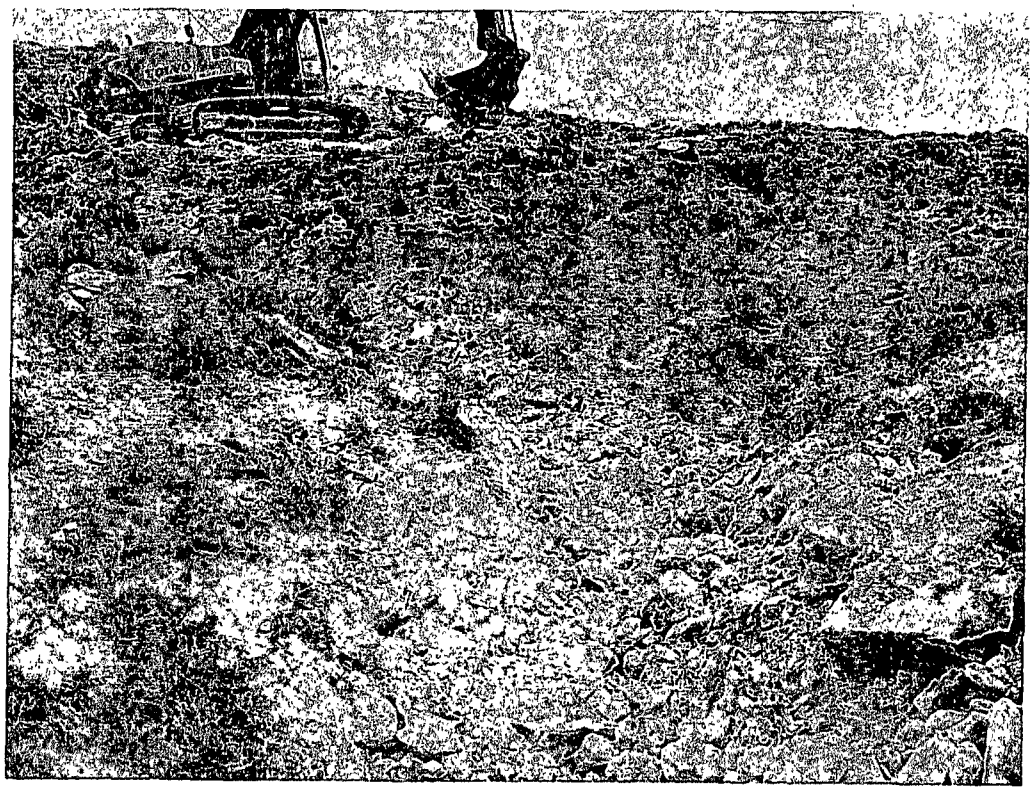
PHOTOGRAPHS

Alamo Permian Resources
Empire J Federal #3
Eddy County, New Mexico

TETRA TECH



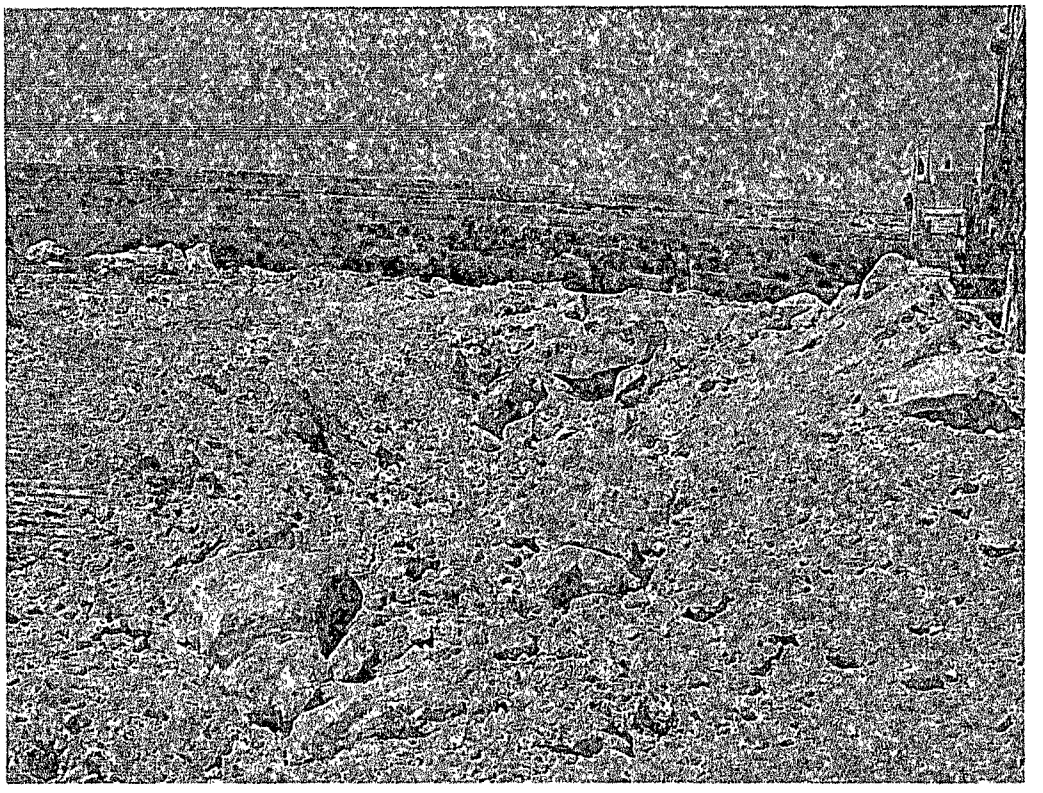
View East—AH-2



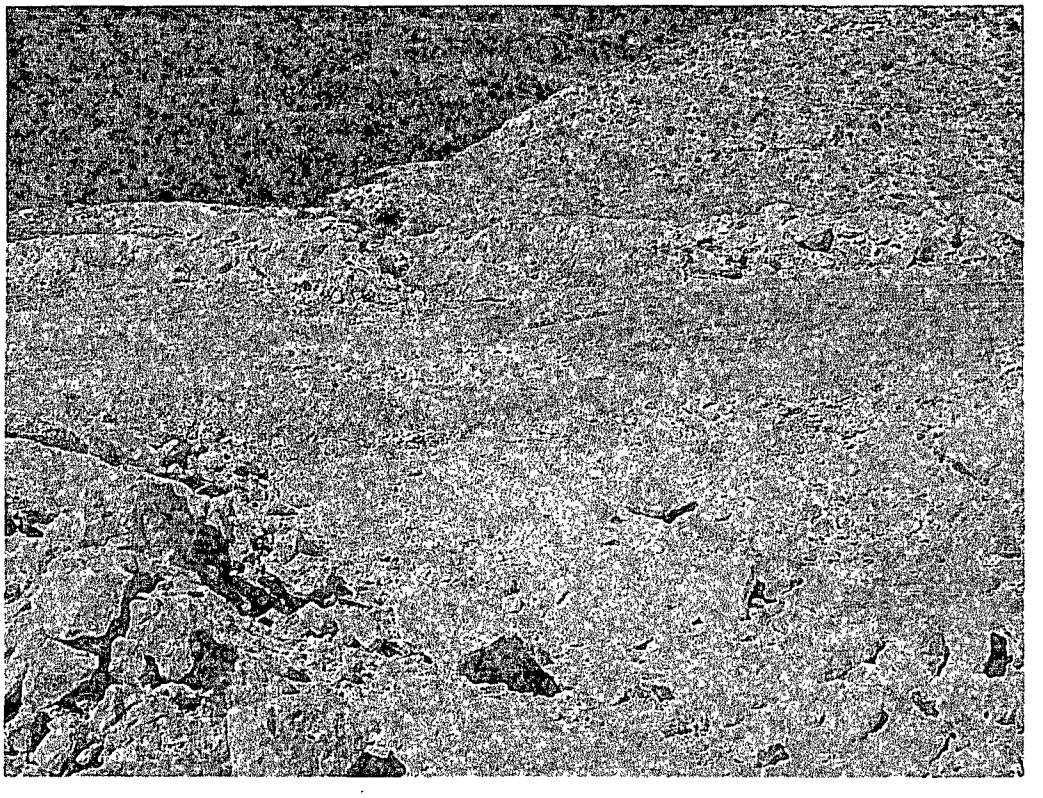
View East—AH-3

Alamo Permian Resources
Empire J Federal #3
Eddy County, New Mexico

TETRA TECH



View West—AH-6



View West—AH-5

APPENDIX A

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

State of New Mexico
Energy Minerals and Natural Resources

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

RECEIVED
SEP 06 2012
NMOCD ARTESIA

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company **Alamo Permian Resources, LLC.**	Contact **Steven Mastin**
Address **415 W. Wall St. Suite 500**	Telephone No. **(432) 557-5847**
Facility Name **Empire J Federal #3**	Facility Type

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-00169

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	1	18S	26E	2304	N	330	E	Eddy

Latitude N 32.77233° **Longitude** W 104.32915°

NATURE OF RELEASE

Type of Release: Oil and Water	Volume of Release EST 5 bbls oil and 15 bbls of water	Volume Recovered 0 bbls
Source of Release: 500 bbl Frac Tank	Date and Hour of Occurrence Unknown	Date and Hour of Discovery 8/16/2011
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. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

Cause of problem: TBD
Remedial Action Taken: Clean up per Tetra Tech's environmental assessment and agreement with current BLM procedures and regulations; To prevent future discharges, frac tank was removed all fluids are being produced to a berm contained tank battery.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personal inspected the site and collected samples to define the spill extents. Soil exceeding the RRAL was removed and hauled to Lea Land Inc. for proper disposal. Confirmation samples were taken and then the site was brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report for NMOCD for review.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez (agent for Alamo)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 6-12-12 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

District I
1625 N French Dr., Hobbs, NM 88240
District II
811 S First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S St Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nMLB1125229542 274841 **OPERATOR** ☒ Initial Report ☐ Final Report

Name of Company ALAMO PERMIAN RESOUCES, LLC	Contact STEVEN MASTIN
Address 415 W. WALL ST. SUITE 500	Telephone No. 432 557 5847
Facility Name EMPIRE J FEDERAL #3	Facility Type

Surface Owner FEDERAL	Mineral Owner FEDERAL	API No. 30-015-00169

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	I	18S	26E	2304	N	330	E	EDDY

Latitude 32.7723 Longitude -104.32915

NATURE OF RELEASE

Type of Release: Oil & Water	Volume of Release: **EST** 5 bbls oil & 15 bbls of water	Volume Recovered 0 bbls
Source of Release: 500 bbl Frac Tank	Date and Hour of Occurrence: Unknown	Date and Hour of Discovery 8/16/11; Hr TBD
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom?	
By Whom? Jennifer E. Van Curan with BLM	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully *

RECEIVED
AUG 23 2011
NMOCD ARTESIA

Describe Cause of Problem and Remedial Action Taken.*

Cause of problem. TBD
Remedial Action Taken: Clean up per Tetra Tech's environmental assessment and agreement with current BLM procedures and regulations, To prevent future discharges, frac tank will be removed-all fluids will be produced to a berm contained tank battery

Describe Area Affected and Cleanup Action Taken.*

TBD

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Carie Stoker

Printed Name: CARIE STOKER

Title: REGULATORY/ PRODUCTION TECH

E-mail Address: cstoker@helmsoil.com

Date: 08/22/2011 Phone: 432 664 7659

OIL CONSERVATION DIVISION

Signed By Mike Bratcher

Approved by Environmental Specialist:

Approval Date: SEP 09 2011 Expiration Date.

Conditions of Approval:
Remediation per OCD Rules & Guidelines. **SUBMIT REMEDIATION PROPOSAL NOT LATER THAN:** 10/9/2011

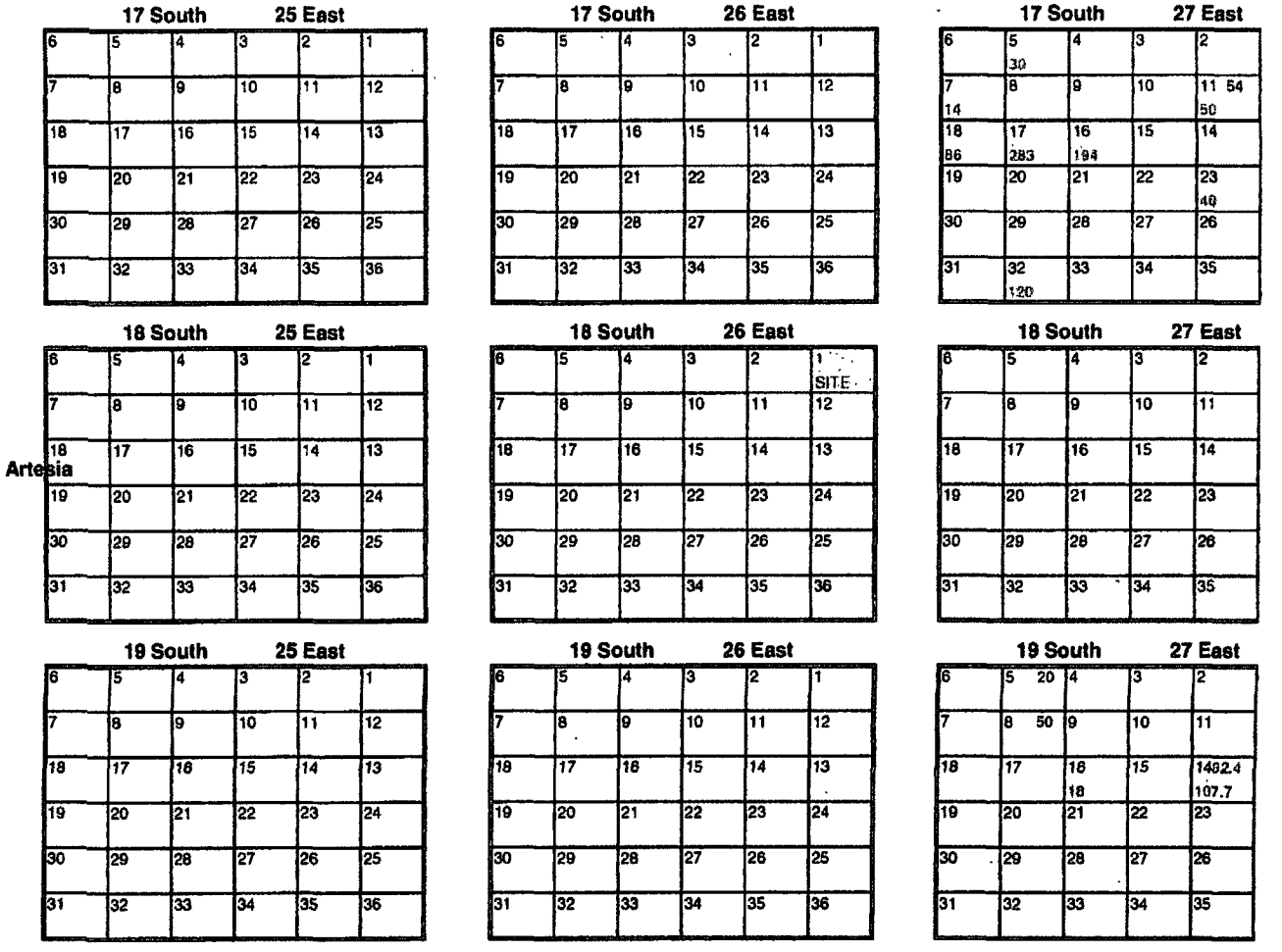
Attached ☐

2RP-879

* Attach Additional Sheets If Necessary

APPENDIX B

Water Well Data
Average Depth to Groundwater (ft)
ALAMO - Empire J Federal #3
Eddy County, New Mexico



- New Mexico State Engineers Well Reports
- USGS Well Reports
- Field water level
- New Mexico Water and Infrastructure Data System
- SITE

APPENDIX C

Summary Report

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

Report Date: September 20, 2011

Work Order: 11091545

Project Location: Eddy Co., NM
Project Name: Alamo Permian Resources/Empire J Federal #3
Project Number: 114-6401006

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
277370	CS-1 Bottom Hole 1'	soil	2011-09-08	08:00	2011-09-15
277371	CS-2 Bottom Hole 1'	soil	2011-09-08	08:15	2011-09-15
277372	CS-3 Bottom Hole 1'	soil	2011-09-08	08:30	2011-09-15
277373	CS-4 Bottom Hole 1.5'	soil	2011-09-08	08:45	2011-09-15
277374	CS-5 Bottom Hole 1.5'	soil	2011-09-08	09:00	2011-09-15
277375	CS-6 Bottom Hole 1.5'	soil	2011-09-08	09:30	2011-09-15
277376	CS-7 Bottom Hole 1.5'	soil	2011-09-08	10:00	2011-09-15

Sample - Field Code	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
277370 - CS-1 Bottom Hole 1'	<50.0	**5.98**
277371 - CS-2 Bottom Hole 1'	<50.0	<2.00
277372 - CS-3 Bottom Hole 1'	<50.0	<2.00
277373 - CS-4 Bottom Hole 1.5'	<50.0	<2.00
277374 - CS-5 Bottom Hole 1.5'	<50.0	<2.00
277375 - CS-6 Bottom Hole 1.5'	**1910**	**2.27**
277376 - CS-7 Bottom Hole 1.5'	<50.0	<2.00

Sample: 277370 - CS-1 Bottom Hole 1'

Param	Flag	Result	Units	RL
Chloride		**8330**	mg/Kg	4

Sample: 277371 - CS-2 Bottom Hole 1'

Param	Flag	Result	Units	RL
Chloride		**7660**	mg/Kg	4

Sample: 277372 - CS-3 Bottom Hole 1'

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

Sample: 277373 - CS-4 Bottom Hole 1.5'

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

Sample: 277374 - CS-5 Bottom Hole 1.5'

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

Sample: 277375 - CS-6 Bottom Hole 1.5'

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

Sample: 277376 - CS-7 Bottom Hole 1.5'

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

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: September 20, 2011

Work Order: 11091545

Project Location: Eddy Co., NM
Project Name: Alamo Permian Resources/Empire J Federal #3
Project Number: 114-6401006

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
277370	CS-1 Bottom Hole 1'	soil	2011-09-08	08:00	2011-09-15
277371	CS-2 Bottom Hole 1'	soil	2011-09-08	08:15	2011-09-15
277372	CS-3 Bottom Hole 1'	soil	2011-09-08	08:30	2011-09-15
277373	CS-4 Bottom Hole 1.5'	soil	2011-09-08	08:45	2011-09-15
277374	CS-5 Bottom Hole 1.5'	soil	2011-09-08	09:00	2011-09-15
277375	CS-6 Bottom Hole 1.5'	soil	2011-09-08	09:30	2011-09-15
277376	CS-7 Bottom Hole 1.5'	soil	2011-09-08	10:00	2011-09-15

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

Michael Abel

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

Report Contents

Case Narrative

Samples for project Alamo Permian Resources/Empire J Federal #3 were received by TraceAnalysis, Inc. on 2011-09-15 and assigned to work order 11091545. Samples for work order 11091545 were received intact at a temperature of 0.9 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	72038	2011-09-16 at 09:45	84838	2011-09-19 at 16:06
TPH DRO - NEW	S 8015 D	72014	2011-09-16 at 14:31	84797	2011-09-16 at 14:31
TPH GRO	S 8015 D	72007	2011-09-16 at 11:00	84783	2011-09-17 at 16:27

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 11091545 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 277370 - CS-1 Bottom Hole 1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84838	Date Analyzed:	2011-09-19	Analyzed By:	AR
Prep Batch:	72038	Sample Preparation:	2011-09-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**8330**	mg/Kg	100	4.00

Sample: 277370 - CS-1 Bottom Hole 1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84797	Date Analyzed:	2011-09-16	Analyzed By:	kg
Prep Batch:	72014	Sample Preparation:	2011-09-16	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			118	mg/Kg	1	100	118	67.5 - 147.1

Sample: 277370 - CS-1 Bottom Hole 1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84783	Date Analyzed:	2011-09-17	Analyzed By:	AG
Prep Batch:	72007	Sample Preparation:	2011-09-16	Prepared By:	AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**5.98**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.35	mg/Kg	1	2.00	118	30 - 134.6

continued ...

sample continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			2.18	mg/Kg	1	2.00	109	22.4 - 149

Sample: 277371 - CS-2 Bottom Hole 1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84838	Date Analyzed:	2011-09-19	Analyzed By:	AR
Prep Batch:	72038	Sample Preparation:	2011-09-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7660**	mg/Kg	100	4.00

Sample: 277371 - CS-2 Bottom Hole 1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84797	Date Analyzed:	2011-09-16	Analyzed By:	kg
Prep Batch:	72014	Sample Preparation:	2011-09-16	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			115	mg/Kg	1	100	115	67.5 - 147.1

Sample: 277371 - CS-2 Bottom Hole 1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84783	Date Analyzed:	2011-09-17	Analyzed By:	AG
Prep Batch:	72007	Sample Preparation:	2011-09-16	Prepared By:	AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.04	mg/Kg	1	2.00	102	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.71	mg/Kg	1	2.00	86	22.4 - 149

Sample: 277372 - CS-3 Bottom Hole 1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84838	Date Analyzed:	2011-09-19	Analyzed By:	AR
Prep Batch:	72038	Sample Preparation:	2011-09-16	Prepared By:	AR

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

Sample: 277372 - CS-3 Bottom Hole 1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84797	Date Analyzed:	2011-09-16	Analyzed By:	kg
Prep Batch:	72014	Sample Preparation:	2011-09-16	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			115	mg/Kg	1	100	115	67.5 - 147.1

Sample: 277372 - CS-3 Bottom Hole 1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84783	Date Analyzed:	2011-09-17	Analyzed By:	AG
Prep Batch:	72007	Sample Preparation:	2011-09-16	Prepared By:	AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		1.93	mg/Kg	1	2.00	96	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.55	mg/Kg	1	2.00	78	22.4 - 149

Sample: 277373 - CS-4 Bottom Hole 1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84838	Date Analyzed:	2011-09-19	Analyzed By:	AR
Prep Batch:	72038	Sample Preparation:	2011-09-16	Prepared By:	AR

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

Sample: 277373 - CS-4 Bottom Hole 1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84797	Date Analyzed:	2011-09-16	Analyzed By:	kg
Prep Batch:	72014	Sample Preparation:	2011-09-16	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			111	mg/Kg	1	100	111	67.5 - 147.1

Sample: 277373 - CS-4 Bottom Hole 1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84783	Date Analyzed:	2011-09-17	Analyzed By:	AG
Prep Batch:	72007	Sample Preparation:	2011-09-16	Prepared By:	AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		1.95	mg/Kg	1	2.00	98	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.57	mg/Kg	1	2.00	78	22.4 - 149

Sample: 277374 - CS-5 Bottom Hole 1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84838	Date Analyzed:	2011-09-19	Analyzed By:	AR
Prep Batch:	72038	Sample Preparation:	2011-09-16	Prepared By:	AR

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

Sample: 277374 - CS-5 Bottom Hole 1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84797	Date Analyzed:	2011-09-16	Analyzed By:	kg
Prep Batch:	72014	Sample Preparation:	2011-09-16	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			117	mg/Kg	1	100	117	67.5 - 147.1

Sample: 277374 - CS-5 Bottom Hole 1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84783	Date Analyzed:	2011-09-17	Analyzed By:	AG
Prep Batch:	72007	Sample Preparation:	2011-09-16	Prepared By:	AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		1.99	mg/Kg	1	2.00	100	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.52	mg/Kg	1	2.00	76	22.4 - 149

Sample: 277375 - CS-6 Bottom Hole 1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84838	Date Analyzed:	2011-09-19	Analyzed By:	AR
Prep Batch:	72038	Sample Preparation:	2011-09-16	Prepared By:	AR

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

Sample: 277375 - CS-6 Bottom Hole 1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84797	Date Analyzed:	2011-09-16	Analyzed By:	kg
Prep Batch:	72014	Sample Preparation:	2011-09-16	Prepared By:	kg

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**1910**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr		177	mg/Kg	1	100	177	67.5 - 147.1

Sample: 277375 - CS-6 Bottom Hole 1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84783	Date Analyzed:	2011-09-17	Analyzed By:	AG
Prep Batch:	72007	Sample Preparation:	2011-09-16	Prepared By:	AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**2.27**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		1.88	mg/Kg	1	2.00	94	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.50	mg/Kg	1	2.00	75	22.4 - 149

Sample: 277376 - CS-7 Bottom Hole 1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84838	Date Analyzed:	2011-09-19	Analyzed By:	AR
Prep Batch:	72038	Sample Preparation:	2011-09-16	Prepared By:	AR

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

Sample: 277376 - CS-7 Bottom Hole 1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84797	Date Analyzed:	2011-09-16	Analyzed By:	kg
Prep Batch:	72014	Sample Preparation:	2011-09-16	Prepared By:	kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			113	mg/Kg	1	100	113	67.5 - 147.1

Sample: 277376 - CS-7 Bottom Hole 1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84783	Date Analyzed:	2011-09-17	Analyzed By:	AG
Prep Batch:	72007	Sample Preparation:	2011-09-16	Prepared By:	AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.07	mg/Kg	1	2.00	104	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.55	mg/Kg	1	2.00	78	22.4 - 149

Method Blanks

Method Blank (1) QC Batch: 84783

QC Batch: 84783 Date Analyzed: 2011-09-17 Analyzed By: AG
Prep Batch: 72007 QC Preparation: 2011-09-16 Prepared By: AG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.753	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.88	mg/Kg	1	2.00	94	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.30	mg/Kg	1	2.00	65	52.4 - 130

Method Blank (1) QC Batch: 84797

QC Batch: 84797 Date Analyzed: 2011-09-16 Analyzed By: kg
Prep Batch: 72014 QC Preparation: 2011-09-16 Prepared By: kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			117	mg/Kg	1	100	117	52.7 - 133.8

Method Blank (1) QC Batch: 84838

QC Batch: 84838 Date Analyzed: 2011-09-19 Analyzed By: AR
Prep Batch: 72038 QC Preparation: 2011-09-16 Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 84783 | Date Analyzed: 2011-09-17 | Analyzed By: AG
Prep Batch: 72007 | QC Preparation: 2011-09-16 | Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	13.1	mg/Kg	1	20.0	<0.753	66	60.9 - 95.4

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	12.9	mg/Kg	1	20.0	<0.753	64	60.9 - 95.4	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.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.87	1.88	mg/Kg	1	2.00	94	94	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.45	1.43	mg/Kg	1	2.00	72	72	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 84797 | Date Analyzed: 2011-09-16 | Analyzed By: kg
Prep Batch: 72014 | QC Preparation: 2011-09-16 | Prepared By: kg

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	260	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.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	272	mg/Kg	1	250	<14.5	109	64.5 - 146.9	4	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.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	127	129	mg/Kg	1	100	127	129	65.3 - 135.8

Laboratory Control Spike (LCS-1)

QC Batch: 84838 | Date Analyzed: 2011-09-19 | Analyzed By: AR
Prep Batch: 72038 | QC Preparation: 2011-09-16 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			94.4	mg/Kg	1	100	<3.85	94	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			103	mg/Kg	1	100	<3.85	103	85 - 115	9	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: 277380

QC Batch: 84783 | Date Analyzed: 2011-09-17 | Analyzed By: AG
Prep Batch: 72007 | QC Preparation: 2011-09-16 | Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	15.5	mg/Kg	1	20.0	<0.753	78	61.8 - 114

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	15.4	mg/Kg	1	20.0	<0.753	77	61.8 - 114	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.18	2.08	mg/Kg	1	2	109	104	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	1.91	1.78	mg/Kg	1	2	96	89	37.3 - 162

Matrix Spike (MS-1) Spiked Sample: 277385

QC Batch: 84797 | Date Analyzed: 2011-09-16 | Analyzed By: kg
Prep Batch: 72014 | QC Preparation: 2011-09-16 | Prepared By: kg

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	263	mg/Kg	1	250	<14.5	105	38.8 - 153.3

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	258	mg/Kg	1	250	<14.5	103	38.8 - 153.3	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	116	116	mg/Kg	1	100	116	116	54.6 - 149.8

Matrix Spike (MS-1) Spiked Sample: 277379

QC Batch: 84838 | Date Analyzed: 2011-09-19 | Analyzed By: AR
Prep Batch: 72038 | QC Preparation: 2011-09-16 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			9700	mg/Kg	100	10000	<385	97	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10300	mg/Kg	100	10000	<385	103	79.4 - 120.6	6	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 84783 | Date Analyzed: 2011-09-17 | Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.812	81	80 - 120	2011-09-17

Standard (CCV-2)

QC Batch: 84783 | Date Analyzed: 2011-09-17 | Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.843	84	80 - 120	2011-09-17

Standard (CCV-3)

QC Batch: 84783 | Date Analyzed: 2011-09-17 | Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.800	80	80 - 120	2011-09-17

Standard (CCV-1)

QC Batch: 84797 | Date Analyzed: 2011-09-16 | Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	266	106	80 - 120	2011-09-16

Standard (CCV-2)

QC Batch: 84797 Date Analyzed: 2011-09-16 Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	266	106	80 - 120	2011-09-16

Standard (CCV-3)

QC Batch: 84797 Date Analyzed: 2011-09-16 Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	282	113	80 - 120	2011-09-16

Standard (ICV-1)

QC Batch: 84838 Date Analyzed: 2011-09-19 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	105	105	85 - 115	2011-09-19

Standard (CCV-1)

QC Batch: 84838 Date Analyzed: 2011-09-19 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	95.3	95	85 - 115	2011-09-19

Appendix

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory 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
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.

& WO #: 1091545

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

CLIENT NAME: Alamo

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6401006

PROJECT NAME: Empire J Federal #3
Eddy County

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
277370	9/8/11	8:00	S		X	CS-1 Bottom Hole 1'	1				X			X											X				
371	9/8/11	8:15	S		X	CS-2 Bottom Hole 1'	1				X			X											X				
372	9/8/11	8:30	S		X	CS-3 Bottom Hole 1'	1				X			X											X				
373	9/8/11	8:45	S		X	CS-4 Bottom Hole 1.5'	1				X			X											X				
374	9/8/11	9:00	S		X	CS-5 Bottom Hole 1.5'	1				X			X											X				
375	9/8/11	9:30	S		X	CS-6 Bottom Hole 1.5'	1				X			X											X				
376	9/8/11	10:00	S		X	CS-7 Bottom Hole 1.5'	1				X			X											X				

RELINQUISHED BY: (Signature) Brian Sharvee — Date: 9/8/11 — Time: 650

RECEIVED BY: (Signature) — Date: 9/8/11 — Time: 8:00

SAMPLED BY: (Print & Initial) Brian Sharvee BRS — Date: 9/8/11 — Time: 1030

RELINQUISHED BY: (Signature) — Date: 9/8/11 — Time: 1500

RECEIVED BY: (Signature) — Date: 9/13/11 — Time: 15:08

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: — OTHER:

RELINQUISHED BY: (Signature) — Date: — Time:

RECEIVED BY: (Signature) — Date: — Time:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE: DATE: TIME:
RECEIVED BY: (Signature)

SAMPLE CONDITION WHEN RECEIVED: 0.9°C intact

REMARKS: All tests-Midland

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

Summary Report

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

Report Date: August 26, 2011

Work Order: 11082304

Project Location: Eddy Co., NM
Project Name: Alamo Permian Resources/Empire J Federal #3
Project Number: 114-6401006

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
275209	AH-1 0-0.5'	soil	2011-08-22	00:00	2011-08-23
275210	AH-2 0-1'	soil	2011-08-22	00:00	2011-08-23
275211	AH-2 1-1.5'	soil	2011-08-22	00:00	2011-08-23
275212	AH-2 2-2.5'	soil	2011-08-22	00:00	2011-08-23
275213	AH-3 0-0.2'	soil	2011-08-22	00:00	2011-08-23
275214	AH-4 0-0.1'	soil	2011-08-22	00:00	2011-08-23
275215	AH-5 0-0.5'	soil	2011-08-22	00:00	2011-08-23
275216	AH-6 0-1'	soil	2011-08-22	00:00	2011-08-23
275217	AH-7 0-0.3'	soil	2011-08-22	00:00	2011-08-23
275218	BG-1	soil	2011-08-22	00:00	2011-08-23
275219	BG-2	soil	2011-08-22	00:00	2011-08-23
275220	BG-3	soil	2011-08-22	00:00	2011-08-23
275221	BG-4	soil	2011-08-22	00:00	2011-08-23

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
275209 - AH-1 0-0.5'	<0.400	**0.764**	<0.400	**2.34**	**37400** Qr,Qs	**101** Qs
275210 - AH-2 0-1'	<0.200	**0.458**	**0.330**	**0.928**	**15500** Qr,Qs	**132** Qs
275211 - AH-2 1-1.5'	<0.0200	<0.0200	<0.0200	<0.0200	**266** Qr,Qs	**8.89** Qs
275212 - AH-2 2-2.5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0 Qr,Qs	<2.00 Qs
275213 - AH-3 0-0.2'	<0.400	<0.400	<0.400	<0.400	**21900** Qr,Qs	**88.7** Qs
275214 - AH-4 0-0.1'	<1.00	<1.00	<1.00	<1.00	**25600** Qr,Qs	<100 Qs
275215 - AH-5 0-0.5'	<0.200	<0.200	<0.200	<0.200	**19400** Qr,Qs	**25.5** Qs
275216 - AH-6 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**410** Qr,Qs	**2.23** Qs
275217 - AH-7 0-0.3'	<0.400	<0.400	<0.400	<0.400	**13200** Qr,Qs	<40.0 Qs

Sample: 275209 - AH-1 0-0.5'

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

Sample: 275210 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**429**	mg/Kg	4

Sample: 275211 - AH-2 1-1.5'

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

Sample: 275212 - AH-2 2-2.5'

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

Sample: 275213 - AH-3 0-0.2'

Param	Flag	Result	Units	RL
Chloride		**2670**	mg/Kg	4

Sample: 275214 - AH-4 0-0.1'

Param	Flag	Result	Units	RL
Chloride		**8220**	mg/Kg	4

Sample: 275215 - AH-5 0-0.5'

Param	Flag	Result	Units	RL
Chloride		**3270**	mg/Kg	4

Sample: 275216 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		**6030**	mg/Kg	4

Sample: 275217 - AH-7 0-0.3'

Param	Flag	Result	Units	RL
Chloride		**4920**	mg/Kg	4

Sample: 275218 - BG-1

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

Sample: 275219 - BG-2

Param	Flag	Result	Units	RL
Chloride		**981**	mg/Kg	4

Sample: 275220 - BG-3

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

Sample: 275221 - BG-4

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

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report
(Corrected Report)

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

Report Date: August 26, 2011

Work Order: 11082304

Project Location: Eddy Co., NM
Project Name: Alamo Permian Resources/Empire J Federal #3
Project Number: 114-6401006

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
275209	AH-1 0-0.5'	soil	2011-08-22	00:00	2011-08-23
275210	AH-2 0-1'	soil	2011-08-22	00:00	2011-08-23
275211	AH-2 1-1.5'	soil	2011-08-22	00:00	2011-08-23
275212	AH-2 2-2.5'	soil	2011-08-22	00:00	2011-08-23
275213	AH-3 0-0.2'	soil	2011-08-22	00:00	2011-08-23
275214	AH-4 0-0.1'	soil	2011-08-22	00:00	2011-08-23
275215	AH-5 0-0.5'	soil	2011-08-22	00:00	2011-08-23
275216	AH-6 0-1'	soil	2011-08-22	00:00	2011-08-23
275217	AH-7 0-0.3'	soil	2011-08-22	00:00	2011-08-23
275218	BG-1	soil	2011-08-22	00:00	2011-08-23
275219	BG-2	soil	2011-08-22	00:00	2011-08-23
275220	BG-3	soil	2011-08-22	00:00	2011-08-23
275221	BG-4	soil	2011-08-22	00:00	2011-08-23

Report Corrections (Work Order 11082304)

- Corrected Report
- Reran Chloride for 275219.

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.

Blair Leftwich

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

Report Contents

Case Narrative

Samples for project Alamo Permian Resources/Empire J Federal #3 were received by TraceAnalysis, Inc. on 2011-08-23 and assigned to work order 11082304. Samples for work order 11082304 were received intact at a temperature of 3.7 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	71488	2011-08-23 at 13:50	84192	2011-08-23 at 18:03
Chloride (Titration)	SM 4500-Cl B	71474	2011-08-22 at 12:48	84209	2011-08-24 at 13:05
Chloride (Titration)	SM 4500-Cl B	71474	2011-08-22 at 12:48	84210	2011-08-24 at 13:06
Chloride (Titration)	SM 4500-Cl B	71547	2011-08-25 at 12:00	84262	2011-08-25 at 15:00
TPH DRO - NEW	S 8015 D	71490	2011-08-23 at 14:03	84194	2011-08-23 at 14:03
TPH GRO	S 8015 D	71488	2011-08-23 at 13:50	84193	2011-08-23 at 18:03

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 11082304 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 275209 - AH-1 0-0.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	84192	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<0.400	mg/Kg	20	0.0200
Toluene		1	**0.764**	mg/Kg	20	0.0200
Ethylbenzene	U	1	<0.400	mg/Kg	20	0.0200
Xylene		1	**2.34**	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			22.5	mg/Kg	20	20.0	112	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			23.0	mg/Kg	20	20.0	115	70.6 - 179

Sample: 275209 - AH-1 0-0.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84209	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	Sample Preparation:	2011-08-23	Prepared By:	AR

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

Sample: 275209 - AH-1 0-0.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84194	Date Analyzed:	2011-08-23	Analyzed By:	kg
Prep Batch:	71490	Sample Preparation:	2011-08-23	Prepared By:	kg

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qr,Qs	1	**37400**	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr		1740	mg/Kg	10	100	1740	67.5 - 147.1

Sample: 275209 - AH-1 0-0.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84193	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs	1	**101**	mg/Kg	20	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		22.0	mg/Kg	20	20.0	110	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		19.8	mg/Kg	20	20.0	99	22.4 - 149

Sample: 275210 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	84192	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<0.200	mg/Kg	10	0.0200
Toluene		1	**0.458**	mg/Kg	10	0.0200
Ethylbenzene		1	**0.330**	mg/Kg	10	0.0200
Xylene		1	**0.928**	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			10.8	mg/Kg	10	10.0	108	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			10.8	mg/Kg	10	10.0	108	70.6 - 179

Sample: 275210 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84209	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	Sample Preparation:	2011-08-23	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**429**	mg/Kg	50	4.00

Sample: 275210 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84194	Date Analyzed:	2011-08-23	Analyzed By:	kg
Prep Batch:	71490	Sample Preparation:	2011-08-23	Prepared By:	kg

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Q_{R},Q_{S}	1	**15500**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q_{SR}		776	mg/Kg	5	100	776	67.5 - 147.1

Sample: 275210 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84193	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Q_{S}	1	**132**	mg/Kg	10	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		10.5	mg/Kg	10	10.0	105	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		9.87	mg/Kg	10	10.0	99	22.4 - 149

Sample: 275211 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	84192	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	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	U	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.16	mg/Kg	1	2.00	108	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.12	mg/Kg	1	2.00	106	70.6 - 179

Sample: 275211 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84209	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	Sample Preparation:	2011-08-23	Prepared By:	AR

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

Sample: 275211 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84194	Date Analyzed:	2011-08-23	Analyzed By:	kg
Prep Batch:	71490	Sample Preparation:	2011-08-23	Prepared By:	kg

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr,Qs	1	**266**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			140	mg/Kg	1	100	140	67.5 - 147.1

Sample: 275211 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84193	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
GRO	Qs	1	**8.89**		mg/Kg.	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.07	mg/Kg	1	2.00	104	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.90	mg/Kg	1	2.00	95	22.4 - 149

Sample: 275212 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	84192	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Benzene	U	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	U	1	<0.0200		mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.37	mg/Kg	1	2.00	118	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.32	mg/Kg	1	2.00	116	70.6 - 179

Sample: 275212 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84209	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	Sample Preparation:	2011-08-23	Prepared By:	AR

continued ...

sample 275212 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

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

Sample: 275212 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84194	Date Analyzed:	2011-08-23	Analyzed By:	kg
Prep Batch:	71490	Sample Preparation:	2011-08-23	Prepared By:	kg

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	J,Qr,Qs	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			122	mg/Kg	1	100	122	67.5 - 147:1

Sample: 275212 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84193	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.26	mg/Kg	1	2.00	113	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.07	mg/Kg	1	2.00	104	22.4 - 149

Sample: 275213 - AH-3 0-0.2'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	84192	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<0.400	mg/Kg	20	0.0200
Toluene	U	1	<0.400	mg/Kg	20	0.0200
Ethylbenzene	U	1	<0.400	mg/Kg	20	0.0200
Xylene	U	1	<0.400	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			23.5	mg/Kg	20	20.0	118	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			23.3	mg/Kg	20	20.0	116	70.6 - 179

Sample: 275213 - AH-3 0-0.2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84209	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	Sample Preparation:	2011-08-23	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2670**	mg/Kg	100	4.00

Sample: 275213 - AH-3 0-0.2'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84194	Date Analyzed:	2011-08-23	Analyzed By:	kg
Prep Batch:	71490	Sample Preparation:	2011-08-23	Prepared By:	kg

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qr,Qs	1	**21900**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr		1110	mg/Kg	5	100	1110	67.5 - 147.1

Sample: 275213 - AH-3 0-0.2'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84193	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs	1	**88.7**	mg/Kg	20	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		21.6	mg/Kg	20	20.0	108	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		19.7	mg/Kg	20	20.0	98	22.4 - 149

Sample: 275214 - AH-4 0-0.1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	84192	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<1.00	mg/Kg	50	0.0200
Toluene	U	1	<1.00	mg/Kg	50	0.0200
Ethylbenzene	U	1	<1.00	mg/Kg	50	0.0200
Xylene	U	1	<1.00	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			63.2	mg/Kg	50	50.0	126	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			60.4	mg/Kg	50	50.0	121	70.6 - 179

Sample: 275214 - AH-4 0-0.1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84209	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	Sample Preparation:	2011-08-23	Prepared By:	AR

continued ...

sample 275214 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**8220**	mg/Kg	100	4.00

Sample: 275214 - AH-4 0-0.1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84194	Date Analyzed:	2011-08-23	Analyzed By:	kg
Prep Batch:	71490	Sample Preparation:	2011-08-23	Prepared By:	kg

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr,Qs	1	**25600**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr		1410	mg/Kg	5	100	1410	67.5 - 147.1

Sample: 275214 - AH-4 0-0.1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84193	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	J,Qs	1	<100	mg/Kg	50	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		57.6	mg/Kg	50	50.0	115	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		51.5	mg/Kg	50	50.0	103	22.4 - 149

Sample: 275215 - AH-5 0-0.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	84192	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<0.200	mg/Kg	10	0.0200
Toluene	U	1	<0.200	mg/Kg	10	0.0200
Ethylbenzene	U	1	<0.200	mg/Kg	10	0.0200
Xylene	U	1	<0.200	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			10.0	mg/Kg	10	10.0	100	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			9.64	mg/Kg	10	10.0	96	70.6 - 179

Sample: 275215 - AH-5 0-0.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84209	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	Sample Preparation:	2011-08-23	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3270**	mg/Kg	100	4.00

Sample: 275215 - AH-5 0-0.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84194	Date Analyzed:	2011-08-23	Analyzed By:	kg
Prep Batch:	71490	Sample Preparation:	2011-08-23	Prepared By:	kg

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qr,Qs	1	**19400**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr		1660	mg/Kg	5	100	1660	67.5 - 147.1

Sample: 275215 - AH-5 0-0.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84193	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs	1	**25.5**	mg/Kg	10	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		9.63	mg/Kg	10	10.0	96	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		8.70	mg/Kg	10	10.0	87	22.4 - 149

Sample: 275216 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	84192	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	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	U	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.55	mg/Kg	1	2.00	128	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.49	mg/Kg	1	2.00	124	70.6 - 179

Sample: 275216 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84209	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	Sample Preparation:	2011-08-23	Prepared By:	AR

continued ...

sample 275216 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6030**	mg/Kg	100	4.00

Sample: 275216 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84194	Date Analyzed:	2011-08-23	Analyzed By:	kg
Prep Batch:	71490	Sample Preparation:	2011-08-23	Prepared By:	kg

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr,Qs	1	**410**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr		149	mg/Kg	1	100	149	67.5 - 147.1

Sample: 275216 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84193	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	**2.23**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.43	mg/Kg	1	2.00	122	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.21	mg/Kg	1	2.00	110	22.4 - 149

Sample: 275217 - AH-7 0-0.3'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	84192	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<0.400	mg/Kg	20	0.0200
Toluene	U	1	<0.400	mg/Kg	20	0.0200
Ethylbenzene	U	1	<0.400	mg/Kg	20	0.0200
Xylene	U	1	<0.400	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			22.7	mg/Kg	20	20.0	114	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			21.8	mg/Kg	20	20.0	109	70.6 - 179

Sample: 275217 - AH-7 0-0.3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84209	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	Sample Preparation:	2011-08-23	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**4920**	mg/Kg	100	4.00

Sample: 275217 - AH-7 0-0.3'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	84194	Date Analyzed:	2011-08-23	Analyzed By:	kg
Prep Batch:	71490	Sample Preparation:	2011-08-23	Prepared By:	kg

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	$Q_{F,Qs}$	1	**13200**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q_{sr}		740	mg/Kg	5	100	740	67.5 - 147.1

Sample: 275217 - AH-7 0-0.3'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	84193	Date Analyzed:	2011-08-23	Analyzed By:	ME
Prep Batch:	71488	Sample Preparation:	2011-08-23	Prepared By:	ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	J,Qs	1	<40.0	mg/Kg	20	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		20.8	mg/Kg	20	20.0	104	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		18.8	mg/Kg	20	20.0	94	22.4 - 149

Sample: 275218 - BG-1

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84209	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	Sample Preparation:	2011-08-23	Prepared By:	AR

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

Sample: 275219 - BG-2

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84262	Date Analyzed:	2011-08-25	Analyzed By:	AR
Prep Batch:	71547	Sample Preparation:	2011-08-25	Prepared By:	AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**981**	mg/Kg	25	4.00

Sample: 275220 - BG-3

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84210	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	Sample Preparation:	2011-08-23	Prepared By:	AR

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

Sample: 275221 - BG-4

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	84210	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	Sample Preparation:	2011-08-23	Prepared By:	AR

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

Method Blanks

Method Blank (1) QC Batch: 84192

QC Batch: 84192 | Date Analyzed: 2011-08-23 | Analyzed By: ME
Prep Batch: 71488 | QC Preparation: 2011-08-23 | Prepared By: ME

Parameter	Flag	Cert	MDL 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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.84	mg/Kg	1	2.00	92	65.9 - 111.8
4-Bromofluorobenzene (4-BFB)			1.79	mg/Kg	1	2.00	90	48.4 - 123.1

Method Blank (1) QC Batch: 84193

QC Batch: 84193 | Date Analyzed: 2011-08-23 | Analyzed By: ME
Prep Batch: 71488 | QC Preparation: 2011-08-23 | Prepared By: ME

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.753	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.78	mg/Kg	1	2.00	89	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.63	mg/Kg	1	2.00	82	52.4 - 130

Method Blank (1) QC Batch: 84194

QC Batch: 84194 | Date Analyzed: 2011-08-23 | Analyzed By: kg
Prep Batch: 71490 | QC Preparation: 2011-08-23 | Prepared By: kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			106	mg/Kg	1	100	106	52.7 - 133.8

Method Blank (1) QC Batch: 84209

QC Batch:	84209	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	QC Preparation:	2011-08-22	Prepared By:	AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 84210

QC Batch:	84210	Date Analyzed:	2011-08-24	Analyzed By:	AR
Prep Batch:	71474	QC Preparation:	2011-08-22	Prepared By:	AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 84262

QC Batch:	84262	Date Analyzed:	2011-08-25	Analyzed By:	AR
Prep Batch:	71547	QC Preparation:	2011-08-25	Prepared By:	AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 84192 | Date Analyzed: 2011-08-23 | Analyzed By: ME
Prep Batch: 71488 | QC Preparation: 2011-08-23 | Prepared By: ME

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.00	mg/Kg	1	2.00	<0.0118	100	77.4 - 121.7
Toluene		1	2.00	mg/Kg	1	2.00	<0.00600	100	88.6 - 121.6
Ethylbenzene		1	2.02	mg/Kg	1	2.00	<0.00850	101	74.3 - 117.9
Xylene		1	6.04	mg/Kg	1	6.00	<0.00613	101	73.4 - 118.8

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.92	mg/Kg	1	2.00	<0.0118	96	77.4 - 121.7	4	20
Toluene		1	1.95	mg/Kg	1	2.00	<0.00600	98	88.6 - 121.6	2	20
Ethylbenzene		1	1.95	mg/Kg	1	2.00	<0.00850	98	74.3 - 117.9	4	20
Xylene		1	5.84	mg/Kg	1	6.00	<0.00613	97	73.4 - 118.8	3	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.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.94	2.01	mg/Kg	1	2.00	97	100	65.5 - 116.7
4-Bromofluorobenzene (4-BFB)	1.96	2.00	mg/Kg	1	2.00	98	100	56.2 - 132.1

Laboratory Control Spike (LCS-1)

QC Batch: 84193 | Date Analyzed: 2011-08-23 | Analyzed By: ME
Prep Batch: 71488 | QC Preparation: 2011-08-23 | Prepared By: ME

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	15.7	mg/Kg	1	20.0	<0.753	78	60.9 - 95.4

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

continued ...

control spikes continued ...

Param	F	C	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	16.4	mg/Kg	1	20.0	<0.753	82	60.9 - 95.4	4	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.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.93	1.86	mg/Kg	1	2.00	96	93	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.79	1.71	mg/Kg	1	2.00	90	86	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 84194 | Date Analyzed: 2011-08-23 | Analyzed By: kg
Prep Batch: 71490 | QC Preparation: 2011-08-23 | Prepared By: kg

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	244	mg/Kg	1	250	<14.5	98	64.5 - 146.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	220	mg/Kg	1	250	<14.5	88	64.5 - 146.9	10	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.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	101	88.2	mg/Kg	1	100	101	88	65.3 - 135.8

Laboratory Control Spike (LCS-1)

QC Batch: 84209 | Date Analyzed: 2011-08-24 | Analyzed By: AR
Prep Batch: 71474 | QC Preparation: 2011-08-22 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			93.3	mg/Kg	1	100	<3.85	93	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			106	mg/Kg	1	100	<3.85	106	85 - 115	13	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: 84210 | Date Analyzed: 2011-08-24 | Analyzed By: AR
Prep Batch: 71474 | QC Preparation: 2011-08-22 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			94.0	mg/Kg	1	100	<3.85	94	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			105	mg/Kg	1	100	<3.85	105	85 - 115	11	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: 84262 | Date Analyzed: 2011-08-25 | Analyzed By: AR
Prep Batch: 71547 | QC Preparation: 2011-08-25 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			94.2	mg/Kg	1	100	<3.85	94	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			99.0	mg/Kg	1	100	<3.85	99	85 - 115	5	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: 275215

QC Batch: 84192 | Date Analyzed: 2011-08-23 | Analyzed By: ME
Prep Batch: 71488 | QC Preparation: 2011-08-23 | Prepared By: ME

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	9.21	mg/Kg	10	10.0	<0.118	92	69.4 - 123.6
Toluene		1	9.44	mg/Kg	10	10.0	<0.0600	94	75.4 - 134.3
Ethylbenzene		1	9.37	mg/Kg	10	10.0	<0.0850	94	58.8 - 133.7
Xylene		1	28.2	mg/Kg	10	30.0	<0.0613	94	57 - 134.2

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	9.38	mg/Kg	10	10.0	<0.118	94	69.4 - 123.6	2	20
Toluene		1	9.53	mg/Kg	10	10.0	<0.0600	95	75.4 - 134.3	1	20
Ethylbenzene		1	9.58	mg/Kg	10	10.0	<0.0850	96	58.8 - 133.7	2	20
Xylene		1	28.6	mg/Kg	10	30.0	<0.0613	95	57 - 134.2	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	10.9	10.3	mg/Kg	10	10	109	103	79.4 - 141.1
4-Bromofluorobenzene (4-BFB)	11.1	10.7	mg/Kg	10	10	111	107	71 - 167

Matrix Spike (MS-1) Spiked Sample: 275110

QC Batch: 84193 | Date Analyzed: 2011-08-23 | Analyzed By: ME
Prep Batch: 71488 | QC Preparation: 2011-08-23 | Prepared By: ME

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Qs	1	270	mg/Kg	10	100	109.342	161	61.8 - 114

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	Qs	1	311	mg/Kg	10	100	109.342	202	61.8 - 114	14	20

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

continued ...

matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	11.4	11.4	mg/Kg	10	10	114	114	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	11.7	12.0	mg/Kg	10	10	117	120	37.3 - 162

Matrix Spike (MS-1) Spiked Sample: 275215

QC Batch: 84194 | Date Analyzed: 2011-08-23 | Analyzed By: kg
Prep Batch: 71490 | QC Preparation: 2011-08-23 | Prepared By: kg

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	Q_S	1	20200	mg/Kg	5	250	19400	320	38.8 - 153.3

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	$Q_{R,S}$	1	25100	mg/Kg	5	250	19400	2280	38.8 - 153.3	22	20

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

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	Q_{SR}	1640	1800	mg/Kg	5	100	1640	1800	54.6 - 149.8

Matrix Spike (MS-1) Spiked Sample: 275218

QC Batch: 84209 | Date Analyzed: 2011-08-24 | Analyzed By: AR
Prep Batch: 71474 | QC Preparation: 2011-08-22 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10400	mg/Kg	100	10000	<385	104	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10900	mg/Kg	100	10000	<385	109	79.4 - 120.6	5	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: 275221

QC Batch: 84210 | Date Analyzed: 2011-08-24 | Analyzed By: AR
Prep Batch: 71474 | QC Preparation: 2011-08-22 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10100	mg/Kg	100	10000	<385	101	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10700	mg/Kg	100	10000	<385	107	79.4 - 120.6	6	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: 275219

QC Batch: 84262 | Date Analyzed: 2011-08-25 | Analyzed By: AR
Prep Batch: 71547 | QC Preparation: 2011-08-25 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			5840	mg/Kg	50	5000	981	97	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			6090	mg/Kg	50	5000	981	102	79.4 - 120.6	4	20

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

Calibration Standards

Standard (CCV-2)

QC Batch: 84192 | Date Analyzed: 2011-08-23 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.104	104	80 - 120	2011-08-23
Toluene		1	mg/Kg	0.100	0.104	104	80 - 120	2011-08-23
Ethylbenzene		1	mg/Kg	0.100	0.103	103	80 - 120	2011-08-23
Xylene		1	mg/Kg	0.300	0.309	103	80 - 120	2011-08-23

Standard (CCV-3)

QC Batch: 84192 | Date Analyzed: 2011-08-23 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0999	100	80 - 120	2011-08-23
Toluene		1	mg/Kg	0.100	0.0999	100	80 - 120	2011-08-23
Ethylbenzene		1	mg/Kg	0.100	0.0989	99	80 - 120	2011-08-23
Xylene		1	mg/Kg	0.300	0.296	99	80 - 120	2011-08-23

Standard (CCV-2)

QC Batch: 84193 | Date Analyzed: 2011-08-23 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.01	101	80 - 120	2011-08-23

Standard (CCV-3)

QC Batch: 84193 | Date Analyzed: 2011-08-23 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.967	97	80 - 120	2011-08-23

Standard (CCV-2)

QC Batch: 84194 Date Analyzed: 2011-08-23 Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	288	115	80 - 120	2011-08-23

Standard (CCV-3)

QC Batch: 84194 Date Analyzed: 2011-08-23 Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	290	116	80 - 120	2011-08-23

Standard (CCV-4)

QC Batch: 84194 Date Analyzed: 2011-08-23 Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	282	113	80 - 120	2011-08-23

Standard (ICV-1)

QC Batch: 84209 Date Analyzed: 2011-08-24 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	96.0	96	85 - 115	2011-08-24

Standard (CCV-1)

QC Batch: 84209 Date Analyzed: 2011-08-24 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	104	104	85 - 115	2011-08-24

Standard (ICV-1)

QC Batch: 84210 Date Analyzed: 2011-08-24 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2011-08-24

Standard (CCV-1)

QC Batch: 84210 Date Analyzed: 2011-08-24 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.3	99	85 - 115	2011-08-24

Standard (ICV-1)

QC Batch: 84262 Date Analyzed: 2011-08-25 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.2	98	85 - 115	2011-08-25

Standard (CCV-1)

QC Batch: 84262 Date Analyzed: 2011-08-25 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2011-08-25

Appendix

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory 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
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.

ewo #: 110820041

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 2

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

CLIENT NAME: Alamo Permian Resources
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114640 1006
PROJECT NAME: Empire 1 Federal #3
Eddy Co NM

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD (Ext. to C35) TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
275209	8/22		S		X	AH-1 0-0.5'	1				X		X	X											X				
210						AH-2 0-1'							X	X											X				
211						AH-2 1-1.5'							X	X											X				
212						AH-2 2-2.5'							X	X											X				
213						AH-3 0-0.2'							X	X											X				
214						AH-4 0-0.1'							X	X											X				
215						AH-5 0-0.5'							X	X											X				
216						AH-6 0-1'							X	X											X				
217						AH-7 0-0.3'							X	X											X				
218						BG-1																			X				

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature)	Date: 8-23-11 Time: 10:05	RECEIVED BY: (Signature)	Date: 8/23/11 Time: 10:05
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:

SAMPLED BY: (Print & Initial) TF RG — Date: 8-22-11 Time:

SAMPLE SHIPPED BY: (Circle) FEDEX HAND DELIVERED BUS UPS — AIRBILL #: — OTHER:

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: (Yes) No

SAMPLE CONDITION WHEN RECEIVED: 37° C Intact

REMARKS: All tests Midland *48 Hr. TAT - Need by Thursday Morning

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

*WO #: 11082304

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 2

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

CLIENT NAME: Alamo Permian Resources
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-640 1006
PROJECT NAME: Empire J Federal #3
Eddy Co NM

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
275219	8/22		S		X	BG-2	1				X	
220	↓		↓		↓	BG-3	↓				↓	
221	↓		↓		↓	BG-4	↓				↓	

ANALYSIS REQUEST (Circle or Specify Method No.)

BTEX 8021B; TPH 8015 MOD. TX1005 (Ext. to C35); PAH 8270; RCRA Metals Ag As Ba Cd Cr Pb Hg Se; TCLP Metals Ag As Ba Cd Vr Pd Hg Se; TCLP Volatiles; TCLP Semi Volatiles; RCI; GC.MS Vol. 8240/8260/624; GC.MS Semi. Vol. 8270/625; PCB's 8080/608; Pest. 808/608; Chloride; Gamma Spec.; Alpha Beta (Air); PLM (Asbestos); Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature) — Date: 8-23-11 Time: 10:05
RECEIVED BY: (Signature) — Date: 8/23/11 Time: 10:15
SAMPLED BY: (Print & Initial) TF RG — Date: 8-22-11 Time:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: OTHER:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
TETRA TECH CONTACT PERSON: Ike Tavarez — Results by:

RECEIVING LABORATORY: Xenco
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE: DATE: TIME:
RECEIVED BY: (Signature)
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.7°c intact
REMARKS: *All tests Midland

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