SITE INFORMATION

Report Type: Work Plan 2-RP 1184

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:	32.777° N			104.327° 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:	Discovered 6/14/12
Type Release:	Produced Water and Crude oil
Source of Contamination:	Casing valve
Fluid Released:	3 bbls oil and 11 bbls water
Fluids Recovered:	2 bbls oil

Official Communication:			
Name:	Steven Mastin		James F. Kennedy
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:	smastin@alamoresources.com		james.kennedy@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

RECEIVED
JUN 24 2013
NMOCD ARTESIA

TETRA TECH

February 11, 2013

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

Re: Work Plan 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 32.777°, W 104.327°. The site location is shown on Figures 1 and 2.

Background

According to the C-141, a leak occurred as a result of a discharge from the backside casing valve and released approximately 11 barrels of produced water and 3 barrels of oil. On June 14, 2012, the release occurred and two barrels of oil were recovered from the release. 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 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 100 mg/kg.

Soil Assessment

On August 23, 2012, Tetra Tech personnel inspected and sampled the spill area. Two (2) backhoe sample trenches (T-1 and T-2) were installed using a backhoe 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. The sampling results are summarized in Table 1. The trench locations are shown on Figure 3. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C.

Referring to Table 1, all of the sample trench locations were below the RRAL for TPH and BTEX. Elevated chloride concentrations were detected in the trenches with chloride concentrations ranging from 299 mg/kg to 21,000 mg/kg. Trench #1 (T-1) was not vertically defined. In order to define the extent, deeper samples will be collected during excavation activities.

Proposed Work Plan

Alamo proposes to excavate the elevated chloride impacted soil. The proposed areas are highlighted (green) in Table 1 and shown on Figure 4. The area of sample Trench #1, will be excavated to a depth of approximately 2-3' below surface, and 1-2' will be excavated in the area of Trench #2. Once excavated to the appropriate depths, Tetra Tech will collect confirmation samples for analysis of chlorides by EPA method 300.0. Based on the

results, either the excavation will be excavated further and resampled, or the excavation will be backfilled with clean soil.

Based on site formation, the excavation depths may not be reached due to dense formations, wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safely concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable, if the depths are not reached, a 20 mil liner will be installed at depth of 3.0 below surface to cap the impacted area.

Final Reporting

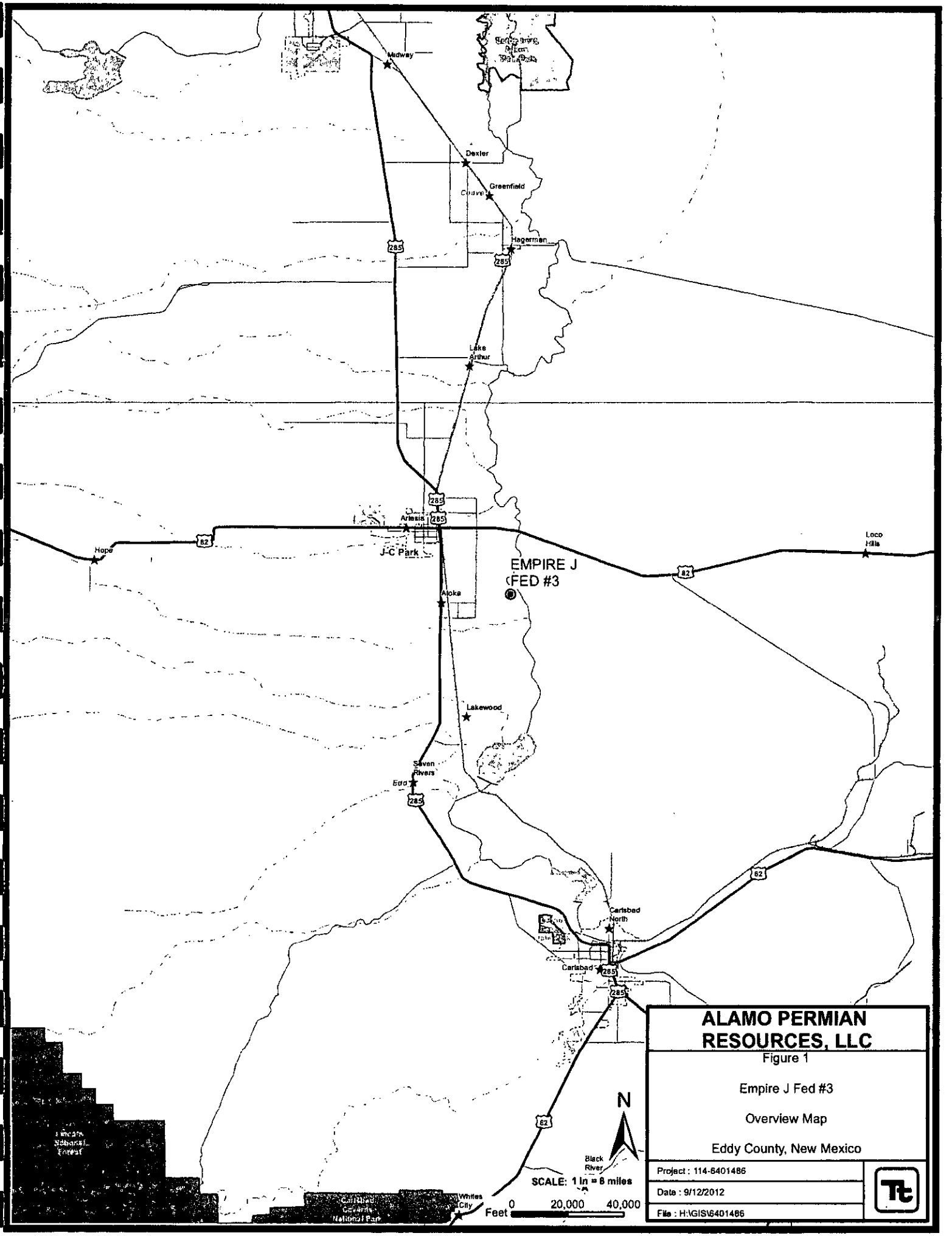
Upon completion, a final report will be submitted to the NMOCD and BLM. If you have any questions or comments concerning the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

James F. Kennedy
Sr. Staff Professional

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

Figures



ALAMO PERMIAN RESOURCES, LLC

Figure 1

Empire J Fed #3

Overview Map

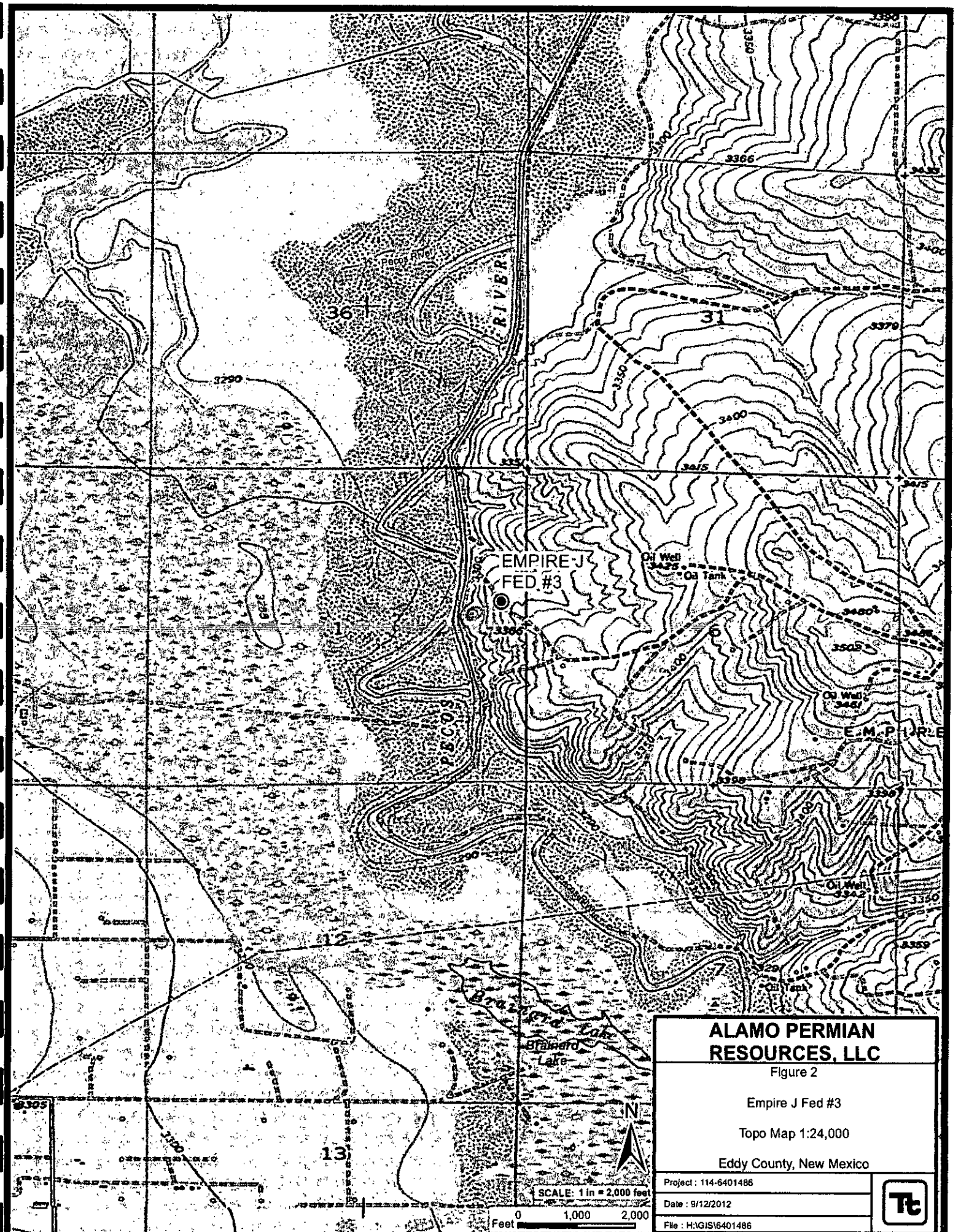
Eddy County, New Mexico

Project : 114-6401486

Date : 9/12/2012

File : H:\GIS\6401486

Drawn By: Isabel Maumolejo



ALAMO PERMIAN RESOURCES, LLC

Figure 2

Empire J Fed #3

Topo Map 1:24,000

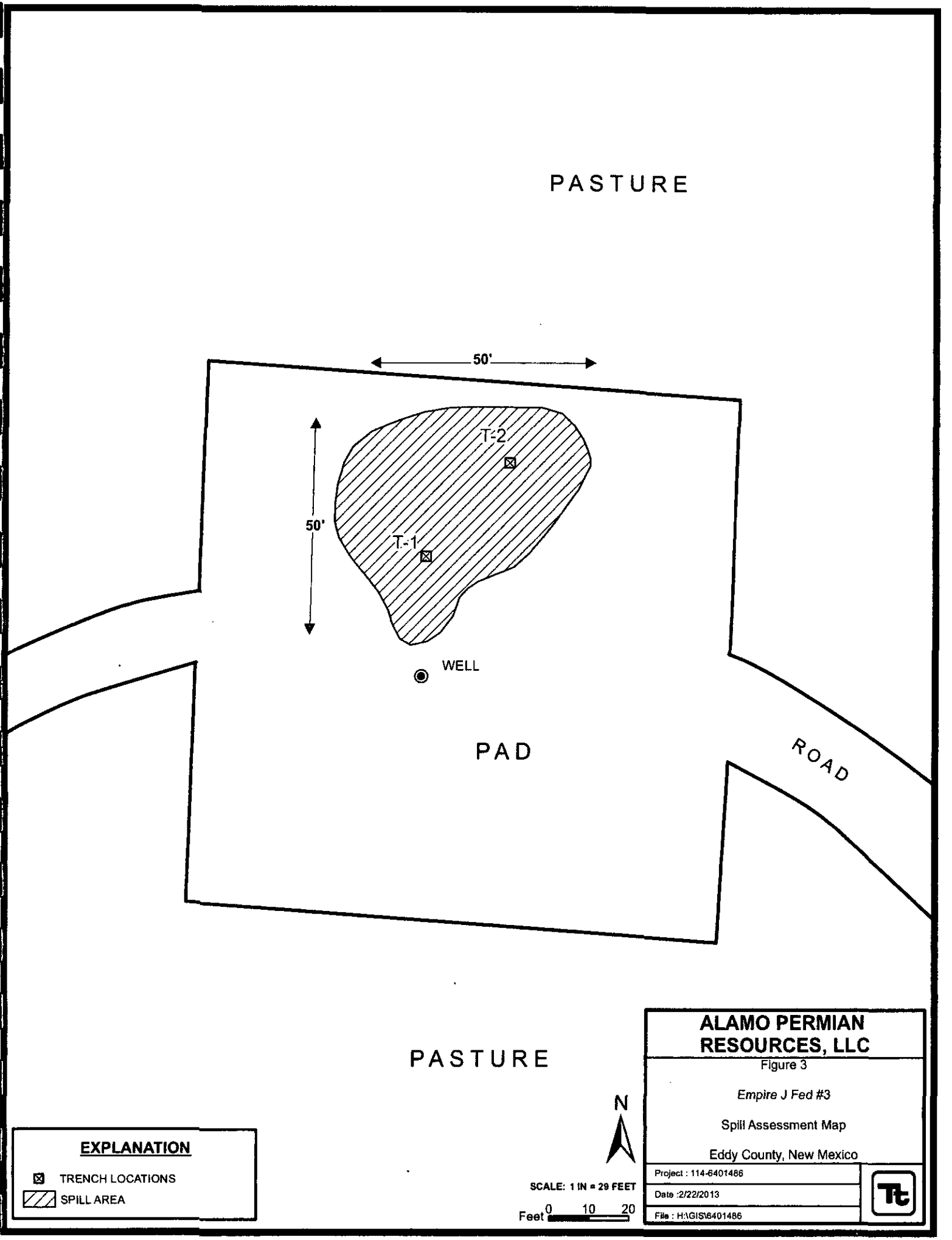
Eddy County, New Mexico

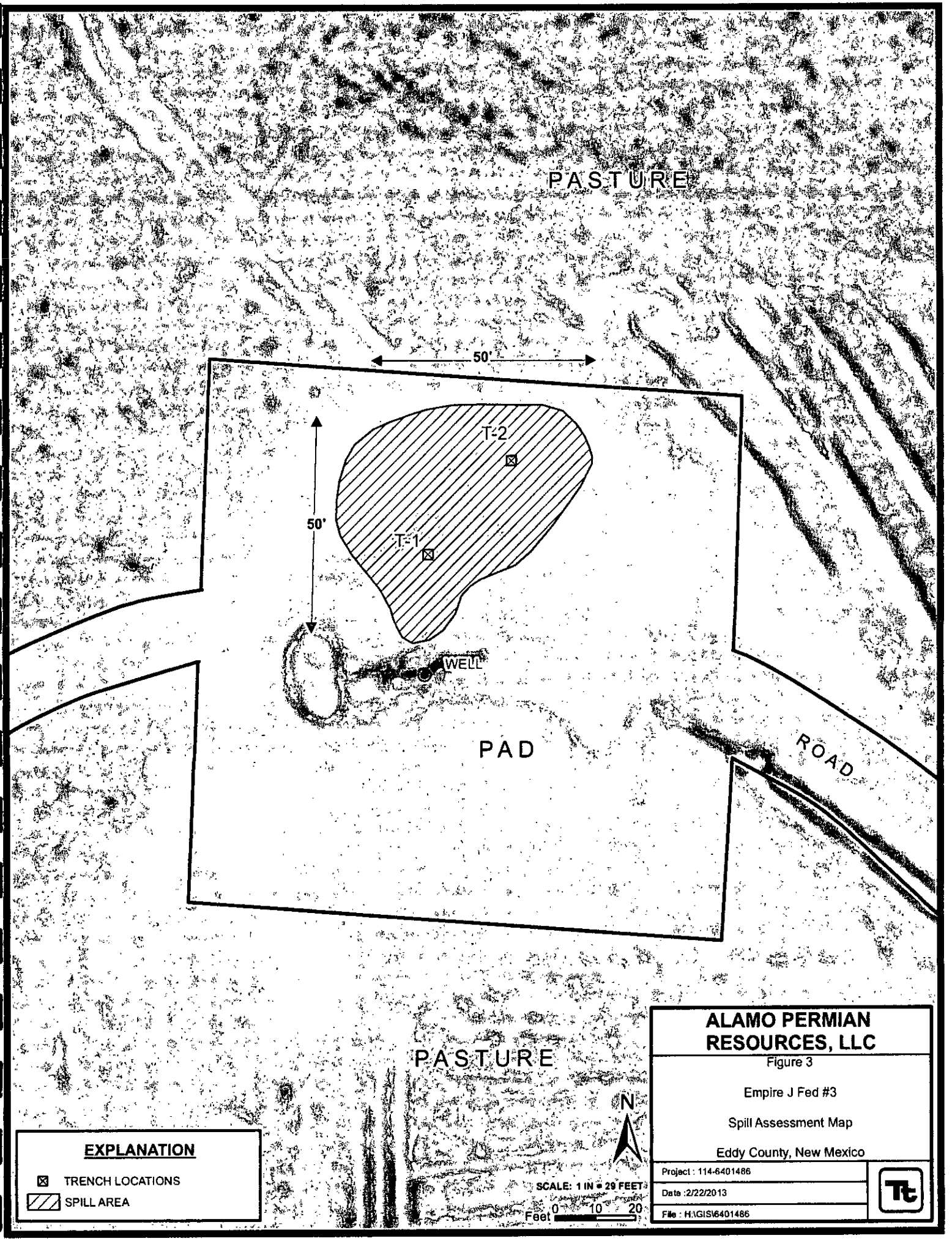
Project : 114-6401486

Date : 9/12/2012

File : H:\GIS\6401486

Drawn By: Isabel Marmolejo


PASTURE
50'
50'
T-2
T-1
WELL
PAD
ROAD
PASTURE
EXPLANATION
TRENCH LOCATIONS
SPILL AREA
N
SCALE: 1 IN = 29 FEET
Feet 0 10 20
ALAMO PERMIAN RESOURCES, LLC
Figure 3
Empire J Fed #3
Spill Assessment Map
Eddy County, New Mexico
Project : 114-6401486
Date :2/22/2013
File : H:\GIS\6401486
Drawn By: Isabel Manmoleo



EXPLANATION

- ⊠ TRENCH LOCATIONS
- SPILL AREA

ALAMO PERMIAN RESOURCES, LLC

Figure 3

Empire J Fed #3

Spill Assessment Map

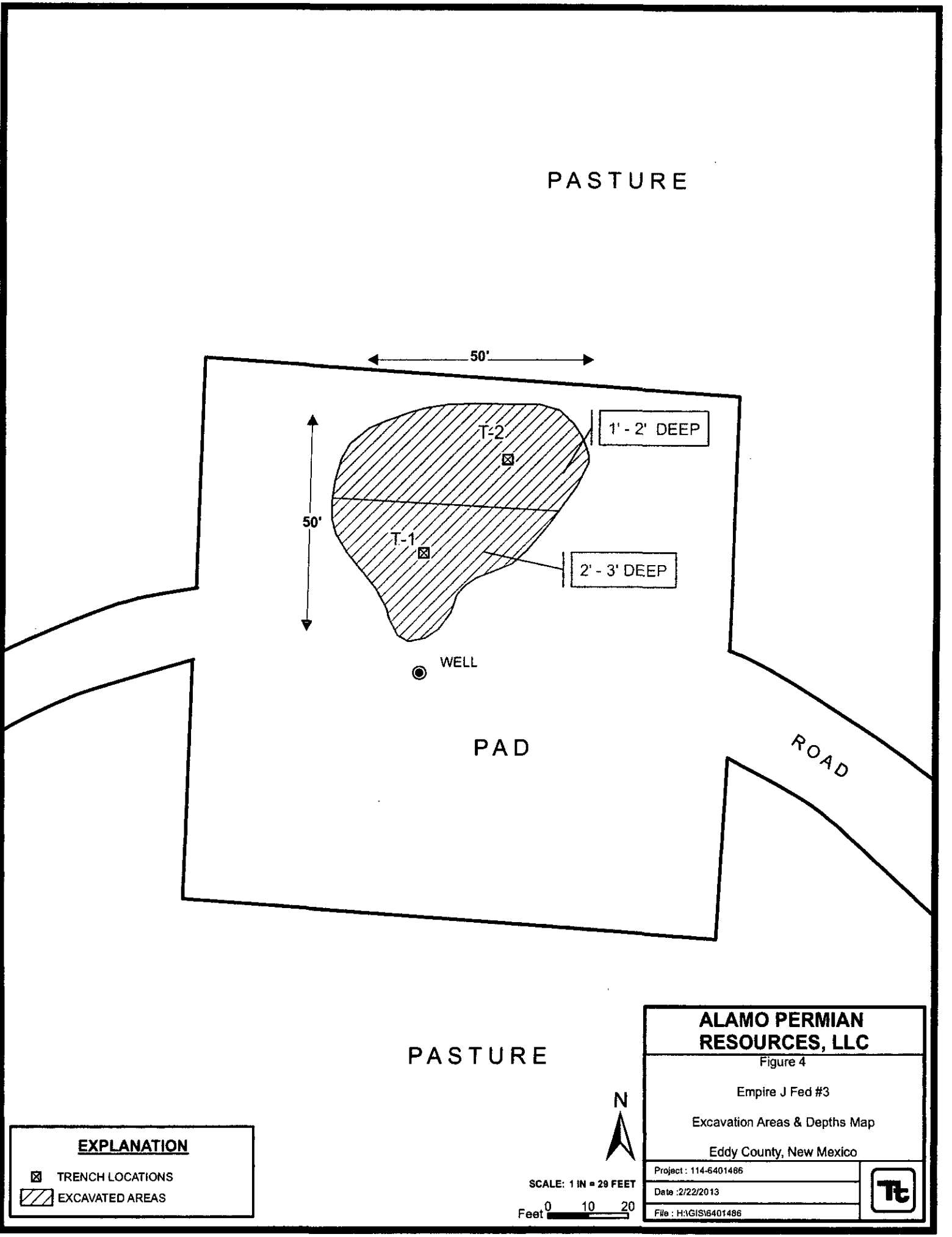
Eddy County, New Mexico

Project : 114-6401486

Date :2/22/2013

File : H:\GIS\6401486

Drawn By: Isabel Marmolejo


PASTURE
50'
50'
T-2
T-1
1' - 2' DEEP
2' - 3' DEEP
WELL
PAD
ROAD
PASTURE
N
SCALE: 1 IN = 29 FEET
Feet 0 10 20
EXPLANATION
TRENCH LOCATIONS
EXCAVATED AREAS
ALAMO PERMIAN RESOURCES, LLC
Figure 4
Empire J Fed #3
Excavation Areas & Depths Map
Eddy County, New Mexico
Project : 114-6401486
Date :2/22/2013
File : H:\GIS\6401486
Drawn By: Isabel Marmolejo

Tables

Table 1
Alamo Permian
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						
T-1	8/23/2012	0-1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	0.0282	0.0282	21,000
	"	2	X		-	-	-	-	-	-	-	-	1,830
T-2	8/23/2012	0-1	X		<4.00	184	184	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	7,950
	"	2	X		<4.00	<50.0	<50.0	-	-	-	-	-	980
	"	4	X		-	-	-	-	-	-	-	-	764
	"	6	X		-	-	-	-	-	-	-	-	586
	"	8	X		-	-	-	-	-	-	-	-	299

(-) Not Analyzed

T-1 Backhoe Trenches

Proposed Excavation Depths

Photos

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

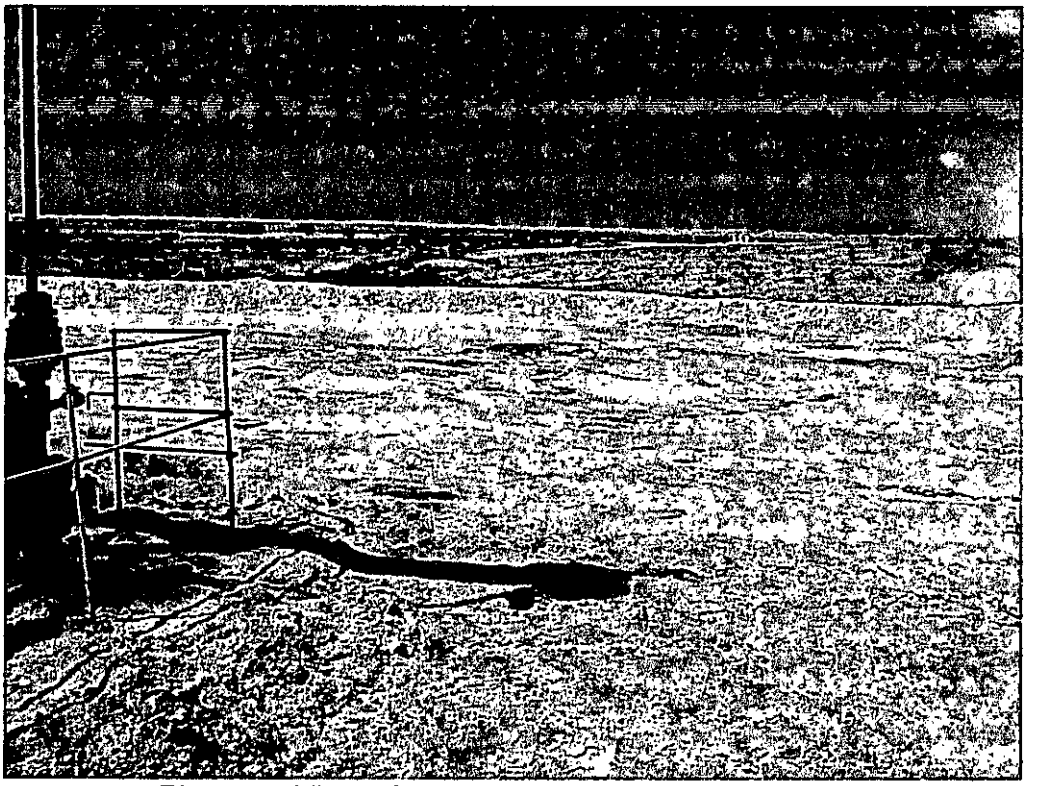


Photo 1. View of the release area on the well pad.

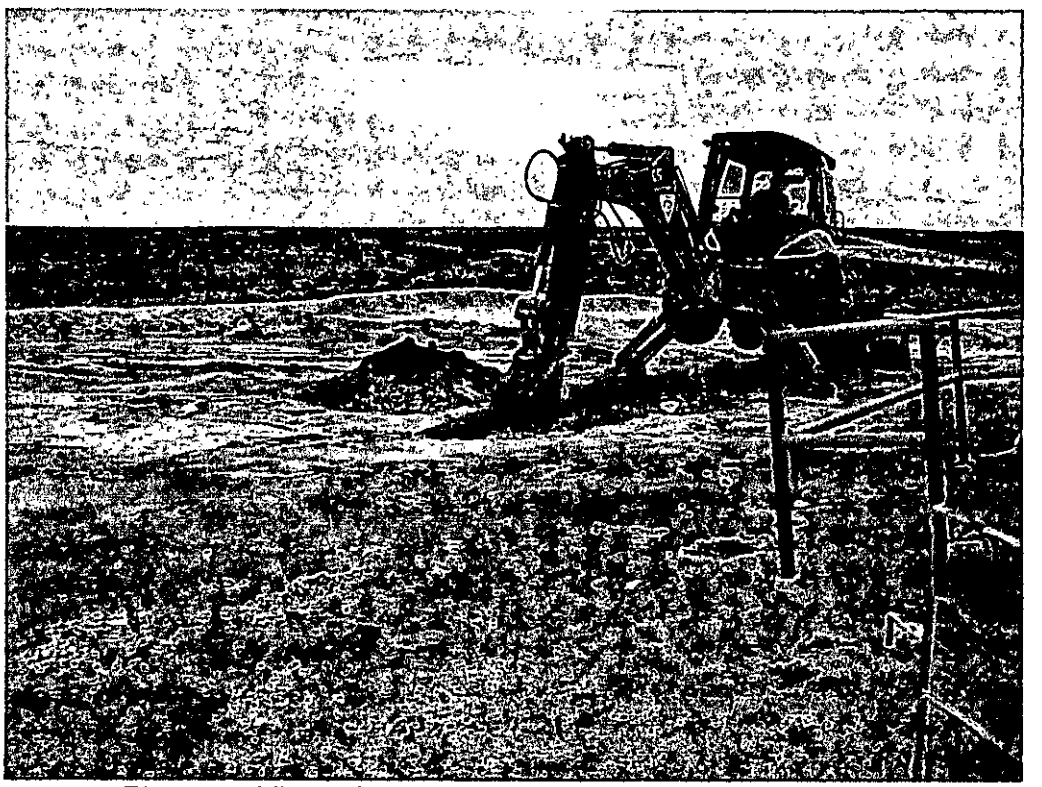


Photo 2. View of the backhoe trench #1 being installed.

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

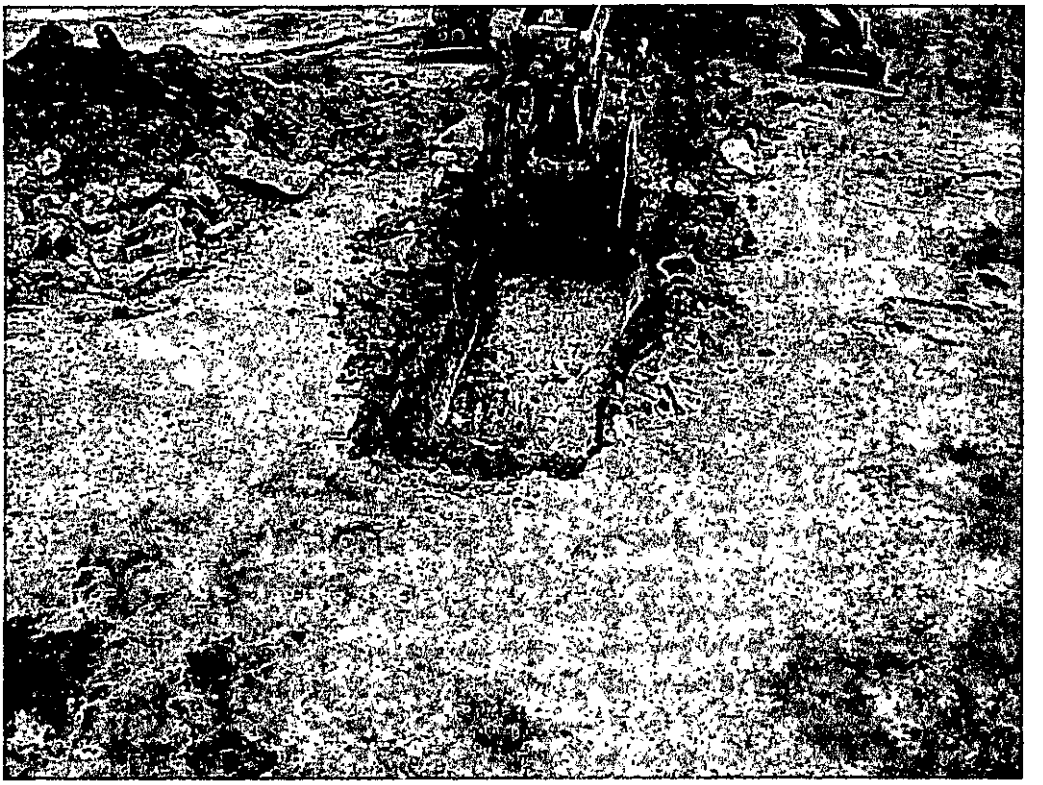


Photo 3. View of the backhoe trench #1.

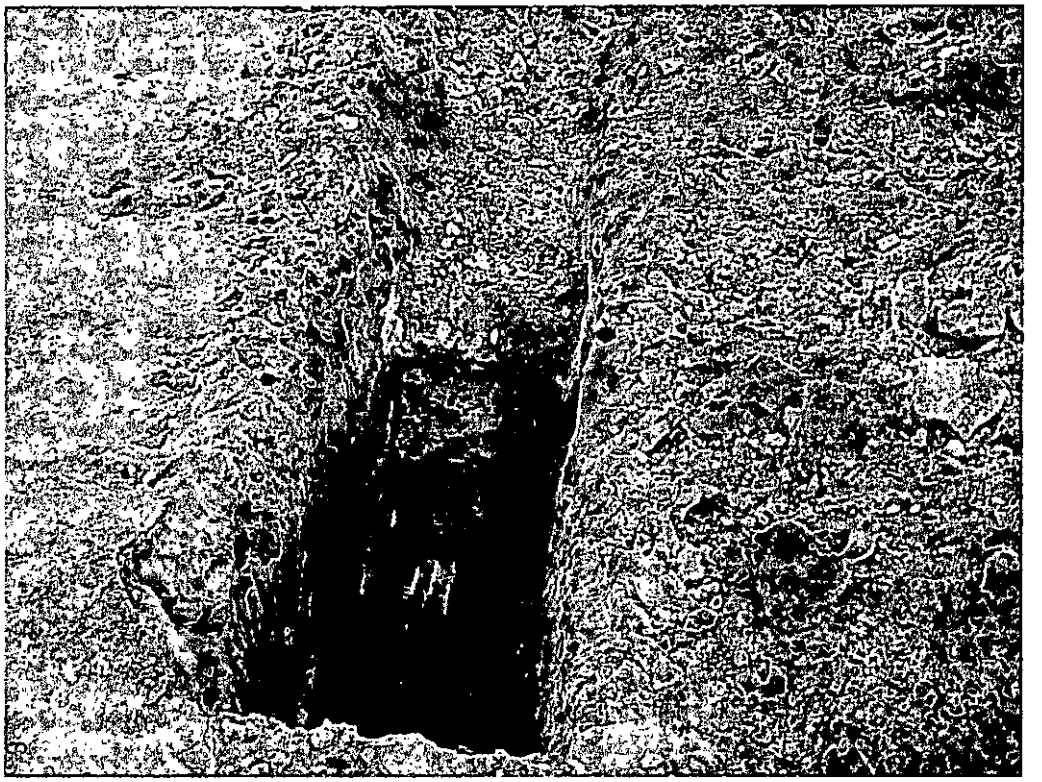


Photo 4. View of the backhoe trench#2.

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

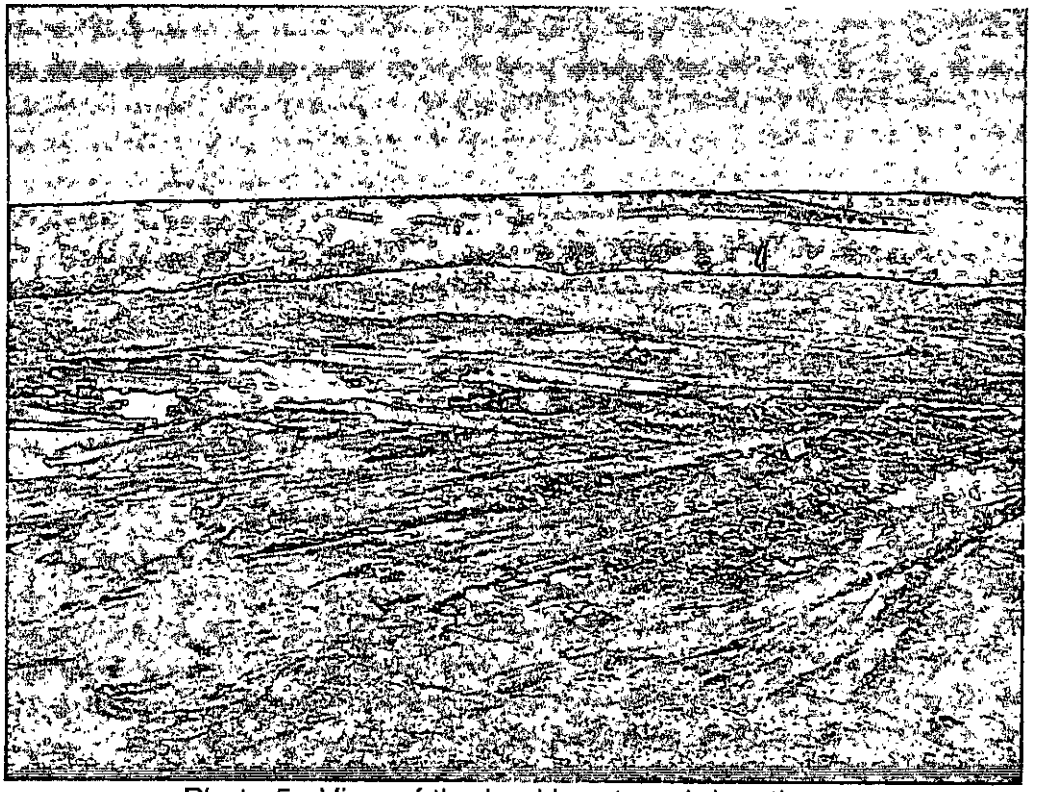


Photo 5. View of the backhoe trench locations.

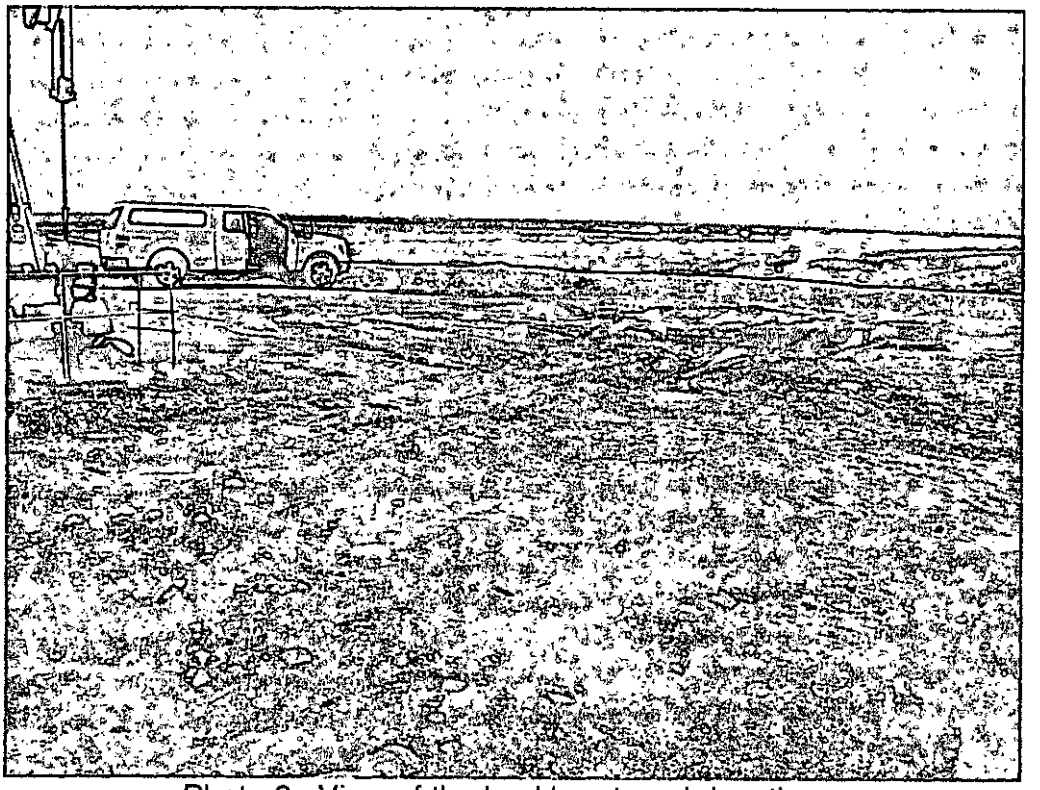


Photo 6. View of the backhoe trench locations.

Appendix A

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

RECEIVED
JUN 14 2012
NMOCD ARTESIA

Form C-141
Revised August 8, 2011

Submit to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nJMW1217347760 OGRID# 27184 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 WELL

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 32.7723 Longitude -104.32915

NATURE OF RELEASE

Type of Release: Oil and Water	Volume of Release: EST 3 bbls Oil, 11 bbls Water	Volume Recovered: 2 bbls Oil
Source of Release: Backside casing valve.	Date and Hour of Occurrence: Unknown	Date and Hour of Discovery 6/14/2012
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Stewart	
By Whom? Jennifer Van Curen, BLM	Date and Hour 6/14/2012	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken *

Cause of problem: Discharge from backside casing valve.
Remedial Action Taken: Vacuum trucks dispatched to suck up standing fluid.

Describe Area Affected and Cleanup Action Taken.*

Localized area around wellsite, vacuum trucks picked up 2 bbls of standing oil. Scraping and proper disposal of remaining fluid.

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: Tom Fulvi	OIL CONSERVATION DIVISION
Printed Name: TOM FULVI	Approved by Environmental Specialist: Signed By Mike Bratcher
Title: REGULATORY AFFAIRS COORDINATOR	Approval Date: JUN 21 2012 Expiration Date:
E-mail Address: tfulvi@alamoresources.com	Conditions of Approval: Attached ☐
Date: 06/14/2012 Phone: 432 664 7659	

* Attach Additional Sheets If Necessary

2RP-1184

Remediation per OCD Rules & Guidelines. SUBMIT REMEDIATION PROPOSAL NOT LATER THAN: 7/21/12

Appendix B

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

17 South 25 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South 26 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South 27 East

6	5 30	4	3	2
7 14	8	9	10	11 54 50
18 86	17 283	16 194	15	14
19	20	21	22	23 40
30	29	28	27	26
31	32 120	33	34	35

18 South 25 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Artesia

18 South 26 East

6	5	4	3	2	1 SITE
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 27 East

6	5	4	3	2
7	8	9	10	11
18	17	16	15	14
19	20	21	22	23
30	29	28	27	26
31	32	33	34	35

19 South 25 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

19 South 26 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

19 South 27 East

6	5 20	4	3	2
7	8 50	9	10	11
18	17	16 18	15	1482.4 107.7
19	20	21	22	23
30	29	28	27	26
31	32	33	34	35

- 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 5, 2012

Work Order: 12082602

Project Location: Eddy Co., NM
Project Name: Alamo/Empire J Fed. #3
Project Number: 114-6401486

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
307668	T-1 (0-1')	soil	2012-08-23	00:00	2012-08-24
307669	T-1 (2')	soil	2012-08-23	00:00	2012-08-24
307670	T-2 (0-1')	soil	2012-08-23	00:00	2012-08-24
307671	T-2 (2')	soil	2012-08-23	00:00	2012-08-24
307672	T-2 (4')	soil	2012-08-23	00:00	2012-08-24
307673	T-2 (6')	soil	2012-08-23	00:00	2012-08-24
307931	T-2 (8')	soil	2012-08-23	00:00	2012-08-24

	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)
307668 - T-1 (0-1')	<0.0200	<0.0200	<0.0200	**0.0282**	<50.0	<4.00 Qs
307670 - T-2 (0-1')	<0.0200	<0.0200	<0.0200	<0.0200	**184**	<4.00 Qs
307671 - T-2 (2')					<50.0	<4.00 Qr

Sample: 307668 - T-1 (0-1')

Param	Flag	Result	Units	RL
Chloride		**21000**	mg/Kg	4

Sample: 307669 - T-1 (2')

Param	Flag	Result	Units	RL
Chloride		**1830**	mg/Kg	4

Sample: 307670 - T-2 (0-1')

Param	Flag	Result	Units	RL
Chloride		**7950**	mg/Kg	4

Sample: 307671 - T-2 (2')

Param	Flag	Result	Units	RL
Chloride		**980**	mg/Kg	4

Sample: 307672 - T-2 (4')

Param	Flag	Result	Units	RL
Chloride		**764**	mg/Kg	4

Sample: 307673 - T-2 (6')

Param	Flag	Result	Units	RL
Chloride		**586**	mg/Kg	4

Sample: 307931 - T-2 (8')

Param	Flag	Result	Units	RL
Chloride		**299**	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 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.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 5, 2012

Work Order: 12082602

Project Location: Eddy Co., NM
Project Name: Alamo/Empire J Fed. #3
Project Number: 114-6401486

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
307668	T-1 (0-1')	soil	2012-08-23	00:00	2012-08-24
307669	T-1 (2')	soil	2012-08-23	00:00	2012-08-24
307670	T-2 (0-1')	soil	2012-08-23	00:00	2012-08-24
307671	T-2 (2')	soil	2012-08-23	00:00	2012-08-24
307672	T-2 (4')	soil	2012-08-23	00:00	2012-08-24
307673	T-2 (6')	soil	2012-08-23	00:00	2012-08-24
307931	T-2 (8')	soil	2012-08-23	00:00	2012-08-24

Notes

- **Work Order 12082602:** Tetra Tech!!

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/Empire J Fed. #3 were received by TraceAnalysis, Inc. on 2012-08-24 and assigned to work order 12082602. Samples for work order 12082602 were received intact at a temperature of 3.5 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	79947	2012-08-29 at 12:20	94344	2012-08-29 at 14:30
Chloride (Titration)	SM 4500-Cl B	79924	2012-08-28 at 08:37	94375	2012-08-29 at 12:24
Chloride (Titration)	SM 4500-Cl B	80060	2012-09-04 at 10:00	94507	2012-09-05 at 14:36
TPH DRO - NEW	S 8015 D	79963	2012-08-29 at 10:30	94362	2012-08-29 at 10:51
TPH DRO - NEW	S 8015 D	80040	2012-08-31 at 16:30	94452	2012-08-31 at 16:51
TPH GRO	S 8015 D	79947	2012-08-29 at 12:20	94345	2012-08-28 at 14:20
TPH GRO	S 8015 D	79999	2012-08-30 at 07:22	94407	2012-08-30 at 07:22

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 12082602 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: 307668 - T-1 (0-1')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94344	Date Analyzed:	2012-08-29	Analyzed By:	JS
Prep Batch:	79947	Sample Preparation:	2012-08-29	Prepared By:	JS

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		1	<0.0200	mg/Kg	1	0.0200
Xylene		1	**0.0282**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.74	mg/Kg	1	2.00	87	70 - 130
4-Bromofluorobenzene (4-BFB)			1.82	mg/Kg	1	2.00	91	70 - 130

Sample: 307668 - T-1 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94375	Date Analyzed:	2012-08-29	Analyzed By:	AR
Prep Batch:	79924	Sample Preparation:	2012-08-28	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**21000**	mg/Kg	10	4.00

Sample: 307668 - T-1 (0-1')

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94362	Date Analyzed:	2012-08-29	Analyzed By:	DS
Prep Batch:	79963	Sample Preparation:	2012-08-29	Prepared By:	DS

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			123	mg/Kg	1	100	123	70 - 130

Sample: 307668 - T-1 (0-1')

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	94345	Date Analyzed:	2012-08-28	Analyzed By:	JS
Prep Batch:	79947	Sample Preparation:	2012-08-29	Prepared By:	JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q=	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.70	mg/Kg	1	2.00	85	70 - 130
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	70 - 130

Sample: 307669 - T-1 (2')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94375	Date Analyzed:	2012-08-29	Analyzed By:	AR
Prep Batch:	79924	Sample Preparation:	2012-08-28	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1830**	mg/Kg	10	4.00

Sample: 307670 - T-2 (0-1')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94344	Date Analyzed:	2012-08-29	Analyzed By:	JS
Prep Batch:	79947	Sample Preparation:	2012-08-29	Prepared By:	JS

continued ...

sample 307670 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

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)			1.61	mg/Kg	1	2.00	80	70 - 130
4-Bromofluorobenzene (4-BFB)			1.87	mg/Kg	1	2.00	94	70 - 130

Sample: 307670 - T-2 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94375	Date Analyzed:	2012-08-29	Analyzed By:	AR
Prep Batch:	79924	Sample Preparation:	2012-08-28	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7950**	mg/Kg	10	4.00

Sample: 307670 - T-2 (0-1')

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94362	Date Analyzed:	2012-08-29	Analyzed By:	DS
Prep Batch:	79963	Sample Preparation:	2012-08-29	Prepared By:	DS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**184**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qar	Qar	133	mg/Kg	1	100	133	70 - 130

Sample: 307670 - T-2 (0-1')

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	94345	Date Analyzed:	2012-08-28	Analyzed By:	JS
Prep Batch:	79947	Sample Preparation:	2012-08-29	Prepared By:	JS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.57	mg/Kg	1	2.00	78	70 - 130
4-Bromofluorobenzene (4-BFB)			1.97	mg/Kg	1	2.00	98	70 - 130

Sample: 307671 - T-2 (2')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94375	Date Analyzed:	2012-08-29	Analyzed By:	AR
Prep Batch:	79924	Sample Preparation:	2012-08-28	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**980**	mg/Kg	5	4.00

Sample: 307671 - T-2 (2')

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94452	Date Analyzed:	2012-08-31	Analyzed By:	DS
Prep Batch:	80040	Sample Preparation:	2012-08-31	Prepared By:	DS

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			117	mg/Kg	1	100	117	70 - 130

Sample: 307671 - T-2 (2')

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	94407	Date Analyzed:	2012-08-30	Analyzed By:	MT
Prep Batch:	79999	Sample Preparation:	2012-08-30	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	QR,U	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.77	mg/Kg	1	2.00	88	70 - 130
4-Bromofluorobenzene (4-BFB)			2.05	mg/Kg	1	2.00	102	70 - 130

Sample: 307672 - T-2 (4')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94375	Date Analyzed:	2012-08-29	Analyzed By:	AR
Prep Batch:	79924	Sample Preparation:	2012-08-28	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**764**	mg/Kg	5	4.00

Sample: 307673 - T-2 (6')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94375	Date Analyzed:	2012-08-29	Analyzed By:	AR
Prep Batch:	79924	Sample Preparation:	2012-08-28	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**586**	mg/Kg	5	4.00

Sample: 307931 - T-2 (8')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94507	Date Analyzed:	2012-09-05	Analyzed By:	AR
Prep Batch:	80060	Sample Preparation:	2012-09-05	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**299**	mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 94344

QC Batch: 94344 | Date Analyzed: 2012-08-29 | Analyzed By: JS
Prep Batch: 79947 | QC Preparation: 2012-08-29 | Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00365	mg/Kg	0.02
Toluene		1	<0.00816	mg/Kg	0.02
Ethylbenzene		1	<0.00560	mg/Kg	0.02
Xylene		1	<0.00460	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.71	mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)			1.66	mg/Kg	1	2.00	83	70 - 130

Method Blank (1) QC Batch: 94345

QC Batch: 94345 | Date Analyzed: 2012-08-28 | Analyzed By: JS
Prep Batch: 79947 | QC Preparation: 2012-08-29 | Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.359	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.94	mg/Kg	1	2.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70 - 130

Method Blank (1) QC Batch: 94362

QC Batch: 94362 | Date Analyzed: 2012-08-29 | Analyzed By: DS
Prep Batch: 79963 | QC Preparation: 2012-08-29 | Prepared By: DS

Parameter	Flag	Cert	MDL Result	Units	RL
DRO			<15.3	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			108	mg/Kg	1	100	108	70 - 130

Method Blank (1) QC Batch: 94375

QC Batch:	94375	Date Analyzed:	2012-08-29	Analyzed By:	AR
Prep Batch:	79924	QC Preparation:	2012-08-28	Prepared By:	AR

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

Method Blank (1) QC Batch: 94407

QC Batch:	94407	Date Analyzed:	2012-08-30	Analyzed By:	MT
Prep Batch:	79999	QC Preparation:	2012-08-30	Prepared By:	MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO			<0.359	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.92	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70 - 130

Method Blank (1) QC Batch: 94452

QC Batch:	94452	Date Analyzed:	2012-08-31	Analyzed By:	DS
Prep Batch:	80040	QC Preparation:	2012-08-31	Prepared By:	DS

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<15.3	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			116	mg/Kg	1	100	116	70 - 130

Method Blank (1) QC Batch: 94507

QC Batch:	94507	Date Analyzed:	2012-09-05	Analyzed By:	AR
Prep Batch:	80060	QC Preparation:	2012-09-04	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: 94344 | Date Analyzed: 2012-08-29 | Analyzed By: JS
Prep Batch: 79947 | QC Preparation: 2012-08-29 | Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.87	mg/Kg	1	2.00	<0.00365	94	75.4 - 120
Toluene		1	1.84	mg/Kg	1	2.00	<0.00816	92	74.9 - 120
Ethylbenzene		1	1.82	mg/Kg	1	2.00	<0.00560	91	78.1 - 120
Xylene		1	5.52	mg/Kg	1	6.00	<0.00460	92	77.3 - 120

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	1.88	mg/Kg	1	2.00	<0.00365	94	75.4 - 120	0	20
Toluene		1	1.87	mg/Kg	1	2.00	<0.00816	94	74.9 - 120	2	20
Ethylbenzene		1	1.86	mg/Kg	1	2.00	<0.00560	93	78.1 - 120	2	20
Xylene		1	5.64	mg/Kg	1	6.00	<0.00460	94	77.3 - 120	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)	1.72	1.74	mg/Kg	1	2.00	86	87	70 - 130
4-Bromofluorobenzene (4-BFB)	1.71	1.71	mg/Kg	1	2.00	86	86	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94345 | Date Analyzed: 2012-08-28 | Analyzed By: JS
Prep Batch: 79947 | QC Preparation: 2012-08-29 | Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.7	mg/Kg	1	20.0	<0.359	88	68.9 - 120

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	17.1	mg/Kg	1	20.0	<0.359	86	68.9 - 120	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)	1.62	1.49	mg/Kg	1	2.00	81	74	70 - 130
4-Bromofluorobenzene (4-BFB)	1.90	1.75	mg/Kg	1	2.00	95	88	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94362 | Date Analyzed: 2012-08-29 | Analyzed By: DS
Prep Batch: 79963 | QC Preparation: 2012-08-29 | Prepared By: DS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	270	mg/Kg	1	250	<15.3	108	70 - 130

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	224	mg/Kg	1	250	<15.3	90	70 - 130	19	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	120	94.2	mg/Kg	1	100	120	94	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94375 | Date Analyzed: 2012-08-29 | Analyzed By: AR
Prep Batch: 79924 | QC Preparation: 2012-08-28 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2610	mg/Kg	1	2500	<3.85	104	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			2660	mg/Kg	1	2500	<3.85	106	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 94407 | Date Analyzed: 2012-08-30 | Analyzed By: MT
Prep Batch: 79999 | QC Preparation: 2012-08-30 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.7	mg/Kg	1	20.0	<0.359	84	68.9 - 120

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	16.2	mg/Kg	1	20.0	<0.359	81	68.9 - 120	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)	1.63	1.62	mg/Kg	1	2.00	82	81	70 - 130
4-Bromofluorobenzene (4-BFB)	1.87	1.83	mg/Kg	1	2.00	94	92	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94452 | Date Analyzed: 2012-08-31 | Analyzed By: DS
Prep Batch: 80040 | QC Preparation: 2012-08-31 | Prepared By: DS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	288	mg/Kg	1	250	<15.3	115	70 - 130

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	309	mg/Kg	1	250	<15.3	124	70 - 130	7	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	113	125	mg/Kg	1	100	113	125	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94507 | Date Analyzed: 2012-09-05 | Analyzed By: AR
Prep Batch: 80060 | QC Preparation: 2012-09-04 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2690	mg/Kg	1	2500	<3.85	108	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			2590	mg/Kg	1	2500	<3.85	104	85 - 115	4	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: 307134

QC Batch: 94344 | Date Analyzed: 2012-08-29 | Analyzed By: JS
Prep Batch: 79947 | QC Preparation: 2012-08-29 | Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.72	mg/Kg	1	2.00	<0.00365	86	37.6 - 142
Toluene		1	1.84	mg/Kg	1	2.00	0.0178	91	38.6 - 153
Ethylbenzene		1	1.91	mg/Kg	1	2.00	<0.00560	96	36.7 - 172
Xylene		1	5.79	mg/Kg	1	6.00	0.0116	96	36.7 - 173

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	1.72	mg/Kg	1	2.00	<0.00365	86	37.6 - 142	0	20
Toluene		1	1.87	mg/Kg	1	2.00	0.0178	93	38.6 - 153	2	20
Ethylbenzene		1	1.93	mg/Kg	1	2.00	<0.00560	96	36.7 - 172	1	20
Xylene		1	5.87	mg/Kg	1	6.00	0.0116	98	36.7 - 173	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)	1.69	1.68	mg/Kg	1	2	84	84	70 - 130
4-Bromofluorobenzene (4-BFB)	1.71	1.70	mg/Kg	1	2	86	85	70 - 130

Matrix Spike (MS-1) Spiked Sample: 307134

QC Batch: 94345 | Date Analyzed: 2012-08-28 | Analyzed By: JS
Prep Batch: 79947 | QC Preparation: 2012-08-29 | Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Qs	Qs	16.1	mg/Kg	1	20.0	3.02	65	68.9 - 120

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			19.0	mg/Kg	1	20.0	3.02	80	68.9 - 120	16	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)	1.53	1.61	mg/Kg	1	2	76	80	70 - 130
4-Bromofluorobenzene (4-BFB)	1.86	1.90	mg/Kg	1	2	93	95	70 - 130

Matrix Spike (MS-1) Spiked Sample: 308022

QC Batch: 94362 | Date Analyzed: 2012-08-29 | Analyzed By: DS
Prep Batch: 79963 | QC Preparation: 2012-08-29 | Prepared By: DS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO			245	mg/Kg	1	250	<15.3	98	70 - 130

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			238	mg/Kg	1	250	<15.3	95	70 - 130	3	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	104	106	mg/Kg	1	100	104	106	70 - 130

Matrix Spike (MS-1) Spiked Sample: 307673

QC Batch: 94375 | Date Analyzed: 2012-08-29 | Analyzed By: AR
Prep Batch: 79924 | QC Preparation: 2012-08-28 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3150	mg/Kg	5	2500	586	102	78.9 - 121

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			3260	mg/Kg	5	2500	586	107	78.9 - 121	3	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: 307689

QC Batch: 94407 | Date Analyzed: 2012-08-30 | Analyzed By: MT
Prep Batch: 79999 | QC Preparation: 2012-08-30 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.8	mg/Kg	1	20.0	<0.359	89	68.9 - 120

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	Qr	Qr 1	23.1	mg/Kg	1	20.0	<0.359	116	68.9 - 120	26	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)	1.90	4.32	mg/Kg	1	2	95	216	70 - 130
4-Bromofluorobenzene (4-BFB)	2.19	4.38	mg/Kg	1	2	110	219	70 - 130

Matrix Spike (MS-1) Spiked Sample: 307671

QC Batch: 94452 | Date Analyzed: 2012-08-31 | Analyzed By: DS
Prep Batch: 80040 | QC Preparation: 2012-08-31 | Prepared By: DS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO			250	mg/Kg	1	250	<15.3	100	70 - 130

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			304	mg/Kg	1	250	<15.3	122	70 - 130	20	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	144	mg/Kg	1	100	116	144	70 - 130

Matrix Spike (MS-1) Spiked Sample: 307898

QC Batch: 94507 | Date Analyzed: 2012-09-05 | Analyzed By: AR
Prep Batch: 80060 | QC Preparation: 2012-09-04 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2600	mg/Kg	5	2500	299	92	78.9 - 121

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			2670	mg/Kg	5	2500	299	95	78.9 - 121	3	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: 94344 | Date Analyzed: 2012-08-29 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0922	92	80 - 120	2012-08-29
Toluene		1	mg/kg	0.100	0.0914	91	80 - 120	2012-08-29
Ethylbenzene		1	mg/kg	0.100	0.0910	91	80 - 120	2012-08-29
Xylene		1	mg/kg	0.300	0.275	92	80 - 120	2012-08-29

Standard (CCV-2)

QC Batch: 94344 | Date Analyzed: 2012-08-29 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0937	94	80 - 120	2012-08-29
Toluene		1	mg/kg	0.100	0.0915	92	80 - 120	2012-08-29
Ethylbenzene		1	mg/kg	0.100	0.0908	91	80 - 120	2012-08-29
Xylene		1	mg/kg	0.300	0.277	92	80 - 120	2012-08-29

Standard (CCV-3)

QC Batch: 94344 | Date Analyzed: 2012-08-29 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0850	85	80 - 120	2012-08-29
Toluene		1	mg/kg	0.100	0.0822	82	80 - 120	2012-08-29
Ethylbenzene		1	mg/kg	0.100	0.0811	81	80 - 120	2012-08-29
Xylene		1	mg/kg	0.300	0.248	83	80 - 120	2012-08-29

Standard (CCV-1)

QC Batch: 94345 | Date Analyzed: 2012-08-28 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.891	89	80 - 120	2012-08-28

Standard (CCV-2)

QC Batch: 94345 | Date Analyzed: 2012-08-28 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.956	96	80 - 120	2012-08-28

Standard (CCV-3)

QC Batch: 94345 | Date Analyzed: 2012-08-28 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.924	92	80 - 120	2012-08-28

Standard (CCV-1)

QC Batch: 94362 | Date Analyzed: 2012-08-29 | Analyzed By: DS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	219	88	80 - 120	2012-08-29

Standard (CCV-2)

QC Batch: 94362 | Date Analyzed: 2012-08-29 | Analyzed By: DS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	236	94	80 - 120	2012-08-29

Standard (CCV-3)

QC Batch: 94362 Date Analyzed: 2012-08-29 Analyzed By: DS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	247	99	80 - 120	2012-08-29

Standard (CCV-1)

QC Batch: 94375 Date Analyzed: 2012-08-29 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	101	101	85 - 115	2012-08-29

Standard (CCV-2)

QC Batch: 94375 Date Analyzed: 2012-08-29 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	99.5	100	85 - 115	2012-08-29

Standard (CCV-1)

QC Batch: 94407 Date Analyzed: 2012-08-30 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.09	109	80 - 120	2012-08-30

Standard (CCV-2)

QC Batch: 94407 Date Analyzed: 2012-08-30 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.827	83	80 - 120	2012-08-30

Standard (CCV-3)

QC Batch: 94407 Date Analyzed: 2012-08-30 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.942	94	80 - 120	2012-08-30

Standard (CCV-1)

QC Batch: 94452 Date Analyzed: 2012-08-31 Analyzed By: DS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	280	112	80 - 120	2012-08-31

Standard (CCV-2)

QC Batch: 94452 Date Analyzed: 2012-08-31 Analyzed By: DS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO			mg/Kg	250	298	119	80 - 120	2012-08-31

Standard (CCV-3)

QC Batch: 94452 Date Analyzed: 2012-08-31 Analyzed By: DS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO			mg/Kg	250	295	118	80 - 120	2012-08-31

Standard (CCV-1)

QC Batch: 94507 Date Analyzed: 2012-09-05 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	99.6	100	85 - 115	2012-09-05

Standard (CCV-2)

QC Batch: 94507 Date Analyzed: 2012-09-05 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	100	100	85 - 115	2012-09-05

Appendix

Report Definitions

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

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	T104704219-12-8	Lubbock

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.

Tarbaby

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 Permian

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-640148G

PROJECT NAME: Empire J Fed #3 Eddy Co NM

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 TX1005 (Ext. to C35)	TPH 1005 MOD.	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
307668	8-23		S	X		T-1 (0-1')	1	N			X	X	X	X												X				
307669	"				X	T-1 (2')	"	"			"	"														X				
307670	"			X		T-2 (0-1')	"	"			"	"	X	X												X				
307671	"				X	T-2 (2')	"	"			"	"														X				
307672	"				X	T-2 (4')	"	"			"	"														X				
307673	8-23		S		X	T-2 (6')	1	N			X	X														X				
307931	8-23		S		X	T-2 (8')	1	N			X	X														X				

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature)	Date: 8-24-12 Time: 0900	RECEIVED BY: (Signature)	Date: 8-24-12 Time: 1330
RELINQUISHED BY: (Signature)	Date: 8-24-12 Time: 1410	RECEIVED BY: (Signature)	Date: 8/24/12 Time: 14:10
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:

SAMPLED BY: (Print & Initial) James — Date: 8-23-12 Time:

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

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

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

SAMPLE CONDITION WHEN RECEIVED: 3.5

REMARKS: *If TPH > 100 mg/kg Run deeper sample, If Benzene > 10 mg/kg Run deeper Sample
If Total BTEX > 50 mg/kg Run deeper Sample.

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

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: Alamo Permian
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-64014B6
PROJECT NAME: Empire J Fed #3 Eddy Co NM

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH TX1005 (Ext. to C35)	TPH 8015 Mod.	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
307668	8-23		S	X		T-1 (0-1')	1	N			X	X	X	X												X				
307669					X	T-1 (2')																				X				
307670				X		T-2 (0-1')							X	X												X				
307671					X	T-2 (2')																				X				
307672					X	T-2 (4')																				X				
307673	8-23		S	X		T-2 (6')	1	N			X	X														X				
307931	8-23		S	X		T-2 (8')	1	N			X	X														X				

RELINQUISHED BY: (Signature) Date: 8-23-12 Time: 0900
RECEIVED BY: (Signature) Date: 8-24-12 Time: 1330
SAMPLED BY: (Print & Initial) James Date: 8-23-12 Time:

RELINQUISHED BY: (Signature) Date: 8-24-12 Time: 1410
RECEIVED BY: (Signature) Date: 8/24/12 Time: 14:10
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: Trace
ADDRESS:
CITY: Midland STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Brent Ward LSZP054258
DATE: 8/28/12 TIME: 9:15
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.5

REMARKS: *If TPH > 100 mg/kg Run deeper sample, If Benzene > 10 mg/kg Run deeper Sample
If Total BTEX > 50 mg/kg R...

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

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: Alamo Permian

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6401486

PROJECT NAME: Empire J Fed #3 Eddy Co NM

LAB I.D. NUMBER	DATE 2012	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
307668	8-23		S	X		T-1 (0-1')	1	N			X	X	X	X											X				
307669	"		"		X	T-1 (2')	"	"			"	"													X				
307670	"		"	X		T-2 (0-1')	"	"			"	"	X	X											X				
307671	"		"		X	T-2 (2')	"	"			"	"		X											X				
307672	"		"		X	T-2 (4')	"	"			"	"													X				
307673	8-23		S		X	T-2 (6')	1	N			X	X													X				
307931	8-23		S		X	T-2 (8')	1	N			X	X													X				

RELINQUISHED BY: (Signature) Date: 8-24-12 Time: 0900
RECEIVED BY: (Signature) Date: 8.24.12 Time: 1330

RELINQUISHED BY: (Signature) Date: 8-24-12 Time: 1410
RECEIVED BY: (Signature) Date: 8/24/12 Time: 14:10

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

SAMPLED BY (Print & Initial): James Date: 8-23-12 Time:

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

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) Brenda Ward 25ZP054258
DATE: 8/28/12 TIME: 9:15

TETRA TECH CONTACT PERSON: IKE Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.5

REMARKS: *If TPH > 100 mg/kg Run deeper sample, If Benzene > 10 mg/kg Run deeper Sample

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

If Total BTEX > 50 mg/kg Run deeper Sample.