Bratcher, Mike, EMNRD

From: Kennedy, James <James.Kennedy@tetratech.com>
Sent: Monday, February 18, 2013 12:45 PM
To: Bratcher, Mike, EMNRD
Cc: hlamb@helmsoil.com; Tavarez, Ike
Subject: Alamo Permian Resources- Drilling Notification 2-18-13

Mr. Bratcher,
Tetra Tech will be onsite to install and sample bore holes on the following sites for Alamo, on the following dates:

WAGU #18 - Tuesday, February 19, 2013 to Wednesday, February 20, 2013
Artesia State #901-Wednesday, February 20, 2013 to Thursday, February 21, 2013
State #32 Tank Battery -Thursday, February 21, 2003
Cowtown Tank Battery –Friday, February 22, 2013

Please contact me with any questions or concerns.

Regards,
James F. Kennedy

James F. Kennedy | Senior Staff Professional
Main: 432.682.4559 | Cell: 432.258.3451 | Fax: 432.682.3946
james.kennedy@tetratech.com

Tetra Tech
1910 N. Big Spring | Midland, TX 79705 | www.tetratech.com

SITE INFORMATION

Report Type: Work Plan 2RP-1069 & 2RP-834

General Site Information:						
Site:	State 32 Tank Battery					
Company:	Alamo Permian Resources, LLC.					
Section, Township and Range	Section 32	T17S	R28E	Unit J		
Lease Number:	API-30-015-00169					
County:	Eddy County					
GPS:	32.79022° N 104.19531° W					
Surface Owner:	State					
Mineral Owner:						
Directions:	From intersection of Highway 82 and Illinios Camp Road, go south 0.3 miles on Illinios Camp Road (CR 206), turn left (east) into lease road and go 0.1 miles and turn right (south), go 0.1 miles to tank battery					

Release Data:			
Date Released:	6/26/2011	3/15/2012	
Type Release:	crude oil	crude oil	
Source of Contamination:	hole in tank	hole in tank	
Fluid Released:	53 barrels	130 barrels	
Fluids Recovered:	3 barrels	52.5 barrels	

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JUN 24 2013
NMOCD ARTESIA

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**	**>100**
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:	**0**	

Acceptable Soil RRAL (mg/kg)		
Benzene	***Total BTEX***	***TPH***
10	50	5,000

TETRA TECH

May 5, 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., State 32 Tank Battery, Unit J, Section 32, Township 17 South, Range 28 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by Alamo Permian Resources, LLC., (Alamo) to assess spills from the State 32 Tank Battery, Unit J, Section 32, Township 17 South, Range 28 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.79022°, W 104.19531°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on June 27, 2011, and released approximately fifty-three (53) barrels of crude oil due to a failure in the nipple on the rear drain line of the tank. The spill was contained inside the facility berms and approximately 3 barrels of oil was recovered. Before the release could be evaluated, another release occurred on March 15, 2012, and released approximately one hundred and thirty (130) barrels of crude oil due to a hole in the oil tank. The spill was contained inside the facility berms and overlapped the previous spill. Approximately 52.5 barrels of oil was recovered. The C-141 forms are enclosed in Appendix A.

Groundwater

According to the USGS data, one well is located in Section 22, Township 17 South, Range 28 East, with a reported groundwater depth of 79' below surface. According to the NMOCD groundwater map and data,

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

the groundwater depth in the area is approximately 125' below surface. The closest wells are located in Section 19, Township 17 South, Range 28 East and Section 4, Township 18 South, Range 28 East, with reported depths of 191' and 108', respectively. The groundwater data is shown in Appendix B.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX. Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Assessment Work Plan

On August 16, 2012, Tetra Tech personnel inspected and sampled the spill area. Two (2) 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, the trench samples showed TPH and BTEX samples above the RRAL. In the area of T-1, the TPH and Total BTEX concentrations declined below the RRAL at 4.0' and 6.0', respectively. Trench (T-2) showed a shallow hydrocarbon impact declining below the RRAL at 2.0' below surface.

Elevated chloride concentrations were detected in T-1 and T-2 from surface to a depth of 10.0' below surface. Deeper samples were not collected due to the dense caliche formation. The chloride impact was not vertically defined.

TETRA TECH

On February 20, 2013, Tetra Tech personnel supervised the installation of boreholes (BH-1 and BH-2) utilizing an air rotary drilling rig to define the vertical extents. The soil borings were installed to a total depth of 25.0' for BH-1 (T-1) and 40.0' for BH-2 (T-2). The sampling results are summarized in Table 1. Referring to Table 1, chloride concentrations decreased with depth and were vertically defined. Borehole (BH-1) did not show a significant chloride impact to the subsurface soils and appears to have concentrations confined to the area of T-1. Borehole (BH-2) did show a deeper impact to the subsurface soils to a depth of approximately 30.0' below surface, but declined with depth at 35.0' below surface to 234 mg/kg.

Proposed Work Plan

Alamo proposes to excavate the soils exceeding the RRAL and the elevated chloride concentrations. The proposed areas are highlighted (green) in Table 1 and shown on Figure 4. To eliminate safety risk to the tanks and equipment at the facility, the areas of T-1 and T- 2 will be excavated to a maximum depth of approximately 3.0' to 4.0' below surface. Once excavated to the appropriate depth, a 40 mil plastic liner, or clay liner will be placed in the excavation bottom (3.0' to 4.0') in the area of T-2 to cap the area the remaining impact soils. Once excavated to the appropriate depth, 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. The impacted soils that cannot be removed will be deferred until final abandonment.

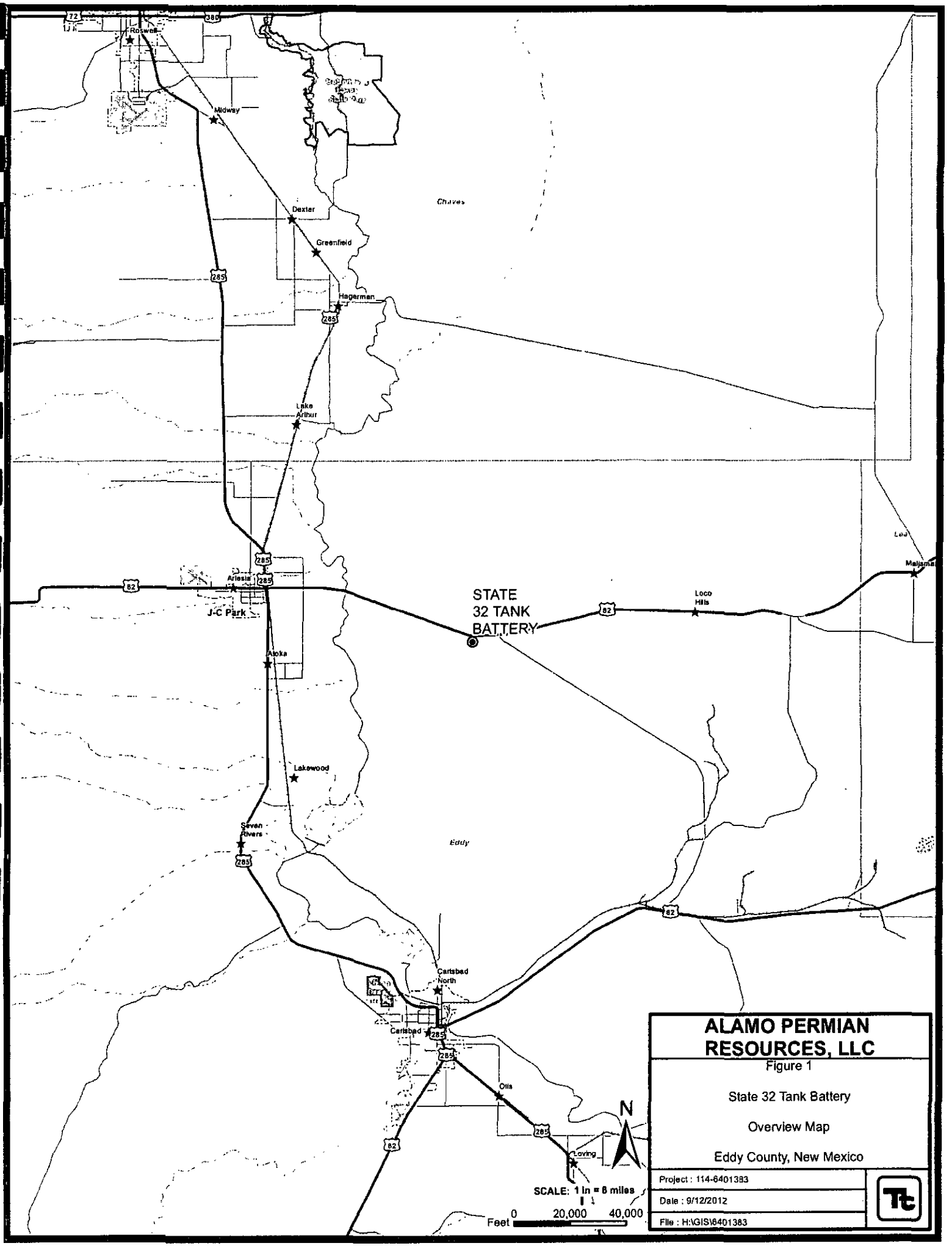
Upon completion, a final closure report will be submitted to the NMOCD. If you have any questions or comments concerning the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

James F. Kennedy
Sr. Staff Professional

cc: Helms Oil – Hollie Lamb

Figures



ALAMO PERMIAN RESOURCES, LLC

Figure 1

State 32 Tank Battery

Overview Map

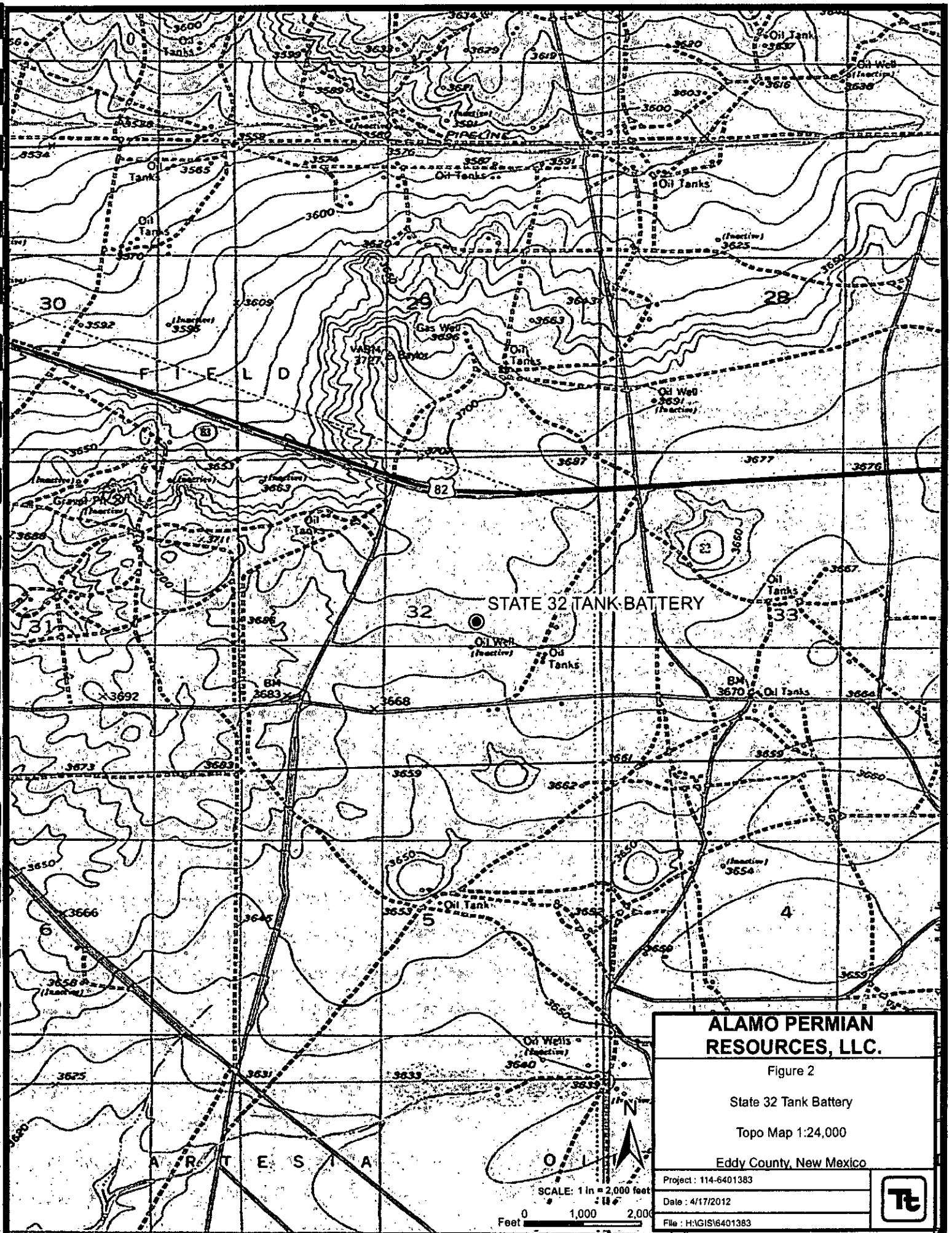
Eddy County, New Mexico

Project : 114-6401383

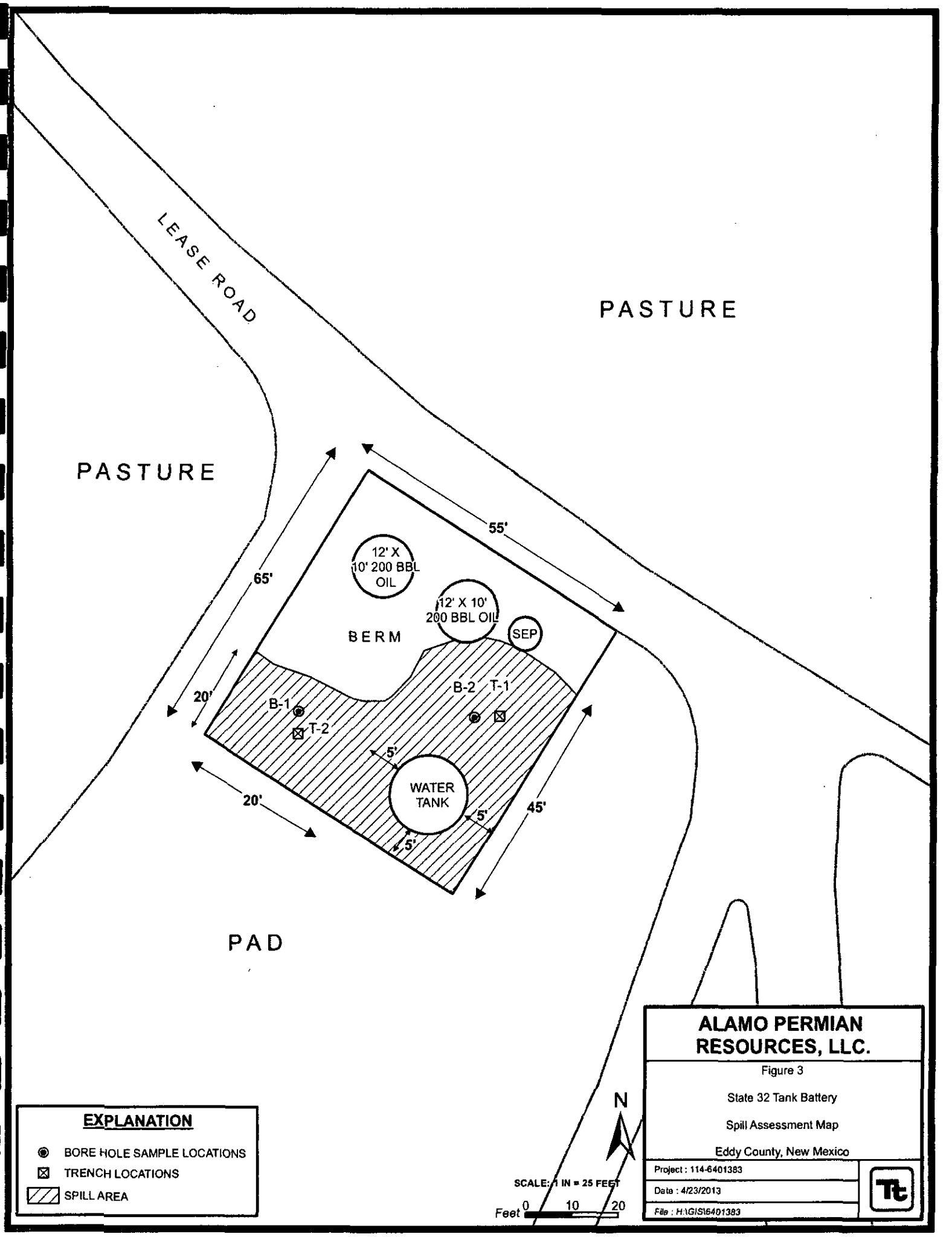
Date : 9/12/2012

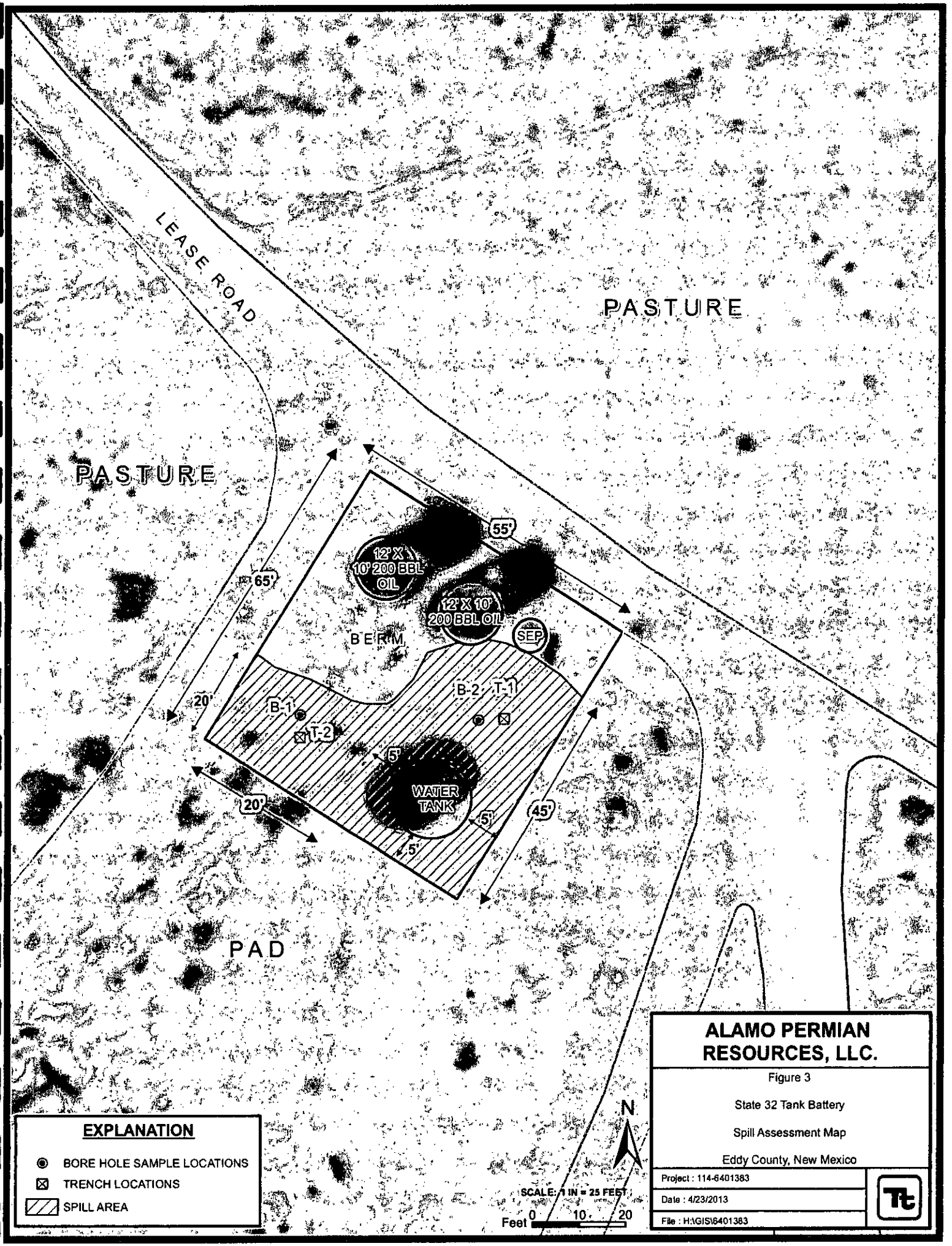
File : H:\GIS\6401383

Drawn By: Isabel Marmolejo

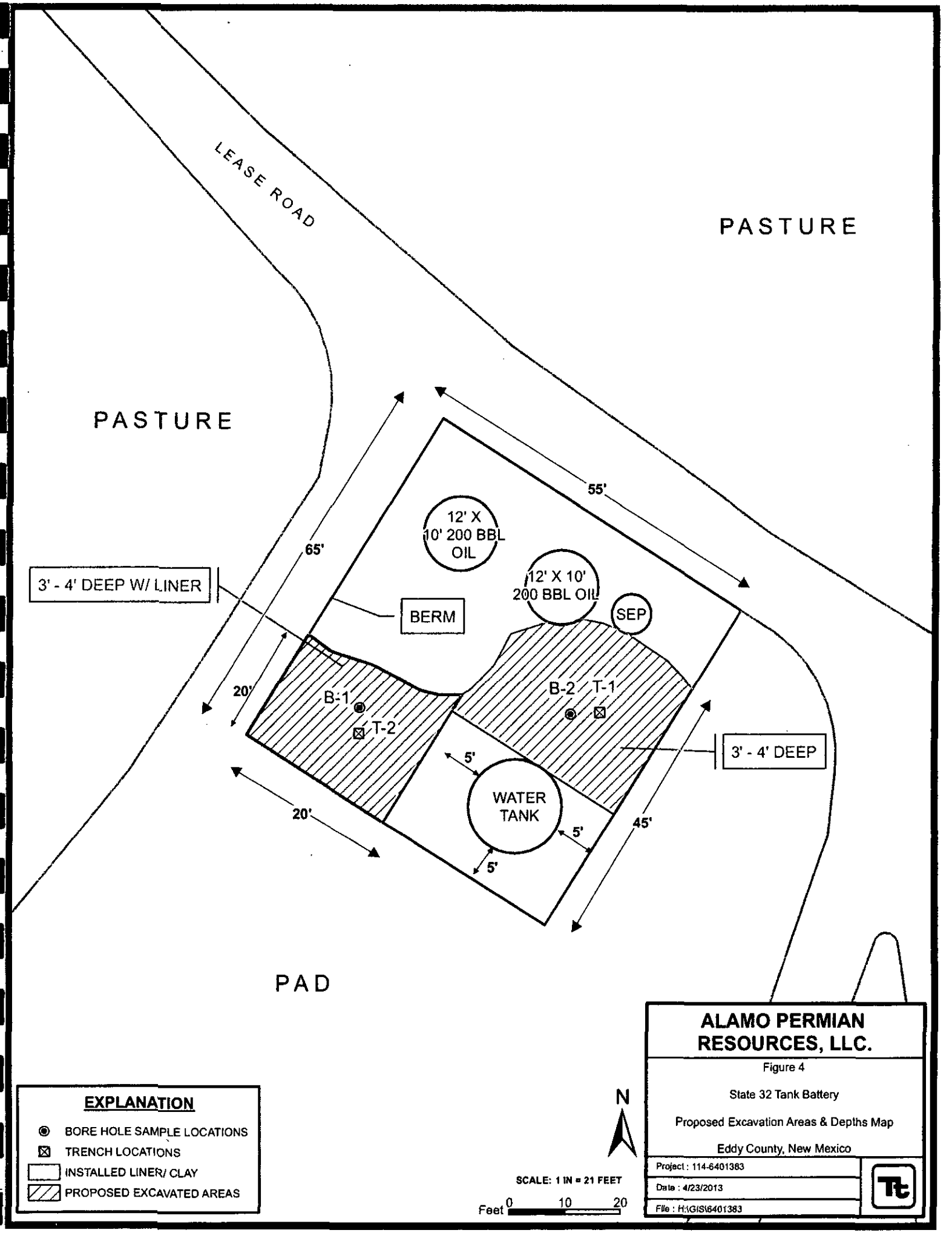


Drawn By: Isabel Marmolejo


LEASE ROAD
PASTURE
PASTURE
PAD
12' X 10' 200 BBL OIL
12' X 10' 200 BBL OIL
SEP
BERM
WATER TANK
B-1
T-2
B-2
T-1
65'
55'
20'
20'
5'
5'
5'
45'
N
SCALE: 1 IN = 25 FEET
Feet 0 10 20
EXPLANATION
BORE HOLE SAMPLE LOCATIONS
TRENCH LOCATIONS
SPILL AREA
ALAMO PERMIAN RESOURCES, LLC.
Figure 3
State 32 Tank Battery
Spill Assessment Map
Eddy County, New Mexico
Project : 114-6401383
Date : 4/23/2013
File : H:\GIS\6401383
Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo


LEASE ROAD
PASTURE
PASTURE
PAD
55'
65'
12' X 10' 200 BBL OIL
12' X 10' 200 BBL OIL
SEP
BERM
3' - 4' DEEP W/ LINER
3' - 4' DEEP
B-1
T-2
B-2
T-1
20'
20'
5'
5'
5'
45'
WATER TANK
EXPLANATION
BORE HOLE SAMPLE LOCATIONS
TRENCH LOCATIONS
INSTALLED LINER/ CLAY
PROPOSED EXCAVATED AREAS
N
SCALE: 1 IN = 21 FEET
Feet 0 10 20
ALAMO PERMIAN RESOURCES, LLC.
Figure 4
State 32 Tank Battery
Proposed Excavation Areas & Depths Map
Eddy County, New Mexico
Project : 114-6401383
Date : 4/23/2013
File : H:\GIS\6401383
Drawn By: Isabel Marmolejo

Tables

Table 1
Alamo Permian
State 32 Tank Battery
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	8/16/2012	0-1	X		1,660	20,400	**22,060**	4.63	37.6	18.1	50.7	**111**	751
	"	2	X		1,290	3,760	**5,050**	1.80	41.9	36.4	67.3	**147**	2,830
	"	4	X		726	1,440	2,166	0.395	23.7	26.9	48.5	**99.5**	1,300
	"	6	X		-	-	-	<0.0200	<0.0200	0.347	1.82	2.17	1,510
	"	8	X		-	-	-	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	1,290
	"	10	X		-	-	-	-	-	-	-	-	1,310
BH-1	2/20/2013	0-1	X		-	-	-	-	-	-	-	-	102
	"	4-5	X		-	-	-	-	-	-	-	-	660
	"	9-10	X		-	-	-	-	-	-	-	-	645
	"	14-15	X		-	-	-	-	-	-	-	-	711
	"	19-20	X		-	-	-	-	-	-	-	-	497
	"	24-25	X		-	-	-	-	-	-	-	-	279

Table 1
Alamo Permian
State 32 Tank Battery
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-2	8/16/2012	0-1	X		1,840	11,700	13,540	**13.0**	80.9	44.2	86.3	**224**	2,170
	"	2	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	551
	"	4	X		62.2	1,580	1,642	<0.0400	0.556	0.190	3.26	4.01	966
	"	6	X		-	-	-	-	-	-	-	-	1,310
	"	8	X		-	-	-	-	-	-	-	-	1,920
	"	10	X		-	-	-	-	-	-	-	-	2,200
BH-2	2/20/2013	0-1	X										<20.0
	"	4-5	X										1,030
	"	9-10	X		-	-	-	-	-	-	-	-	1,850
	"	14-15	X		-	-	-	-	-	-	-	-	1,520
	"	19-20	X		-	-	-	-	-	-	-	-	2,210
	"	24-25	X		-	-	-	-	-	-	-	-	4,100
	"	29-30	X		-	-	-	-	-	-	-	-	1,300
	"	34-35	X		-	-	-	-	-	-	-	-	234
	"	39-40	X		-	-	-	-	-	-	-	-	91.5

_____ Proposed Liner

(-) Not Analyzed

T-1 Backhoe Trenches

Proposed Excavation Depths

Photos

PHOTOGRAPHIC DOCUMENTATION
Alamo Permian Resources, LLC
State 32 Tank Battery
Eddy County, New Mexico

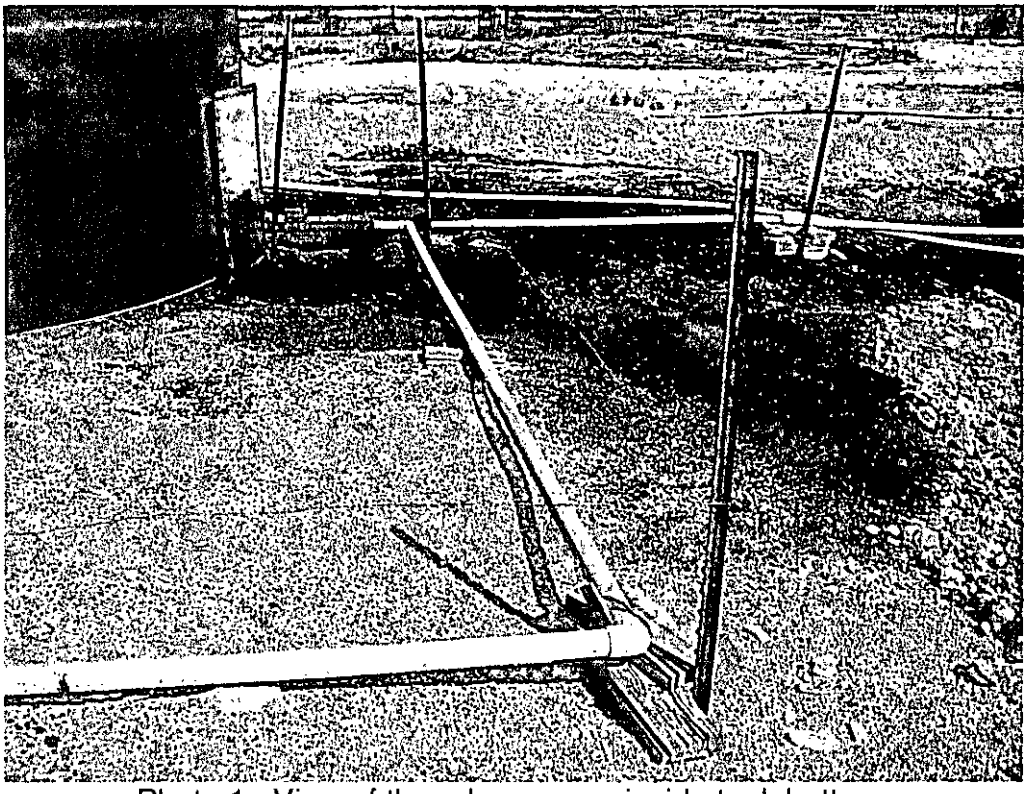


Photo 1. View of the release area inside tank battery.

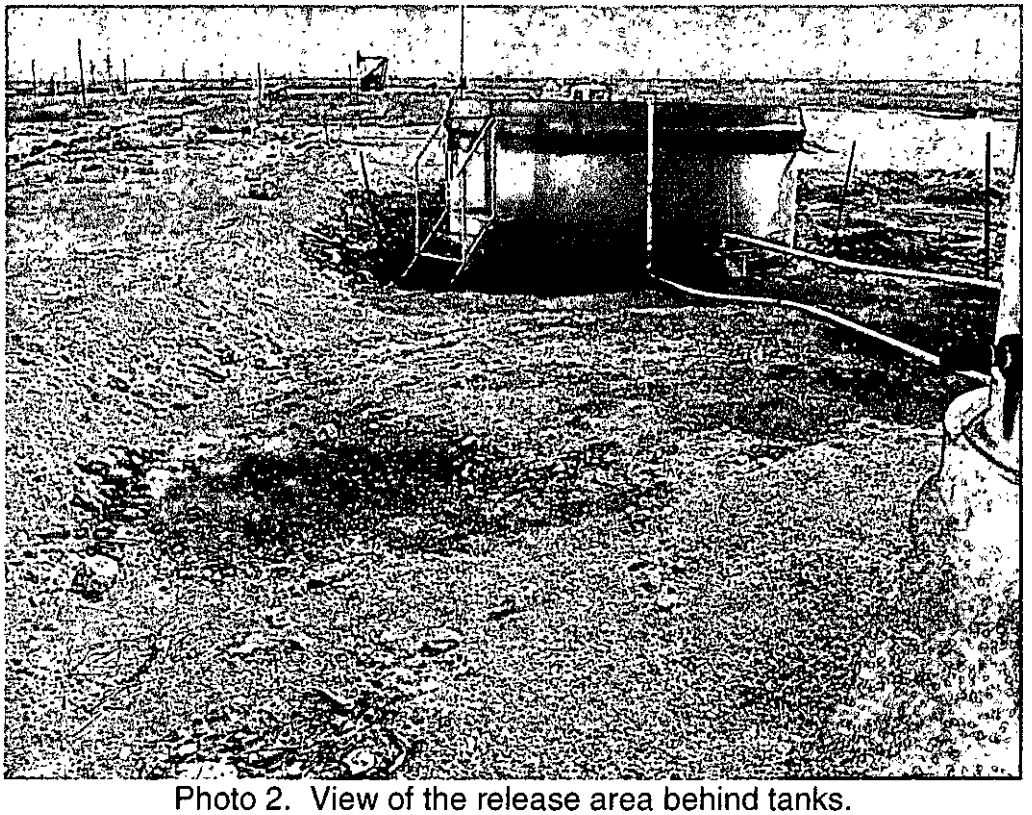


Photo 2. View of the release area behind tanks.

PHOTOGRAPHIC DOCUMENTATION
Alamo Permian Resources, LLC
Artesia State #901
Eddy County, New Mexico

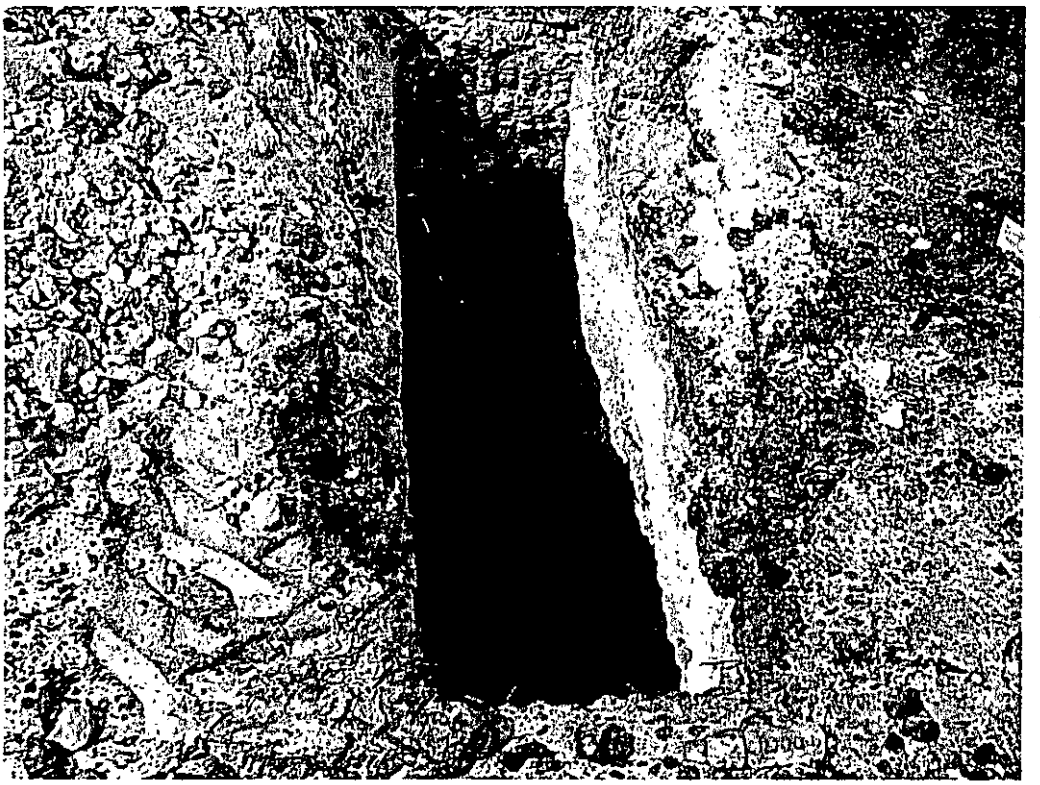


Photo 3. View of the backhoe trench #1.

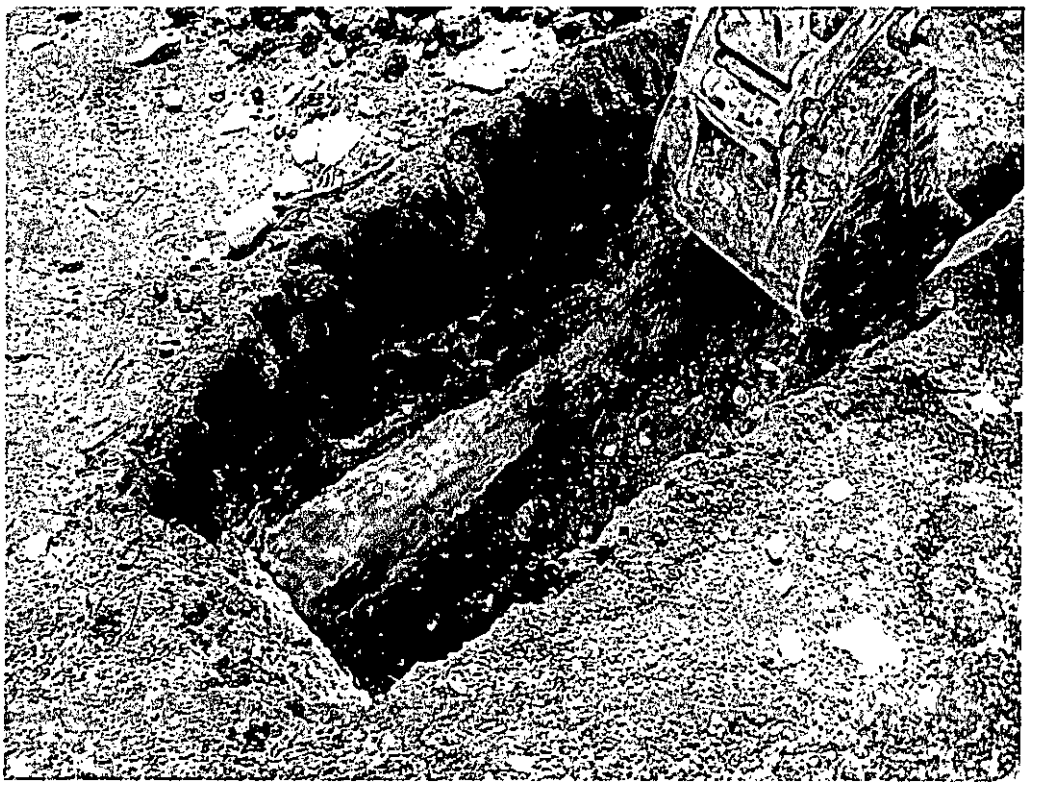


Photo 4. View of the backhoe trench#2.

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

Form C-141
Revised October 10, 2003

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

30-015-01655

Release Notification and Corrective Action

nMLB1122357921 274841 **OPERATOR** ☒ Initial Report ☐ Final Report

Name of Company **Alamo Permian Resources, LLC**	Contact **Al Perry or Joanne Keating**
Address **415 W. Wall St, Suite 500 Midland, TX 79701**	Telephone No. **(432)897-0673**
Facility Name **State 32**	Facility Type **Tank Battery**

Surface Owner	Mineral Owner	Lease No. **B-1717**

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	32	17S	28E	---	---	---	---	Eddy County, NM

Latitude 32° 47' 25" N Longitude 104° 11' 43" W

NATURE OF RELEASE

Type of Release **Oil**	Volume of Release **53 bbls**	Volume Recovered **3 bbls**
Source of Release **Tank Battery – Oil tank**	Date and Hour of Occurrence **06/26-27/2011 9:00 AM – 24 hrs**	Date and Hour of Discovery **06/27/2011 @ 9:00 AM**
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom? **Notice to Mike Bratcher at OCD-Artesia Office**	
By Whom? **C. M. Bloodworth**	Date and Hour **06/28/2011 @ 9:30 AM**	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. ---	

If a Watercourse was Impacted, Describe Fully.*
None

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JUL 12 2011
NMOCD ARTESIA

Describe Cause of Problem and Remedial Action Taken.*

State 32 Tank Battery oil tank experienced a leak due to the failure of a nipple on the bottom of the tank at the [illegible] connection. Free standing oil was collected and placed in the other oil tank at the battery. The tank was isolated and the nipple clamped prior to replacement. Mike Bratcher with NMOCD-Artesia Field Office was contacted and an action plan was discussed. Samples will be taken and submitted to the NMOCD-Artesia Field Office.

Describe Area Affected and Cleanup Action Taken.*

The oil flowed South from the tank on primary caliche soil. The affected soil was excavated and moved to a central collection point in the battery, prior to sending it to Lea Land Co. Mike Bratcher with NMOCD-Artesia Field Office was contacted and an action plan was discussed. Samples will be taken and submitted to the NMOCD-Artesia Field Office. A formal remediation plan will be prepared and submitted to the NMOCD-Artesia Field Office.

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: Joanne Keating

Printed Name: **Joanne Keating**

Title: **Regulatory Affairs Coordinator**

E-mail Address: **jkeating@alamoresources.com**

Date: **07/08/2011** Phone: **(432) 897-0673**

OIL CONSERVATION DIVISION

Signed By Mike Bratcher

Approved by District Supervisor:

Approval Date: AUG 11 2011 Expiration Date:

Conditions of Approval:

Remediation per OCD Rules & Guidelines. **SUBMIT REMEDIATION PROPOSAL NOT LATER THAN:** 9/11/2011

Attached ☐

2RP-834

* 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

RECEIVED
MAR 16 2012
NMOCD ARTESIA

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

nMLB1208654631 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 STATE 32 BATTERY	Facility Type BATTERY

Surface Owner STATE	Mineral Owner STATE	API No. 30-015-01655; 30-015-01656

LOCATION OF RELEASE

St 32 #2 015-01656

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	32	17S	28E	1980	S	1980	E	EDDY

Latitude 32.7789400 **Longitude** -104.1792300

NATURE OF RELEASE

Type of Release: OIL	Volume of Release: EST 124 bbls OIL	Volume Recovered: 52 bbls
Source of Release: TANK	Date and Hour of Occurrence: 3/15/12	Date and Hour of Discovery 3/15/12
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? STEVEN MASTIN NMOCD NOTIFIED 3/15/12 @ 2:19 PM	
By Whom? RICKY RODRIGUEZ	Date and Hour 3/15/12 1:00 P.M.	
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: HOLE IN TANK 66012
Remedial Action Taken: VAC TRUCK DISBATCHED TO LOCATION TO RECOVER AS MUCH OF THE SPILL AS POSSIBLE

Describe Area Affected and Cleanup Action Taken.*
THE SPILL WAS CONTAINED WITHIN THE BERM; 52 BBLS OF OIL WAS RECOVERED

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 COORDINATOR

E-mail Address: cstoker@alamoresources.com

Date: 03/16/2012 Phone: 432 664 7659

OIL CONSERVATION DIVISION

Signed By Mike Bratcher

Approved by Environmental Specialist:

Approval Date: MAR 26 2012 Expiration Date:

Conditions of Approval: Attached ☐

Remediation per OCD Rules & Guidelines. SUBMIT REMEDIATION PROPOSAL NOT LATER THAN: 4/26/2012

2RP-1069

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
State 32 Tank Battery
Eddy County, New Mexico

16 South 27 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 **70**	26	25
31	32	33	34	35	36

16 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21 **61**	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14 220 dry	13
19 **110**	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	1
7 **14**	8	9	10	11 **54** **50**	12
18 **11**	17 **90**	16 **175**	15	14	13
19	20	21	22	23 **40**	24
30	29	28	27	26	25
31	32 **140**	33	34	35	36

17 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19 **191**	20	21	22 **79**	23	24
30	29	28	27	26	25
31	32 **SITE**	33	34	35	36

17 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 **80**	23	24
30	29 **210** **208'**	28	27	26	25
31	32	33	34	35 153	36

18 South 27 East

6	5	4	3	2	1
7	8	9	10 **50**	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28 **100**	27	26	25
31 **65**	32	33	34	35	36

18 South 28 East

6	5	4 **108**	3	2	1
7 **49**	8 **69**	9	10	11	12
18	17	16	15	14	13
19	20	21 **225**	22	23	24
49	29	28	27	26	25
31	32	33	34	35 **65**	36

18 South 29 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

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Appendix C

Summary Report

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

Report Date: September 5, 2012

Work Order: 12081903

Project Location: Eddy Co., NM
Project Name: Alamo/State 32 Tank Battery
Project Number: 114-6401383

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
307127	T-1 (0-1')	soil	2012-08-16	00:00	2012-08-17
307128	T-1 (2')	soil	2012-08-16	00:00	2012-08-17
307129	T-1 (4')	soil	2012-08-16	00:00	2012-08-17
307130	T-1 (6')	soil	2012-08-16	00:00	2012-08-17
307131	T-1 (8')	soil	2012-08-16	00:00	2012-08-17
307132	T-1 (10')	soil	2012-08-16	00:00	2012-08-17
307133	T-2 (0-1')	soil	2012-08-16	00:00	2012-08-17
307134	T-2 (2')	soil	2012-08-16	00:00	2012-08-17
307135	T-2 (4')	soil	2012-08-16	00:00	2012-08-17
307136	T-2 (6')	soil	2012-08-16	00:00	2012-08-17
307137	T-2 (8')	soil	2012-08-16	00:00	2012-08-17
307138	T-2 (10')	soil	2012-08-16	00:00	2012-08-17

	BTEX				TPH DRO - NEW	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
307127 - T-1 (0-1')	**4.63**	**37.6**	**18.1**	**50.7**	**20400**	**1660**
307128 - T-1 (2')	**1.80**	**41.9** J+	**36.4**	**67.3**	**3760**	**1290** Qs
307129 - T-1 (4')	**0.395**	**23.7**	**26.9**	**48.5**	**1440**	**726** Qs
307130 - T-1 (6')	<0.0200 B	<0.0200	**0.347**	**1.82**		
307131 - T-1 (8')	<0.0200 B	<0.0200	<0.0200	<0.0200		
307133 - T-2 (0-1')	**13.0**	**80.9** J+	**44.2**	**86.3** J+	**11700**	**1840**
307134 - T-2 (2')	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
307135 - T-2 (4')	<0.0400 [1]	**0.556**	**0.190**	**3.26**	**1580**	**62.2** Qs

Sample: 307127 - T-1 (0-1')

[1] Dilution due to excessive hydrocarbons.

Param	Flag	Result	Units	RL
Chloride		**751**	mg/Kg	4

Sample: 307128 - T-1 (2')

Param	Flag	Result	Units	RL
Chloride		**2830**	mg/Kg	4

Sample: 307129 - T-1 (4')

Param	Flag	Result	Units	RL
Chloride		**1300**	mg/Kg	4

Sample: 307130 - T-1 (6')

Param	Flag	Result	Units	RL
Chloride		**1510**	mg/Kg	4

Sample: 307131 - T-1 (8')

Param	Flag	Result	Units	RL
Chloride		**1290**	mg/Kg	4

Sample: 307132 - T-1 (10')

Param	Flag	Result	Units	RL
Chloride		**1310**	mg/Kg	4

Sample: 307133 - T-2 (0-1')

Param	Flag	Result	Units	RL
Chloride		**2170**	mg/Kg	4

Sample: 307134 - T-2 (2')

Param	Flag	Result	Units	RL
Chloride		**551**	mg/Kg	4

Sample: 307135 - T-2 (4')

Param	Flag	Result	Units	RL
Chloride		**966**	mg/Kg	4

Sample: 307136 - T-2 (6')

Param	Flag	Result	Units	RL
Chloride		**1310**	mg/Kg	4

Sample: 307137 - T-2 (8')

Param	Flag	Result	Units	RL
Chloride		**1920**	mg/Kg	4

Sample: 307138 - T-2 (10')

Param	Flag	Result	Units	RL
Chloride		**2200**	mg/Kg	4

TRACEANALYSIS, INC.

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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: September 5, 2012

Work Order: 12081903

Project Location: Eddy Co., NM
Project Name: Alamo/State 32 Tank Battery
Project Number: 114-6401383

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
307127	T-1 (0-1')	soil	2012-08-16	00:00	2012-08-17
307128	T-1 (2')	soil	2012-08-16	00:00	2012-08-17
307129	T-1 (4')	soil	2012-08-16	00:00	2012-08-17
307130	T-1 (6')	soil	2012-08-16	00:00	2012-08-17
307131	T-1 (8')	soil	2012-08-16	00:00	2012-08-17
307132	T-1 (10')	soil	2012-08-16	00:00	2012-08-17
307133	T-2 (0-1')	soil	2012-08-16	00:00	2012-08-17
307134	T-2 (2')	soil	2012-08-16	00:00	2012-08-17
307135	T-2 (4')	soil	2012-08-16	00:00	2012-08-17
307136	T-2 (6')	soil	2012-08-16	00:00	2012-08-17
307137	T-2 (8')	soil	2012-08-16	00:00	2012-08-17
307138	T-2 (10')	soil	2012-08-16	00:00	2012-08-17

Report Corrections (Work Order 12081903)

- Added BTEX on samples 309128, 309129, 309130, 309131, 309134, and 309135. (9-5-12)

- Added DRO and GRO on samples 309128, 309129, 309134, and 309135. (9-5-12)

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

This report consists of a total of 40 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

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

Report Contents

Case Narrative

Samples for project Alamo/State 32 Tank Battery were received by TraceAnalysis, Inc. on 2012-08-17 and assigned to work order 12081903. Samples for work order 12081903 were received intact at a temperature of 8.8 C. Samples were received on ice.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	79847	2012-08-23 at 16:25	94203	2012-08-23 at 16:25
BTEX	S 8021B	79947	2012-08-29 at 12:20	94344	2012-08-29 at 14:30
BTEX	S 8021B	80050	2012-09-04 at 07:02	94466	2012-09-04 at 07:02
Chloride (Titration)	SM 4500-Cl B	79857	2012-08-23 at 13:15	94226	2012-08-24 at 13:19
Chloride (Titration)	SM 4500-Cl B	79857	2012-08-23 at 13:15	94227	2012-08-24 at 13:20
TPH DRO - NEW	S 8015 D	79749	2012-08-20 at 08:00	94083	2012-08-21 at 08:25
TPH DRO - NEW	S 8015 D	79963	2012-08-29 at 10:30	94362	2012-08-29 at 10:51
TPH GRO	S 8015 D	79847	2012-08-23 at 16:25	94204	2012-08-23 at 16:25
TPH GRO	S 8015 D	79947	2012-08-29 at 12:20	94345	2012-08-28 at 14:20

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 12081903 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: 307127 - T-1 (0-1')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94203	Date Analyzed:	2012-08-23	Analyzed By:	MT
Prep Batch:	79847	Sample Preparation:	2012-08-23	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene		1	**4.63**	mg/Kg	10	0.0200
Toluene		1	**37.6**	mg/Kg	10	0.0200
Ethylbenzene		1	**18.1**	mg/Kg	10	0.0200
Xylene		1	**50.7**	mg/Kg	10	0.0200

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		1.26	mg/Kg	10	2.00	63	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		17.6	mg/Kg	10	2.00	880	70 - 130

Sample: 307127 - T-1 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94226	Date Analyzed:	2012-08-24	Analyzed By:	AR
Prep Batch:	79857	Sample Preparation:	2012-08-24	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**751**	mg/Kg	5	4.00

Sample: 307127 - T-1 (0-1')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94083	Date Analyzed:	2012-08-21	Analyzed By:	CW
Prep Batch:	79749	Sample Preparation:	2012-08-20	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		2	**20400**	mg/Kg	20	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		798	mg/Kg	20	100	798	70 - 130

Sample: 307127 - T-1 (0-1')

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	94204	Date Analyzed:	2012-08-23	Analyzed By:	MT
Prep Batch:	79847	Sample Preparation:	2012-08-23	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**1660**	mg/Kg	10	4.00

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		19.6	mg/Kg	10	2.00	980	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		35.6	mg/Kg	10	2.00	1780	70 - 130

Sample: 307128 - T-1 (2')

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	RL Result	Units	Dilution	RL
Benzene		1	**1.80**	mg/Kg	5	0.0200
Toluene	Je	1	**41.9**	mg/Kg	5	0.0200
Ethylbenzene		1	**36.4**	mg/Kg	5	0.0200
Xylene		1	**67.3**	mg/Kg	5	0.0200

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		1.24	mg/Kg	5	2.00	62	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		5.43	mg/Kg	5	2.00	272	70 - 130

Sample: 307128 - T-1 (2')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94226	Date Analyzed:	2012-08-24	Analyzed By:	AR
Prep Batch:	79857	Sample Preparation:	2012-08-24	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2830**	mg/Kg	10	4.00

Sample: 307128 - T-1 (2')

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	**3760**	mg/Kg	10	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		186	mg/Kg	10	100	186	70 - 130

Sample: 307128 - T-1 (2')

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	Qs	1	**1290**	mg/Kg	5	4.00

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		0.0217	mg/Kg	5	2.00	1	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		23.0	mg/Kg	5	2.00	1150	70 - 130

Sample: 307129 - T-1 (4')

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	RL Result	Units	Dilution	RL
Benzene		1	**0.395**	mg/Kg	5	0.0200
Toluene		1	**23.7**	mg/Kg	5	0.0200
Ethylbenzene		1	**26.9**	mg/Kg	5	0.0200
Xylene		1	**48.5**	mg/Kg	5	0.0200

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		1.28	mg/Kg	5	2.00	64	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		8.92	mg/Kg	5	2.00	446	70 - 130

Sample: 307129 - T-1 (4')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94226	Date Analyzed:	2012-08-24	Analyzed By:	AR
Prep Batch:	79857	Sample Preparation:	2012-08-24	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1300**	mg/Kg	10	4.00

Sample: 307129 - T-1 (4')

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	**1440**	mg/Kg	5	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		147	mg/Kg	5	100	147	70 - 130

Sample: 307129 - T-1 (4')

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	Qs	1	**726**	mg/Kg	5	4.00

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		0.572	mg/Kg	5	2.00	29	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		29.6	mg/Kg	5	2.00	1480	70 - 130

Sample: 307130 - T-1 (6')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94466	Date Analyzed:	2012-09-04	Analyzed By:	MT
Prep Batch:	80050	Sample Preparation:	2012-09-04	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	B,U	1	<0.0200	mg/Kg	1	0.0200
Toluene		1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene		1	**0.347**	mg/Kg	1	0.0200
Xylene		1	**1.82**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.79	mg/Kg	1	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)			2.42	mg/Kg	1	2.00	121	70 - 130

Sample: 307130 - T-1 (6')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94227	Date Analyzed:	2012-08-24	Analyzed By:	AR
Prep Batch:	79857	Sample Preparation:	2012-08-24	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**1510**		mg/Kg	10	4.00

Sample: 307131 - T-1 (8')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94466	Date Analyzed:	2012-09-04	Analyzed By:	MT
Prep Batch:	80050	Sample Preparation:	2012-09-04	Prepared By:	MT

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Benzene	H,U	1	<0.0200		mg/Kg	1	0.0200
Toluene		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)			1.86	mg/Kg	1	2.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)			1.98	mg/Kg	1	2.00	99	70 - 130

Sample: 307131 - T-1 (8')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94227	Date Analyzed:	2012-08-24	Analyzed By:	AR
Prep Batch:	79857	Sample Preparation:	2012-08-24	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**1290**		mg/Kg	10	4.00

Sample: 307132 - T-1 (10')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94227	Date Analyzed:	2012-08-24	Analyzed By:	AR
Prep Batch:	79857	Sample Preparation:	2012-08-24	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1310**	mg/Kg	10	4.00

Sample: 307133 - T-2 (0-1')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94203	Date Analyzed:	2012-08-23	Analyzed By:	MT
Prep Batch:	79847	Sample Preparation:	2012-08-23	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	**13.0**	mg/Kg	10	0.0200
Toluene	Je	1	**80.9**	mg/Kg	10	0.0200
Ethylbenzene		1	**44.2**	mg/Kg	10	0.0200
Xylene	Je	1	**86.3**	mg/Kg	10	0.0200

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		35.7	mg/Kg	10	2.00	1785	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		15.8	mg/Kg	10	2.00	790	70 - 130

Sample: 307133 - T-2 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94227	Date Analyzed:	2012-08-24	Analyzed By:	AR
Prep Batch:	79857	Sample Preparation:	2012-08-24	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2170**	mg/Kg	10	4.00

Sample: 307133 - T-2 (0-1')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94083	Date Analyzed:	2012-08-21	Analyzed By:	CW
Prep Batch:	79749	Sample Preparation:	2012-08-20	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	**11700**	mg/Kg	10	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		543	mg/Kg	10	100	543	70 - 130

Sample: 307133 - T-2 (0-1')

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	94204	Date Analyzed:	2012-08-23	Analyzed By:	MT
Prep Batch:	79847	Sample Preparation:	2012-08-23	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**1840**	mg/Kg	10	4.00

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		42.9	mg/Kg	10	2.00	2145	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		26.6	mg/Kg	10	2.00	1330	70 - 130

Sample: 307134 - T-2 (2')

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	RL Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene		1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1	<0.0200	mg/Kg	1	0.0200
Xylene		1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.58	mg/Kg	1	2.00	79	70 - 130
4-Bromofluorobenzene (4-BFB)			1.79	mg/Kg	1	2.00	90	70 - 130

Sample: 307134 - T-2 (2')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94227	Date Analyzed:	2012-08-24	Analyzed By:	AR
Prep Batch:	79857	Sample Preparation:	2012-08-24	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**551**		mg/Kg	5	4.00

Sample: 307134 - T-2 (2')

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	U	1	<50.0		mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			124	mg/Kg	1	100	124	70 - 130

Sample: 307134 - T-2 (2')

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	Q*	1	<4.00		mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.53	mg/Kg	1	2.00	76	70 - 130
4-Bromofluorobenzene (4-BFB)			1.87	mg/Kg	1	2.00	94	70 - 130

Sample: 307135 - T-2 (4')

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	1		<0.0400	mg/Kg	2	0.0200
Toluene			**0.556**	mg/Kg	2	0.0200
Ethylbenzene			**0.190**	mg/Kg	2	0.0200
Xylene			**3.26**	mg/Kg	2	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.60	mg/Kg	2	2.00	80	70 - 130
4-Bromofluorobenzene (4-BFB)			2.34	mg/Kg	2	2.00	117	70 - 130

Sample: 307135 - T-2 (4')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94227	Date Analyzed:	2012-08-24	Analyzed By:	AR
Prep Batch:	79857	Sample Preparation:	2012-08-24	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**966**	mg/Kg	5	4.00

Sample: 307135 - T-2 (4')

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			**1580**	mg/Kg	2	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	161	mg/Kg	2	100	161	70 - 130

Sample: 307135 - T-2 (4')

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	**62.2**	mg/Kg	2	4.00

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		1.36	mg/Kg	2	2.00	68	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		3.38	mg/Kg	2	2.00	169	70 - 130

Sample: 307136 - T-2 (6')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94227	Date Analyzed:	2012-08-24	Analyzed By:	AR
Prep Batch:	79857	Sample Preparation:	2012-08-24	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1310**	mg/Kg	10	4.00

Sample: 307137 - T-2 (8')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94227	Date Analyzed:	2012-08-24	Analyzed By:	AR
Prep Batch:	79857	Sample Preparation:	2012-08-24	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1920**	mg/Kg	10	4.00

Sample: 307138 - T-2 (10')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94227	Date Analyzed:	2012-08-24	Analyzed By:	AR
Prep Batch:	79857	Sample Preparation:	2012-08-24	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2200**	mg/Kg	10	4.00

Method Blanks

Method Blank (1) QC Batch: 94083

QC Batch: 94083 | Date Analyzed: 2012-08-21 | Analyzed By: CW
Prep Batch: 79749 | QC Preparation: 2012-08-20 | Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		2	<14.5	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			113	mg/Kg	1	100	113	70 - 130

Method Blank (1) QC Batch: 94203

QC Batch: 94203 | Date Analyzed: 2012-08-23 | Analyzed By: MT
Prep Batch: 79847 | QC Preparation: 2012-08-23 | Prepared By: MT

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	0.00770	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.10	mg/Kg	1	2.00	105	70 - 130
4-Bromofluorobenzene (4-BFB)			1.99	mg/Kg	1	2.00	100	70 - 130

Method Blank (1) QC Batch: 94204

QC Batch: 94204 | Date Analyzed: 2012-08-23 | Analyzed By: MT
Prep Batch: 79847 | QC Preparation: 2012-08-23 | Prepared By: MT

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)			2.14	mg/Kg	1	2.00	107	70 - 130
4-Bromofluorobenzene (4-BFB)			2.02	mg/Kg	1	2.00	101	70 - 130

Method Blank (1) QC Batch: 94226

QC Batch: 94226 | Date Analyzed: 2012-08-24 | Analyzed By: AR
Prep Batch: 79857 | QC Preparation: 2012-08-23 | Prepared By: AR

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

Method Blank (1) QC Batch: 94227

QC Batch: 94227 | Date Analyzed: 2012-08-24 | Analyzed By: AR
Prep Batch: 79857 | QC Preparation: 2012-08-23 | Prepared By: AR

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

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			<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: 94466

QC Batch: 94466 Date Analyzed: 2012-09-04 Analyzed By: MT
Prep Batch: 80050 QC Preparation: 2012-09-04 Prepared By: MT

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	0.0128	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.76	mg/Kg	1	2.00	88	70 - 130
4-Bromofluorobenzene (4-BFB)			1.73	mg/Kg	1	2.00	86	70 - 130

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 94083 | Date Analyzed: 2012-08-21 | Analyzed By: CW
Prep Batch: 79749 | QC Preparation: 2012-08-20 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	220	mg/Kg	1	250	<14.5	88	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		2	239	mg/Kg	1	250	<14.5	96	70 - 130	8	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	118	126	mg/Kg	1	100	118	126	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94203 | Date Analyzed: 2012-08-23 | Analyzed By: MT
Prep Batch: 79847 | QC Preparation: 2012-08-23 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.84	mg/Kg	1	2.00	<0.00365	92	75.4 - 120
Toluene		1	1.80	mg/Kg	1	2.00	<0.00816	90	74.9 - 120
Ethylbenzene		1	1.79	mg/Kg	1	2.00	<0.00560	90	78.1 - 120
Xylene		1	5.40	mg/Kg	1	6.00	0.0077	90	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	1.96	mg/Kg	1	2.00	<0.00365	98	75.4 - 120	6	20
Toluene		1	1.94	mg/Kg	1	2.00	<0.00816	97	74.9 - 120	8	20
Ethylbenzene		1	1.94	mg/Kg	1	2.00	<0.00560	97	78.1 - 120	8	20
Xylene		1	5.85	mg/Kg	1	6.00	0.0077	97	77.3 - 120	8	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)	1.77	1.81	mg/Kg	1	2.00	88	90	70 - 130
4-Bromofluorobenzene (4-BFB)	1.73	1.81	mg/Kg	1	2.00	86	90	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94204 | Date Analyzed: 2012-08-23 | Analyzed By: MT
Prep Batch: 79847 | QC Preparation: 2012-08-23 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.0	mg/Kg	1	20.0	<0.359	85	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	16.4	mg/Kg	1	20.0	<0.359	82	68.9 - 120	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)	1.95	1.84	mg/Kg	1	2.00	97	92	70 - 130
4-Bromofluorobenzene (4-BFB)	1.89	1.77	mg/Kg	1	2.00	95	88	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94226 | Date Analyzed: 2012-08-24 | Analyzed By: AR
Prep Batch: 79857 | QC Preparation: 2012-08-23 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2640	mg/Kg	1	2500	<3.85	106	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			2530	mg/Kg	1	2500	<3.85	101	85 - 115	4	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: 94227 | Date Analyzed: 2012-08-24 | Analyzed By: AR
Prep Batch: 79857 | QC Preparation: 2012-08-23 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2630	mg/Kg	1	2500	<3.85	105	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	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: 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.

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: 94466 | Date Analyzed: 2012-09-04 | Analyzed By: MT
Prep Batch: 80050 | QC Preparation: 2012-09-04 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.74	mg/Kg	1	2.00	<0.00365	87	75.4 - 120
Toluene		1	1.73	mg/Kg	1	2.00	<0.00816	86	74.9 - 120
Ethylbenzene		1	1.74	mg/Kg	1	2.00	<0.00560	87	78.1 - 120
Xylene		1	5.24	mg/Kg	1	6.00	0.0128	87	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	1.74	mg/Kg	1	2.00	<0.00365	87	75.4 - 120	0	20
Toluene		1	1.72	mg/Kg	1	2.00	<0.00816	86	74.9 - 120	1	20
Ethylbenzene		1	1.74	mg/Kg	1	2.00	<0.00560	87	78.1 - 120	0	20
Xylene		1	5.24	mg/Kg	1	6.00	0.0128	87	77.3 - 120	0	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)	1.79	1.84	mg/Kg	1	2.00	90	92	70 - 130
4-Bromofluorobenzene (4-BFB)	1.76	1.75	mg/Kg	1	2.00	88	88	70 - 130

Matrix Spike (MS-1) Spiked Sample: 307094

QC Batch: 94083 | Date Analyzed: 2012-08-21 | Analyzed By: CW
Prep Batch: 79749 | QC Preparation: 2012-08-20 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	244	mg/Kg	1	250	<14.5	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		2	239	mg/Kg	1	250	<14.5	96	70 - 130	2	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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	115	117	mg/Kg	1	100	115	117	70 - 130

Matrix Spike (MS-1) Spiked Sample: 307092

QC Batch: 94203 | Date Analyzed: 2012-08-23 | Analyzed By: MT
Prep Batch: 79847 | QC Preparation: 2012-08-23 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.74	mg/Kg	1	2.00	<0.00365	87	37.6 - 142
Toluene		1	1.94	mg/Kg	1	2.00	<0.00816	97	38.6 - 153
Ethylbenzene		1	2.00	mg/Kg	1	2.00	<0.00560	100	36.7 - 172
Xylene		1	6.08	mg/Kg	1	6.00	<0.00460	101	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	1.92	mg/Kg	1	2.00	<0.00365	96	37.6 - 142	10	20
Toluene		1	2.19	mg/Kg	1	2.00	<0.00816	110	38.6 - 153	12	20
Ethylbenzene		1	2.27	mg/Kg	1	2.00	<0.00560	114	36.7 - 172	13	20
Xylene		1	6.93	mg/Kg	1	6.00	<0.00460	116	36.7 - 173	13	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)	1.54	1.88	mg/Kg	1	2	77	94	70 - 130
4-Bromofluorobenzene (4-BFB)	1.62	1.97	mg/Kg	1	2	81	98	70 - 130

Matrix Spike (MS-1) Spiked Sample: 307092

QC Batch: 94204 | Date Analyzed: 2012-08-23 | Analyzed By: MT
Prep Batch: 79847 | QC Preparation: 2012-08-23 | Prepared By: MT

continued ...

matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	18.0	mg/Kg	1	20.0	<0.359	90	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		1	16.1	mg/Kg	1	20.0	<0.359	80	68.9 - 120	11	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)	2.00	1.43	mg/Kg	1	2	100	72	70 - 130
4-Bromofluorobenzene (4-BFB)	2.17	1.99	mg/Kg	1	2	108	100	70 - 130

Matrix Spike (MS-1) Spiked Sample: 307129

QC Batch: 94226 | Date Analyzed: 2012-08-24 | Analyzed By: AR
Prep Batch: 79857 | QC Preparation: 2012-08-23 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			4120	mg/Kg	10	2500	1300	113	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			4290	mg/Kg	10	2500	1300	120	78.9 - 121	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: 307130

QC Batch: 94227 | Date Analyzed: 2012-08-24 | Analyzed By: AR
Prep Batch: 79857 | QC Preparation: 2012-08-23 | Prepared By: AR

continued ...

matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			4000	mg/Kg	10	2500	1510	100	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			4140	mg/Kg	10	2500	1510	105	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: 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: 308327

QC Batch: 94466 | Date Analyzed: 2012-09-04 | Analyzed By: MT
Prep Batch: 80050 | QC Preparation: 2012-09-04 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.76	mg/Kg	1	2.00	<0.00365	88	37.6 - 142
Toluene		1	1.79	mg/Kg	1	2.00	<0.00816	90	38.6 - 153
Ethylbenzene		1	1.92	mg/Kg	1	2.00	<0.00560	96	36.7 - 172
Xylene		1	5.77	mg/Kg	1	6.00	0.0093	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	2	20
Toluene		1	1.77	mg/Kg	1	2.00	<0.00816	88	38.6 - 153	1	20
Ethylbenzene		1	1.86	mg/Kg	1	2.00	<0.00560	93	36.7 - 172	3	20
Xylene		1	5.61	mg/Kg	1	6.00	0.0093	93	36.7 - 173	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
Trifluorotoluene (TFT)	2.04	2.24	mg/Kg	1	2	102	112	70 - 130
4-Bromofluorobenzene (4-BFB)	1.94	1.90	mg/Kg	1	2	97	95	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 94083 | Date Analyzed: 2012-08-21 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	244	98	80 - 120	2012-08-21

Standard (CCV-2)

QC Batch: 94083 | Date Analyzed: 2012-08-21 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	240	96	80 - 120	2012-08-21

Standard (CCV-3)

QC Batch: 94083 | Date Analyzed: 2012-08-21 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	233	93	80 - 120	2012-08-21

Standard (CCV-1)

QC Batch: 94203 | Date Analyzed: 2012-08-23 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0854	85	80 - 120	2012-08-23
Toluene		1	mg/kg	0.100	0.0918	92	80 - 120	2012-08-23

continued ...

standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Ethylbenzene		1	mg/kg	0.100	0.0886	89	80 - 120	2012-08-23
Xylene		1	mg/kg	0.300	0.269	90	80 - 120	2012-08-23

Standard (CCV-2)

QC Batch: 94203 Date Analyzed: 2012-08-23 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.100	100	80 - 120	2012-08-23
Toluene		1	mg/kg	0.100	0.0989	99	80 - 120	2012-08-23
Ethylbenzene		1	mg/kg	0.100	0.0965	96	80 - 120	2012-08-23
Xylene		1	mg/kg	0.300	0.291	97	80 - 120	2012-08-23

Standard (CCV-3)

QC Batch: 94203 Date Analyzed: 2012-08-23 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0994	99	80 - 120	2012-08-23
Toluene		1	mg/kg	0.100	0.0977	98	80 - 120	2012-08-23
Ethylbenzene		1	mg/kg	0.100	0.0985	98	80 - 120	2012-08-23
Xylene		1	mg/kg	0.300	0.300	100	80 - 120	2012-08-23

Standard (CCV-1)

QC Batch: 94204 Date Analyzed: 2012-08-23 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	0.864	86	80 - 120	2012-08-23

Standard (CCV-2)

QC Batch: 94204 Date Analyzed: 2012-08-23 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	0.840	84	80 - 120	2012-08-23

Standard (CCV-3)

QC Batch: 94204 Date Analyzed: 2012-08-23 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	0.904	90	80 - 120	2012-08-23

Standard (CCV-1)

QC Batch: 94226 Date Analyzed: 2012-08-24 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	101	101	85 - 115	2012-08-24

Standard (CCV-2)

QC Batch: 94226 Date Analyzed: 2012-08-24 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	99.4	99	85 - 115	2012-08-24

Standard (CCV-1)

QC Batch: 94227 Date Analyzed: 2012-08-24 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	99.8	100	85 - 115	2012-08-24

Standard (CCV-2)

QC Batch: 94227 Date Analyzed: 2012-08-24 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	100	100	85 - 115	2012-08-24

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: 94466 | Date Analyzed: 2012-09-04 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0882	88	80 - 120	2012-09-04
Toluene		1	mg/kg	0.100	0.0876	88	80 - 120	2012-09-04
Ethylbenzene		1	mg/kg	0.100	0.0869	87	80 - 120	2012-09-04
Xylene		1	mg/kg	0.300	0.262	87	80 - 120	2012-09-04

Standard (CCV-2)

QC Batch: 94466 | Date Analyzed: 2012-09-04 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0863	86	80 - 120	2012-09-04
Toluene		1	mg/kg	0.100	0.0864	86	80 - 120	2012-09-04
Ethylbenzene		1	mg/kg	0.100	0.0868	87	80 - 120	2012-09-04
Xylene		1	mg/kg	0.300	0.261	87	80 - 120	2012-09-04

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
2	NELAP	T104704392-12-4	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

Result Comments

1 Dilution due to excessive hydrocarbons.

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: Alamo Permian
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6401383
PROJECT NAME: State 32 Tank Battery 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
309127	8-16		S	X		T-1 (0-1')	1	N			X	X	X	X											X				
128					X	T-1 (2')																							
129					X	T-1 (4')																							
130					X	T-1 (6')																							
131					X	T-1 (8')																							
132					X	T-1 (10')																							
133				X		T-2 (0-1')							X	X															
134					X	T-2 (2')																							
135					X	T-2 (4')																							
136	8-16		S		X	T-2 (6')	1	N			X	X													X				

RELINQUISHED BY: (Signature) — Date: 9-17-12 Time: 1030
RECEIVED BY: (Signature) — Date: 17 Aug 2012 Time: 1030
RELINQUISHED BY: (Signature) — Date: 17 Aug 2012 Time: 12:17
RECEIVED BY: (Signature) — Date: 8/16/12 Time: 12:16
RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:

SAMPLED BY: (Print & Initial) James — Date: 8-16-12 Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS
AIRBILL #:
OTHER:

RECEIVING LABORATORY:
ADDRESS:
CITY: Midland STATE: 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: 0.8

REMARKS: Run deeper samples if TPH exceeds 5,000 mg/kg. Midland all

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

Run deeper samples if benzene exceed 10 mg/kg or total BTEX exceeds 50 mg/kg.

1208903

Analysis Request of Chain of Custody Record

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.: 114-640383
PROJECT NAME:

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. 608/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
137	8-16		S		X	T-2 (8')	1	N			X	X												X				
138	8-16		S		X	T-2 (10')	1	N			X	X												X				

RELINQUISHED BY: (Signature) — Date: 8-17-12 Time: 1030
RECEIVED BY: (Signature) — Date: 17 Aug 2012 Time: 1030
RELINQUISHED BY: (Signature) — Date: 17 Aug Time: 1230
RECEIVED BY: (Signature) — Date: 8/17/12 Time: 1235
RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:

SAMPLED BY: (Print & Initial) James — Date: 8-16-12 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:
RECEIVED BY: (Signature)
DATE: TIME:

SAMPLE CONDITION WHEN RECEIVED: 8 8
REMARKS: See Notes on COC #1

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

XUB1103

Analysis Request of Chain of Custody Record

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.: 114-6401383

PROJECT NAME: State 32 Tank Battery Eddy Co NM

ANALYSIS REQUEST (Circle or Specify Method No.)

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
305127	8-16		S	X		T-1 (0-1')	1	N			X	X	X	X											X				
128	"		"		X	T-1 (2')	"	"			"	"													"				
129	"		"		X	T-1 (4')	"	"			"	"													"				
130	"		"		X	T-1 (6')	"	"			"	"													"				
131	"		"		X	T-1 (8')	"	"			"	"													"				
132	"		"		X	T-1 (10')	"	"			"	"													"				
133	"		"	X		T-2 (0-1')	"	"			"	"	X	X											"				
134	"		"		X	T-2 (2')	"	"			"	"													"				
135	"		"		X	T-2 (4')	"	"			"	"													"				
136	8-16		S		X	T-2 (6')	1	N			X	X													X				

RELINQUISHED BY: (Signature) [signature] Date: 8-17-12 Time: 1030

RECEIVED BY: (Signature) [signature] Date: 17 Aug 2012 Time: [illegible]

RELINQUISHED BY: (Signature) [signature] Date: 17 Aug 2012 Time: 1247

RECEIVED BY: (Signature) [signature] Date: [illegible] Time: [illegible]

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) James Date: 8-16-12 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:

RECEIVED BY: (Signature) Brenda Ward IS2A65022
DATE: 8/28/12 TIME: 9:15 4.9 4.4

SAMPLE CONDITION WHEN RECEIVED: 0.8

REMARKS: Run deeper samples if TPH exceeds 5,000 mg/kg Midland all sent to Lubbock

Run deeper samples if benzene exceed 10 mg/kg [illegible] 8/21.

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

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6401383

PROJECT NAME:

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
137	8-16		S		X	T-2 (8')	1	N			X	X
138	8-16		S		X	T-2 (10')	1	N			X	X

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
(circled)	(circled)											X				
												X				

RELINQUISHED BY: (Signature) Date: 8-17-12 Time: 1030

RECEIVED BY: (Signature) Date: 8/17/12 Time: 1030

RELINQUISHED BY: (Signature) Date: 8/17/12 Time: 1230

RECEIVED BY: (Signature) Date: 8/17/12 Time: 1230

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) James Date: 8-16-12 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 LS ZP055022

DATE: 8/29/12 TIME: 9:15 4.9.4.4

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 8 8

REMARKS: See Notes on COC #1

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

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.: 114-6401383

PROJECT NAME: State 32 Tank Battery 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	Chlorides	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
309127	8-16		S	X		T-1 (0-1')	1	N			X	X	X	X											X				
128					X	T-1 (2')							X	X															
129					X	T-1 (4')							X	X															
130					X	T-1 (6')							X																
131					X	T-1 (8')							X																
132					X	T-1 (10')																							
133				X		T-2 (0-1')							X	X															
134					X	T-2 (2')							X	X															
135					X	T-2 (4')							X	X															
136	8-16		S		X	T-2 (6')	1	N			X	X													X				

RELINQUISHED BY: (Signature) — Date: 8-17-12 Time: 1030 — RECEIVED BY: (Signature) — Date: 12 Aug 2012 Time: 1130

RELINQUISHED BY: (Signature) — Date: 12 Aug 2012 Time: 1247 — RECEIVED BY: (Signature) — Date: 8/16/12 Time: 1247

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

SAMPLED BY: (Print & Initial) James — Date: 8-16-12 Time:

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

AIRBILL #: 30 2012

RECEIVING LABORATORY: Trace

ADDRESS:

CITY: Midland STATE: ZIP:

CONTACT: PHONE: DATE: TIME:

RECEIVED BY: (Signature)

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 0.8

REMARKS: How deep samples if TPH exceeds 5,000 mg/kg. Midland all

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

How deep samples if benzene exceed 10 mg/kg or total BTEX exceeds 50 mg/kg:

Analysis Request of Chain of Custody Record

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.: 114-6401383
PROJECT NAME:

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
137	8-16		S		X	T-2 (8')	1	N			X	X
138	8-16		S		X	T-2 (10')	1	N			X	X

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
											•	X				
											•	X				

RELINQUISHED BY: (Signature) — Date: 8-17-12 Time: 1030 — RECEIVED BY: (Signature) — Date: 17 Aug 2012 Time: 1030
RELINQUISHED BY: (Signature) — Date: 17 Aug 12 Time: 1230 — RECEIVED BY: (Signature) — Date: 8/17/12 Time: 1230
RELINQUISHED BY: (Signature) — Date: Time: — RECEIVED BY: (Signature) — Date: Time:

SAMPLED BY: (Print & Initial) James — Date: 8/16/12 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:
RECEIVED BY: (Signature)
DATE: TIME:

SAMPLE CONDITION WHEN RECEIVED: 8 8
REMARKS: See Notes on COC #1

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: March 1, 2013

Work Order: 13022212

Project Location: Eddy Co., NM
Project Name: Alamo/State 32 Tank Battery
Project Number: 114-6401383

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
321929	BH-1 (0-1')	soil	2013-02-20	00:00	2013-02-22
321930	BH-1 (4-5')	soil	2013-02-20	00:00	2013-02-22
321931	BH-1 (9-10')	soil	2013-02-20	00:00	2013-02-22
321932	BH-1 (14-15')	soil	2013-02-20	00:00	2013-02-22
321933	BH-1 (19-20')	soil	2013-02-20	00:00	2013-02-22
321934	BH-1 (24-25')	soil	2013-02-20	00:00	2013-02-22
321935	BH-2 (0-1')	soil	2013-02-20	00:00	2013-02-22
321936	BH-2 (4-5')	soil	2013-02-20	00:00	2013-02-22
321937	BH-2 (9-10')	soil	2013-02-20	00:00	2013-02-22
321938	BH-2 (14-15')	soil	2013-02-20	00:00	2013-02-22
321939	BH-2 (19-20')	soil	2013-02-20	00:00	2013-02-22
321940	BH-2 (24-25')	soil	2013-02-20	00:00	2013-02-22
321941	BH-2 (29-30')	soil	2013-02-20	00:00	2013-02-22
321942	BH-2 (34-35')	soil	2013-02-20	00:00	2013-02-22
321943	BH-2 (39-40')	soil	2013-02-20	00:00	2013-02-22

Sample: 321929 - BH-1 (0-1')

Param	Flag	Result	Units	RL
Chloride		**102**	mg/Kg	4

Sample: 321930 - BH-1 (4-5')

continued ...

sample 321930 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		**660**	mg/Kg	4

Sample: 321931 - BH-1 (9-10')

Param	Flag	Result	Units	RL
Chloride		**645**	mg/Kg	4

Sample: 321932 - BH-1 (14-15')

Param	Flag	Result	Units	RL
Chloride		**711**	mg/Kg	4

Sample: 321933 - BH-1 (19-20')

Param	Flag	Result	Units	RL
Chloride		**497**	mg/Kg	4

Sample: 321934 - BH-1 (24-25')

Param	Flag	Result	Units	RL
Chloride		**279**	mg/Kg	4

Sample: 321935 - BH-2 (0-1')

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 321936 - BH-2 (4-5')

Param	Flag	Result	Units	RL
Chloride		**1030**	mg/Kg	4

Sample: 321937 - BH-2 (9-10')

Param	Flag	Result	Units	RL
Chloride		**1850**	mg/Kg	4

Sample: 321938 - BH-2 (14-15')

Param	Flag	Result	Units	RL
Chloride		**1520**	mg/Kg	4

Sample: 321939 - BH-2 (19-20')

Param	Flag	Result	Units	RL
Chloride		**2210**	mg/Kg	4

Sample: 321940 - BH-2 (24-25')

Param	Flag	Result	Units	RL
Chloride		**4100**	mg/Kg	4

Sample: 321941 - BH-2 (29-30')

Param	Flag	Result	Units	RL
Chloride		**1300**	mg/Kg	4

Sample: 321942 - BH-2 (34-35')

Param	Flag	Result	Units	RL
Chloride		**234**	mg/Kg	4

Sample: 321943 - BH-2 (39-40')

Param	Flag	Result	Units	RL
Chloride		**91.5**	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: March 1, 2013

Work Order: 13022212

Project Location: Eddy Co., NM
Project Name: Alamo/State 32 Tank Battery
Project Number: 114-6401383

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
321929	BH-1 (0-1')	soil	2013-02-20	00:00	2013-02-22
321930	BH-1 (4-5')	soil	2013-02-20	00:00	2013-02-22
321931	BH-1 (9-10')	soil	2013-02-20	00:00	2013-02-22
321932	BH-1 (14-15')	soil	2013-02-20	00:00	2013-02-22
321933	BH-1 (19-20')	soil	2013-02-20	00:00	2013-02-22
321934	BH-1 (24-25')	soil	2013-02-20	00:00	2013-02-22
321935	BH-2 (0-1')	soil	2013-02-20	00:00	2013-02-22
321936	BH-2 (4-5')	soil	2013-02-20	00:00	2013-02-22
321937	BH-2 (9-10')	soil	2013-02-20	00:00	2013-02-22
321938	BH-2 (14-15')	soil	2013-02-20	00:00	2013-02-22
321939	BH-2 (19-20')	soil	2013-02-20	00:00	2013-02-22
321940	BH-2 (24-25')	soil	2013-02-20	00:00	2013-02-22
321941	BH-2 (29-30')	soil	2013-02-20	00:00	2013-02-22
321942	BH-2 (34-35')	soil	2013-02-20	00:00	2013-02-22
321943	BH-2 (39-40')	soil	2013-02-20	00:00	2013-02-22

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

This report consists of a total of 15 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

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

Report Contents

Case Narrative

Samples for project Alamo/State 32 Tank Battery were received by TraceAnalysis, Inc. on 2013-02-22 and assigned to work order 13022212. Samples for work order 13022212 were received intact at a temperature of 3.8 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	84163	2013-02-27 at 12:54	99354	2013-02-28 at 19:09
Chloride (Titration)	SM 4500-Cl B	84163	2013-02-27 at 12:54	99355	2013-02-28 at 19:10

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 13022212 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: 321929 - BH-1 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99354	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**102**	mg/Kg	5	4.00

Sample: 321930 - BH-1 (4-5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99354	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**660**	mg/Kg	5	4.00

Sample: 321931 - BH-1 (9-10')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99354	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**645**	mg/Kg	5	4.00

Sample: 321932 - BH-1 (14-15')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99354	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**711**	mg/Kg	5	4.00

Sample: 321933 - BH-1 (19-20')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99354	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**497**	mg/Kg	5	4.00

Sample: 321934 - BH-1 (24-25')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99354	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**279**	mg/Kg	5	4.00

Sample: 321935 - BH-2 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99354	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 321936 - BH-2 (4-5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99355	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1030**	mg/Kg	10	4.00

Sample: 321937 - BH-2 (9-10')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99355	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1850**	mg/Kg	10	4.00

Sample: 321938 - BH-2 (14-15')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99355	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1520**	mg/Kg	10	4.00

Sample: 321939 - BH-2 (19-20')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99355	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2210**	mg/Kg	10	4.00

Sample: 321940 - BH-2 (24-25')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99355	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4100**	mg/Kg	10	4.00

Sample: 321941 - BH-2 (29-30')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99355	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1300**	mg/Kg	10	4.00

Sample: 321942 - BH-2 (34-35')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99355	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**234**	mg/Kg	5	4.00

Sample: 321943 - BH-2 (39-40')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99355	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	Sample Preparation:	2013-02-27	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**91.5**	mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 99354

QC Batch:	99354	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	QC Preparation:	2013-02-27	Prepared By:	AR

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

Method Blank (1) QC Batch: 99355

QC Batch:	99355	Date Analyzed:	2013-02-28	Analyzed By:	AR
Prep Batch:	84163	QC Preparation:	2013-02-27	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: 99354 | Date Analyzed: 2013-02-28 | Analyzed By: AR
Prep Batch: 84163 | QC Preparation: 2013-02-27 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2300	mg/Kg	1	2500	<3.85	92	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			2520	mg/Kg	1	2500	<3.85	101	85 - 115	9	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: 99355 | Date Analyzed: 2013-02-28 | Analyzed By: AR
Prep Batch: 84163 | QC Preparation: 2013-02-27 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2650	mg/Kg	1	2500	<3.85	106	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			2430	mg/Kg	1	2500	<3.85	97	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: 321935

QC Batch: 99354 | Date Analyzed: 2013-02-28 | Analyzed By: AR
Prep Batch: 84163 | QC Preparation: 2013-02-27 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2570	mg/Kg	5	2500	<19.2	103	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			2350	mg/Kg	5	2500	<19.2	94	78.9 - 121	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: 321945

QC Batch: 99355 | Date Analyzed: 2013-02-28 | Analyzed By: AR
Prep Batch: 84163 | QC Preparation: 2013-02-27 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3080	mg/Kg	5	2500	407	107	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			2820	mg/Kg	5	2500	407	96	78.9 - 121	9	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: 99354 | Date Analyzed: 2013-02-28 | 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	99.8	100	85 - 115	2013-02-28

Standard (CCV-2)

QC Batch: 99354 | Date Analyzed: 2013-02-28 | 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	2013-02-28

Standard (CCV-1)

QC Batch: 99355 | Date Analyzed: 2013-02-28 | 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	2013-02-28

Standard (CCV-2)

QC Batch: 99355 | Date Analyzed: 2013-02-28 | 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	2013-02-28

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

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.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
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.

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: Alamo Permian
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6401383
PROJECT NAME: State 32 Tank Battery Eddy Co NM

LAB I.D. NUMBER	DATE 2013	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
321929	2-20		S		X	BH-1 (0-1)	1	N			X	X												X				
930	"		"		"	BH-1 (4-5)	"	"			"	"												"				
931	"		"		"	BH-1 (9-10)	"	"			"	"												"				
932	"		"		"	BH-1 (14-15)	"	"			"	"												"				
933	"		"		"	BH-1 (19-20)	"	"			"	"												"				
934	"		"		"	BH-1 (24-25)	"	"			"	"												"				
935	"		"		"	BH-2 (0-1)	"	"			"	"												"				
936	"		"		"	BH-2 (4-5)	"	"			"	"												"				
937	"		"		"	BH-2 (9-10)	"	"			"	"												"				
938	2-20		S		X	BH-2 (14-15)	1	N			X	X												X				

RELINQUISHED BY: (Signature) — Date: 2-22-13 Time: 0900
RECEIVED BY: (Signature) — Date: 02-22-13 Time: 0900
SAMPLED BY: (Print & Initial) James — Date: 2-20-13 Time:

RELINQUISHED BY: (Signature) — Date: 02-22-13 Time: 1100
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: Trace
ADDRESS:
CITY: Midland STATE: ZIP:
CONTACT: PHONE: DATE: TIME:
RECEIVED BY: (Signature)
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.8°
REMARKS: Midland - AL

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

130:22212

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: Alamo Permian
SITE MANAGER: IKE Tavarez
PROJECT NO.: 114-6401383
PROJECT NAME: State 32 Tank Battery Eddy CoNM

LAB I.D. NUMBER	DATE 2013	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
939	2-20		S		X	BH-2 (19-20)	1	N			X	X
940	"		"		"	BH-2 (24-25)	"	"			"	"
941	"		"		"	BH-2 (29-30)	"	"			"	"
942	"		"		"	BH-2 (34-35)	"	"			"	"
943	2-20		S		X	BH-2 (39-40)	1	N			X	X

ANALYSIS REQUEST: 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: 02-22-13 Time: 0900	RECEIVED BY: (Signature)	Date: 02-22-13 Time: 0900
SAMPLED BY: (Print & Initial) James	Date: 2-20-13 Time:		
RELINQUISHED BY: (Signature)	Date: 02-22-13 Time: 1100	RECEIVED BY: (Signature)	Date: Time: 11:00
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	RECEIVED BY: (Signature)		
ADDRESS: CITY: Midland STATE: ZIP:	RUSH Charges Authorized: Yes No		
CONTACT: PHONE:	DATE: TIME:		
SAMPLE CONDITION WHEN RECEIVED: 3.5C	REMARKS:		

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