# SITE INFORMATION

## Report Type: Closure Report

| General Site Information: | | | | | | |
|---|---|---|---|---|---|---|
| **Site:** | Lakewood AQE State SWD #001 | | | | | |
| **Company:** | COG Operating LLC | | | | | |
| **Section, Township and Range** | Unit F | Sec 30 | T19S | R26E | | |
| **Lease Number:** | API-30-015-22233 | | | | | |
| **County:** | Eddy County | | | | | |
| **GPS:** | 32.63342° N | | | 104.42331° W | | |
| **Surface Owner:** | State | | | | | |
| **Mineral Owner:** | | | | | | |
| **Directions:** | From Artesia travel south for approx. 15 miles on hwy. 285. Turn west on county road 23 and travel 0.60 miles turning north on lease road traveling 0.61 miles north then 0.15 miles west to the location. | | | | | |

| Release Data: | |
|---|---|
| *Date Released:* | 7/22/2013 |
| *Type Release:* | Produced Water |
| *Source of Contamination:* | Steel Flowline |
| *Fluid Released:* | 500 bbls |
| *Fluids Recovered:* | 480 bbls |

| Official Communication: | | | |
|---|---|---|---|
| *Name:* | Robert McNeill | | Ike Tavarez |
| *Company:* | COG Operating, LLC | | Tetra Tech |
| *Address:* | One Concho Center | | 4000 N. Big Spring St. |
| | 600 W. Illinois Ave. | | Suite 401 |
| *City:* | Midland Texas, 79701 | | Midland, Texas |
| *Phone number:* | (432) 686-3023 | | (432) 682-4559 |
| *Fax:* | (432) 684-7137 | | |
| *Email:* | rmcneill@conchoresources.com | | ike.tavarez@tetratech.com |

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

| Acceptable Soil RRAL (mg/kg) | | |
|---|---|---|
| ***Benzene*** | ***Total BTEX*** | ***TPH*** |
| 10 | 50 | 1,000 |

TETRA TECH

December 24, 2013

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
811S. First Street
Artesia, New Mexico 88210

**Re: Closure Report for the COG Operating LLC., Lakewood AQE St SWD #1, Unit F, Section 30, Township 19 South, Range 26 East, Eddy County, New Mexico.**

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Lakewood AQE St SWD #1 located in Unit F, Section 30, Township 19 South, Range 26 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.63342°, W 104.42331°. 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 July 22, 2013, and released approximately five hundred (500) barrels of produced water from a steel flowline. To alleviate the problem, COG personnel replaced the flowline. Four hundred and eighty (480) barrels of produced water were recovered. The spill was initiated on the pad and flowed into the pasture affecting areas approximately 45' X 160' and 80' x 340'. The initial C-141 form is enclosed in Appendix A.

**Groundwater**

According to the New Mexico State Engineers Office there is one well listed in Section 30 with a depth to groundwater of 105' below surface. According to the NMOCD groundwater map the depth to groundwater is between 50' and 100' below surface. The groundwater data is shown in Appendix B.

Tetra Tech
4000 North Big Spring, Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

## Regulatory

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

## Soil Assessment and Analytical Results

On August 21, 2013, Tetra Tech personnel inspected and sampled the spill area. Fifteen (15) auger holes (AH-1 through AH-15) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all auger hole samples were below the RRAL for BTEX and TPH and no hydrocarbon impact was detected in the subsurface soils.

Auger holes (AH-2, AH-3, AH-4, AH-5, AH-6 and AH-8) showed chloride concentrations at 0-1' ranging from 1,290 mg/kg to 2,450 mg/kg. Deeper samples could not be collected due to the dense formation. These areas were not vertically defined. The areas of AH-7, AH-11, AH-12 and AH-14 showed a shallow chloride impact to the soils, with decrease with depth and vertically defined at 1-1.5' below surface. The area of AH-13 declined with depth to <20 mg/kg at 1-1.5', however, spiked at 2-2.5' with a concentration of 2,280 mg/kg.

## Remedial Activities and Conclusion

On October 24, 2013, Tetra Tech supervised the excavation of impacted soils as highlighted (green) on Table 1 and shown on Figure 4. Prior to excavating, the areas of AH-2, AH-3, AH-4, AH-5, AH-6, AH-8 and AH-13 were trenched with a backhoe (T-1 through T-7) to define extents on the pad. Based on the field results, these areas were excavated to the appropriate depths. On the pad, the areas of auger holes (AH-2, AH-3, AH-4 and AH-6) were excavated approximately 1.0' to 1.5' and AH-5 excavated to approximate depth of 3.0' below surface.

TETRA TECH

The remaining areas in the pasture of auger holes (AH-7, AH-8, AH-11, and AH-12) were excavated to a depth of 1.0' to remove the shallow chlorides. The area of AH-13 was also trenched with a backhoe to defined extents and excavated to a depth of approximately 3.0' below surface. Approximately 1,900 yards of impacted soil was excavated and transported to proper disposal. Once excavated to the appropriate depths, the excavations were backfilled with clean soil.

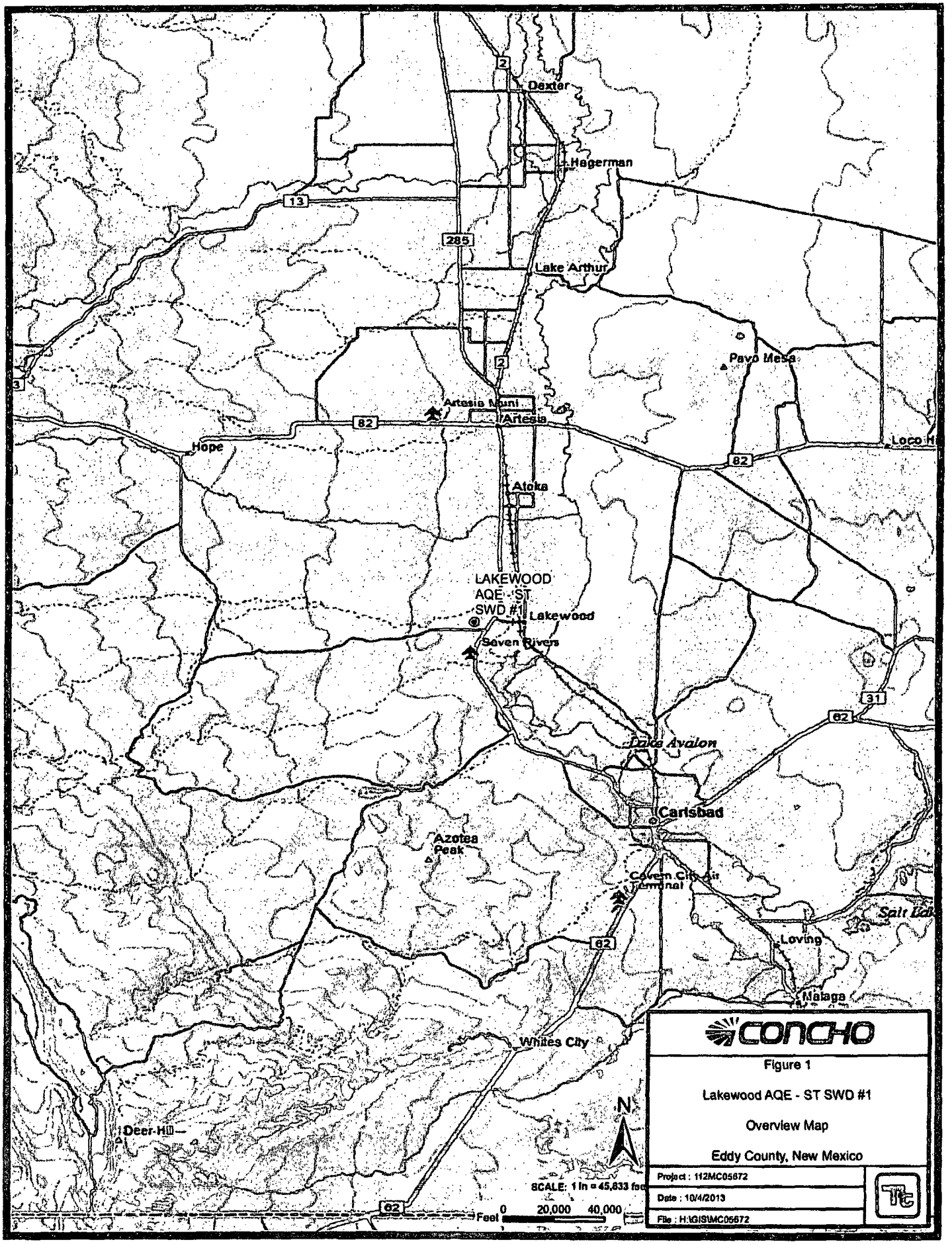
Based on the remedial activities, COG requests closure of this site. The Final C-141 is included in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

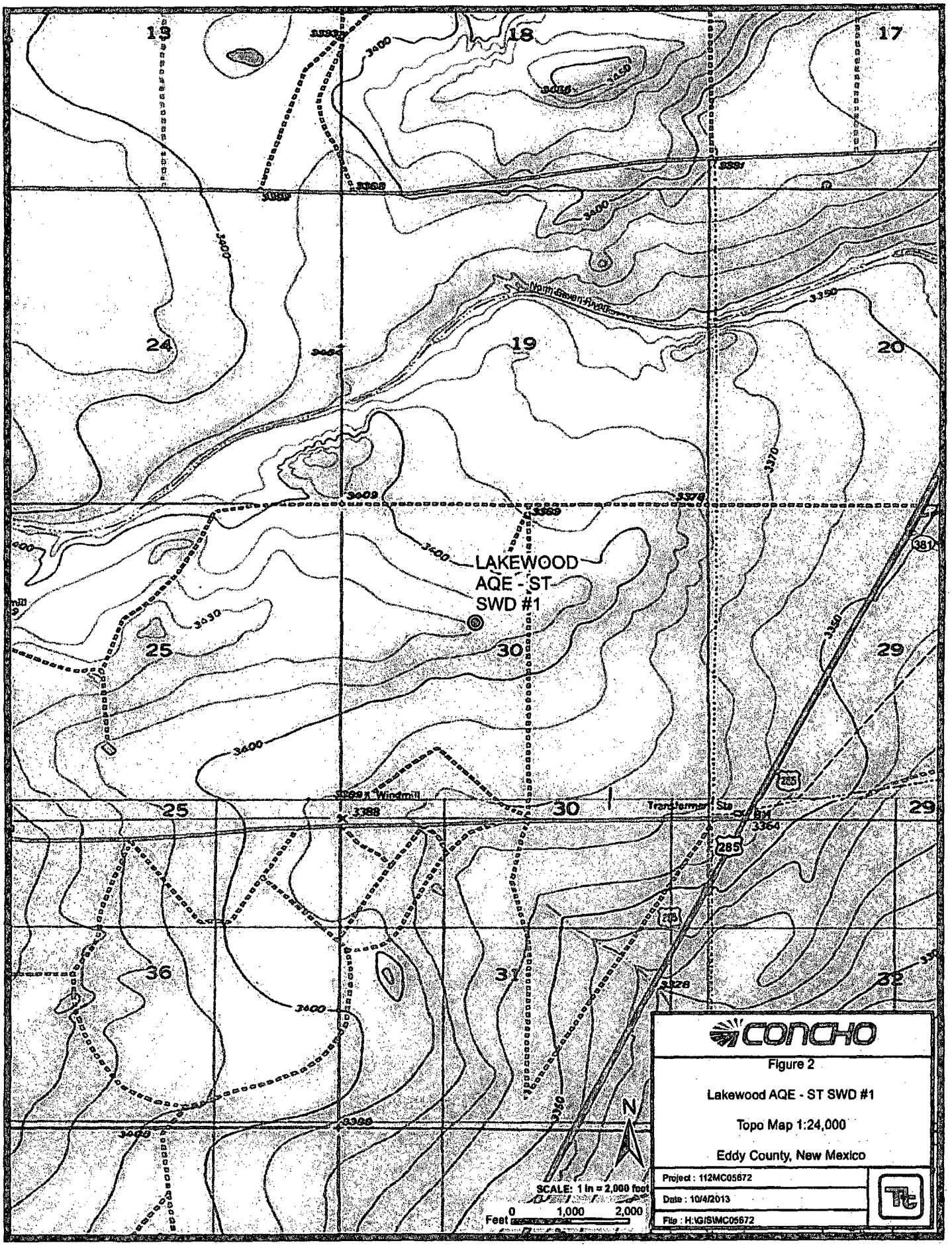
Ike Tavarez, PG
Senior Project Manager

cc: Robert McNeill – COG

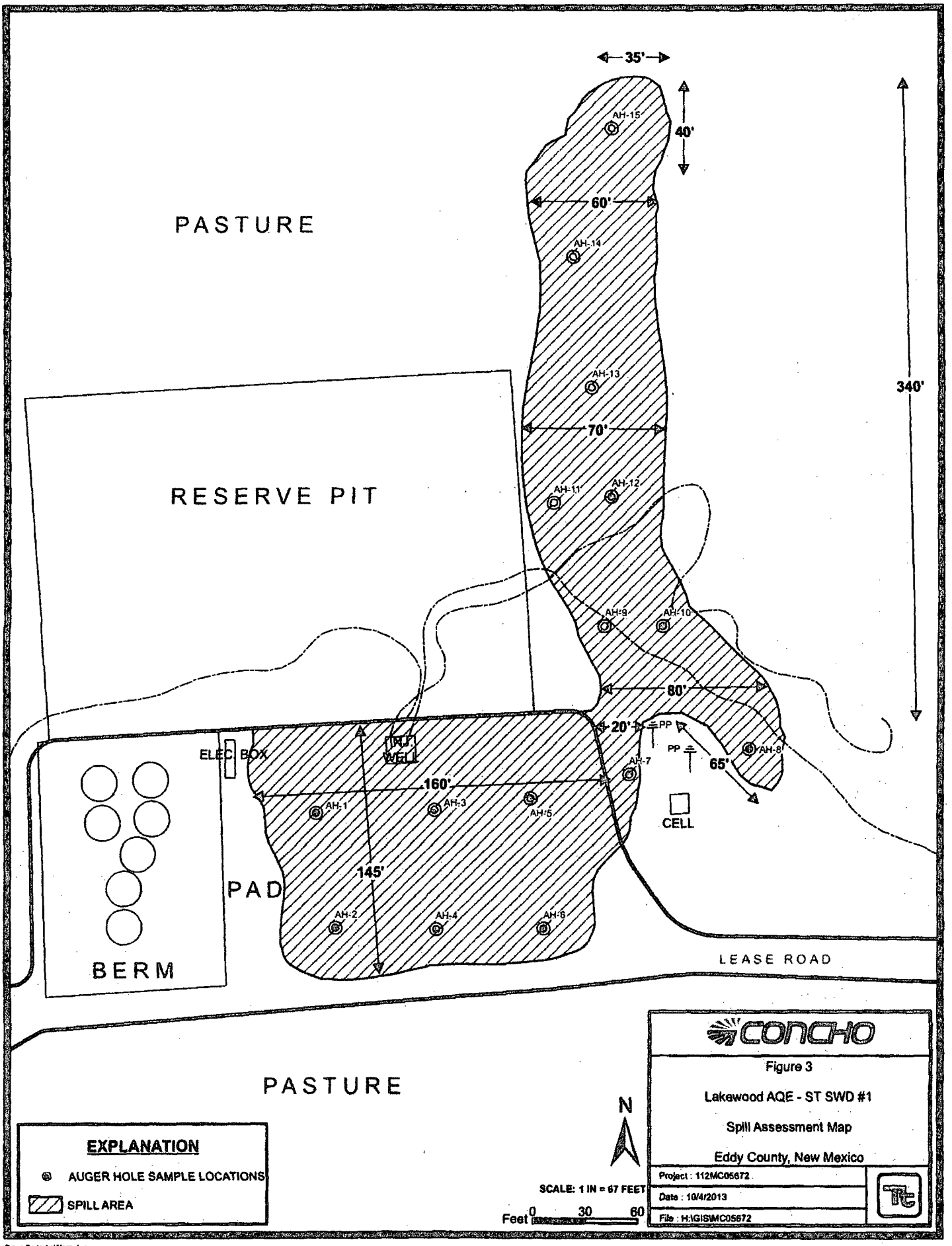
# FIGURES



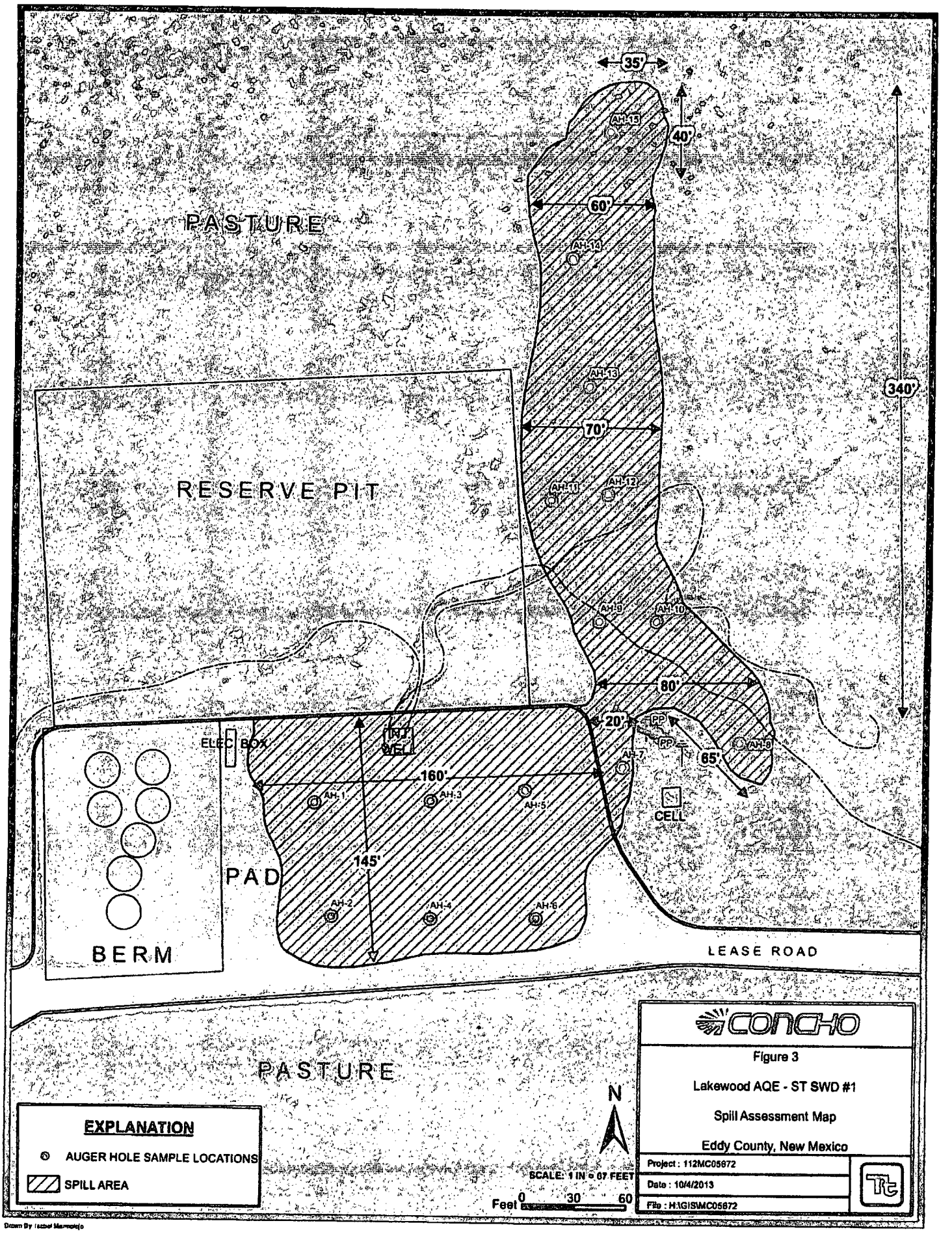

Drawn By: Isabel Marmolejo



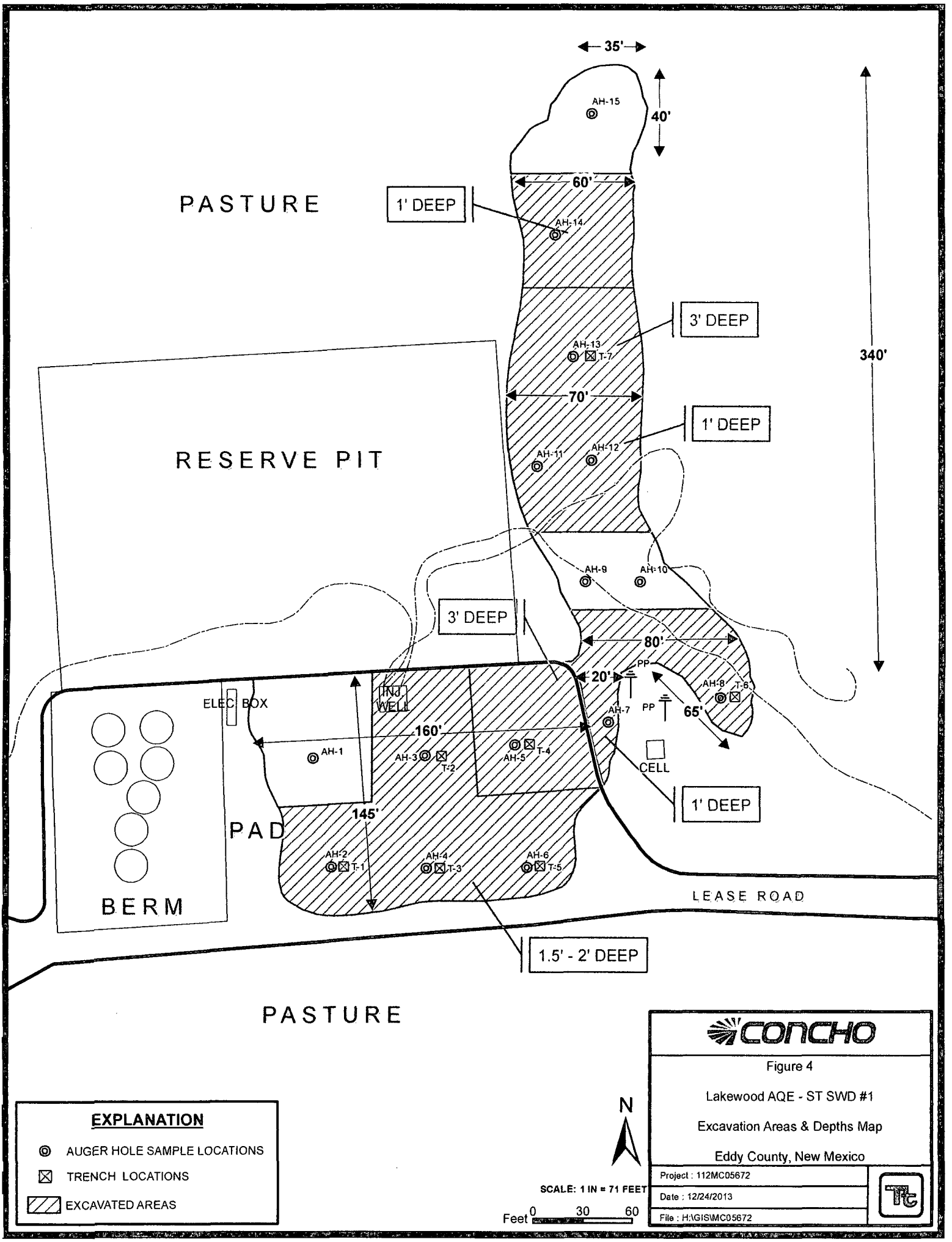

Drawn By: Isabel Manriquez




Drawn By: Isabel Manriquez




Drawn By: Rachel Marrujo




**EXPLANATION**

- AUGER HOLE SAMPLE LOCATIONS
- TRENCH LOCATIONS
- EXCAVATED AREAS

N

SCALE: 1 IN = 71 FEET

Feet 0 30 60

CONCHO

Figure 4

Lakewood AQE - ST SWD #1

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 112MC05672

Date : 12/24/2013

File : H:\GIS\MC05672

Drawn By: Isabel Marmolejo

# TABLES

Table 1
COG Operating LLC.
Lakewood AQE St SWD #1
Eddy County, New Mexico

| Sample ID | Sample Date | BEB Sample Depth (ft) | Excavation Bottom Depth (ft) | Soil Status | | TPH (mg/kg) | | | Benzene (mg/kg) | Toluene (mg/kg) | Ethlybenzene (mg/kg) | Xylene (mg/kg) | Total BTEX (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | In-Situ | Removed | GRO | DRO | Total | | | | | | |
| AH-1 | 8/21/2013 | 0-1 | 0 | X | | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 877 |
| AH-2 | 8/21/2013 | 0-6" | 0 | | X | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 1,780 |
| | | | | | | | | | | | | | | |
| T-1 | 10/30/2013 | 0 | 2 | | X | - | - | - | - | - | - | - | - | 5,770 |
| | | 2 | | | X | - | - | - | - | - | - | - | - | 640 |
| | | 3 | | X | | - | - | - | - | - | - | - | - | 247 |
| | | 5 | | X | | - | - | - | - | - | - | - | - | 745 |
| | | 6 | | X | | - | - | - | - | - | - | - | - | 961 |
| | | | | | | | | | | | | | | |
| AH-3 | 8/21/2013 | 0-1 | 0 | | X | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 2,450 |
| | | | | | | | | | | | | | | |
| T-2 | 10/30/2013 | 0-1 | 1.5 | | X | - | - | - | - | - | - | - | - | 5,770 |
| | | 3 | | X | | - | - | - | - | - | - | - | - | 640 |
| | | 5 | | X | | - | - | - | - | - | - | - | - | 247 |
| | | 6 | | X | | - | - | - | - | - | - | - | - | 745 |
| | | | | | | | | | | | | | | |
| bottom hole | | 0-1 | 1.5 | X | | | | | | | | | | 1,170 |
| AH-4 | 8/21/2013 | 0-1 | 0 | | X | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 1,420 |
| | | | | | | | | | | | | | | |
| T-3 | 10/30/2013 | 0 | 2 | | X | - | - | - | - | - | - | - | - | 1,490 |
| | | 2 | | | X | - | - | - | - | - | - | - | - | 662 |
| | | 4 | | X | | - | - | - | - | - | - | - | - | 1,480 |
| | | 6 | | X | | - | - | - | - | - | - | - | - | 1,600 |
| | | 8 | | X | | - | - | - | - | - | - | - | - | 1,640 |

Table 1
COG Operating LLC.
Lakewood AQE St SWD #1
Eddy County, New Mexico

| Sample ID | Sample Date | BEB Sample Depth (ft) | Excavation Bottom Depth (ft) | Soil Status | | TPH (mg/kg) | | | Benzene (mg/kg) | Toluene (mg/kg) | Ethlybenzene (mg/kg) | Xylene (mg/kg) | Total BTEX (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | In-Situ | Removed | GRO | DRO | Total | | | | | | |
| AH-5 | 8/21/2013 | 0-1 | 0 | | X | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 1,290 |
| | | | | | | | | | | | | | | |
| T-4 | 10/30/2013 | 0 | 3 | | X | | | | | | | | | 3,450 |
| | | 2 | | | X | | | | | | | | | 4,020 |
| | | 4 | | X | | - | - | - | - | - | - | - | - | 28 |
| | | | | | | | | | | | | | | |
| bottom hole | 10/30/2013 | 0-1 | 3 | | | | | | | | | | | 1,930 |
| | | | | | | | | | | | | | | |
| AH-6 | 8/21/2013 | 0-1 | 0 | | X | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 1,330 |
| | | | | | | | | | | | | | | |
| T-5 | 10/30/2013 | 0 | 2 | | X | | | | | | | | | 611 |
| | | 2 | | | X | | | | | | | | | 972 |
| | | 4 | | X | | - | - | - | - | - | - | - | - | 209 |
| | | 6 | | X | | - | - | - | - | - | - | - | - | 336 |
| | | | | | | | | | | | | | | |
| AH-7 | 8/21/2013 | 0-1 | 0 | X | | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 1,020 |
| | " | 1-1.5 | " | X | | - | - | - | - | - | - | - | - | <20.0 |
| | " | 2-2.5 | " | X | | - | - | - | - | - | - | - | - | <20.0 |
| | " | 3-3.5 | " | X | | - | - | - | - | - | - | - | - | 262 |
| | | | | | | | | | | | | | | |
| AH-8 | 8/21/2013 | 0 | 0 | | X | | | | | | | | | 1,630 |
| | | | | | | | | | | | | | | |
| T-6 | 10/30/2013 | 0 | 1 | | X | | | | | | | | | 716 |
| | | 2 | | X | | - | - | - | - | - | - | - | - | <20.0 |
| | | 4 | | X | | - | - | - | - | - | - | - | - | 242 |
| | | 5 | | X | | - | - | - | - | - | - | - | - | 83 |
| | | | | | | | | | | | | | | |

**Table 1**
**COG Operating LLC.**
**Lakewood AQE St SWD #1**
**Eddy County, New Mexico**

| Sample ID | Sample Date | BEB Sample Depth (ft) | Excavation Bottom Depth (ft) | Soil Status | | TPH (mg/kg) | | | Benzene (mg/kg) | Toluene (mg/kg) | Ethlybenzene (mg/kg) | Xylene (mg/kg) | Total BTEX (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | In-Situ | Removed | GRO | DRO | Total | | | | | | |
| AH-9 | 8/21/2013 | 0-1 | 0 | X | | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 812 |
| AH-10 | 8/21/2013 | 0-1 | 0 | X | | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 901 |
| AH-11 | 8/21/2013 | 0-1 | 0 | X | | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 2,400 |
| | | 1-1.5 | | | | | | | | | | | | <20.0 |
| AH-12 | 8/21/2013 | 0-1 | 0 | X | | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 1,680 |
| | | 1-1.5 | | | | | | | | | | | | 190 |
| AH-13 | 8/21/2013 | 0-1 | 0 | | X | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 6,730 |
| | " | 1-1.5 | " | | X | - | - | - | - | - | - | - | - | <20.0 |
| | " | 2-2.5 | " | | X | - | - | - | - | - | - | - | - | 2,280 |
| | | | | | X | - | - | - | - | - | - | - | - | - |
| T-7 | 10/30/2013 | 0 | 3 | | X | - | - | - | - | - | - | - | - | 800 |
| | | 2 | | X | | - | - | - | - | - | - | - | - | 202 |
| | | 4 | | X | | - | - | - | - | - | - | - | - | 418 |
| | | 6 | | X | | - | - | - | - | - | - | - | - | 69 |
| | | 8 | | X | | - | - | - | - | - | - | - | - | <20.0 |
| | | | | | | | | | | | | | | |

# Table 1
## COG Operating LLC.
## Lakewood AQE St SWD #1
## Eddy County, New Mexico

| Sample ID | Sample Date | BEB Sample Depth (ft) | Excavation Bottom Depth (ft) | Soil Status | | TPH (mg/kg) | | | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Xylene (mg/kg) | Total BTEX (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | In-Situ | Removed | GRO | DRO | Total | | | | | | |
| AH-14 | 8/21/2013 | 0-1 | 0 | | X | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 1,080 |
| | " | 1-1.5 | " | X | | - | - | - | - | - | - | - | - | <20.0 |
| | " | 2-2.5 | " | X | | - | - | - | - | - | - | - | - | <20.0 |
| AH-15 | 8/21/2013 | 0-1 | 0 | X | | <4.00 | <50.0 | <50.0 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <0.0200 | 480 |
| | " | 1-1.5 | " | X | | - | - | - | - | - | - | - | - | 145 |
| | " | 2-2.5 | " | X | | - | - | - | - | - | - | - | - | <20.0 |
| | " | 3-3.5 | " | X | | - | - | - | - | - | - | - | - | 305.0 |
| T-8 Background | 10/30/2013 | 0 | | X | | | | | | | | | | 161 |
| | | 2 | | X | | | | | | | | | | 202 |
| | | 4 | | X | | | | | | | | | | 92 |
| | | 6 | | X | | | | | | | | | | 455 |
| | | 8 | | X | | | | | | | | | | 431 |

( - ) Not Analyzed

(BEB) Below Excavation Bottom

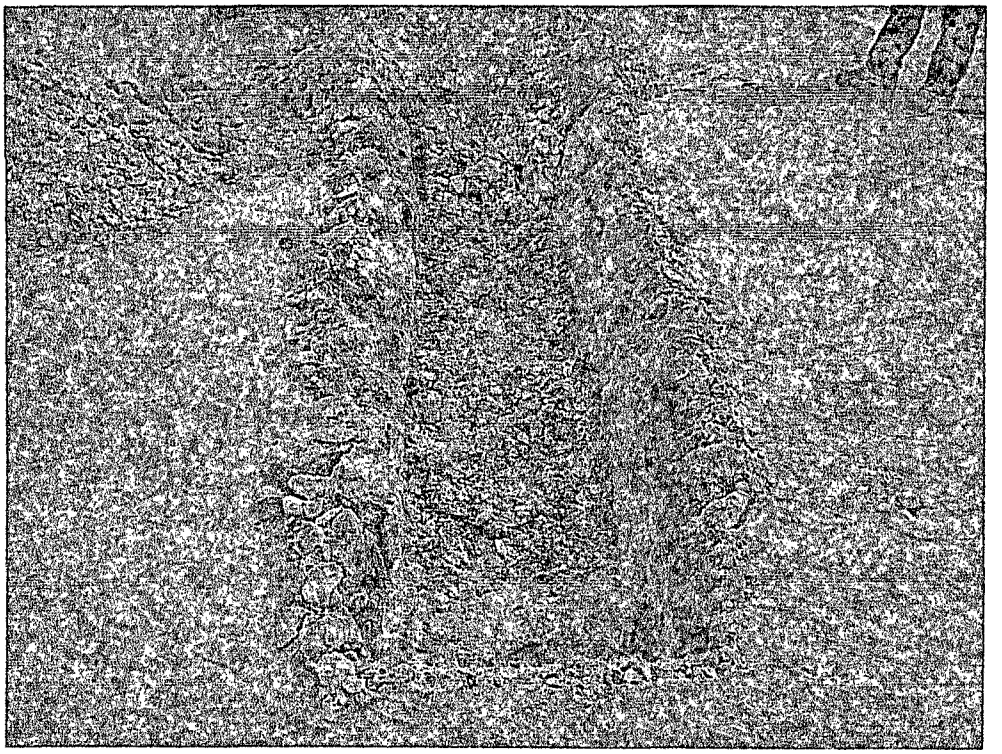
Excavation Depths

Trench Installed Trench to Define

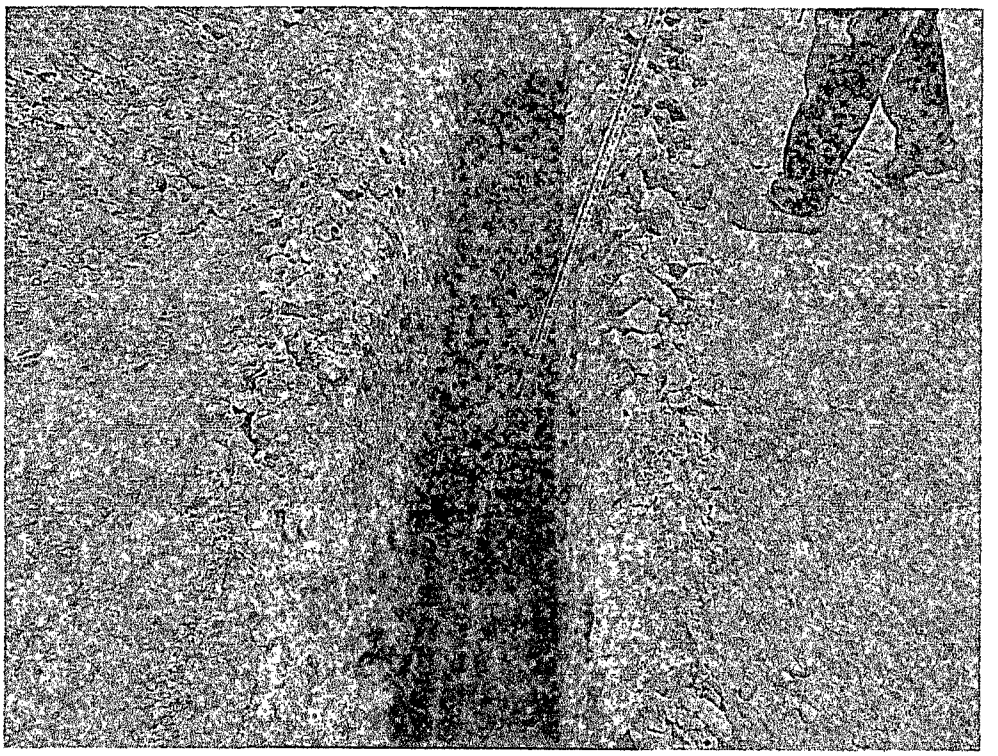
PHOTOGRAPHS

COG Operating LLC
Lakewood AQE St.
SWD #1
Eddy County, New Mexico

TETRA TECH



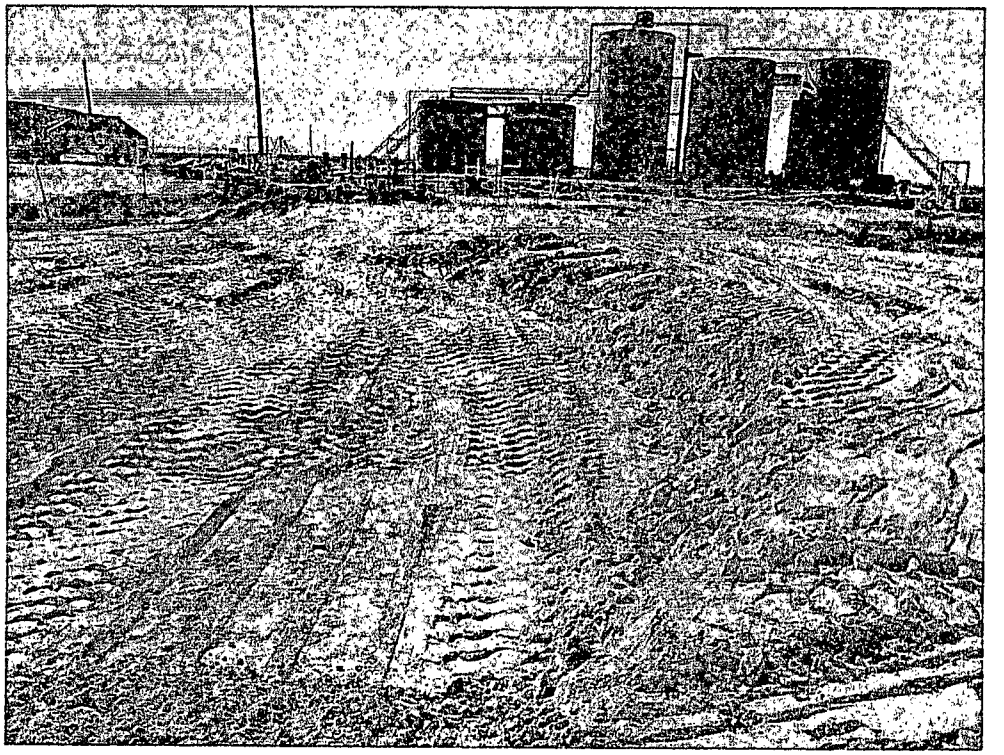
View East – T-1 in area of AH-2



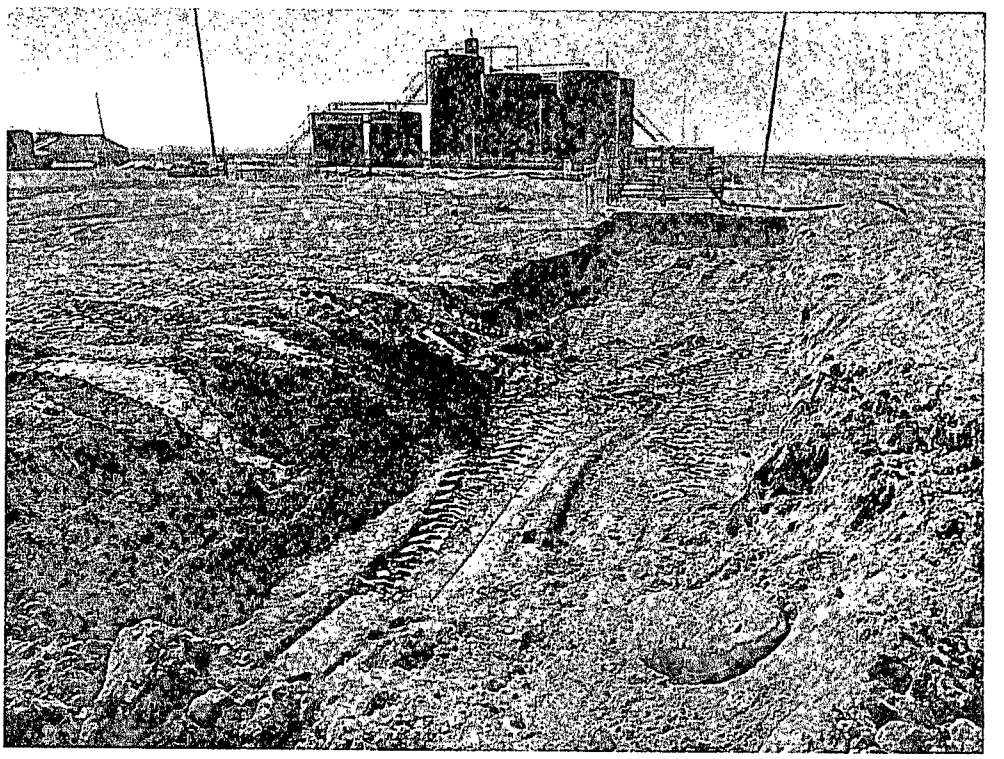
View East – T-3 in area of AH-4

COG Operating LLC
Lakewood AQE St.
SWD #1
Eddy County, New Mexico

TETRA TECH



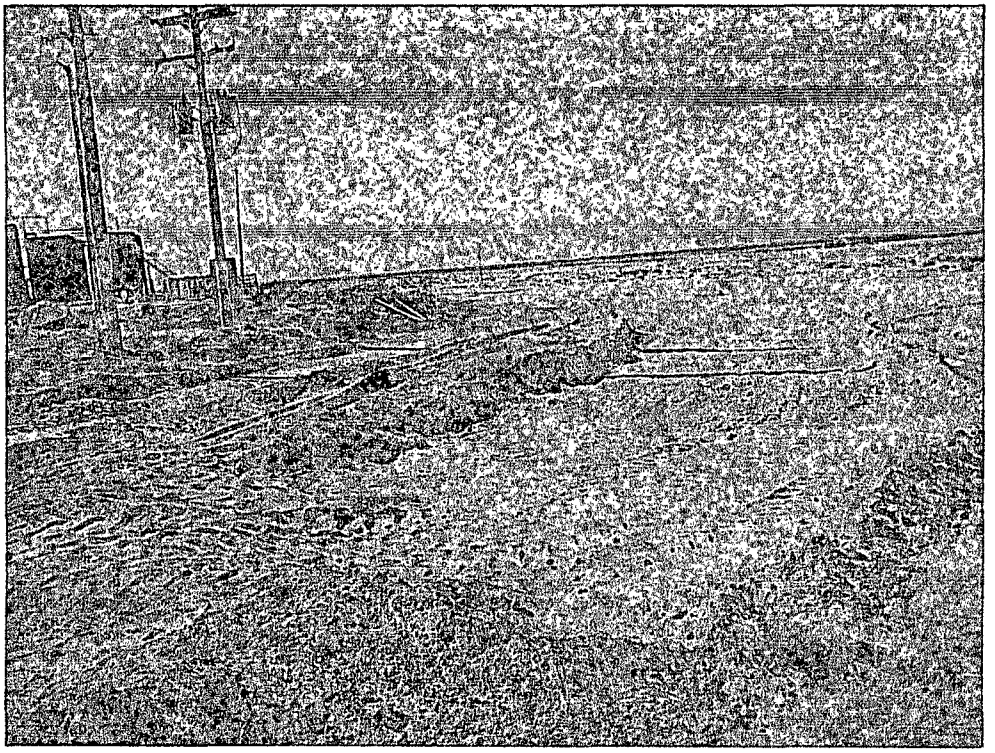
View West – Ah-2, AH-4, and AH-6 areas



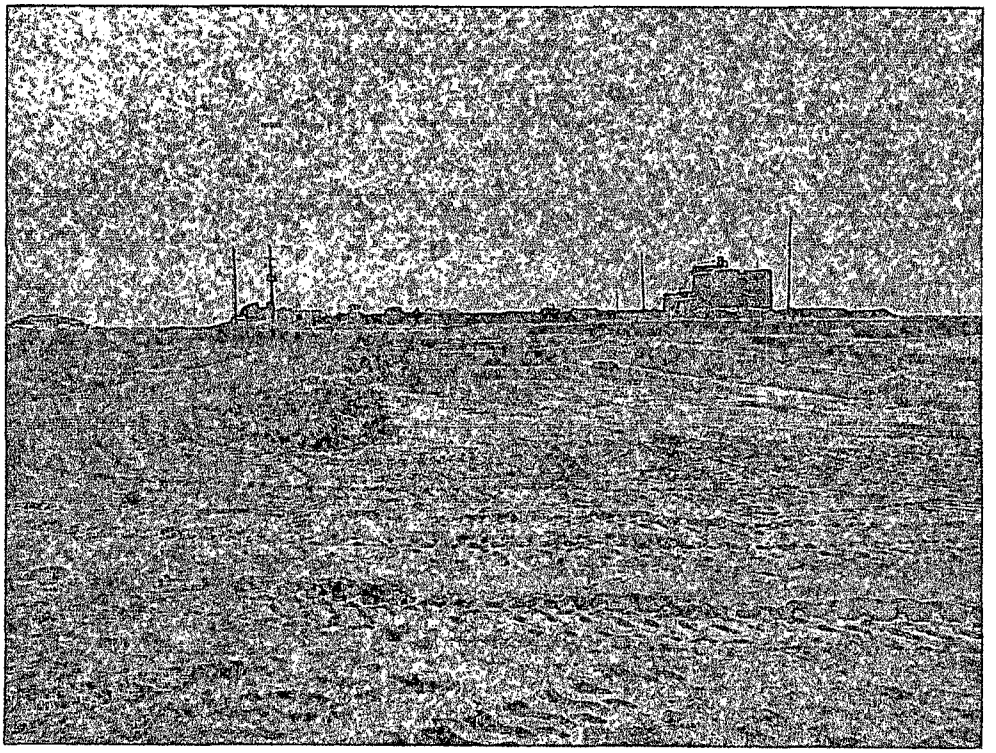
View West – AH-1, AH-3, and AH-5 areas

COG Operating LLC
Lakewood AQE St.
SWD #1
Eddy County, New Mexico

TETRA TECH



View West – AH-8 area



View South – AH-11 through AH-14 areas

COG Operating LLC
Lakewood AQE St.
SWD #1
Eddy County, New Mexico

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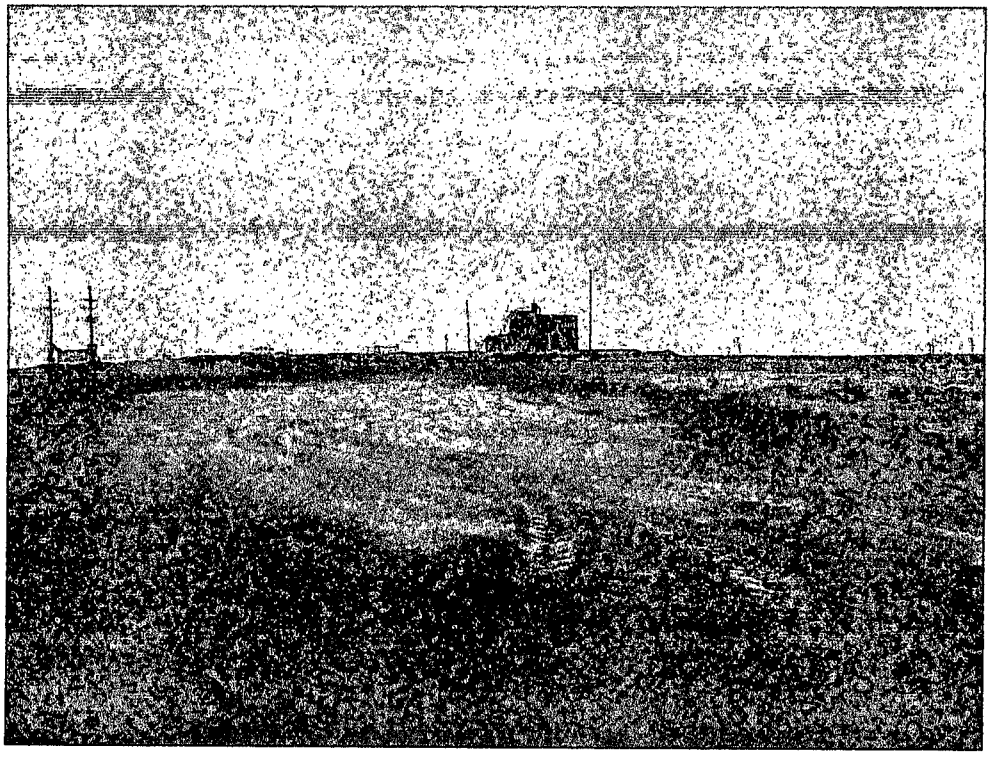
View West – Pad area backfilled

View West – AH-8 area backfilled

COG Operating LLC
Lakewood AQE St.
SWD #1
Eddy County, New Mexico

TETRA TECH



View South – AH-11 through AH-14 backfilled

# 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

# Release Notification and Corrective Action

## OPERATOR

☐ Initial Report ☒ Final Report

| | |
|---|---|
| Name of Company **COG Operating LLC** | Contact **Robert McNeill** |
| Address **600 W. Illinois Ave, Midland, Texas 79701** | Telephone No. **(432) 685-4332** |
| Facility Name **Lakewood AQE State SWD #1** | Facility Type **SWD** |

| | | |
|---|---|---|
| Surface Owner: State | Mineral Owner | Lease No. (API#) 30-015-22233 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| F | 30 | 19S | 26E | | | | | Eddy |

**Latitude** 32.63342° N **Longitude** 104.42331° W

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release: Produced Water | Volume of Release 500 bbls | Volume Recovered 480 bbls |
| Source of Release: Steel flow line | Date and Hour of Occurrence 7/22/2013 | Date and Hour of Discovery 7/22/2013 6:15 am |
| Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required | If YES, To Whom? **Mike Bratcher - NMOCD** | |
| By Whom? Michelle Mullins | Date and Hour 7/22/2013 6:39 pm | |
| Was a Watercourse Reached? ☐ Yes ☒ No | If YES, Volume Impacting the Watercourse. N/A | |

If a Watercourse was Impacted, Describe Fully.*

N/A

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MAR 05 2014
NMOCD ARTESIA

Describe Cause of Problem and Remedial Action Taken.*

A hole developed on the steel flow line due to corrosion. The line has been replaced to prevent reoccurrence.

Describe Area Affected and Cleanup Action Taken.*

Initially 500bbls of produced water were released from a steel flow line, but using vacuum trucks, 480bbls were recovered. The spill was located north of the pad in the adjacent pasture. Tetra Tech inspected site and collected samples to define spills extent. Soil that exceeded RRAL was removed and hauled to proper disposal. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review.

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

Signature:

Printed Name: Ike Tavarez (agent for COG)

Title: Project Manager

E-mail Address: Ike.Tavarez@TetraTech.com

Date: 12-24-13 Phone: (432) 682-4559

## OIL CONSERVATION DIVISION

Approved by District Supervisor:

Approval Date: Expiration Date:

Conditions of Approval: Attached ☐

* Attach Additional Sheets If Necessary

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

# Release Notification and Corrective Action

## OPERATOR

☒ Initial Report ☐ Final Report

| | | | |
|---|---|---|---|
| Name of Company | COG OPERATING LLC | Contact | Pat Ellis |
| Address | 600 West Illinois Avenue, Midland, TX 79701 | Telephone No. | 432-230-0077 |
| Facility Name | Lakewood AQE State SWD #001 | Facility Type | SWD |

| | | |
|---|---|---|
| Surface Owner State | Mineral Owner | Lease No. (API#) 30-015-22233 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| F | 30 | 19S | 26E | | | | | Eddy |

**Latitude** 32.63342 **Longitude** 104.42331

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release Produced water | Volume of Release 500bbls | Volume Recovered 480bbls |
| Source of Release Steel flowline | Date and Hour of Occurrence 07-22-2013 | Date and Hour of Discovery 07-22-2013 06:15am |
| Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required | If YES, To Whom? Mike Bratcher - NMOCD | |
| By Whom? Michelle Mullins | Date and Hour 07-22-2013 6:39pm | |
| 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.*

A hole developed on the steel flowline due to corrosion. The line has been replaced to prevent reoccurrence

Describe Area Affected and Cleanup Action Taken.*

Initially 500bbls of produced water were released from a steel flowline we were able to recover 480bbls with vacuum trucks. All free fluid has been recovered. The spill was located north of the pad in the adjacent pasture. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a work plan to the NMOCD for approval prior to any significant remediation work.

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

| | |
|---|---|
| Signature: | OIL CONSERVATION DIVISION |
| Printed Name: Robert Grubbs Jr. | Approved by District Supervisor: |
| Title: Senior Environmental Coordinator | Approval Date: / Expiration Date: |
| E-mail Address: rgrubbs@concho.com | Conditions of Approval: / Attached ☐ |
| Date: 07-24-2013 Phone: 432-661-6601 | |

* Attach Additional Sheets If Necessary

# APPENDIX B

**Water Well Data**
**Average Depth to Groundwater (ft)**
**COG - Lakewood AQE State SWD #001**
**Eddy County, New Mexico**

**18 South 25 East**

| | | | | | |
|---|---|---|---|---|---|
| 6 | 5 | 4 166 | 3 184 | 2 175 | 1 187 |
| 7 | 8 | 9 | 10 168 | 11 | 12 |
| 18 230 | 17 | 16 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 | 23 117 | 24 168 |
| 30 | 29 | 28 | 27 | 26 200 | 25 |
| 31 | 32 | 33 | 34 | 35 | 36 270 |

**18 South 26 East**

| | | | | | |
|---|---|---|---|---|---|
| 6 200 | 5 95 | 4 24 | 3 65 | 2 60 14 | 1 Site |
| 7 | 8 | 9 70 | 10 8 40 | 11 | 12 |
| 18 66 | 17 | 16 61 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 98 | 23 | 24 19 |
| 30 | 29 | 28 86 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 35 | 36 |

**18 South 27 East**

| | | | | | |
|---|---|---|---|---|---|
| 6 | 5 | 4 | 3 | 2 | 1 |
| 7 | 8 | 9 | 10 60 | 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 |

**19 South 25 East**

| | | | | | |
|---|---|---|---|---|---|
| 6 | 5 306 | 4 | 3 | 2 100 | 1 172 |
| 7 | 8 | 9 260 | 10 | 11 | 12 |
| 18 | 17 83 | 16 | 15 69 | 14 | 13 |
| 19 310 | 20 | 21 | 22 130 | 23 | 24 |
| 30 222 | 29 | 28 | 27 60 | 26 | 25 60 |
| 31 140 | 32 | 33 | 34 | 35 | 36 |

**19 South 26 East**

| | | | | | |
|---|---|---|---|---|---|
| 6 | 5 | 4 70 | 3 | 2 | 1 70 |
| 7 | 8 | 9 | 10 50 | 11 | 12 24 |
| 18 69 | 17 | 16 | 15 | 14 67 | 13 |
| 19 | 20 52 | 21 | 22 | 23 80 | 24 |
| 30 105 | 29 | 28 | 27 49 | 26 | 25 |
| 31 95 | 32 85 | 33 | 34 | 35 | 36 |

**19 South 27 East**

| | | | | | |
|---|---|---|---|---|---|
| 6 | 5 20 | 4 | 3 | 2 | 1 |
| 7 | 8 50 | 9 | 10 | 11 | 12 |
| 18 | 17 | 16 18 | 15 | 1482.4 107.7 | 13 60.7 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 35 | 36 |

**20 South 25 East**

| | | | | | |
|---|---|---|---|---|---|
| 6 | 5 | 4 | 3 | 2 | 1 121 |
| 7 | 8 249 | 9 | 10 130 | 11 70 | 12 102 |
| 18 | 17 170 | 16 128 | 15 67 | 14 | 13 |
| 19 | 20 228 | 21 80 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 312 | 32 100 | 33 | 34 | 35 | 36 |

**20 South 26 East**

| | | | | | |
|---|---|---|---|---|---|
| 6 66 | 5 20 | 4 | 3 | 2 | 1 |
| 7 5 60 | 8 | 9 | 10 | 11 49 | 12 |
| 18 | 17 61 | 16 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 | 23 105 | 24 |
| 30 180 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 61 | 33 | 34 135 | 35 62 | 36 120 |

**20 South 27 East**

| | | | | | |
|---|---|---|---|---|---|
| 6 | 5 50 | 4 | 3 | 2 | 1 |
| 7 86 | 8 | 9 | 10 | 11 | 12 |
| 18 | 17 | 16 | 15 | 14 66 74 | 13 |
| 19 | 20 | 21 150 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 35 | 36 |

- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Field water level
- New Mexico Water and Infrastructure Data System

# New Mexico Office of the State Engineer
# Wells with Well Log Information

(A CLW###### in the POD suffix indicates the POD has been replaced & no longer serves a water right | (R=POD has been replaced, O=orphaned, C=the file is closed) | (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) | (NAD83 UTM in meters) | (in feet)

| POD Number | POD Code | POD Subbasin | County | Source | q q q 64 16 4 | Sec | Twn | Rng | X | Y | Start Date | Finish Date | Log File Date | Depth Well | Depth Water | Driller | License Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RA 07029 | | | ED | Shallow | 3 3 | 30 | 19S | 26E | 553699 | 3606975* | 12/09/1982 | 12/30/1982 | 07/05/1983 | 135 | 105 | EXISTING WELL | 749 |

**Record Count:** 1

**PLSS Search:**

Section(s): 30 Township: 19S Range: 26E

*UTM location was derived from PLSS - see Help

# APPENDIX C

# Summary Report

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

Report Date: September 3, 2013

Work Order: 13082312

Project Location: Eddy Co., NM
Project Name: COG/Lakewood AQE St SWD #1
Project Number: TBD

| Sample | Description | Matrix | Date Taken | Time Taken | Date Received |
|---|---|---|---|---|---|
| 339662 | AH-1 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339663 | AH-2 0-6" | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339664 | AH-3 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339665 | AH-4 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339666 | AH-5 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339667 | AH-6 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339668 | AH-7 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339669 | AH-7 1-1.5' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339670 | AH-7 2-2.5' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339671 | AH-7 3-3.5' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339672 | AH-8 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339673 | AH-9 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339674 | AH-10 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339675 | AH-11 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339676 | AH-11 1-1.5' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339677 | AH-12 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339678 | AH-12 1-1.5' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339679 | AH-13 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339680 | AH-13 1-1.5' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339681 | AH-13 2-2.5' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339682 | AH-14 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339683 | AH-14 1-1.5' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339684 | AH-14 2-2.5' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339685 | AH-15 0-1' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339686 | AH-15 1-1.5' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339687 | AH-15 2-2.5' | soil | 2013-08-21 | 00:00 | 2013-08-23 |
| 339688 | AH-15 3-3.5' | soil | 2013-08-21 | 00:00 | 2013-08-23 |

| Sample - Field Code | BTEX Benzene (mg/Kg) | Toluene (mg/Kg) | Ethylbenzene (mg/Kg) | Xylene (mg/Kg) | TPH DRO - NEW DRO (mg/Kg) | TPH GRO GRO (mg/Kg) |
|---|---|---|---|---|---|---|
| **339662 - AH-1 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339663 - AH-2 0-6"** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339664 - AH-3 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339665 - AH-4 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339666 - AH-5 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339667 - AH-6 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339668 - AH-7 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339672 - AH-8 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339673 - AH-9 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339674 - AH-10 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339675 - AH-11 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339677 - AH-12 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339679 - AH-13 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339682 - AH-14 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |
| **339685 - AH-15 0-1'** | <0.0200 | <0.0200 | <0.0200 | <0.0200 | <50.0 | <4.00 |

**Sample: 339662 - AH-1 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **877** | mg/Kg | 4 |

**Sample: 339663 - AH-2 0-6"**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1780** | mg/Kg | 4 |

**Sample: 339664 - AH-3 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **2450** | mg/Kg | 4 |

**Sample: 339665 - AH-4 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1420** | mg/Kg | 4 |

**Sample: 339666 - AH-5 0-1'**

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

**Sample: 339667 - AH-6 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1330** | mg/Kg | 4 |

**Sample: 339668 - AH-7 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1020** | mg/Kg | 4 |

**Sample: 339669 - AH-7 1-1.5'**

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

**Sample: 339670 - AH-7 2-2.5'**

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

**Sample: 339671 - AH-7 3-3.5'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **262** | mg/Kg | 4 |

**Sample: 339672 - AH-8 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1630** | mg/Kg | 4 |

**Sample: 339673 - AH-9 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **812** | mg/Kg | 4 |

**Sample: 339674 - AH-10 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **901** | mg/Kg | 4 |

**Sample: 339675 - AH-11 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **2400** | mg/Kg | 4 |

**Sample: 339676 - AH-11 1-1.5'**

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

**Sample: 339677 - AH-12 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1680** | mg/Kg | 4 |

**Sample: 339678 - AH-12 1-1.5'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **190** | mg/Kg | 4 |

**Sample: 339679 - AH-13 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **6730** | mg/Kg | 4 |

**Sample: 339680 - AH-13 1-1.5'**

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

**Sample: 339681 - AH-13 2-2.5'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **2280** | mg/Kg | 4 |

**Sample: 339682 - AH-14 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1080** | mg/Kg | 4 |

**Sample: 339683 - AH-14 1-1.5'**

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

**Sample: 339684 - AH-14 2-2.5'**

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

**Sample: 339685 - AH-15 0-1'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **480** | mg/Kg | 4 |

**Sample: 339686 - AH-15 1-1.5'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **145** | mg/Kg | 4 |

**Sample: 339687 - AH-15 2-2.5'**

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

**Sample: 339688 - AH-15 3-3.5'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **305** | mg/Kg | 4 |

# Summary Report

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

Report Date: November 27, 2013

Work Order: 13112225

Project Location: Eddy Co., NM
Project Name: COG/Lakewood AQE St SWD #1
Project Number: 112MC05672

| Sample | Description | Matrix | Date Taken | Time Taken | Date Received |
|---|---|---|---|---|---|
| 347343 | T-1 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347344 | T-1 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347345 | T-2 3' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347346 | T-2 5' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347347 | T-2 6' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347348 | T-3 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347349 | T-3 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347350 | T-3 4' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347351 | T-3 6' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347352 | T-3 8' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347353 | T-4 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347354 | T-4 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347355 | T-4 4' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347356 | T-5 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347357 | T-5 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347358 | T-5 4' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347359 | T-5 6' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347360 | T-6 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347361 | T-6 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347362 | T-6 4' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347363 | T-6 5' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347364 | T-7 (3' EB) 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347365 | T-7 (3' EB) 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347366 | T-7 (3' EB) 4' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347367 | T-7 (3' EB) 6' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347368 | T-7 (3' EB) 8' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347369 | T-8 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347370 | T-8 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347371 | T-8 4' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347372 | T-8 6' | soil | 2013-10-30 | 00:00 | 2013-11-22 |

| Sample | Description | Matrix | Date Taken | Time Taken | Date Received |
|---|---|---|---|---|---|
| 347373 | T-8 8' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347374 | AH-5 (BH 3') | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347375 | AH-3 (BH 1.5') | soil | 2013-10-30 | 00:00 | 2013-11-22 |

**Sample: 347343 - T-1 0'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **5770** | mg/Kg | 4 |

**Sample: 347344 - T-1 2'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **644** | mg/Kg | 4 |

**Sample: 347345 - T-2 3'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **267** | mg/Kg | 4 |

**Sample: 347346 - T-2 5'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **745** | mg/Kg | 4 |

**Sample: 347347 - T-2 6'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **961** | mg/Kg | 4 |

**Sample: 347348 - T-3 0'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1490** | mg/Kg | 4 |

**Sample: 347349 - T-3 2'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **662** | mg/Kg | 4 |

**Sample: 347350 - T-3 4'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1480** | mg/Kg | 4 |

**Sample: 347351 - T-3 6'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1600** | mg/Kg | 4 |

**Sample: 347352 - T-3 8'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1640** | mg/Kg | 4 |

**Sample: 347353 - T-4 0'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **3450** | mg/Kg | 4 |

**Sample: 347354 - T-4 2'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **4020** | mg/Kg | 4 |

**Sample: 347355 - T-4 4'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **28.4** | mg/Kg | 4 |

**Sample: 347356 - T-5 0'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **611** | mg/Kg | 4 |

**Sample: 347357 - T-5 2'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **972** | mg/Kg | 4 |

**Sample: 347358 - T-5 4'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **209** | mg/Kg | 4 |

**Sample: 347359 - T-5 6'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **336** | mg/Kg | 4 |

**Sample: 347360 - T-6 0'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **716** | mg/Kg | 4 |

**Sample: 347361 - T-6 2'**

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

**Sample: 347362 - T-6 4'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **242** | mg/Kg | 4 |

**Sample: 347363 - T-6 5'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **82.8** | mg/Kg | 4 |

**Sample: 347364 - T-7 (3' EB) 0'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **800** | mg/Kg | 4 |

**Sample: 347365 - T-7 (3' EB) 2'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **202** | mg/Kg | 4 |

**Sample: 347366 - T-7 (3' EB) 4'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **418** | mg/Kg | 4 |

**Sample: 347367 - T-7 (3' EB) 6'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **69.0** | mg/Kg | 4 |

**Sample: 347368 - T-7 (3' EB) 8'**

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

**Sample: 347369 - T-8 0'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **161** | mg/Kg | 4 |

**Sample: 347370 - T-8 2'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **202** | mg/Kg | 4 |

**Sample: 347371 - T-8 4'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **92.0** | mg/Kg | 4 |

**Sample: 347372 - T-8 6'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **455** | mg/Kg | 4 |

**Sample: 347373 - T-8 8'**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **431** | mg/Kg | 4 |

**Sample: 347374 - AH-5 (BH 3')**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1930** | mg/Kg | 4 |

**Sample: 347375 - AH-3 (BH 1.5')**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1170** | mg/Kg | 4 |

TRACEANALYSIS, INC.

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5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
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## 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: November 27, 2013

Work Order: 13112225

Project Location: Eddy Co., NM
Project Name: COG/Lakewood AQE St SWD #1
Project Number: 112MC05672

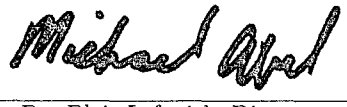
Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

| Sample | Description | Matrix | Date Taken | Time Taken | Date Received |
|---|---|---|---|---|---|
| 347343 | T-1 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347344 | T-1 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347345 | T-2 3' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347346 | T-2 5' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347347 | T-2 6' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347348 | T-3 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347349 | T-3 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347350 | T-3 4' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347351 | T-3 6' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347352 | T-3 8' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347353 | T-4 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347354 | T-4 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347355 | T-4 4' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347356 | T-5 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347357 | T-5 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347358 | T-5 4' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347359 | T-5 6' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347360 | T-6 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |

| Sample | Description | Matrix | Date Taken | Time Taken | Date Received |
|---|---|---|---|---|---|
| 347361 | T-6 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347362 | T-6 4' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347363 | T-6 5' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347364 | T-7 (3' EB) 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347365 | T-7 (3' EB) 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347366 | T-7 (3' EB) 4' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347367 | T-7 (3' EB) 6' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347368 | T-7 (3' EB) 8' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347369 | T-8 0' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347370 | T-8 2' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347371 | T-8 4' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347372 | T-8 6' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347373 | T-8 8' | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347374 | AH-5 (BH 3') | soil | 2013-10-30 | 00:00 | 2013-11-22 |
| 347375 | AH-3 (BH 1.5') | soil | 2013-10-30 | 00:00 | 2013-11-22 |

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.





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

# Report Contents

# Case Narrative

Samples for project COG/Lakewood AQE St SWD #1 were received by TraceAnalysis, Inc. on 2013-11-22 and assigned to work order 13112225. Samples for work order 13112225 were received intact at a temperature of 4.8 C. Last day of hold 11/27

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 | 90682 | 2013-11-26 at 11:31 | 107111 | 2013-11-27 at 08:25 |
| Chloride (Titration) | SM 4500-Cl B | 90682 | 2013-11-26 at 11:31 | 107128 | 2013-11-27 at 10:30 |
| Chloride (Titration) | SM 4500-Cl B | 90682 | 2013-11-26 at 11:31 | 107132 | 2013-11-27 at 10:56 |
| Chloride (Titration) | SM 4500-Cl B | 90682 | 2013-11-26 at 11:31 | 107135 | 2013-11-27 at 11:28 |

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 13112225 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: 347343 - T-1 0'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107128 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | Result | RL Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **5770** | mg/Kg | 10 | 4.00 |

**Sample: 347344 - T-1 2'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107128 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | Result | RL Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **644** | mg/Kg | 5 | 4.00 |

**Sample: 347345 - T-2 3'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107128 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | Result | RL Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **267** | mg/Kg | 5 | 4.00 |

**Sample: 347346 - T-2 5'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107128 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **745** | mg/Kg | 5 | 4.00 |

**Sample: 347347 - T-2 6'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107128 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **961** | mg/Kg | 5 | 4.00 |

**Sample: 347348 - T-3 0'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107128 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **1490** | mg/Kg | 10 | 4.00 |

**Sample: 347349 - T-3 2'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107128 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **662** | mg/Kg | 5 | 4.00 |

**Sample: 347350 - T-3 4'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107128 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **1480** | mg/Kg | 10 | 4.00 |

**Sample: 347351 - T-3 6'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107128 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **1600** | mg/Kg | 10 | 4.00 |

**Sample: 347352 - T-3 8'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107128 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **1640** | mg/Kg | 10 | 4.00 |

**Sample: 347353 - T-4 0'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107132 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **3450** | mg/Kg | 10 | 4.00 |

**Sample: 347354 - T-4 2'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107132 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **4020** | mg/Kg | 10 | 4.00 |

**Sample: 347355 - T-4 4'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107132 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **28.4** | mg/Kg | 5 | 4.00 |

**Sample: 347356 - T-5 0'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107132 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **611** | mg/Kg | 5 | 4.00 |

**Sample: 347357 - T-5 2'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107132 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **972** | mg/Kg | 5 | 4.00 |

**Sample: 347358 - T-5 4'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107132 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **209** | mg/Kg | 5 | 4.00 |

**Sample: 347359 - T-5 6'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107132 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **336** | mg/Kg | 5 | 4.00 |

**Sample: 347360 - T-6 0'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107132 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | Result | RL Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **716** | mg/Kg | 5 | 4.00 |

**Sample: 347361 - T-6 2'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107132 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

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

**Sample: 347362 - T-6 4'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107132 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | Result | RL Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **242** | mg/Kg | 5 | 4.00 |

**Sample: 347363 - T-6 5'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107135 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **82.8** | mg/Kg | 5 | 4.00 |

**Sample: 347364 - T-7 (3' EB) 0'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107135 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **800** | mg/Kg | 5 | 4.00 |

**Sample: 347365 - T-7 (3' EB) 2'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107135 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **202** | mg/Kg | 5 | 4.00 |

**Sample: 347366 - T-7 (3' EB) 4'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107135 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **418** | mg/Kg | 5 | 4.00 |

**Sample: 347367 - T-7 (3' EB) 6'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107135 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | Result | RL Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **69.0** | mg/Kg | 5 | 4.00 |

**Sample: 347368 - T-7 (3' EB) 8'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107135 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

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

**Sample: 347369 - T-8 0'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107135 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | Result | RL Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **161** | mg/Kg | 5 | 4.00 |

**Sample: 347370 - T-8 2'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107135 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **202** | mg/Kg | 5 | 4.00 |

**Sample: 347371 - T-8 4'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107135 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **92.0** | mg/Kg | 5 | 4.00 |

**Sample: 347372 - T-8 6'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107135 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **455** | mg/Kg | 5 | 4.00 |

**Sample: 347373 - T-8 8'**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107111 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | RL Result | Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **431** | mg/Kg | 5 | 4.00 |

**Sample: 347374 - AH-5 (BH 3')**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107111 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | Result | RL Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **1930** | mg/Kg | 5 | 4.00 |

**Sample: 347375 - AH-3 (BH 1.5')**

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Midland | | | | |
| Analysis: | Chloride (Titration) | Analytical Method: | SM 4500-Cl B | Prep Method: | N/A |
| QC Batch: | 107111 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | Sample Preparation: | 2013-11-26 | Prepared By: | AR |

| Parameter | Flag | Cert | Result | RL Units | Dilution | RL |
|---|---|---|---|---|---|---|
| Chloride | | | **1170** | mg/Kg | 10 | 4.00 |

# Method Blanks

**Method Blank (1)** QC Batch: 107111

| | | | | | |
|---|---|---|---|---|---|
| QC Batch: | 107111 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | QC Preparation: | 2013-11-26 | Prepared By: | AR |

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

**Method Blank (1)** QC Batch: 107128

| | | | | | |
|---|---|---|---|---|---|
| QC Batch: | 107128 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | QC Preparation: | 2013-11-26 | Prepared By: | AR |

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

**Method Blank (1)** QC Batch: 107132

| | | | | | |
|---|---|---|---|---|---|
| QC Batch: | 107132 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | QC Preparation: | 2013-11-26 | Prepared By: | AR |

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

**Method Blank (1)** QC Batch: 107135

| | | | | | |
|---|---|---|---|---|---|
| QC Batch: | 107135 | Date Analyzed: | 2013-11-27 | Analyzed By: | AR |
| Prep Batch: | 90682 | QC Preparation: | 2013-11-26 | 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: 107111 | Date Analyzed: 2013-11-27 | Analyzed By: AR
Prep Batch: 90682 | QC Preparation: 2013-11-26 | Prepared By: AR

| Param | F | C | LCS Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 2600 | mg/Kg | 1 | 2500 | <3.85 | 104 | 89.7 - 115.9 |

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

| Param | F | C | LCSD Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 2460 | mg/Kg | 1 | 2500 | <3.85 | 98 | 89.7 - 115.9 | 6 | 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: 107128 | Date Analyzed: 2013-11-27 | Analyzed By: AR
Prep Batch: 90682 | QC Preparation: 2013-11-26 | Prepared By: AR

| Param | F | C | LCS Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 2670 | mg/Kg | 1 | 2500 | <3.85 | 107 | 89.7 - 115.9 |

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

| Param | F | C | LCSD Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 2540 | mg/Kg | 1 | 2500 | <3.85 | 102 | 89.7 - 115.9 | 5 | 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: 107132 | Date Analyzed: 2013-11-27 | Analyzed By: AR
Prep Batch: 90682 | QC Preparation: 2013-11-26 | Prepared By: AR

| Param | F | C | LCS Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 2590 | mg/Kg | 1 | 2500 | <3.85 | 104 | 89.7 - 115.9 |

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

| Param | F | C | LCSD Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 2420 | mg/Kg | 1 | 2500 | <3.85 | 97 | 89.7 - 115.9 | 7 | 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: 107135 | Date Analyzed: 2013-11-27 | Analyzed By: AR
Prep Batch: 90682 | QC Preparation: 2013-11-26 | Prepared By: AR

| Param | F | C | LCS Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 2510 | mg/Kg | 1 | 2500 | <3.85 | 100 | 89.7 - 115.9 |

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

| Param | F | C | LCSD Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 2340 | mg/Kg | 1 | 2500 | <3.85 | 94 | 89.7 - 115.9 | 7 | 20 |

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

**Matrix Spike (MS-1)** Spiked Sample: 347548

QC Batch: 107111 | Date Analyzed: 2013-11-27 | Analyzed By: AR
Prep Batch: 90682 | QC Preparation: 2013-11-26 | Prepared By: AR

| Param | F | C | MS Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 3720 | mg/Kg | 10 | 2500 | 1380 | 94 | 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 | | | 3950 | mg/Kg | 10 | 2500 | 1380 | 103 | 78.9 - 121 | 6 | 20 |

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

**Matrix Spike (MS-1)** Spiked Sample: 347352

QC Batch: 107128 | Date Analyzed: 2013-11-27 | Analyzed By: AR
Prep Batch: 90682 | QC Preparation: 2013-11-26 | Prepared By: AR

| Param | F | C | MS Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 4570 | mg/Kg | 10 | 2500 | 1640 | 117 | 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 | | | 4380 | mg/Kg | 10 | 2500 | 1640 | 110 | 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: 347362

QC Batch: 107132 | Date Analyzed: 2013-11-27 | Analyzed By: AR
Prep Batch: 90682 | QC Preparation: 2013-11-26 | Prepared By: AR

| Param | F | C | MS Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 3150 | mg/Kg | 5 | 2500 | 242 | 116 | 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 | | | 2940 | mg/Kg | 5 | 2500 | 242 | 108 | 78.9 - 121 | 7 | 20 |

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

**Matrix Spike (MS-1)** Spiked Sample: 347372

QC Batch: 107135 | Date Analyzed: 2013-11-27 | Analyzed By: AR
Prep Batch: 90682 | QC Preparation: 2013-11-26 | Prepared By: AR

| Param | F | C | MS Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 3430 | mg/Kg | 5 | 2500 | 455 | 119 | 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 | | | 3340 | mg/Kg | 5 | 2500 | 455 | 115 | 78.9 - 121 | 3 | 20 |

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

# Calibration Standards

**Standard (CCV-1)**

QC Batch: 107111 | Date Analyzed: 2013-11-27 | 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 | 98.8 | 99 | 85 - 115 | 2013-11-27 |

**Standard (CCV-2)**

QC Batch: 107111 | Date Analyzed: 2013-11-27 | 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 | 2013-11-27 |

**Standard (CCV-1)**

QC Batch: 107128 | Date Analyzed: 2013-11-27 | Analyzed By: AR

| Param | Flag | Cert | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloride | | | mg/Kg | 100 | 102 | 102 | 85 - 115 | 2013-11-27 |

**Standard (CCV-2)**

QC Batch: 107128 | Date Analyzed: 2013-11-27 | 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 | 98.5 | 98 | 85 - 115 | 2013-11-27 |

**Standard (CCV-1)**

QC Batch: 107132 Date Analyzed: 2013-11-27 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 | 97.3 | 97 | 85 - 115 | 2013-11-27 |

**Standard (CCV-2)**

QC Batch: 107132 Date Analyzed: 2013-11-27 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 | 103 | 103 | 85 - 115 | 2013-11-27 |

**Standard (CCV-1)**

QC Batch: 107135 Date Analyzed: 2013-11-27 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 | 99.7 | 100 | 85 - 115 | 2013-11-27 |

**Standard (CCV-2)**

QC Batch: 107135 Date Analyzed: 2013-11-27 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 | 2013-11-27 |

# 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.

13112225

# Analysis Request of Chain of Custody Record

PAGE: 1 OF: 4


**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: C06 | SITE MANAGER: Ike Tavarez

PROJECT NO.: 112MC05672 | PROJECT NAME: C06 - Lakewood AQE State SWD #1 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 347343 | 10/30 | | S | | X | T1 - 0' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 344 | | | S | | X | T1 - 2' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 345 | | | S | | X | T2 - 3' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 346 | | | S | | X | T2 - 5' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 347 | | | S | | X | T2 - 6' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 348 | | | S | | X | T3 - 0' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 349 | | | S | | X | T3 2' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 350 | | | S | | X | T3 - 4 | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 351 | | | S | | X | T3 6' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 352 | | | S | | X | T3 8' | 1 | | | | | | | | | | | | | | | | | X | | | | |

RELINQUISHED BY: (Signature) Date: 11/22/13 Time: 1500 | RECEIVED BY: (Signature) Date: 11/22/13 Time: 15:16

SAMPLED BY: (Print & Initial) RC HP Date: 11/22/13 Time: 1500

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

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

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

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

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

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4.8°

REMARKS: 11/28 - Hold

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

13112225

# Analysis Request of Chain of Custody Record

PAGE: 32 OF: 4


**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: 606 | SITE MANAGER: Ike Tavarez

PROJECT NO.: 112WL05672 | PROJECT NAME: 606 / Lakewood AQE State SWD #1 Eddy Co, NM

| LAB I.D. NUMBER | DATE | TIME | MATRIX | COMP. | GRAB | SAMPLE IDENTIFICATION | NUMBER OF CONTAINERS | FILTERED (Y/N) | PRESERVATIVE METHOD: HCL | HNO3 | ICE | NONE | BTEX 8021B | TPH 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 353 | 1/22/13 | | S | | X | T4 - 0' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 354 | | | S | | X | T4 2' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 355 | | | S | | X | T4 4' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 356 | | | S | | X | T5 - 0' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 357 | | | S | | X | T5 - 2' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 358 | | | S | | X | T5 - 4' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 359 | | | S | | X | T5 - 6' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 360 | | | S | | X | T6 - 0' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 361 | | | S | | X | T6 2' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 362 | | | S | | X | T6 4' | 1 | | | | | | | | | | | | | | | | | X | | | | |

RELINQUISHED BY: (Signature) Date: 1/22/13 Time: 1500 | RECEIVED BY: (Signature) Date: 1/22/13 Time: 1516

SAMPLED BY: (Print & Initial) RS / IHP Date: 1/22/13 Time: 1500

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

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

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

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

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 480

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.

13112225

# Analysis Request of Chain of Custody Record

PAGE: 3 OF: 4


**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: 606

SITE MANAGER: Ike Tavarez

PROJECT NO.: 112M105672

PROJECT NAME: 606 - Lakewood AOE State SWD #1 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 363 | 10/30 | | S | | X | T-6 - 5' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 364 | | | S | | X | T-7 (3' EB) 0' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 365 | | | S | | X | T-7 (3' EB) 2' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 366 | | | S | | X | T-7 (3' EB) 4' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 367 | | | S | | X | T-7 (3' EB) 6' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 368 | | | S | | X | T-7 (3' EB) 8' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 369 | | | S | | X | T-8 (0') | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 370 | | | S | | X | T-8 - 2' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 371 | | | S | | X | T-8 4' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 372 | | | S | | X | T-8 6' | 1 | | | | | | | | | | | | | | | | | X | | | | |

RELINQUISHED BY: (Signature) Date: 11/22/13 Time: 1500

RECEIVED BY: (Signature) Date: 11/22/13 Time: 15:16

SAMPLED BY: (Print & Initial) BF / IHS Date: 11/22/13 Time: 1500

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

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

AIRBILL #:

OTHER:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RECEIVING LABORATORY: Trace

ADDRESS:

CITY: Midland STATE: ZIP:

CONTACT: PHONE: DATE: TIME:

RECEIVED BY: (Signature)

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4-8°

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.

13112225

# Analysis Request of Chain of Custody Record

PAGE: 4 OF: 4


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


CLIENT NAME: C06

SITE MANAGER: Ike Tavarez

PROJECT NO.: 112mc05672

PROJECT NAME: C06 / Lakewood AQE State SWD #1 Eddy Co, NM

| LAB I.D. NUMBER | DATE | TIME | MATRIX | COMP. | GRAB | SAMPLE IDENTIFICATION | NUMBER OF CONTAINERS | FILTERED (Y/N) | PRESERVATIVE METHOD: HCL | HNO3 | ICE | NONE | BTEX 8021B | TPH 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 373 | 10/30/2013 | | S | | X | T-8 - 9' | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 374 | " | | S | | X | AH 5 (BH 3') | 1 | | | | | | | | | | | | | | | | | X | | | | |
| 375 | " | | S | | X | AH 3 (BH 1.5') | 1 | | | | | | | | | | | | | | | | | X | | | | |

| | | | |
|---|---|---|---|
| RELINQUISHED BY: (Signature) | Date: 11/22/13 Time: 1500 | RECEIVED BY: (Signature) | Date: 11/22/13 Time: 15:16 |
| SAMPLED BY: (Print & Initial) RR/MP | Date: 11/22/13 Time: 1500 | | |
| RELINQUISHED BY: (Signature) | Date: Time: | RECEIVED BY: (Signature) | Date: Time: |
| SAMPLE SHIPPED BY: (Circle) FEDEX HAND DELIVERED BUS UPS | AIRBILL #: OTHER: | | |
| RELINQUISHED BY: (Signature) | Date: Time: | RECEIVED BY: (Signature) | Date: Time: |
| TETRA TECH CONTACT PERSON: Ike Tavarez | Results by: RUSH Charges Authorized: Yes No | | |

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

SAMPLE CONDITION WHEN RECEIVED: 4.8°

REMARKS:

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