TETRA TECH

October 15, 2020

Bradford Billings
Hydrologist
District 2 Artesia
Oil Conservation Division
Santa Fe, NM 87505

**Subject:** **Closure Letter Report**
**ConocoPhillips**
**1RP-1823**
**EVGSAU 2622-002 Flowline Release**
**PLSS Unit Letter F, Section 26, Township 17S, Range 35 East**
**Lea County, New Mexico**

Mr. Billings:

On behalf of ConocoPhillips, Tetra Tech, Inc. (Tetra Tech) submits the following Closure Report for review. The ConocoPhillips East Vacuum Grayburg-San Andres Unit (EVGSAU) 2622-002 well (API No. 30-025-26573) is located approximately 4.5 miles east of Buckeye in Lea County, New Mexico. The well is located in the Public Land Survey System (PLSS) Unit Letter G, Section 26, Township 17 South, and Range 35 East. According to the NMOCD, the well was plugged on August 19, 2015. The coordinates of the release area (Site) are 32.80695°, -103.429383°, located approximately 1,825 feet (ft) southwest of the EVGSAU 2622-002 well in PLSS Unit Letter F, Section 26, Township 17 South, and Range 35 East (Figure 1).

The 1RP-1823 release and another Remediation Permit (RP) number, 1RP-1798, are duplicates of the same release event, and their C-141s are identical. It is unclear how the release came to be duplicated in the NMOCD system. For clarification, a separate closure report will be submitted to address 1RP-1798.

## BACKGROUND

According to the State of New Mexico C-141 Initial Report (Attachment A), on February 28, 2008 a leak was discovered coming from a buried 2-inch steel flowline on the EVGSAU 2622-002 well due to external corrosion. A total of 75 barrels (bbls) of fluid (7 bbls of oil and 68 bbls of produced water) were released, affecting approximately 6,100 square feet (SF) of roadway and pasture. A vacuum truck recovered 6 bbls of oil and 52 bbls of produced water during the initial response. Immediate notice was given to the New Mexico Oil Conservation Division (NMOCD) the following day, February 29, 2008. The release was subsequently assigned the Remediation Permit (RP) number 1RP-1823.

## SITE CHARACTERIZATION

A site characterization was performed and no watercourses, lakebeds, sinkholes, playa lakes, residences, schools, hospitals, institutions, churches, springs, public or private domestic water wells, springs, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the specified distances. The Site is located in a low karst potential area.

Based on data from the New Mexico Office of the State Engineer (NMOSE), there is one (1) water well located within an 800-meter (approximately ½-mile) radius of the release location. The average depth to groundwater is 50 feet. The site characterization data is shown in Attachment B.

*Bradford Billings*
*NMOCD*
*October 15, 2020*

## REGULATORY FRAMEWORK

Based upon the release footprint and in accordance with Subsection E of 19.15.29.12 NMAC, per 19.15.29.11 NMAC, the site characterization data was used to determine recommended remedial action levels (RRALs) for benzene, toluene, ethylbenzene, and xylene (collectively referred to as BTEX), total petroleum hydrocarbons (TPH), and chlorides in soil. Based on the depth to groundwater at the Site, the RRALs for the Site are as follows:

- Benzene: 10 milligrams per kilogram (mg/kg);
- Total BTEX (sum of benzene, toluene, ethylbenzene, and xylene): 50 mg/kg;
- TPH (GRO + DRO + ORO): 100 mg/kg;
- Chloride: 600 mg/kg

## SITE ASSESSMENT SUMMARY

A Site assessment Work Plan (Work Plan) dated March 26, 2008 was prepared by Tetra Tech on behalf of ConocoPhillips and submitted to the NMOCD (Attachment C). The Work Plan is on file with the NMOCD under the 1RP-1823 release number. According to the Work Plan, the lateral extent of the release area is defined by soil discoloration. To delineate the vertical extent of the release, Tetra Tech proposed to use a backhoe to install trenches in the affected area. Two trenches were proposed for installation within the release extent. Soil samples were proposed every 2 ft in each trench, and would be field screened using a photoionization detector (PID) to screen for volatile organic compounds (VOCs), as well as with a PetroFLAG system to screen for diesel range petroleum hydrocarbons ($TPH_{DRO}$). Additionally, field chloride titration would be utilized to determine the clean boundary for chlorides.

Two (2) soil samples from each trench, including samples with the highest $TPH_{DRO}$ and chloride concentrations as well as the basal sample in each trench, were proposed for laboratory analysis. All samples would be analyzed for TPH using EPA Method 8015, BTEX using EPA Method 8260, and chloride using EPA Method 300.0. In addition, the basal sample from each trench would be analyzed for BTEX and chloride synthetic precipitation leaching potential (SPLP) using EPA Methods 1312/8015 and 1312/300.0, respectively. Excavated soils would be returned to the trenches for handling during future Site remediation activities.

## ASSESSMENT RESULTS AND REMEDIATION WORK PLAN

A Findings Report dated October 1, 2008 detailing the subsurface investigation activities and assessment results at the Site was prepared by Tetra Tech for ConocoPhillips (Attachment D). There is no record of the Findings Report on file with the NMOCD.

According to the Findings Report, the subsurface investigation was completed in accordance with the March 2008 Work Plan. Tetra Tech installed two trenches using a backhoe to find a clean vertical boundary of the release impact based on the ranking criteria presented in “Guidelines for Remediation of Leaks, Spills, and Releases” promulgated on August 13, 1993 by the NMOCD. Under these criteria, the assessment screening levels identified for the Site were less than 10 parts per million (ppm) VOC, less than 100 ppm TPH, and less than 250 ppm chloride. The exact locations of the trenches were not provided in the Findings Report.

Soil lithologies encountered at the Site were a yellowish red to dark reddish-brown find sand at the surface, underlain by a yellowish red sandy clay. The excavation depth of each trench (T-1 and T-2) was 2.5 ft below ground surface (bgs) due to the hardness of a caliche layer encountered at that depth. Four (4) samples, two (2) from each trench, were submitted to SPL, Inc. in Houston, Texas for the laboratory analysis outlined in the Work Plan.

Laboratory analytical results of the Site assessment are summarized in Table 2 in the Findings Report (Attachment D). According to these results, chloride and TPH were detected in all four samples submitted

for analysis. Benzene was detected in the two samples collected at trench T-2. Based on the Site RRALs for benzene (10 mg/kg), total BTEX (50 mg/kg), TPH (100 mg/kg), and chloride (600 mg/kg), all four samples exceeded the Site RRALs for TPH and chloride. Benzene and total BTEX results were below Site RRALs. A copy of the laboratory analytical report is included in Attachment D.

The Findings Report included a remediation work plan following presentation of the Site assessment results. Based on the assessment results, Tetra Tech recommended that the affected soils in the release extent be excavated to approximately 2 to 3 ft bgs, or until TPH concentrations were below the screening level of 100 ppm. The excavated materials were proposed to be hauled offsite to a state-approved disposal location. Aliquot soil samples were proposed for collection in a "W" pattern composited into one sample for each sidewall in the excavation. The composite sample would be field screened and then submitted to the laboratory for confirmation analysis. Following confirmation sampling, the excavation would be backfilled with clean soil to create a dome within the trench and covered by a liner material to promote lateral drainage. The liner and remaining excavation would then be backfilled with clean caliche to meet surrounding surface grades.

The Findings Report included a Site map indicating the release extent, which is located along the flowline approximately 1,825 ft southwest of the EVGSAU 2622-002 well. According to this information, the flowline release occurred along a lease road near the Vacuum Abo Unit #076 well (API No. 30-025-20200).

## VISUAL SITE INSPECTION SUMMARY

At the request of ConocoPhillips, Tetra Tech personnel conducted a visual Site inspection on June 8, 2020 at the release area evaluate current conditions at the Site. The formerly impacted area was identified from the description in the C-141 and the Site map provided in the 2008 Finding Report (Figure 1). Photographic documentation from the visual assessment is included as Attachment E. A list of field observations describing the Site follow:

- A review of historical aerial imagery revealed that the adjacent Vacuum Abo Unit #076 well was constructed in the vicinity of the reported release extent between February 2014 and February 2017.
- The reported release footprint extends over pasture areas, lease roads, and oil and gas production areas.
- Due to pad development and oil and gas production activities in the vicinity of the release area, it is unknown what level of remediation was conducted at the Site.
- However, no surficial staining was noted in the reported release area footprint during the June 2020 visual Site inspection.
- Areas in the pasture in the surrounding vicinity of the reported release point were observed to contain vegetative cover that reflects a life-form ratio of plus or minus fifty percent of pre-disturbance levels.
- Although detailed documentation regarding remediation is not available, the fact that a remediation plan with Site assessment results exists and previously disturbed areas are now revegetated indicates that remediation was likely conducted at the Site.

## RECLAMATION AND RE-VEGETATION

From review of recent aerial photography and the visual Site Assessment, it appears that the formerly impacted surface areas were restored to the conditions that existed prior to the release in accordance with 19.15.29.13 NMAC. Established vegetation was observed in the pasture areas along the lease roads in the reported release extent (see Attachment E). The well pad and lease road area remain unvegetated by design, as they are needed for ongoing production operations.

*Bradford Billings*
*NMOCD*
*October 15, 2020*

## CONCLUSION

Based on the remediation work proposed for the Site, lack of surficial staining observed in the reported release footprint, and recent visual evidence of reestablished vegetation at the formerly impacted surface areas in the pasture, ConocoPhillips requests closure for this release. The final C-141 form is enclosed in Attachment A.

Should you have any questions or comments regarding this report, please do not hesitate to contact me by telephone at 512-338-2861 or by email at christian.llull@tetratech.com.

Sincerely,

Christian M. Llull
Project Manager
Tetra Tech, Inc.

# FIGURES


DOCUMENT PATH: C:\USERS\AMY.WOODS\DESKTOP\ACO FIGURE SITES\FIGURE 1 SITE LOCATION_1RP-1823.MXD

TETRA TECH

www.tetratech.com

901 West Wall Street, Suite 100
Midland, Texas 79701
Phone: (432) 682-4559
Fax: (432) 682-3946

CONOCOPHILLIPS

1RP-1823
( 32.80695°, -103.429383°)
LEA COUNTY, NEW MEXICO

**EVGSAU 2622-002 FLOWLINE RELEASE**
**SITE LOCATION MAP**

| | |
|---|---|
| PROJECT NO.: | 212C-MD-02152 |
| DATE: | AUGUST 03, 2020 |
| DESIGNED BY: | AJW |

Figure No.
**1**

# ATTACHMENT A
# C-141 Forms

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 **ConocoPhillips Company** | Contact **Mickey Garner** |
| Address **3300 North A St. Bldg 6, Midland, TX 79705-5406** | Telephone No. **505.391.3158** |
| Facility Name **EVGSAU 2622-002** | Facility Type **Oil and Gas** |

| | | |
|---|---|---|
| Surface Owner **State of New Mexico** | Mineral Owner **State of New Mexico** | Lease No **30-025-26573-00-00** |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| **G** | **26** | **17S** | **35E** | | | | | **Lea** |

**Latitude N 32 48.417** **Longitude W 103 25.763**

WTR 45'

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release<br>**Crude oil and produced water** | Volume of Release<br>75bbl (7oil, 68water) | Volume Recovered<br>(6oil, 52water) |
| Source of Release<br>**2" steel flowline** | Date and Hour of Occurrence<br>**2/28/2008 0900** | Date and Hour of Discovery<br>**2/28/2008 1600** |
| Was Immediate Notice Given?<br>☒ Yes ☐ No ☐ Not Required | If YES, To Whom?<br>**Chris Williams** | |
| By Whom? **Mickey Garner** | Date and Hour **2/29/2008 0940** | |
| Was a Watercourse Reached?<br>☐ Yes ☒ No | If YES, Volume Impacting the Watercourse.<br>**N/A** | |

If a Watercourse was Impacted, Describe Fully.*
**N/A**

Describe Cause of Problem and Remedial Action Taken.*
**On Thursday February 28, 2008 at 1600 hrs a leak was discovered coming from a buried 2" steel flowline on EVGSAU 2622-002 due to external corrosion. Amount spilled was 7 bbls of oil and 68 bbls of produced water. The spill was not contained and affected approximately 6100 sq/ft of roadway and pasture**

Describe Area Affected and Cleanup Action Taken.*
**The MSO shut in the well and called a vacuum truck to pick up free liquids. 6 bbls of oil and 52 bbls of produced water were recovered. The spill site will be delineated and remediated in accordance with NMOCD guidelines. Chloride concentration for this well is 51,000.**

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: **Mickey Garner**

Title: **HSER Lead**

E-mail Address: **Mickey.D.Garner@conocophillips.com**

Date: **2-29-2008** Phone: **575.391.3158**

OIL CONSERVATION DIVISION

Approved by District Supervisor: ENVIRONMENTAL ENGINEER

Approval Date: 3.25.08 Expiration Date: 5.25.08

Conditions of Approval:
SEND ALL (OVER 250 PPM) CHLORIDE IMPACTED SOIL TO DISPOSAL

Attached ☐
1RP# 1823

f Cotto 808729125

| | |
|---|---|
| Incident ID | |
| District RP | |
| Facility ID | |
| Application ID | |

# Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

**Closure Report Attachment Checklist**: ***Each of the following items must be included in the closure report.***

☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____ Title: _____

Signature: Charles R. Beauvais II Date: _____

email: _____ Telephone: _____

**OCD Only**

Received by: _____ Date: _____

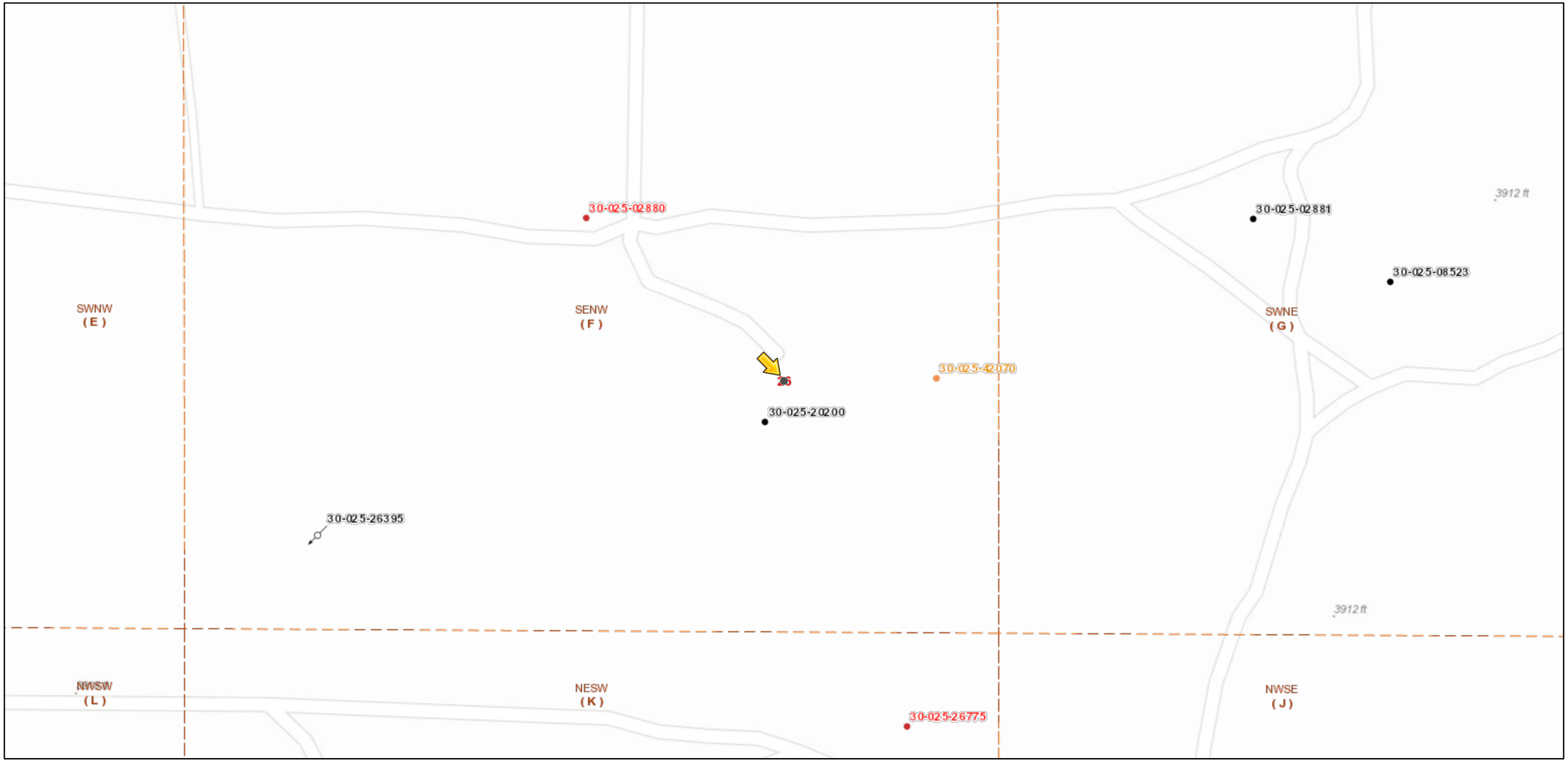
Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

# ATTACHMENT B
# Site Characterization Data

# 1RP-1823




7/24/2020, 10:35:48 AM

Override 1

Wells - Large Scale

undefined

Miscellaneous

CO2, Active

CO2, Cancelled

CO2, New

CO2, Plugged

CO2, Temporarily Abandoned

Gas, Active

Gas, Cancelled

Gas, New

Gas, Plugged

Gas, Temporarily Abandoned

Injection, Active

Injection, Cancelled

Injection, New

Injection, Plugged

Injection, Temporarily Abandoned

Oil, Active

Oil, Cancelled

Oil, New

Oil, Plugged

Oil, Temporarily Abandoned

Salt Water Injection, Active

Salt Water Injection, Cancelled

Salt Water Injection, New

Salt Water Injection, Plugged

Salt Water Injection, Temporarily Abandoned

Water, Active

1:2,257

0 0.02 0.04 0.09 mi

0 0.04 0.07 0.14 km

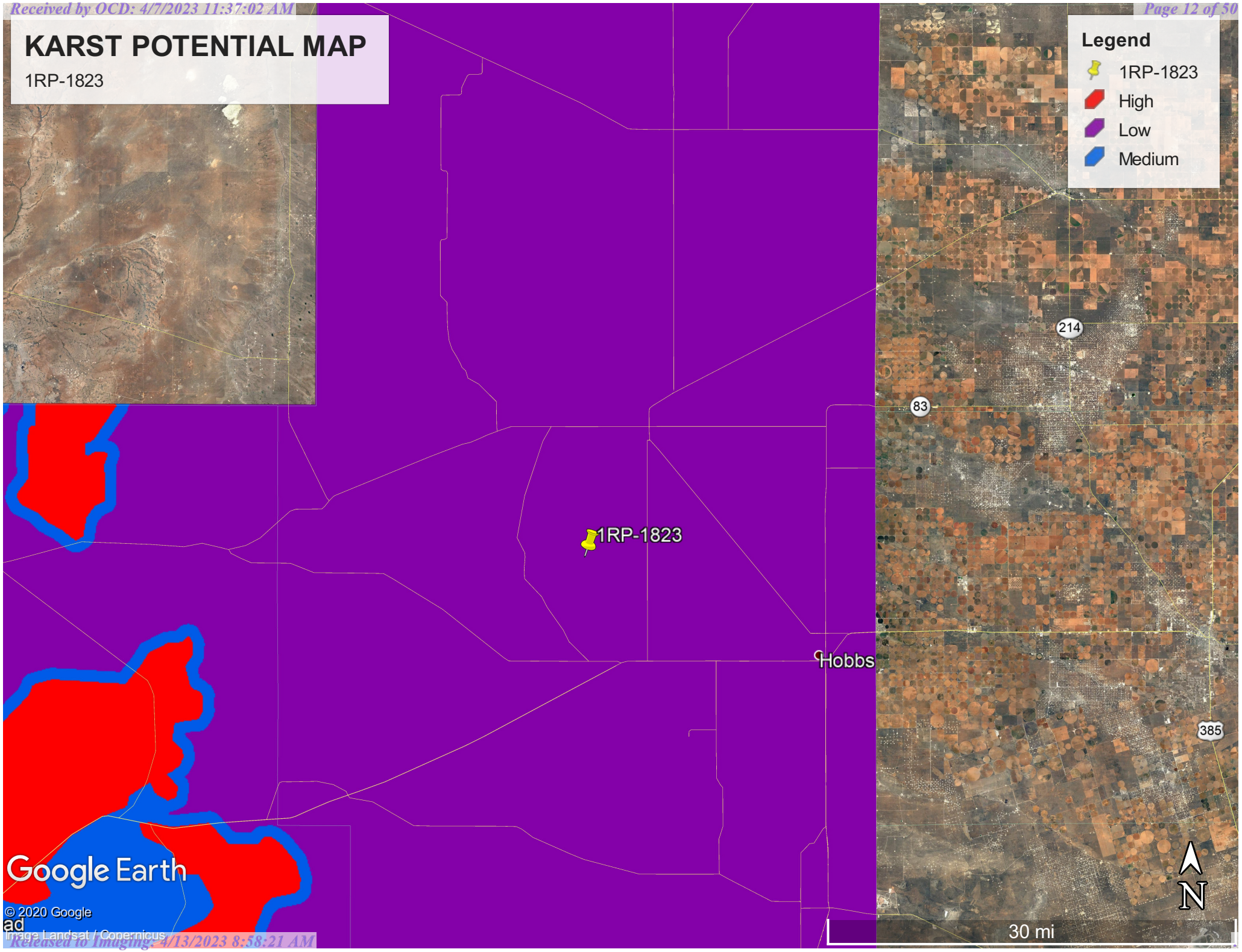
Oil Conservation Division of the New Mexico Energy, Minerals and Natural Resources Department., Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI,

New Mexico Oil Conservation Division

NM OCD Oil and Gas Map. http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=4d017f2306164de29fd2fb9f8f35ca75: New Mexico Oil Conservation Division

# KARST POTENTIAL MAP

1RP-1823



# New Mexico Office of the State Engineer
# Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(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 Sub-basin | County | Q 64 | Q 16 | Q 4 | Sec | Tws | Rng | X | Y | Distance | Depth Well | Depth Water | Water Column |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L 04881 | L | LE | 1 | 3 | | 26 | 17S | 35E | 646556 | 3630644* | 594 | 137 | 50 | 87 |

Average Depth to Water: **50 feet**

Minimum Depth: **50 feet**

Maximum Depth: **50 feet**

**Record Count:** 1

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 647047.713 **Northing (Y):** 3630977.304 **Radius:** 800

***UTM location was derived from PLSS - see Help**

# ATTACHMENT C
# Site Assessment Work Plan (Tetra Tech, 2008)

TETRA TECH, INC.

1703 W. Industrial Ave.
Midland, Texas 79701
(432) 686-8081

March 26, 2008

Mr. Larry Johnson
New Mexico Oil Conservation Division
1625 N. French Dr
Hobbs, New Mexico 88240

RE: EVGSAU 2622.002 Flowline Work Plan
Lea County, New Mexico
Unit G, Sec. 26, T17S, R35E

Dear Mr. Johnson:

On-behalf of ConocoPhillips Company, Tetra Tech is submitting this work plan to conduct a subsurface investigation at East Vacuum Glorietta, Grayburg, San Andres Unit (EVGSAU) 2622 Well # 002 Flowline (Site; Figure 1). This work is in support of ConocoPhillips efforts to delineate and remediate a recent 58 barrel mixed crude oil/produced water release at the Site (C141 Attached). The well is located approximately 1.6 miles northwest of the ConocoPhillips Buckeye office in Lea County, New Mexico (Figure 1; 32.80722°N, 103.42916°W). The State of New Mexico is the land administrator.

The Site is located in the Llano Estacado region of the Southern Great Plains. It is a large southeast-sloping plateau consisting of a nearly level to very gently undulating constructional plain that has little dissection and dotted by numerous small playas[1]. Local topography is characterized by a linear plain.

According to the Geologic Map of New Mexico[2], the area is underlain by the Pliocene-age Ogallala Formation, which consists of fluvial sand, silt, clay, and gravel capped by caliche. Maximum thickness of the Ogallala is up to 100 feet. The Kimbrough-Lea association soil at the Site is well drained, calcareous, gravelly loam. [3] Typically, the surface layer is dark grayish brown gravelly loam over indurated caliche.

Depth to water in the vicinity of the Site is estimated to be approximately 50 feet below ground surface (fbgs). This interpretation is based information gathered at another ConocoPhillips remediation project entitled "*East Vacuum Playa*," located approximately 1 mile southwest of the Site. A fresh water pond is located approximately 800 feet northeast of the Site. ConocoPhillips operates a CO2 injection plant approximately 1.5 miles southwest of the Site and wells supply domestic water to the plant. There are dry playas in the area that briefly hold rain water following a storm event; the nearest being approximately 260 feet away.

[1] Turner, M.T., D.N. Cox, B.C Mickelson, A.J. Roath, and C.D Wilson, 1973. Soil Survey Lea County, New Mexico. U.S. Department of Agriculture Soil Conservation Service, 89p.
[2] New Mexico Bureau of Geology and Mineral Resources, 2003. Geologic Map of New Mexico, 1:500,000.
[3] U.S. Department of Agriculture, Natural Resources Conservation Services. Web Soil Survey Database.

Following the ranking criteria presented in "*Guidelines for Remediation of Leaks, Spills, and Releases*" promulgated on August 13, 1993 by the NMOCD, this Site has the following score:

| Criteria | | Ranking Score |
|---|---|---|
| Depth to groundwater | <50 feet | 20 |
| Distance from water source | >1000 feet | 0 |
| Distance from domestic water source | >200 feet | 0 |
| Distance from surface water body | >200 feet | 0 |
| **Total Ranking Score** | | 20 |

The remediation action level for a ranking score of >19 is 10 parts per million (ppm) for benzene, 50 ppm for total benzene, toluene, ethylbenzene, and total xylenes (BTEX), and 100 ppm for total petroleum hydrocarbons (TPH).

**Scope of Work**

The lateral extent of the release area is defined by soil discoloration. To delineate the vertical extent of the crude oil affected area, Tetra Tech will perform the following activities:

1. A backhoe will be used dig exploratory trenches in the affected area.

1. It is anticipated that 2 trenches will be excavated inside the affected area and soil samples will be collected every two feet in each trench. Soil samples collected from the trenches will be field tested using a photo-ionization detector (PID) to screen for volatile organic compounds (VOC). Diesel range petroleum hydrocarbons ($TPH_{DRO}$) will be field screened using a PetroFLAG System.[4] VOC and $TPH_{DRO}$ field analysis will determine the clean boundary of < 50 parts per million (ppm) VOC and < 5,000 ppm TPH. Field chloride titration will be used to determine the clean boundary for chloride (<250 parts per million chloride).

2. Two soil samples from each soil trench (highest $TPH_{DRO}$ reading/chloride concentration and basal sample, 6 possible) will be submitted to a laboratory for confirmation analyses. The samples will be placed into glass sample jars, sealed with Teflon-lined lids, and placed on ice for transportation to an analytical laboratory where they will be analyzed for total petroleum hydrocarbons ($TPH_{DRO}$ and $TPH_{GRO}$, Method 8015) and benzene, toluene, ethylbenzene, and total xylenes (BTEX, Method 8260), and chloride (Method 300.0). In addition, the basal samples from each soil trench will be analyzed for BTEX and chloride synthetic precipitation leaching potential ($SPLP_{BTEX}$; USEPA Method 1312/8015 and $SPLP_{Cl}$ USEPA Method 1312/300.0). These analyses will be used to confirm clean vertical boundaries have been identified.

3. Excavated soil will be returned to the trench for handling during site remediation.

[4] U.S. Environmental Protection Agency, 2001. Innovative Technology Verification Report, Dexsil Corporation PetroFLAG™ System. Prepared by Tetra Tech EM Inc. for USEPA National Exposure Research Laboratory Office of Research and Development. EPA/R-01/092.

4. Tetra Tech will supervise and direct all subcontractor activities, and prepare a report describing and documenting what was done at the Site, including a site map and recommendations for remediation.

Tetra Tech will conduct all activities, and prepare a findings report describing and documenting what was done at the Site, including a site map. This report on activities, results, and recommendations will be submitted for ConocoPhillips and New Mexico Oil Conservation Division's review and approval.

**Project Schedule**

Tetra Tech has been authorized by ConocoPhillips to commence work on this project immediately following receipt of your notification to proceed.

If you concur with this work plan, please notify me of your approval at your earliest convenience. Please contact me or Mr. Mickey Garner (ConocoPhillips, 505-391-3158), if you have any questions or require additional information.

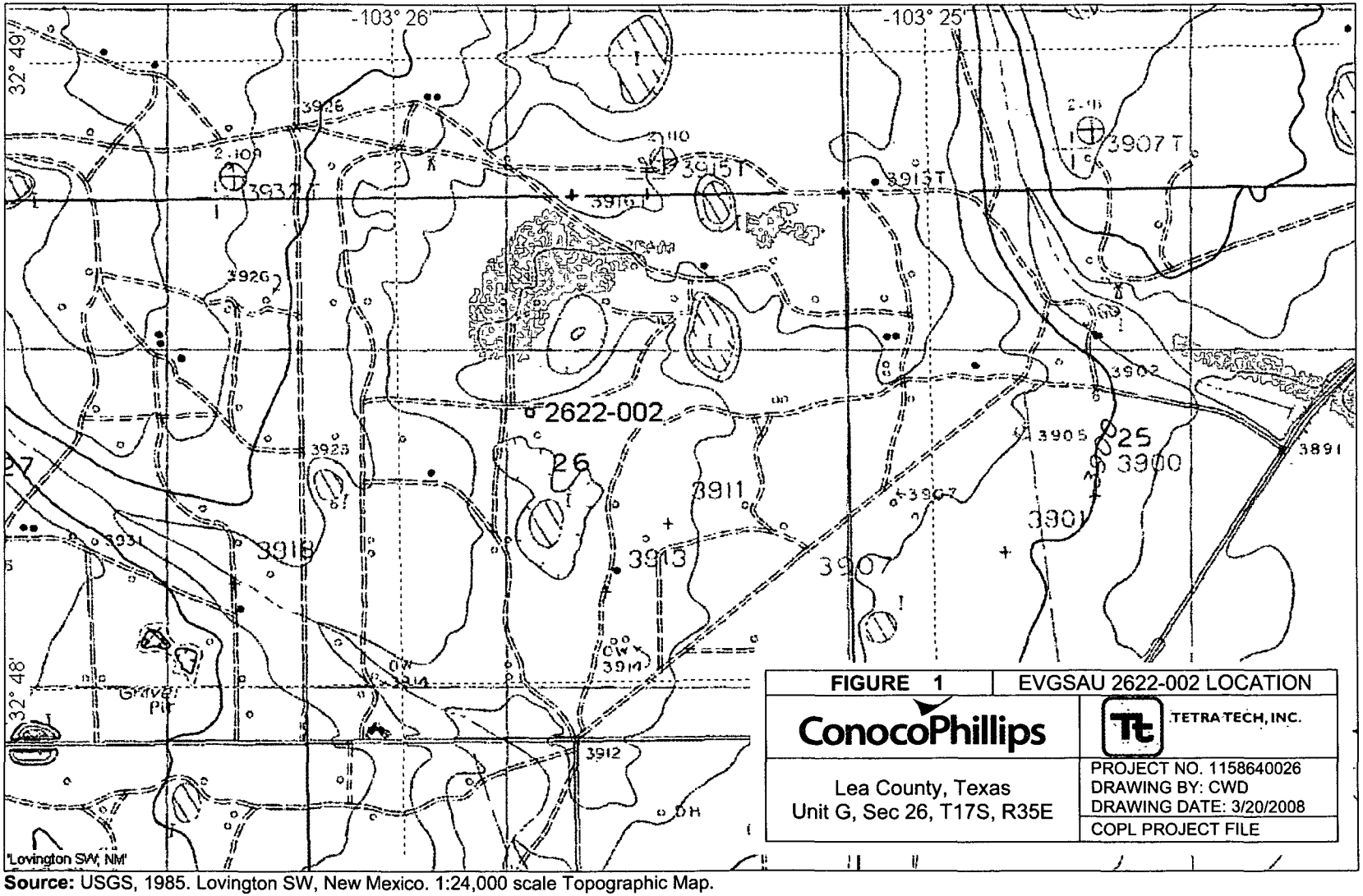
Sincerely,

**Tetra Tech, Inc.**

Digitally signed by Charles Durrett
DN CN = Charles Durrett, C = US, O = Tetra Tech
Date 2008 03 26 14 55 09 -05'00'

Charles Durrett
Office Manager

CC: Mr. Mickey Garner, ConocoPhillips Company




| FIGURE 1 | EVGSAU 2622-002 LOCATION |
|---|---|
| ConocoPhillips | TETRA TECH, INC. |
| Lea County, Texas<br>Unit G, Sec 26, T17S, R35E | PROJECT NO. 1158640026<br>DRAWING BY: CWD<br>DRAWING DATE: 3/20/2008<br>COPL PROJECT FILE |

**Source:** USGS, 1985. Lovington SW, New Mexico. 1:24,000 scale Topographic Map.

# ATTACHMENT D
# Findings Report (Tetra Tech, 2008)

TETRA TECH, INC.

1703 W. Industrial Ave.
Midland, Texas 79701
(432) 686-8081

October 1, 2008

Mr. John Gates
ConocoPhillips Company
HC60 Box 66
Lovington, NM 88260

RE: EVGSAU 2622.002 Flowline
NMOCD 1RP1823
Lea County, New Mexico
Unit G, Sec. 26, T17S, R35E
Tetra Tech Project No.8640026CO

Dear Mr. Gates:

Tetra Tech is pleased to submit this findings report for a subsurface investigation at ConocoPhillips' East Vacuum Glorietta, Grayburg, San Andres Unit (EVGSAU) well 2622.002 flowline (Site; Figure 1). This work is in support of ConocoPhillips efforts to delineate and remediate a recent 58 barrel mixed crude oil/produced water release at the Site. The attached C141, submitted on February 29, 2008 to the New Mexico Oil Conservation Division (NMOCD), has not been approved by the agency. The well is located approximately 1.6 miles northwest of the ConocoPhillips Buckeye office in Lea County, New Mexico (Figure 1; 32.80722°N, 103.42916°W). The State of New Mexico is the land administrator.

The Site is located in the Llano Estacado region of the Southern Great Plains. It is a large southeast-sloping plateau consisting of a nearly level to very gently undulating constructional plain that has little dissection and dotted by numerous small playas[1]. Local topography is characterized by a linear plain.

According to the Geologic Map of New Mexico[2], the area is underlain by the Pliocene-age Ogallala Formation, which consists of fluvial sand, silt, clay, and gravel capped by caliche. Maximum thickness of the Ogallala is up to 100 feet. The Kimbrough-Lea association soil at the Site is well drained, calcareous, gravelly loam.[3] Typically, the surface layer is dark grayish brown gravelly loam over indurated caliche.

**Exposure Pathway Analysis**

[1] Turner, M.T., D.N. Cox, B.C Mickelson, A.J. Roath, and C.D Wilson, 1973. Soil Survey Lea County, New Mexico. U.S. Department of Agriculture Soil Conservation Service, 89p.

[2] New Mexico Bureau of Geology and Mineral Resources, 2003. Geologic Map of New Mexico, 1:500,000.

[3] U.S. Department of Agriculture, Natural Resources Conservation Services. Web Soil Survey Database.

Depth to water in the vicinity of the Site is estimated to be approximately 50 feet below ground surface (fbgs). This interpretation is based on information gathered at another ConocoPhillips remediation project entitled "*East Vacuum Playa*," located approximately 1 mile southwest of the Site. A fresh water pond is located approximately 800 feet northeast of the Site. ConocoPhillips operates a CO2 injection plant approximately 1.5 miles southwest of the Site and wells supply domestic water to the plant. There are dry playas in the area that briefly hold rain water following a storm event; the nearest being approximately 260 feet away.

Following the ranking criteria presented in "*Guidelines for Remediation of Leaks, Spills, and Releases*" promulgated on August 13, 1993 by the NMOCD, this Site has the following score:

| Criteria | | Ranking Score |
|---|---|---|
| Depth to groundwater | <50 feet | 20 |
| Distance from water source | >1000 feet | 0 |
| Distance from domestic water source | >200 feet | 0 |
| Distance from surface water body | >200 feet | 0 |
| **Total Ranking Score** | | 20 |

The remediation action level for a ranking score of >19 is 10 parts per million (ppm) for benzene, 50 ppm for total benzene, toluene, ethylbenzene, and total xylenes (BTEX), and 100 ppm for total petroleum hydrocarbons (TPH).

**Scope of Work**

At the request of ConocoPhillips, Tetra Tech initiated a subsurface investigation of the mixed crude oil/produced water release Site. Tetra Tech excavated two (2) exploratory trenches using a backhoe at well EVGSAU 2622.002 to find a "clean boundary" of less than (< ) 10 parts per million (ppm) VOC, < 100 ppm TPH, and <250 ppm chloride.

Two (2) trenches were excavated in the affected area (Figure 2). Soil samples were collected from the base of each trench and also at the most heavily contaminated depth defined by field screening techniques. Soil samples collected from the trenches were field tested using the PetroFLAG[4] system and chloride field screening techniques[5]. A photoionization detector (PID) was used to screen for volatile organic compounds (VOC).

The excavation depth was 2.5 fbgs owing to the hardness of an impenetrable caliche layer. Two (2) soil samples from each trench (T-1, and T-2) were collected and submitted to the laboratory for analyses. The sampling interval was based on field screening, and on the judgment of the field personnel. The soil sample with the highest total petroleum hydrocarbon

[4] U.S. Environmental Protection Agency, 2001. Innovative Technology Verification Report, Dexsil Corporation PetroFLAGTM System. Prepared by Tetra Tech EM Inc. for USEPA National Exposure Research Laboratory Office of Research and Development. EPA/R-01/092.

[5] Bower, C.A. and L.V. Wilcox. 1965. Chloride. In Methods of Soil Analysis Part 2 Chemical and Microbiological Properties. American Society of Agronomy, Madison, WI, Chap 62, Sect 3.5, pp 947-951.

diesel range ($TPH_{DRO}$) reading/chloride concentration measurements and the sample from the excavation total depth were retained for chemical analysis.

The samples (4) were placed into glass sample jars, sealed with Teflon-lined lids, and placed on ice for transportation to an analytical laboratory where they were analyzed for total petroleum hydrocarbons ($TPH_{DRO}$ and $TPH_{GRO}$, Method 8015), benzene, toluene, ethylbenzene, and total xylenes (BTEX, Method 8260), and chloride (Method 300.0).

All soils generated by soil excavation were returned to each trench to be remediated later.

**Findings**

Excavations advanced during the investigation at the Site encountered sand, sandy loam, and caliche. Typically, the surface layer is yellowish red to dark reddish-brown fine sand. It is underlain by yellowish red sandy clay. The underlying unit was caliche.

Summaries of subsurface environmental conditions are presented in Table 1. A complete laboratory analytical report is presented in Appendix A.

Field screening data for $TPH_{DRO}$, chloride concentration, and visual observations were used to define the horizontal and vertical extent of affected soil (Table 1). Field $TPH_{DRO}$ ranged from 111 to 169 milligrams per kilogram (mg/Kg). Field chloride concentrations ranged from 1,986 to 10,362 milligrams per liter (mg/L). Field readings for volatile organic carbons (VOC's) ranged from 3.1 to 4.2 ppm.

**Table 1**
**ConocoPhillips**
**EVGSAU 2622.002**
**Field Soil Analyses**
**4/7/2008**

| Location | Sample Depth (ft) | Titration Chloride (mg/L) | VOC Reading (ppm) | PetroFlag $TPH_{DRO}$ (mg/Kg) |
|---|---|---|---|---|
| **T-1** | 1.5 | 1,986 | 3.1 | 111 |
| **T-2** | 2.0 | 10,362 | 4.2 | 169 |

ft = Feet
VOC = Volitle organic carbons reading using a Photoionization Detector
ppm = Parts per million
$TPH_{DRO}$ = Diesel range hydrocarbon by PetroFlag method
mg/Kg = Milligrams per kilogram
mg/L = Milligrams per liter

Gasoline range hydrocarbons ($TPH_{GRO}$), $TPH_{DRO}$ and BTEX laboratory analyses are presented in Table 2. TPH in both trenches were above the regulatory guideline of 100 ppm. Benzene concentrations were detected only in trench T-2 and the concentration was below the NMOCD action level of 10 ppm. Other BTEX constituents were not detected in either trench.

**Table 2**
**ConocoPhillips**
**EVGSAU 2622.002**
**Laboratory Soil Analyses**
**4/7/2008**

| Location | Sample Depth (ft) | Chloride (mg/Kg) | TPH GRO (mg/Kg) | TPH DRO (mg/Kg) | Benzene (mg/Kg) | Ethyl-benzene (mg/Kg) | Toluene (mg/Kg) | Xylenes Total (mg/Kg) | Total BTEX (mg/Kg) |
|---|---|---|---|---|---|---|---|---|---|
| **T-1** | 1.5 | 1930 | 0.15 | 340 | ND | ND | ND | ND | ND |
| | 2.0 | 2150 | 0.24 | 180 | ND | ND | ND | ND | ND |
| **T-2** | 2.0 | 14400 | 0.52 | 370 | 0.0075 | ND | ND | ND | 0.0075 |
| | 2.5 | 11600 | 0.41 | 170 | 0.014 | ND | ND | ND | 0.014 |

ft = Feet
mg/Kg = Milligrams per kilogram
TPH = Total petroleum hydrocarbons
$TPH_{GRO}$ =Gasoline range petroleum hydrocarbons
$TPH_{DRO}$ =Diesel range petroleum hydrocarbons
ND = Not detected at or above laboratory detection limits

## Conclusions

According to laboratory analysis of soils collected during this investigation, chloride, and TPH were detected in both trenches. Benzene was only detected in Trench T-2. Exposure pathway analysis indicated a ranking score of "20." Therefore, the site-specific remediation levels are 100 mg/kg for TPH, 50 mg/Kg for BTEX and 10 mg/Kg for benzene. Based on laboratory analyses presented in Table 1, the impacts to soil within EVGSAU 2622.002 are above the NMOCD action level for TPH. Benzene was detected in only one trench and it was below NMOCD action levels. Concentrations of other constituents of BTEX were not detected in either trench. Chloride concentrations were present in all trench samples.

## Recommendations

Tetra Tech recommends the following actions be taken at EVGSAU 2622 Well #002:

- Affected soil in the area will be excavated. Soil will be excavated to a depth of approximately 2 to 3 feet or until TPH concentrations are below NMOCD action levels of 100 ppm on a PID and PetroFLAG-TPH system. The excavated material will be hauled to a state approved disposal location.

- Aliquot soil samples will be collected in a "W" pattern composited into one sample for each sidewall in the excavation. The sample will be field analyzed using PID, PetroFLAG-TPH, and chloride field screening to determine that remediation levels have been achieved (<10 ppm benzene, <100 ppm TPH, and <250 ppm chloride).

- Companion composite samples will be submitted to a laboratory for $TPH_{GRO}$, $TPH_{DRO}$, and chloride analyses to confirm that these constituents have been removed to concentrations below remediation guidelines.

- The remaining soil in the excavation areas will be slightly domed (1 foot higher than the sides). The slight doming of the soil beneath a "liner" material will promote lateral drainage off of the geo-membrane after placement. The dome will be hand groomed by removing any large sticks and smoothing the surface. An anchor trench will be constructed around the inside perimeter of the excavation and a 40-mil medium density polyethylene geo-membrane will be installed over the domed area. The membrane will be cut to fit into the perimeter trench and native soil will be backfilled around the perimeter to hold the membrane in place. Clean soil (caliche) will be backfilled over the membrane to meet surrounding surface grades which would complete the remediation. Four carsonite markers will set at the corners of the remediation area notifying interested parties that a subsurface structure was in place. The inscription on each marker would read "CAUTION, SUBSURFACE STRUCTURE, Call Before Digging." The affected soil below the liner will be left in place until the area is permanently closed in accordance with NMOCD and BLM rules for site abandonment.

- Tetra Tech will supervise and direct all subcontractor activities and following the remediation activities, prepare a report describing and documenting what was done for closure activities at the Site, including a site map. This report on activities and results will be submitted for NMOCD's review and ultimate closure of this voluntary remediation.

If you concur with these recommendations and attached cost estimate, ConocoPhillips has authorized Tetra Tech to commence work on this project immediately following receipt of your notification to proceed. Please contact me (432-686-8081) or Mr. Gary Miller (432-682-4559), if you have any questions or require additional information.

Sincerely,

**Tetra Tech, Inc.**

Charles Durrett
Project Manager

Attachments:
Form C-141 Release Notification and Corrective Action
Appendix A: Laboratory Analytical Report


EVGSAU 2622.002
© 2008 Tele Atlas
Image © 2008 DigitalGlobe
200 ft
Google
Pointer lat 32.806955° lon -103.428705° elev 3913 ft Streaming 100%
Eye alt 4603 ft

**HOUSTON LABORATORY**
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

## Conoco Phillips

**Certificate of Analysis Number:**

**08040533**

| Report To: | | Project Name: | COP EVGSAU2622.002 |
|---|---|---|---|
| Tetra Tech | | Site: | Buckeye, NM |
| Charlie Durrett | | Site Address: | |
| 1703 W Industrial Avenue | | | |
| Midland | | PO Number: | A060263SM |
| TX | | State: | New Mexico |
| 79701- | | State Cert. No.: | |
| ph: (432) 686-8081 | fax: | Date Reported: | 4/21/2008 |

This Report Contains A Total Of 19 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

4/22/2008

Date

Test results meet all requirements of NELAC, unless specified in the narrative.

**HOUSTON LABORATORY**
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

## Case Narrative for:

# Conoco Phillips

## Certificate of Analysis Number:

## 08040533

| Report To: | | Project Name: | COP EVGSAU2622.002 |
|---|---|---|---|
| Tetra Tech | | Site: | Buckeye, NM |
| Charlie Durrett | | Site Address: | |
| 1703 W Industrial Avenue | | | |
| Midland | | PO Number: | A060263SM |
| TX | | State: | New Mexico |
| 79701- | | State Cert. No.: | |
| ph: (432) 686-8081 | fax: | Date Reported: | 4/21/2008 |

Per our phone conversation on April 17, 2008, the SPLP analyses were cancelled due to limited sample volume received at the laboratory.

Per the Conoco Phillips TSM Revision 0, a copy of the internal chain of custody is to be included in final data package. However, due to LIMS limitations, this cannot be provided at this time.

Results for soils are reported on a dry-weight basis.

The samples submitted for Purgeable Aromatics by SW846 Method 8021B analyses were received in a vessel that is not stipulated in Method 5035A; the samples were not preserved and/or analyzed within 48 hours of sample collection.

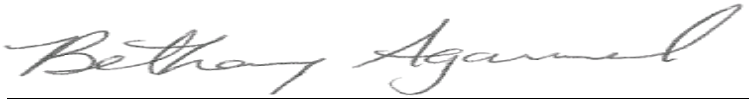
Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.





Bethany A. Agarwal
Senior Project Manager

Date

Test results meet all requirements of NELAC, unless specified in the narrative.

**HOUSTON LABORATORY**
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

# Conoco Phillips

## Certificate of Analysis Number:

## 08040533

**Report To:** Tetra Tech
Charlie Durrett
1703 W Industrial Avenue

Midland
TX
79701-
ph: (432) 686-8081 fax: (432) 686-8085

**Fax To:**

**Project Name:** COP EVGSAU2622.002
**Site:** Buckeye, NM
**Site Address:**

**PO Number:** A060263SM
**State:** New Mexico
**State Cert. No.:**
**Date Reported:** 4/21/2008

| Client Sample ID | Lab Sample ID | Matrix | Date Collected | Date Received | COC ID | HOLD |
|---|---|---|---|---|---|---|
| T1.2.0' | 08040533-01 | Soil | 4/7/2008 12:45:00 PM | 4/9/2008 10:00:00 AM | 293555 | ☐ |
| T2.2.0' | 08040533-02 | Soil | 4/7/2008 1:04:00 PM | 4/9/2008 10:00:00 AM | 293555 | ☐ |
| T2.2.5' | 08040533-03 | Soil | 4/7/2008 1:10:00 PM | 4/9/2008 10:00:00 AM | 293555 | ☐ |
| T1.1.5' | 08040533-04 | Soil | 4/7/2008 12:41:00 PM | 4/9/2008 10:00:00 AM | 293555 | ☐ |

Bethany A. Agarwal
Senior Project Manager

4/22/2008
Date

Richard R. Reed
Laboratory Director

Ted Yen
Quality Assurance Officer

**HOUSTON LABORATORY**
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

**Client Sample ID:** T1.2.0' **Collected:** 04/07/2008 12:45 **SPL Sample ID:** 08040533-01

**Site: Buckeye, NM**

| Analyses/Method | Result | QUAL | | Rep.Limit | Dil. Factor | Date Analyzed | Analyst | Seq. # |
|---|---|---|---|---|---|---|---|---|
| **DIESEL RANGE ORGANICS** | | | | | **MCL** | **SW8015B** | **Units: mg/kg-dry** | |
| Diesel Range Organics (C10-C28) | 180 | | | 62 | 10 | 04/11/08 20:22 | NW | 4376867 |
| Surr: n-Pentacosane | 87.2 | | % | 20-154 | 10 | 04/11/08 20:22 | NW | 4376867 |

| Prep Method | Prep Date | Prep Initials | Prep Factor |
|---|---|---|---|
| SW3550B | 04/10/2008 16:48 | QMT | 1.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **GASOLINE RANGE ORGANICS** | | | | | **MCL** | **SW8015B** | **Units: mg/kg-dry** | |
| Gasoline Range Organics | 0.24 | | | 0.12 | 1 | 04/09/08 21:27 | SFE | 4372162 |
| Surr: 1,4-Difluorobenzene | 122 | | % | 63-142 | 1 | 04/09/08 21:27 | SFE | 4372162 |
| Surr: 4-Bromofluorobenzene | 105 | | % | 50-159 | 1 | 04/09/08 21:27 | SFE | 4372162 |

| Prep Method | Prep Date | Prep Initials | Prep Factor |
|---|---|---|---|
| SW5030B | 04/09/2008 17:39 | SFE | 1.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **ION CHROMATOGRAPHY** | | | | | **MCL** | **E300.0 MOD** | **Units: mg/kg-dry** | |
| Chloride | 2150 | | | 124 | 20 | 04/14/08 18:35 | A_E | 4378840 |
| **PERCENT MOISTURE** | | | | | **MCL** | **D2216** | **Units: wt%** | |
| Percent Moisture | 19.6 | | | 0 | 1 | 04/10/08 16:58 | GF | 4373594 |
| **SPECIFIC CONDUCTANCE** | | | | | **MCL** | **SW9050** | **Units: umhos/cm-d** | |
| Specific Conductance | 8730 | | | 124 | 1 | 04/15/08 17:30 | PAC | 4380425 |
| **VOLATILE ORGANICS BY METHOD 8260B** | | | | | **MCL** | **SW8260B** | **Units: ug/kg-dry** | |
| Benzene | ND | | | 6.2 | 1 | 04/10/08 18:27 | TLE | 4387392 |
| Ethylbenzene | ND | | | 6.2 | 1 | 04/10/08 18:27 | TLE | 4387392 |
| Toluene | ND | | | 6.2 | 1 | 04/10/08 18:27 | TLE | 4387392 |
| m,p-Xylene | ND | | | 6.2 | 1 | 04/10/08 18:27 | TLE | 4387392 |
| o-Xylene | ND | | | 6.2 | 1 | 04/10/08 18:27 | TLE | 4387392 |
| Xylenes,Total | ND | | | 6.2 | 1 | 04/10/08 18:27 | TLE | 4387392 |
| Surr: 1,2-Dichloroethane-d4 | 101 | | % | 64-130 | 1 | 04/10/08 18:27 | TLE | 4387392 |
| Surr: 4-Bromofluorobenzene | 88.7 | | % | 62-130 | 1 | 04/10/08 18:27 | TLE | 4387392 |
| Surr: Toluene-d8 | 101 | | % | 70-140 | 1 | 04/10/08 18:27 | TLE | 4387392 |

| Prep Method | Prep Date | Prep Initials | Prep Factor |
|---|---|---|---|
| SW5030B | 04/09/2008 17:58 | TLE | 0.99 |

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

**HOUSTON LABORATORY**
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

**Client Sample ID:** T2.2.0' **Collected:** 04/07/2008 13:04 **SPL Sample ID:** 08040533-02

**Site: Buckeye, NM**

| Analyses/Method | Result | QUAL | | Rep.Limit | Dil. Factor | Date Analyzed | Analyst | Seq. # |
|---|---|---|---|---|---|---|---|---|
| **DIESEL RANGE ORGANICS** | | | | | **MCL** | **SW8015B** | **Units: mg/kg-dry** | |
| Diesel Range Organics (C10-C28) | 370 | | | 62 | 10 | 04/11/08 20:47 | NW | 4376868 |
| Surr: n-Pentacosane | 277 MI | * | % | 20-154 | 10 | 04/11/08 20:47 | NW | 4376868 |

| Prep Method | Prep Date | Prep Initials | Prep Factor |
|---|---|---|---|
| SW3550B | 04/10/2008 16:48 | QMT | 1.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **GASOLINE RANGE ORGANICS** | | | | | **MCL** | **SW8015B** | **Units: mg/kg-dry** | |
| Gasoline Range Organics | 0.52 | | | 0.12 | 1 | 04/10/08 6:37 | SFE | 4372178 |
| Surr: 1,4-Difluorobenzene | 126 | | % | 63-142 | 1 | 04/10/08 6:37 | SFE | 4372178 |
| Surr: 4-Bromofluorobenzene | 106 | | % | 50-159 | 1 | 04/10/08 6:37 | SFE | 4372178 |

| Prep Method | Prep Date | Prep Initials | Prep Factor |
|---|---|---|---|
| SW5030B | 04/09/2008 17:40 | SFE | 1.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **ION CHROMATOGRAPHY** | | | | | **MCL** | **E300.0 MOD** | **Units: mg/kg-dry** | |
| Chloride | 14400 | | | 625 | 100 | 04/14/08 22:42 | A_E | 4378853 |
| **PERCENT MOISTURE** | | | | | **MCL** | **D2216** | **Units: wt%** | |
| Percent Moisture | 20 | | | 0 | 1 | 04/10/08 16:58 | GF | 4373593 |
| **SPECIFIC CONDUCTANCE** | | | | | **MCL** | **SW9050** | **Units: umhos/cm-d** | |
| Specific Conductance | 45100 | | | 125 | 1 | 04/15/08 17:30 | PAC | 4380426 |
| **VOLATILE ORGANICS BY METHOD 8260B** | | | | | **MCL** | **SW8260B** | **Units: ug/kg-dry** | |
| Benzene | 7.5 | | | 6.2 | 1 | 04/10/08 17:05 | TLE | 4387389 |
| Ethylbenzene | ND | | | 6.2 | 1 | 04/10/08 17:05 | TLE | 4387389 |
| Toluene | ND | | | 6.2 | 1 | 04/10/08 17:05 | TLE | 4387389 |
| m,p-Xylene | ND | | | 6.2 | 1 | 04/10/08 17:05 | TLE | 4387389 |
| o-Xylene | ND | | | 6.2 | 1 | 04/10/08 17:05 | TLE | 4387389 |
| Xylenes,Total | ND | | | 6.2 | 1 | 04/10/08 17:05 | TLE | 4387389 |
| Surr: 1,2-Dichloroethane-d4 | 109 | | % | 64-130 | 1 | 04/10/08 17:05 | TLE | 4387389 |
| Surr: 4-Bromofluorobenzene | 88.9 | | % | 62-130 | 1 | 04/10/08 17:05 | TLE | 4387389 |
| Surr: Toluene-d8 | 103 | | % | 70-140 | 1 | 04/10/08 17:05 | TLE | 4387389 |

| Prep Method | Prep Date | Prep Initials | Prep Factor |
|---|---|---|---|
| SW5030B | 04/09/2008 17:58 | TLE | 0.99 |

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

**HOUSTON LABORATORY**
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

**Client Sample ID:** T2.2.5' **Collected:** 04/07/2008 13:10 **SPL Sample ID:** 08040533-03

**Site: Buckeye, NM**

| Analyses/Method | Result | QUAL | | Rep.Limit | Dil. Factor | Date Analyzed | Analyst | Seq. # |
|---|---|---|---|---|---|---|---|---|
| **DIESEL RANGE ORGANICS** | | | | | **MCL** | **SW8015B** | **Units: mg/kg-dry** | |
| Diesel Range Organics (C10-C28) | 170 | | | 62 | 10 | 04/13/08 12:55 | NW | 4376876 |
| Surr: n-Pentacosane | 186 MI | * | % | 20-154 | 10 | 04/13/08 12:55 | NW | 4376876 |

| Prep Method | Prep Date | Prep Initials | Prep Factor |
|---|---|---|---|
| SW3550B | 04/10/2008 16:48 | QMT | 1.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **GASOLINE RANGE ORGANICS** | | | | | **MCL** | **SW8015B** | **Units: mg/kg-dry** | |
| Gasoline Range Organics | 0.41 | | | 0.12 | 1 | 04/10/08 7:06 | SFE | 4372179 |
| Surr: 1,4-Difluorobenzene | 105 | | % | 63-142 | 1 | 04/10/08 7:06 | SFE | 4372179 |
| Surr: 4-Bromofluorobenzene | 99.2 | | % | 50-159 | 1 | 04/10/08 7:06 | SFE | 4372179 |

| Prep Method | Prep Date | Prep Initials | Prep Factor |
|---|---|---|---|
| SW5030B | 04/09/2008 17:41 | SFE | 1.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **ION CHROMATOGRAPHY** | | | | | **MCL** | **E300.0 MOD** | **Units: mg/kg-dry** | |
| Chloride | 11600 | | | 620 | 100 | 04/14/08 22:58 | A_E | 4378854 |
| **PERCENT MOISTURE** | | | | | **MCL** | **D2216** | **Units: wt%** | |
| Percent Moisture | 19.3 | | | 0 | 1 | 04/11/08 13:09 | GF | 4374654 |
| **SPECIFIC CONDUCTANCE** | | | | | **MCL** | **SW9050** | **Units: umhos/cm-d** | |
| Specific Conductance | 40800 | | | 124 | 1 | 04/15/08 17:30 | PAC | 4380427 |
| **VOLATILE ORGANICS BY METHOD 8260B** | | | | | **MCL** | **SW8260B** | **Units: ug/kg-dry** | |
| Benzene | 14 | | | 6.1 | 1 | 04/10/08 18:00 | TLE | 4387391 |
| Ethylbenzene | ND | | | 6.1 | 1 | 04/10/08 18:00 | TLE | 4387391 |
| Toluene | ND | | | 6.1 | 1 | 04/10/08 18:00 | TLE | 4387391 |
| m,p-Xylene | ND | | | 6.1 | 1 | 04/10/08 18:00 | TLE | 4387391 |
| o-Xylene | ND | | | 6.1 | 1 | 04/10/08 18:00 | TLE | 4387391 |
| Xylenes,Total | ND | | | 6.1 | 1 | 04/10/08 18:00 | TLE | 4387391 |
| Surr: 1,2-Dichloroethane-d4 | 105 | | % | 64-130 | 1 | 04/10/08 18:00 | TLE | 4387391 |
| Surr: 4-Bromofluorobenzene | 88.9 | | % | 62-130 | 1 | 04/10/08 18:00 | TLE | 4387391 |
| Surr: Toluene-d8 | 103 | | % | 70-140 | 1 | 04/10/08 18:00 | TLE | 4387391 |

| Prep Method | Prep Date | Prep Initials | Prep Factor |
|---|---|---|---|
| SW5030B | 04/09/2008 17:58 | TLE | 0.99 |

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

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**Client Sample ID:** T1.1.5' **Collected:** 04/07/2008 12:41 **SPL Sample ID:** 08040533-04

**Site: Buckeye, NM**

| Analyses/Method | Result | QUAL | | Rep.Limit | Dil. Factor | Date Analyzed | Analyst | Seq. # |
|---|---|---|---|---|---|---|---|---|
| **DIESEL RANGE ORGANICS** | | | | | **MCL** | **SW8015B** | **Units: mg/kg-dry** | |
| Diesel Range Organics (C10-C28) | 340 | | | 55 | 10 | 04/11/08 21:12 | NW | 4376869 |
| Surr: n-Pentacosane | 141 | | % | 20-154 | 10 | 04/11/08 21:12 | NW | 4376869 |

| Prep Method | Prep Date | Prep Initials | Prep Factor |
|---|---|---|---|
| SW3550B | 04/10/2008 16:48 | QMT | 1.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **GASOLINE RANGE ORGANICS** | | | | | **MCL** | **SW8015B** | **Units: mg/kg-dry** | |
| Gasoline Range Organics | 0.15 | | | 0.11 | 1 | 04/09/08 21:56 | SFE | 4372163 |
| Surr: 1,4-Difluorobenzene | 103 | | % | 63-142 | 1 | 04/09/08 21:56 | SFE | 4372163 |
| Surr: 4-Bromofluorobenzene | 86.4 | | % | 50-159 | 1 | 04/09/08 21:56 | SFE | 4372163 |

| Prep Method | Prep Date | Prep Initials | Prep Factor |
|---|---|---|---|
| SW5030B | 04/09/2008 17:42 | SFE | 1.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **ION CHROMATOGRAPHY** | | | | | **MCL** | **E300.0 MOD** | **Units: mg/kg-dry** | |
| Chloride | 1930 | | | 111 | 20 | 04/14/08 22:09 | A_E | 4378851 |
| **PERCENT MOISTURE** | | | | | **MCL** | **D2216** | **Units: wt%** | |
| Percent Moisture | 9.71 | | | 0 | 1 | 04/10/08 16:58 | GF | 4373583 |
| **SPECIFIC CONDUCTANCE** | | | | | **MCL** | **SW9050** | **Units: umhos/cm-d** | |
| Specific Conductance | 8610 | | | 111 | 1 | 04/15/08 17:30 | PAC | 4380428 |
| **VOLATILE ORGANICS BY METHOD 8260B** | | | | | **MCL** | **SW8260B** | **Units: ug/kg-dry** | |
| Benzene | ND | | | 5.5 | 1 | 04/10/08 17:32 | TLE | 4387390 |
| Ethylbenzene | ND | | | 5.5 | 1 | 04/10/08 17:32 | TLE | 4387390 |
| Toluene | ND | | | 5.5 | 1 | 04/10/08 17:32 | TLE | 4387390 |
| m,p-Xylene | ND | | | 5.5 | 1 | 04/10/08 17:32 | TLE | 4387390 |
| o-Xylene | ND | | | 5.5 | 1 | 04/10/08 17:32 | TLE | 4387390 |
| Xylenes,Total | ND | | | 5.5 | 1 | 04/10/08 17:32 | TLE | 4387390 |
| Surr: 1,2-Dichloroethane-d4 | 101 | | % | 64-130 | 1 | 04/10/08 17:32 | TLE | 4387390 |
| Surr: 4-Bromofluorobenzene | 88.9 | | % | 62-130 | 1 | 04/10/08 17:32 | TLE | 4387390 |
| Surr: Toluene-d8 | 103 | | % | 70-140 | 1 | 04/10/08 17:32 | TLE | 4387390 |

| Prep Method | Prep Date | Prep Initials | Prep Factor |
|---|---|---|---|
| SW5030B | 04/09/2008 17:58 | TLE | 0.99 |

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

# *Quality Control Documentation*

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# Quality Control Report

## Conoco Phillips

**COP EVGSAU2622.002**

**Analysis:** Diesel Range Organics **WorkOrder:** 08040533
**Method:** SW8015B **Lab Batch ID:** 77509

### Method Blank

RunID: HP_V_080411C-4376853 Units: mg/kg
Analysis Date: 04/11/2008 12:23 Analyst: NW
Preparation Date: 04/10/2008 16:48 Prep By: QMT Method SW3550B

| Analyte | Result | Rep Limit |
|---|---|---|
| Diesel Range Organics (C10-C28) | ND | 5.0 |
| Surr: n-Pentacosane | 84.0 | 20-154 |

**Samples in Analytical Batch:**

| Lab Sample ID | Client Sample ID |
|---|---|
| 08040533-01A | T1.2.0' |
| 08040533-02A | T2.2.0' |
| 08040533-03A | T2.2.5' |
| 08040533-04A | T1.1.5' |

### Laboratory Control Sample (LCS)

RunID: HP_V_080411C-4376854 Units: mg/kg
Analysis Date: 04/11/2008 12:48 Analyst: NW
Preparation Date: 04/10/2008 16:48 Prep By: QMT Method SW3550B

| Analyte | Spike Added | Result | Percent Recovery | Lower Limit | Upper Limit |
|---|---|---|---|---|---|
| Diesel Range Organics (C10-C28) | 66.6 | 54.5 | 81.9 | 57 | 150 |
| Surr: n-Pentacosane | 1.66 | 1.41 | 84.9 | 20 | 154 |

### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 08040600-01
RunID: HP_V_080411C-4376875 Units: mg/kg
Analysis Date: 04/13/2008 12:30 Analyst: NW
Preparation Date: 04/10/2008 16:48 Prep By: QMT Method SW3550B

| Analyte | Sample Result | MS Spike Added | MS Result | MS % Recovery | MSD Spike Added | MSD Result | MSD % Recovery | RPD | RPD Limit | Low Limit | High Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (C10-C28) | ND | 66.6 | 63.3 | 91.5 | 66.6 | 60.6 | 87.5 | 4.28 | 50 | 21 | 175 |
| Surr: n-Pentacosane | ND | 1.66 | 1.53 | 92.1 | 1.66 | 1.45 | 87.5 | 5.04 | 30 | 20 | 154 |

**Qualifiers:**
ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count



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# Quality Control Report

## Conoco Phillips

**COP EVGSAU2622.002**

**Analysis:** Gasoline Range Organics **WorkOrder:** 08040533
**Method:** SW8015B **Lab Batch ID:** R233594

### Method Blank

RunID: HP_S_080409A-4372156 Units: mg/kg
Analysis Date: 04/09/2008 18:34 Analyst: SFE
Preparation Date: 04/09/2008 18:34 Prep By: Method

| Analyte | Result | Rep Limit |
|---|---|---|
| Gasoline Range Organics | ND | 0.10 |
| Surr: 1,4-Difluorobenzene | 102.3 | 63-142 |
| Surr: 4-Bromofluorobenzene | 111.0 | 50-159 |

### Samples in Analytical Batch:

| Lab Sample ID | Client Sample ID |
|---|---|
| 08040533-01A | T1.2.0' |
| 08040533-02A | T2.2.0' |
| 08040533-03A | T2.2.5' |
| 08040533-04A | T1.1.5' |

### Laboratory Control Sample (LCS)

RunID: HP_S_080409A-4372155 Units: mg/kg
Analysis Date: 04/09/2008 18:05 Analyst: SFE
Preparation Date: 04/09/2008 18:05 Prep By: Method SW5030B

| Analyte | Spike Added | Result | Percent Recovery | Lower Limit | Upper Limit |
|---|---|---|---|---|---|
| Gasoline Range Organics | 1.00 | 1.02 | 102 | 70 | 130 |
| Surr: 1,4-Difluorobenzene | 0.100 | 0.1 | 100 | 63 | 142 |
| Surr: 4-Bromofluorobenzene | 0.100 | 0.103 | 103 | 50 | 159 |

### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 08040533-04
RunID: HP_S_080409A-4372166 Units: mg/kg-dry
Analysis Date: 04/09/2008 23:52 Analyst: SFE
Preparation Date: 04/09/2008 17:42 Prep By: SFE Method SW5030B

| Analyte | Sample Result | MS Spike Added | MS Result | MS % Recovery | MSD Spike Added | MSD Result | MSD % Recovery | RPD | RPD Limit | Low Limit | High Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.155 | 1.11 | 1.27 | 101 | 1.11 | 0.895 | 66.9 | 34.8 | 50 | 26 | 147 |
| Surr: 1,4-Difluorobenzene | ND | 0.111 | 0.15 | 135 | 0.111 | 0.116 | 105 | 25.3 | 30 | 63 | 142 |
| Surr: 4-Bromofluorobenzene | ND | 0.111 | 0.113 | 102 | 0.111 | 0.103 | 93.1 | 8.93 | 30 | 50 | 159 |

**Qualifiers:**
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B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count



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# Quality Control Report

## Conoco Phillips

**COP EVGSAU2622.002**

**Analysis:** Volatile Organics by Method 8260B **WorkOrder:** 08040533
**Method:** SW8260B **Lab Batch ID:** 77856

### Method Blank

RunID: M_080410E-4387381 Units: ug/kg
Analysis Date: 04/10/2008 12:05 Analyst: TLE

| Analyte | Result | Rep Limit |
|---|---|---|
| Benzene | ND | 5.0 |
| Ethylbenzene | ND | 5.0 |
| Toluene | ND | 5.0 |
| m,p-Xylene | ND | 5.0 |
| o-Xylene | ND | 5.0 |
| Xylenes,Total | ND | 5.0 |
| Surr: 1,2-Dichloroethane-d4 | 110.0 | 64-130 |
| Surr: 4-Bromofluorobenzene | 84.0 | 62-130 |
| Surr: Toluene-d8 | 102.0 | 70-140 |

### Samples in Analytical Batch:

| Lab Sample ID | Client Sample ID |
|---|---|
| 08040533-01A | T1.2.0' |
| 08040533-02A | T2.2.0' |
| 08040533-03A | T2.2.5' |
| 08040533-04A | T1.1.5' |

### Laboratory Control Sample (LCS)

RunID: M_080410E-4387378 Units: ug/kg
Analysis Date: 04/10/2008 11:11 Analyst: TLE

| Analyte | Spike Added | Result | Percent Recovery | Lower Limit | Upper Limit |
|---|---|---|---|---|---|
| Benzene | 20.0 | 22.0 | 110 | 66 | 142 |
| Ethylbenzene | 20.0 | 21.0 | 105 | 35 | 175 |
| Toluene | 20.0 | 23.0 | 115 | 59 | 139 |
| m,p-Xylene | 40.0 | 40.0 | 100 | 35 | 175 |
| o-Xylene | 20.0 | 20.0 | 100 | 35 | 175 |
| Xylenes,Total | 60 | 60 | 100 | 35 | 175 |
| Surr: 1,2-Dichloroethane-d4 | 50.0 | 55 | 110 | 64 | 130 |
| Surr: 4-Bromofluorobenzene | 50.0 | 51 | 102 | 62 | 130 |
| Surr: Toluene-d8 | 50.0 | 52 | 104 | 70 | 140 |

### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 08040530-03
RunID: M_080410E-4387387 Units: ug/kg-dry
Analysis Date: 04/10/2008 13:00 Analyst: TLE
Preparation Date: 04/09/2008 17:58 Prep By: TLE Method SW5030B

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count



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## Quality Control Report

## Conoco Phillips

**COP EVGSAU2622.002**

**Analysis:** Volatile Organics by Method 8260B **WorkOrder:** 08040533
**Method:** SW8260B **Lab Batch ID:** 77856

| Analyte | Sample Result | MS Spike Added | MS Result | MS % Recovery | MSD Spike Added | MSD Result | MSD % Recovery | RPD | RPD Limit | Low Limit | High Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 22.8 | 22.8 | 99.8 | 22.8 | 21.6 | 95.0 | 5.13 | 21 | 66 | 142 |
| Ethylbenzene | ND | 22.8 | 20.5 | 79.8 | 22.8 | 19.3 | 75.0 | 5.71 | 30 | 35 | 175 |
| Toluene | ND | 22.8 | 22.8 | 99.8 | 22.8 | 22.8 | 100 | 0 | 21 | 59 | 139 |
| m,p-Xylene | ND | 45.6 | 38.7 | 84.8 | 45.5 | 36.4 | 80.0 | 6.06 | 30 | 35 | 175 |
| o-Xylene | ND | 22.8 | 18.2 | 79.8 | 22.8 | 18.2 | 80.0 | 0 | 30 | 35 | 175 |
| Xylenes,Total | ND | 68.4 | 56.9 | 83.2 | 68.3 | 54.6 | 80.0 | 4.08 | 30 | 35 | 175 |
| Surr: 1,2-Dichloroethane-d4 | ND | 57 | 60.3 | 106 | 56.9 | 60.3 | 106 | 0 | 30 | 64 | 130 |
| Surr: 4-Bromofluorobenzene | ND | 57 | 56.9 | 99.8 | 56.9 | 56.9 | 100 | 0 | 30 | 62 | 130 |
| Surr: Toluene-d8 | ND | 57 | 59.2 | 104 | 56.9 | 59.2 | 104 | 0 | 30 | 70 | 140 |

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
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# Quality Control Report

## Conoco Phillips

**COP EVGSAU2622.002**

**Analysis:** PERCENT MOISTURE **WorkOrder:** 08040533
**Method:** D2216 **Lab Batch ID:** R233674

**Samples in Analytical Batch:**

| Lab Sample ID | Client Sample ID |
|---|---|
| 08040533-01A | T1.2.0' |
| 08040533-02A | T2.2.0' |

**Sample Duplicate**

Original Sample: 08040530-01
RunID: WET_080410K-4373599 Units: wt%
Analysis Date: 04/10/2008 16:58 Analyst: GF

| Analyte | Sample Result | DUP Result | RPD | RPD Limit |
|---|---|---|---|---|
| Percent Moisture | 16.3 | 16.32 | 0.117 | 20 |

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count



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# Quality Control Report

## Conoco Phillips

**COP EVGSAU2622.002**

| | | | |
|---|---|---|---|
| **Analysis:** | **PERCENT MOISTURE** | **WorkOrder:** | **08040533** |
| **Method:** | **D2216** | **Lab Batch ID:** | **R233674C** |

**Samples in Analytical Batch:**

| Lab Sample ID | Client Sample ID |
|---|---|
| 08040533-04A | T1.1.5' |

**Sample Duplicate**

| | | | |
|---|---|---|---|
| Original Sample: | 08040537-04 | | |
| RunID: | WET_080410K-4373589 | Units: | wt% |
| Analysis Date: | 04/10/2008 16:58 | Analyst: | GF |

| Analyte | Sample Result | DUP Result | RPD | RPD Limit |
|---|---|---|---|---|
| Percent Moisture | 15.9 | 15.86 | 0 | 20 |

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits



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# Quality Control Report

## Conoco Phillips

**COP EVGSAU2622.002**

**Analysis:** PERCENT MOISTURE
**Method:** D2216
**WorkOrder:** 08040533
**Lab Batch ID:** R233752B

**Samples in Analytical Batch:**

| Lab Sample ID | Client Sample ID |
|---|---|
| 08040533-03A | T2.2.5' |

**Sample Duplicate**

Original Sample: 08040533-03
RunID: WET_080411D-4374654 Units: wt%
Analysis Date: 04/11/2008 13:09 Analyst: GF

| Analyte | Sample Result | DUP Result | RPD | RPD Limit |
|---|---|---|---|---|
| Percent Moisture | 19.3 | 19.31 | 0 | 20 |

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count



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# Quality Control Report

## Conoco Phillips

**COP EVGSAU2622.002**

**Analysis:** Ion Chromatography **WorkOrder:** 08040533
**Method:** E300.0 MOD **Lab Batch ID:** R234020A

### Method Blank

RunID: IC1_080414A-4378831 Units: mg/kg
Analysis Date: 04/14/2008 16:07 Analyst: A_E

**Samples in Analytical Batch:**

| Lab Sample ID | Client Sample ID |
|---|---|
| 08040533-01A | T1.2.0' |

| Analyte | Result | Rep Limit |
|---|---|---|
| Chloride | ND | 5.0 |

### Laboratory Control Sample (LCS)

RunID: IC1_080414A-4378832 Units: mg/kg
Analysis Date: 04/14/2008 16:24 Analyst: A_E

| Analyte | Spike Added | Result | Percent Recovery | Lower Limit | Upper Limit |
|---|---|---|---|---|---|
| Chloride | 100.0 | 93.15 | 93.15 | 80 | 120 |

### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 08040530-02
RunID: IC1_080414A-4378836 Units: mg/kg-dry
Analysis Date: 04/14/2008 17:29 Analyst: A_E

| Analyte | Sample Result | MS Spike Added | MS Result | MS % Recovery | MSD Spike Added | MSD Result | MSD % Recovery | RPD | RPD Limit | Low Limit | High Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1408 | 2364 | 3765 | 99.71 | 2364 | 3764 | 99.68 | 0.01664 | 20 | 75 | 125 |

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count



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# Quality Control Report

## Conoco Phillips

**COP EVGSAU2622.002**

**Analysis:** Ion Chromatography **WorkOrder:** 08040533
**Method:** E300.0 MOD **Lab Batch ID:** R234020S

### Method Blank

RunID: IC1_080414A-4378845 Units: mg/kg
Analysis Date: 04/14/2008 20:30 Analyst: A_E

| Analyte | Result | Rep Limit |
|---|---|---|
| Chloride | ND | 5.0 |

### Samples in Analytical Batch:

| Lab Sample ID | Client Sample ID |
|---|---|
| 08040533-02A | T2.2.0' |
| 08040533-03A | T2.2.5' |
| 08040533-04A | T1.1.5' |

### Laboratory Control Sample (LCS)

RunID: IC1_080414A-4378846 Units: mg/kg
Analysis Date: 04/14/2008 20:47 Analyst: A_E

| Analyte | Spike Added | Result | Percent Recovery | Lower Limit | Upper Limit |
|---|---|---|---|---|---|
| Chloride | 100.0 | 93.95 | 93.95 | 80 | 120 |

### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 08040539-04
RunID: IC1_080414A-4378848 Units: mg/kg-dry
Analysis Date: 04/14/2008 21:20 Analyst: A_E

| Analyte | Sample Result | MS Spike Added | MS Result | MS % Recovery | MSD Spike Added | MSD Result | MSD % Recovery | RPD | RPD Limit | Low Limit | High Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 750.2 | 1122 | 1912 | 103.5 | 1122 | 1914 | 103.7 | 0.1185 | 20 | 75 | 125 |

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count



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# Quality Control Report

## Conoco Phillips

**COP EVGSAU2622.002**

**Analysis:** Specific Conductance
**Method:** SW9050
**WorkOrder:** 08040533
**Lab Batch ID:** R234119

### Method Blank

RunID: WET_080415U-4380418 Units: umhos/cm
Analysis Date: 04/15/2008 17:30 Analyst: PAC

| Analyte | Result | Rep Limit |
|---|---|---|
| Specific Conductance | ND | 100 |

### Samples in Analytical Batch:

| Lab Sample ID | Client Sample ID |
|---|---|
| 08040533-01A | T1.2.0' |
| 08040533-02A | T2.2.0' |
| 08040533-03A | T2.2.5' |
| 08040533-04A | T1.1.5' |

### Laboratory Control Sample (LCS)

RunID: WET_080415U-4380420 Units: umhos/cm
Analysis Date: 04/15/2008 17:30 Analyst: PAC

| Analyte | Spike Added | Result | Percent Recovery | Lower Limit | Upper Limit |
|---|---|---|---|---|---|
| Specific Conductance | 1413 | 1371 | 97.03 | 90 | 110 |

### Sample Duplicate

Original Sample: 08040539-02
RunID: WET_080415U-4380430 Units: umhos/cm-dry
Analysis Date: 04/15/2008 17:30 Analyst: PAC

| Analyte | Sample Result | DUP Result | RPD | RPD Limit |
|---|---|---|---|---|
| Specific Conductance | 4950 | 4989 | 0.683 | 10 |

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count



QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

4/22/2008 12:39:29 PM

# *Sample Receipt Checklist*

# *And*

# *Chain of Custody*

**HOUSTON LABORATORY**
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

## Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Workorder: | **08040533** | Received By: | **AE** |
| Date and Time Received: | **4/9/2008 10:00:00 AM** | Carrier name: | **Fedex-Standard Overnight** |
| Temperature: | **3.0°C** | Chilled by: | **Water Ice** |

| | | | | |
|---|---|---|---|---|
| **1.** | **Shipping container/cooler in good condition?** | Yes ☑ | No ☐ | Not Present ☐ |
| **2.** | **Custody seals intact on shippping container/cooler?** | Yes ☑ | No ☐ | Not Present ☐ |
| **3.** | **Custody seals intact on sample bottles?** | Yes ☐ | No ☐ | Not Present ☑ |
| **4.** | **Chain of custody present?** | Yes ☑ | No ☐ | |
| **5.** | **Chain of custody signed when relinquished and received?** | Yes ☑ | No ☐ | |
| **6.** | **Chain of custody agrees with sample labels?** | Yes ☑ | No ☐ | |
| **7.** | **Samples in proper container/bottle?** | Yes ☑ | No ☐ | |
| **8.** | **Sample containers intact?** | Yes ☑ | No ☐ | |
| **9.** | **Sufficient sample volume for indicated test?** | Yes ☑ | No ☐ | |
| **10.** | **All samples received within holding time?** | Yes ☑ | No ☐ | |
| **11.** | **Container/Temp Blank temperature in compliance?** | Yes ☑ | No ☐ | |
| **12.** | **Water - VOA vials have zero headspace?** | Yes ☐ | No ☐ | VOA Vials Not Present ☑ |
| **13.** | **Water - Preservation checked upon receipt (except VOA*)?** | Yes ☐ | No ☐ | Not Applicable ☑ |

***VOA Preservation Checked After Sample Analysis**

**SPL Representative:** **Contact Date & Time:**

**Client Name Contacted:**

**Non Conformance Issues:**

**Client Instructions:**

6

# SPL, Inc.

## Analysis Request & Chain of Custody Record

SPL Workorder No. 293555

0804D533

page ____ of ____

Client Name: Tetra Tech, Inc.

Address: 1703 West Industrial Drive

Phone/Fax: 432 686 8081 / 432 686 8085

Client Contact: Charles Durrett Email: charles.Durrett@tetratech.com

Project Name/No.: EUGSAU 2622.002

Site Name: " "

Site Location: Buckeye, NM

Invoice To: Ph:

matrix: W=water S=soil O=oil SL=sludge X=other

bottle: P=plastic A=amber glass G=glass V=vial X=other

size: 1=1 liter 4=4oz 40=vial 8=8oz 16=16oz X=other

pres.: 1=HCl 2=HNO3 3=H2SO4 X=other

Number of Containers

Requested Analysis

| SAMPLE ID | DATE | TIME | comp | grab | matrix | bottle | size | pres. | # Containers | TPH GRO | TPH DRO | BTEX | SPLP / BTEX | chloride | SPLP / chloride | Specific Conductivity | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T1.2.0' | 4/7 | 12:45 | | x | S | G | 50 mL | | 1 | x | x | x | x | x | x | x | | |
| T2.2.0' | " | 13:04 | | " | " | " | " | | 1 | x | x | x | | x | | x | | |
| T2 2.5' | " | 13:10 | | " | " | " | " | | 1 | x | x | x | x | x | x | x | | |
| T1.1.5' | " | 12:41 | | " | " | " | " | | 1 | x | x | x | | x | | x | | |

RUSH

Client/Consultant Remarks:

Laboratory remarks:

Intact? ☐ Y ☐ N

Ice? ☐ Y ☐ N

Temp: 3.0

### Requested TAT

Contract ☐ 72hr ☐

24hr ☐ Standard ☐

48hr ☐

Other ☐ _____

Special Reporting Requirements Results: Fax ☐ Email ☐ PDF ☐

Standard QC ☐ Level 3 QC ☐ Level 4 QC ☐ TX TRRP ☐ LA RECAP ☐

Special Detection Limits (specify):

PM review (initial): BX

| | | | | | |
|---|---|---|---|---|---|
| 1. Relinquished by Sampler: | | date 4/8/08 | time 17:00 | 2. Received by: | |
| 3. Relinquished by: | | date | time | 4. Received by: | |
| 5. Relinquished by: | | date 4/9/8 | time 1000 | 6. Received by Laboratory: | |

☐ 8880 Interchange Drive
Houston, TX 77054 (713) 660-0901

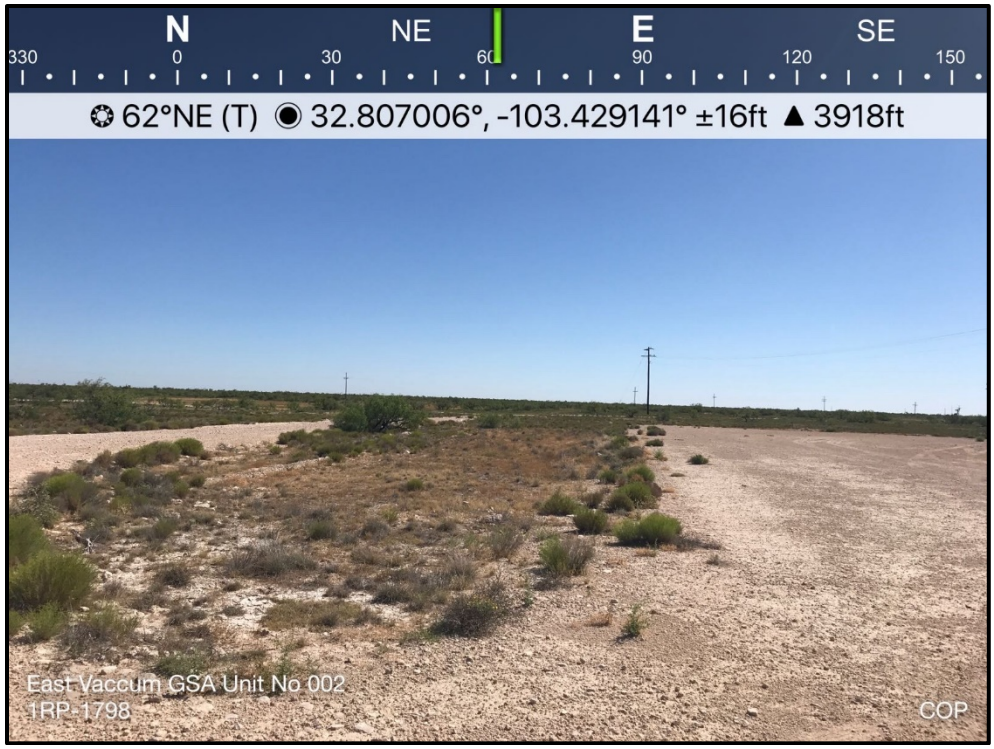
☐ 500 Ambassador Caffery Parkway
Scott, LA 70583 (337) 237-4775

☐ 459 Hughes Drive
Traverse City, MI 49686 (231) 947-5777

# ATTACHMENT E
# Photographic Documentation


| | | | |
|---|---|---|---|
| TETRA TECH, INC.<br>PROJECT NO.<br>212C-MD-02152 | DESCRIPTION | View facing northwest of release area. | 1 |
| | SITE NAME | EVGSAU 2622-002 Flowline Release | 6/8/2020 |


| | | | |
|---|---|---|---|
| TETRA TECH, INC.<br>PROJECT NO.<br>212C-MD-02152 | DESCRIPTION | View facing southeast west of release area. | 2 |
| | SITE NAME | EVGSAU 2622-002 Flowline Release | 6/8/2020 |




| | | | |
|---|---|---|---|
| TETRA TECH, INC. PROJECT NO. 212C-MD-02152 | DESCRIPTION | View facing northeast of release area. | 3 |
| | SITE NAME | EVGSAU 2622-002 Flowline Release | 6/8/2020 |


| | | | |
|---|---|---|---|
| TETRA TECH, INC. PROJECT NO. 212C-MD-02152 | DESCRIPTION | View facing northwest of release area. | 4 |
| | SITE NAME | EVGSAU 2622-002 Flowline Release | 6/8/2020 |

**District I**
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
**District II**
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
**District III**
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
**District IV**
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

# State of New Mexico
# Energy, Minerals and Natural Resources
# Oil Conservation Division
# 1220 S. St Francis Dr.
# Santa Fe, NM 87505

CONDITIONS

Action 205150

## CONDITIONS

| | |
|---|---|
| Operator:<br>CONOCO INC<br>10 Desta Dr West<br>Midland, TX 797059982 | OGRID:<br>5097 |
| | Action Number:<br>205150 |
| | Action Type:<br>[IM-SD] Incident File Support Doc (ENV) (IM-BNF) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| jharimon | Duplicate incident please refer to NCOH0806347710. This document is being uploaded from historic records. | 4/13/2023 |