

SITE INFORMATION

Report Type: Closure Report

General Site Information:

| | | | | | | |
|-----------------------------|---|---------|-------|--------------|--|--|
| Site: | Blue Jay Federal #001H | | | | | |
| Company: | COG Operating LLC | | | | | |
| Section, Township and Range | Unit O | Sec. 18 | T 20S | R 35E | | |
| Lease Number: | API No. 30-025-42338 | | | | | |
| County: | Lea County | | | | | |
| GPS: | 32.56651° N | | | 103.49514° W | | |
| Surface Owner: | Federal | | | | | |
| Mineral Owner: | | | | | | |
| Directions: | From HWY 176 & Co Rd 27A in Lea County, travel NORTH on CR 27A for 2.30 mi, turn EAST onto lease road for 1.65 mi, turn NORTH for 0.65 mi to location on west side of the road. | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Release Data:

| | |
|---------------------------------|-------------------------------|
| Date Released: | 10/21/2016 |
| Type Release: | Oil & Produced Water |
| Source of Contamination: | Damaged dump valve |
| Fluid Released: | 197 bbls oil & 169 bbls water |
| Fluids Recovered: | 182 bbls oil & 159 bbls water |

Official Communication:

| | | |
|----------------------|--|--|
| Name: | Robert McNeil | Ike Tavaréz |
| Company: | COG Operating, LLC | Tetra Tech |
| Address: | One Concho Center | 4000 N. Big Spring |
| | 600 W. Illinois Ave. | Ste 401 |
| City: | Midland Texas, 79701 | Midland, Texas |
| Phone number: | (432) 686-3023 | (432) 682-4559 |
| Fax: | (432) 684-7137 | |
| Email: | rmcneil@conchoresources.com | Ike.Tavaréz@tetrattech.com |

Ranking Criteria

| Depth to Groundwater: | Ranking Score | Site Data |
|---|----------------------|------------------|
| <50 ft | 20 | |
| 50-99 ft | 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: | | 20 |

| Acceptable Soil RRAL (mg/kg) | | |
|------------------------------|------------|-----|
| Benzene | Total BTEX | TPH |
| 10 | 50 | 100 |



TETRA TECH

January 3, 2017

Ms. Kristen Lynch
Environmental Engineer Specialist
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

Re: Closure Report for the COG Operating LLC., Blue Jay Federal #001H, Unit O, Section 18, Township 20 South, Range 35 East, Lea County, New Mexico.

Ms. Lynch:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to assess a spill from the Blue Jay Federal #001H, Unit O, Section 18, Township 20 South, Range 35 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.566561°, W 103.49514°. 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 October 21, 2016, and released approximately one hundred and ninety-seven (197) barrels of oil and one hundred and sixty nine (169) barrels of produced water due to a damaged dump valve. Approximately one hundred and eighty-two (182) barrels of oil and one hundred and fifty-nine (159) barrels of produced water were recovered. The spill occurred inside of the lined facility which breached the metal containment and the fluid migrated onto the pad, covering an area measuring approximately 60' x 80' on the pad. The initial C-141 form is included in Appendix A.

Groundwater

No water wells were listed within Section 18 on the New Mexico Office of the State Engineer database. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in this area is between 25' to 50' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

4000 North Big Spring, Suite 401, Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



TETRA TECH

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 100 mg/kg.

Soil Assessment and Analytical Results

On December 1, 2016, Tetra Tech personnel were onsite to evaluate and sample the release area. Two sample trenches (T-1 and T-2) were installed on the pad 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 results of the sampling are summarized in Table 1. The trench locations are shown on Figure 3.

Referring to Table 1, none of the trench samples exceeded the RRAL's for TPH, benzene, or total BTEX. Both areas showed total TPH and benzene concentrations below the laboratory reporting limits. Total BTEX concentrations of 0.432 mg/kg (T-1) and <0.300 mg/kg (T-2) were detected at 0-1' below surface. Additionally, the areas of trenches (T-1 and T-2) did not show a significant chloride impact with a concentration high of 32.0 mg/kg.

Conclusion

Based on the laboratory results, COG requests closure of this spill issue. The final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez, PG
Senior Project Manager

Clair Gonzales,
Geologist I

cc: Robert McNeill – COG
Dakota Neel - COG
Shelly Tucker – BLM

Figures

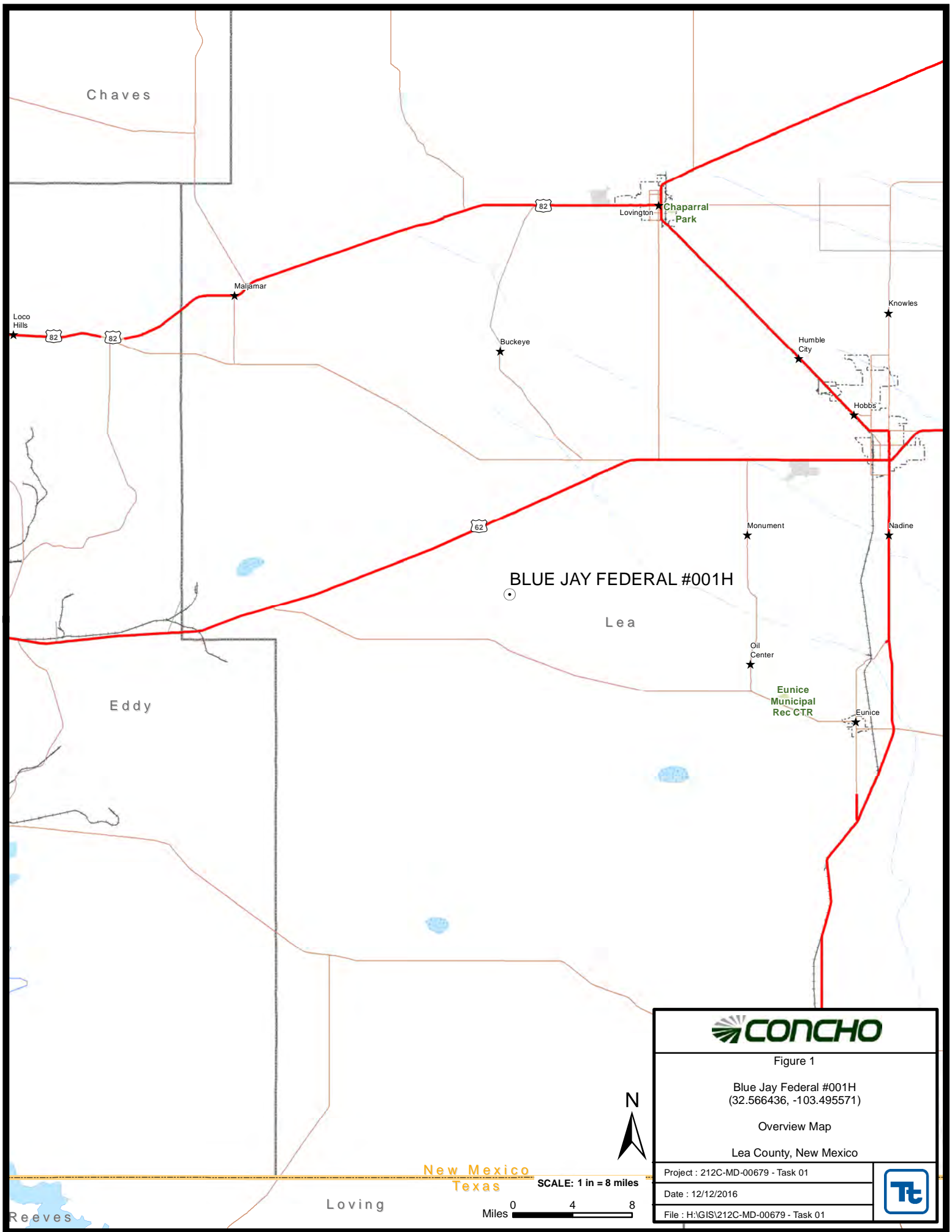


Figure 1

Blue Jay Federal #001H
(32.566436, -103.495571)

Overview Map

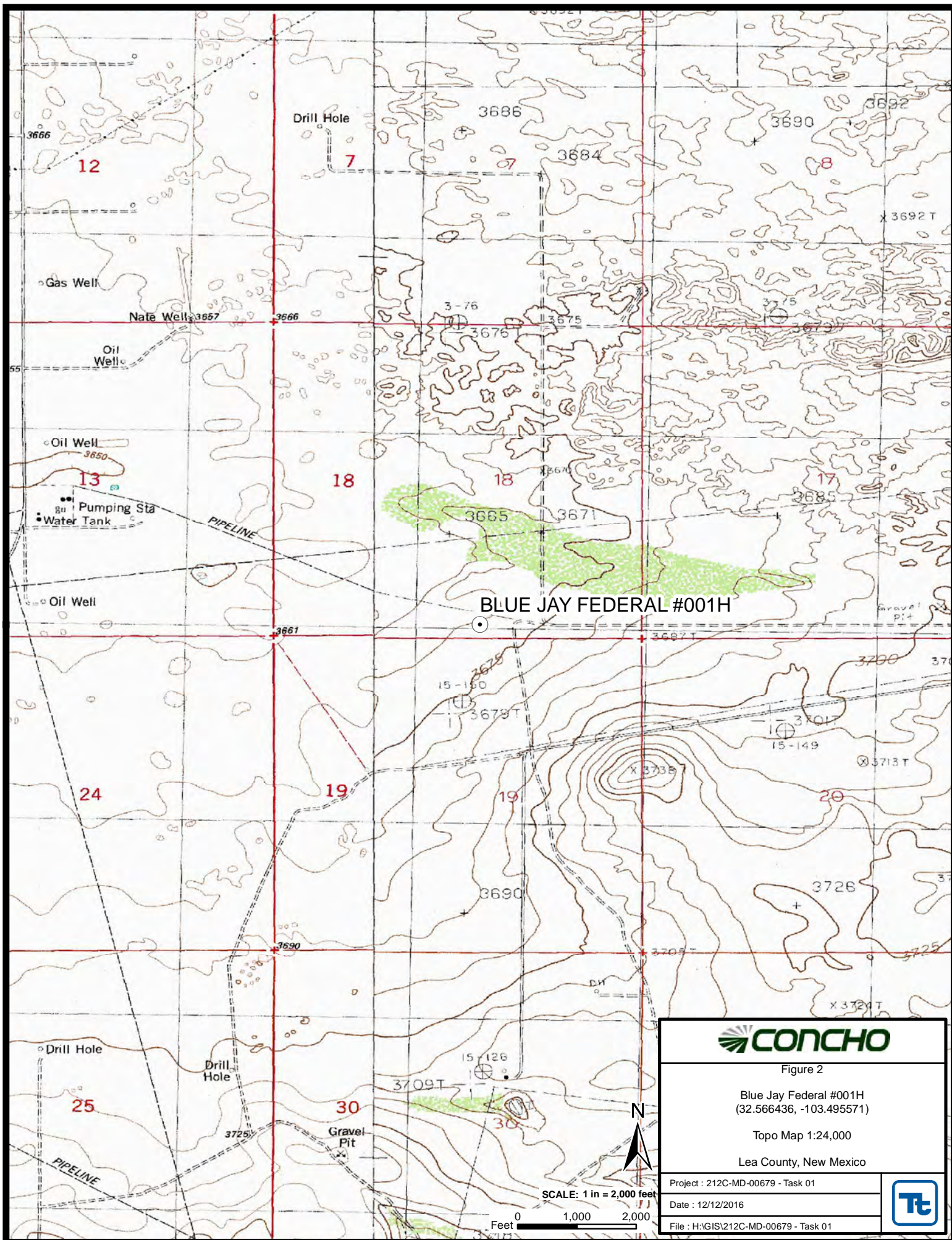
Lea County, New Mexico

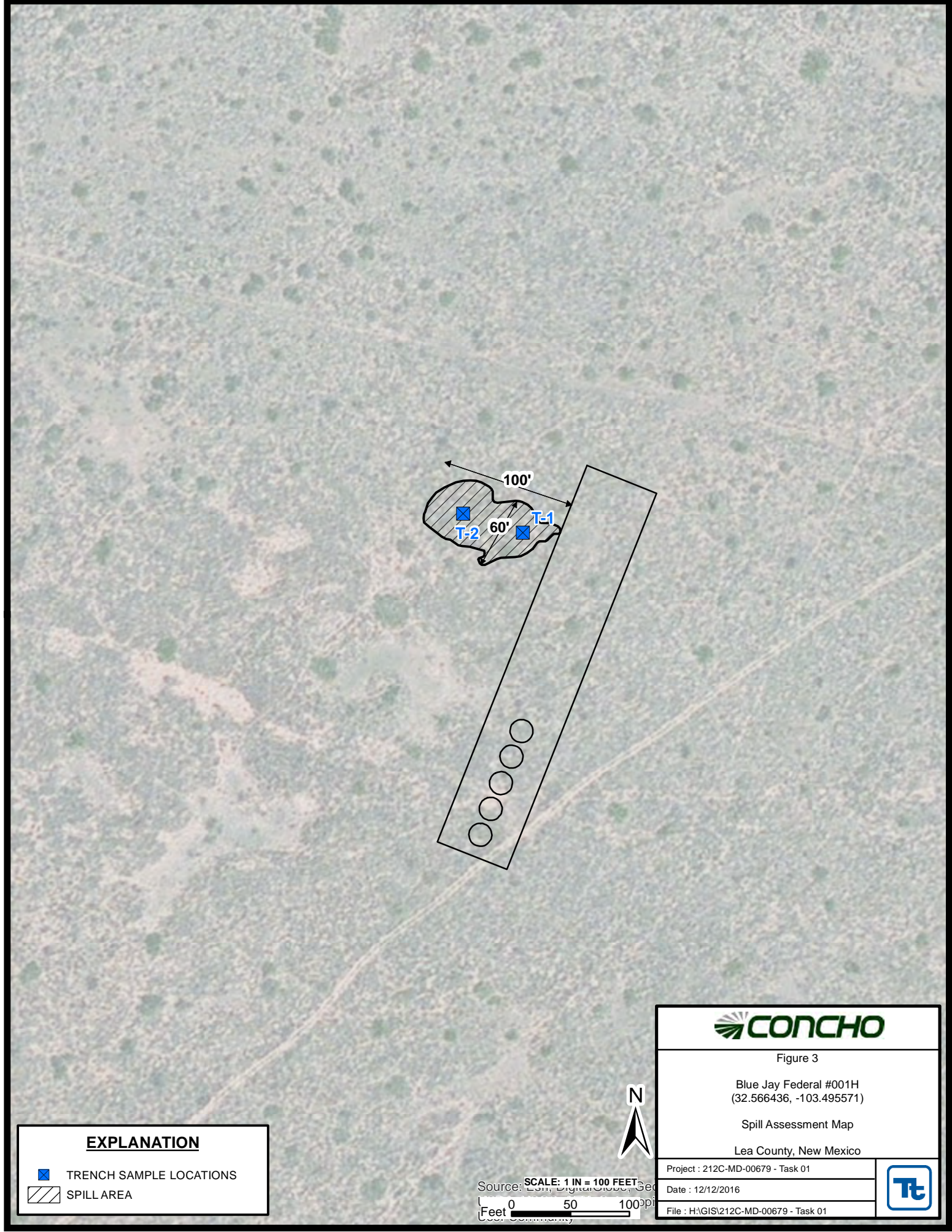
Project : 212C-MD-00679 - Task 01

Date : 12/12/2016

File : H:\GIS\212C-MD-00679 - Task 01







EXPLANATION



-  TRENCH SAMPLE LOCATIONS
-  SPILL AREA



Figure 3

Blue Jay Federal #001H
(32.566436, -103.495571)

Spill Assessment Map

Lea County, New Mexico

Project : 212C-MD-00679 - Task 01

Date : 12/12/2016

File : H:\GIS\212C-MD-00679 - Task 01



Source: Esri, DigitalGlobe, GeoEye, **SCALE: 1 IN = 100 FEET**
Feet 0 50 100

Tables

Table 1
COG Operating LLC.
Blue Jay Federal #1H
Lea County, New Mexico

| Sample ID | Sample Date | Sample Depth (ft) | Soil Status | | TPH (mg/kg) | | | Benzene (mg/kg) | Toluene (mg/kg) | Ethlybenzene (mg/kg) | Xylene (mg/kg) | Total BTEX (mg/kg) | Chloride (mg/kg) |
|------------|-------------|-------------------|-------------|---------|-------------|-------|-------|-----------------|-----------------|----------------------|----------------|--------------------|------------------|
| | | | In-Situ | Removed | GRO | DRO | Total | | | | | | |
| T-1 | 12/1/2016 | 0-1 | X | | <10.0 | <10.0 | <20.0 | <0.050 | 0.086 | 0.051 | 0.295 | 0.432 | <16.0 |
| | " | 2 | X | | - | - | - | - | - | - | - | - | 32.0 |
| | " | 3 | X | | - | - | - | - | - | - | - | - | 32.0 |
| | " | 4 | X | | - | - | - | - | - | - | - | - | 16.0 |
| T-2 | 12/1/2016 | 0-1 | X | | <10.0 | <10.0 | <20.0 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <16.0 |
| | " | 2 | X | | - | - | - | - | - | - | - | - | <16.0 |
| | " | 3 | X | | - | - | - | - | - | - | - | - | <16.0 |
| | " | 4 | X | | - | - | - | - | - | - | - | - | <16.0 |

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

| | |
|---|----------------------------|
| Name of Company: COG Operating LLC | Contact: Robert McNeill |
| Address: 600 West Illinois Avenue, Midland TX 79701 | Telephone No. 432-230-0077 |
| Facility Name: Blue Jay Federal #001H | Facility Type: Battery |

| | | |
|------------------------|------------------------|----------------------|
| Surface Owner: Federal | Mineral Owner: Federal | API No. 30-025-42338 |
|------------------------|------------------------|----------------------|

LOCATION OF RELEASE

| | | | | | | | | |
|------------------|---------------|-----------------|--------------|----------------------|---------------------------|-----------------------|------------------------|---------------|
| Unit Letter O | Section 18 | Township 20S | Range 35E | Feet from the 190 | North/South Line South | Feet from the 2310 | East/West Line East | County Lea |
|------------------|---------------|-----------------|--------------|----------------------|---------------------------|-----------------------|------------------------|---------------|

32.5664367366954,-103.495571226436

NATURE OF RELEASE

| | | |
|--|--|---|
| Type of Release: Oil and Produced Water | Volume of Release: 197 bbls of Oil ; 169 bbls of PW | Volume Recovered: 182 bbls of Oil ; 159 bbls of PW |
| Source of Release: Dump Valve | Date and Hour of Occurrence: 10/21/2016 unknown | Date and Hour of Discovery: 10/21/2016 3:00 AM |
| Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required | If YES, To Whom? Kristen Lynch NMOCD/ Shelly Tucker BLM | |
| By Whom? | Date and Hour: 10/21/2016 @ 1:42 PM | |
| Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | If YES, Volume Impacting the Watercourse. | |

If a Watercourse was Impacted, Describe Fully.*


Describe Cause of Problem and Remedial Action Taken.*

The release was caused by a damaged dump valve on a FWKO. The dump valve was removed to determine cause of damage and a new dump valve was installed. Vacuum trucks were immediately dispatched to recover all standing fluid from the well pad and the lined containment. The impacted area of the well pad was lightly scraped to remove the surface contamination and the impacted soil was hauled off.

Describe Area Affected and Cleanup Action Taken.*

This release occurred within the falcon lined containment and on a portion of the well pad directly in front of the containment walls. There was no impact to the pasture. Concho will have the spill site sampled to delineate any possible contamination from the release and we will present a remediation 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: Dakota Neel | | Approved by Environmental Specialist: | |
| Title: Environmental Coordinator | | Approval Date: | Expiration Date: |
| E-mail Address: dneel2@concho.com | | Conditions of Approval: | |
| Date: 10/28/2016 Phone: 575-748-6933 | | Attached <input type="checkbox"/> | |

* 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 Robert McNeil |
| Address 600 West Illinois Ave., Midland, TX 79701 | Telephone No. (432) 683-7443 |
| Facility Name Blue Jay Federal #001H | Facility Type Well |

| | | |
|------------------------|---------------|----------------------|
| Surface Owner: Federal | Mineral Owner | API No. 30-025-42338 |
|------------------------|---------------|----------------------|

LOCATION OF RELEASE

| | | | | | | | | |
|------------------|---------------|-----------------|--------------|----------------------|---------------------------|-----------------------|------------------------|---------------|
| Unit Letter O | Section 18 | Township 20S | Range 35E | Feet from the 190 | North/South Line South | Feet from the 2310 | East/West Line East | County Lea |
|------------------|---------------|-----------------|--------------|----------------------|---------------------------|-----------------------|------------------------|---------------|

Latitude N 32.56644° Longitude W 103.49557°

NATURE OF RELEASE

| | | |
|--|--|---|
| Type of Release: Oil & Produced Water | Volume of Release 197 bbls oil & 169 bbls produced water | Volume Recovered 182 bbls oil & 159 bbls produced water |
| Source of Release: Dump valve | Date and Hour of Occurrence 10/21/16 unknown | Date and Hour of Discovery 10/21/16 3:00 am |
| Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required | If YES, To Whom? Kristen Lynch NMOCD / Shelly Tucker BLM | |
| By Whom? | Date and Hour 10/21/16 1:42 pm. | |
| Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | If YES, Volume Impacting the Watercourse. N/A | |

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

The release was caused by a damaged dump valve on a FWKO. The dump valve was removed to determine the cause of damage and a new dump valve was installed. Vacuum trucks were immediately dispatched to recover all standing fluid from the well pad and the lined containment. The impacted area of the well pad was lightly scraped to remove the surface contamination and the impacted soil was hauled for proper disposal.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected site and collected samples to define spills extent. None of the samples collected showed impact above the RRAL's. 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.

| | |
|---|-----------------------------------|
| OIL CONSERVATION DIVISION | |
| Signature: | Approved by District Supervisor: |
| Printed Name: Ike Tavarez (Agent for COG) | Approval Date: |
| Title: Project Manager | Expiration Date: |
| E-mail Address: Ike.Tavarez@TetraTech.com | Conditions of Approval: |
| Date: 12/9/16 Phone: (432) 682-4559 | Attached <input type="checkbox"/> |

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Blue Jay Federal #001H
Lea County, New Mexico

| 19 South | | | 34 East | | |
|----------|----|------|---------|-----|----|
| 6 | 5 | 4 | 3 | 2 | 1 |
| 244 | | | | 100 | |
| 7 | 8 | 9 | 29 | 10 | 11 |
| | | 28.6 | 123 | 12 | 60 |
| 18 | 17 | 16 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 35 | 28 |
| 65 | | | | | 36 |

| 19 South | | | 35 East | | |
|----------|----|----|---------|----|----|
| 6 | 61 | 5 | 4 | 3 | 2 |
| 58 | 63 | 70 | | | 63 |
| 7 | 8 | 9 | 20 | 10 | 11 |
| 51 | 18 | 16 | 53 | 15 | 14 |
| 18 | 17 | 26 | 26 | 27 | 27 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 35 | 20 |
| | | | | | 36 |

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

| 20 South | | | 34 East | | |
|----------|-----|-----|---------|-----|-----|
| 6 | 5 | 4 | 125 | 3 | 2 |
| 7 | 8 | 9 | 10 | 11 | 12 |
| 18 | 17 | 128 | 16 | 15 | 14 |
| | 140 | | | 150 | 24 |
| 19 | 20 | 21 | 22 | 23 | 270 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 82 | 36 |

| 20 South | | | 35 East | | |
|----------|----|----|---------|----|----|
| 6 | 56 | 5 | 64 | 4 | 3 |
| 64 | | | | | 1 |
| 7 | 8 | 9 | 10 | 11 | 12 |
| 18 | 17 | 16 | 15 | 14 | 13 |
| SITE | 20 | 21 | 22 | 23 | 24 |
| 19 | 29 | 28 | 27 | 26 | 25 |
| 30 | 32 | 33 | 34 | 35 | 36 |
| 31 | 65 | | | | |
| | | 89 | | | |

| 20 South | | | 36 East | | |
|----------|-----|----|---------|-----|-----|
| 6 | 5 | 4 | 3 | 2 | 1 |
| 32 | 28 | | | 92 | 40 |
| 7 | 8 | 9 | 10 | 11 | 12 |
| | 33 | 38 | | 32 | 29 |
| 18 | 17 | 16 | 15 | 14 | 13 |
| 34 | | | | 45 | |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 106 |
| 31 | 32 | 33 | 34 | 35 | 170 |
| | 170 | | | 122 | |

| 21 South | | | 33 East | | |
|----------|----|-----|---------|-----|-----|
| 6 | 5 | 4 | 3 | 2 | 1 |
| | | | | 79 | |
| 7 | 8 | 9 | 10 | 11 | 150 |
| | | | | 107 | |
| 18 | 17 | 16 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 179 | 33 | 180 | 36 |

| 21 South | | | 34 East | | |
|----------|----|-----|---------|----|----|
| 6 | 5 | 4 | 95 | 3 | 2 |
| 7 | 8 | 120 | 9 | 10 | 11 |
| 18 | 17 | 16 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 140 | 27 | 26 |
| 31 | 32 | 33 | 34 | 35 | 36 |

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

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)
 Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location



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-Code | basin | County | Q 64 | Q 16 | Q 4 | Sec | Tws | Rng | X | Y | Depth Well | Depth Water | Water Column |
|------------------------------|--------------|-------|--------|------|------|-----|-----|-----|-----|--------|----------|------------|-------------|--------------|
| L 04116 S | L | LE | | 1 | 2 | 02 | 20S | 35E | | 647710 | 3608881* | 55 | 50 | 5 |
| L 04157 | L | LE | | 3 | 3 | 06 | 20S | 35E | | 640483 | 3607561* | 70 | 64 | 6 |
| L 04158 | L | LE | | 2 | 4 | 05 | 20S | 35E | | 643290 | 3608008* | 70 | 64 | 6 |
| L 14097 POD1 | L | LE | | 1 | 3 | 3 | 06 | 20S | 35E | 638740 | 3718500 | 61 | 0 | 61 |

Average Depth to Water: **44 feet**

Minimum Depth: **0 feet**

Maximum Depth: **64 feet**

Record Count: 4

PLSS Search:

Township: 20S

Range: 35E

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

Appendix C



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

December 07, 2016

IKE TAVAREZ

TETRA TECH

1910 N. BIG SPRING STREET

MIDLAND, TX 79705

RE: BLUE JAY FEDERAL #1H

Enclosed are the results of analyses for samples received by the laboratory on 12/01/16 14:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

| | |
|------------------|--------------------------------|
| Method EPA 552.2 | Total Haloacetic Acids (HAA-5) |
| Method EPA 524.2 | Total Trihalomethanes (TTHM) |
| Method EPA 524.4 | Regulated VOCs (V1, V2, V3) |

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

| | |
|------------------|---|
| Method SM 9223-B | Total Coliform and E. coli (Colilert MMO-MUG) |
| Method EPA 524.2 | Regulated VOCs and Total Trihalomethanes (TTHM) |
| Method EPA 552.2 | Total Haloacetic Acids (HAA-5) |

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:TETRA TECH
1910 N. BIG SPRING STREET
MIDLAND TX, 79705Project: BLUE JAY FEDERAL #1H
Project Number: 212C-MD-00679.01
Project Manager: IKE TAVAREZ
Fax To: (432) 682-3946Reported:
07-Dec-16 11:25

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|-----------|---------------|--------|-----------------|-----------------|
| T-1 0-1 | H602693-01 | Soil | 01-Dec-16 00:00 | 01-Dec-16 14:15 |
| T-1 2 | H602693-02 | Soil | 01-Dec-16 00:00 | 01-Dec-16 14:15 |
| T-1 3 | H602693-03 | Soil | 01-Dec-16 00:00 | 01-Dec-16 14:15 |
| T-1 4 | H602693-04 | Soil | 01-Dec-16 00:00 | 01-Dec-16 14:15 |
| T-2 0-1 | H602693-05 | Soil | 01-Dec-16 00:00 | 01-Dec-16 14:15 |
| T-2 2 | H602693-06 | Soil | 01-Dec-16 00:00 | 01-Dec-16 14:15 |
| T-2 3 | H602693-07 | Soil | 01-Dec-16 00:00 | 01-Dec-16 14:15 |
| T-2 4 | H602693-08 | Soil | 01-Dec-16 00:00 | 01-Dec-16 14:15 |

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
1910 N. BIG SPRING STREET
MIDLAND TX, 79705

Project: BLUE JAY FEDERAL #1H
Project Number: 212C-MD-00679.01
Project Manager: IKE TAVAREZ
Fax To: (432) 682-3946

Reported:
07-Dec-16 11:25

T-1 0-1
H602693-01 (Soil)

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---------|--------|-----|-----------------|-------|----------|-------|---------|----------|--------|-------|
|---------|--------|-----|-----------------|-------|----------|-------|---------|----------|--------|-------|

Cardinal Laboratories

Inorganic Compounds

| | | | | | | | | | | |
|----------|-------|--|------|-------|---|---------|----|-----------|-----------|--|
| Chloride | <16.0 | | 16.0 | mg/kg | 4 | 6120504 | AC | 05-Dec-16 | 4500-Cl-B | |
|----------|-------|--|------|-------|---|---------|----|-----------|-----------|--|

Volatile Organic Compounds by EPA Method 8021

| | | | | | | | | | | |
|----------------|--------------|--|-------|-------|----|---------|----|-----------|-------|--|
| Benzene* | <0.050 | | 0.050 | mg/kg | 50 | 6120501 | MS | 05-Dec-16 | 8021B | |
| Toluene* | 0.086 | | 0.050 | mg/kg | 50 | 6120501 | MS | 05-Dec-16 | 8021B | |
| Ethylbenzene* | 0.051 | | 0.050 | mg/kg | 50 | 6120501 | MS | 05-Dec-16 | 8021B | |
| Total Xylenes* | 0.295 | | 0.150 | mg/kg | 50 | 6120501 | MS | 05-Dec-16 | 8021B | |
| Total BTEX | 0.432 | | 0.300 | mg/kg | 50 | 6120501 | MS | 05-Dec-16 | 8021B | |

Surrogate: 4-Bromofluorobenzene (PID) 119 % 73.6-140 6120501 MS 05-Dec-16 8021B

Petroleum Hydrocarbons by GC FID

| | | | | | | | | | | |
|--------------|-------|--|------|-------|---|---------|----|-----------|-------|--|
| GRO C6-C10 | <10.0 | | 10.0 | mg/kg | 1 | 6120204 | MS | 03-Dec-16 | 8015B | |
| DRO >C10-C28 | <10.0 | | 10.0 | mg/kg | 1 | 6120204 | MS | 03-Dec-16 | 8015B | |

Surrogate: 1-Chlorooctane 76.7 % 35-147 6120204 MS 03-Dec-16 8015B

Surrogate: 1-Chlorooctadecane 78.1 % 28-171 6120204 MS 03-Dec-16 8015B

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:TETRA TECH
1910 N. BIG SPRING STREET
MIDLAND TX, 79705Project: BLUE JAY FEDERAL #1H
Project Number: 212C-MD-00679.01
Project Manager: IKE TAVAREZ
Fax To: (432) 682-3946Reported:
07-Dec-16 11:25**T-1 2**
H602693-02 (Soil)

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---------|--------|-----|--------------------|-------|----------|-------|---------|----------|--------|-------|
|---------|--------|-----|--------------------|-------|----------|-------|---------|----------|--------|-------|

Cardinal Laboratories**Inorganic Compounds**

| | | | | | | | | | | |
|-----------------|-------------|--|------|-------|---|---------|----|-----------|-----------|--|
| Chloride | 32.0 | | 16.0 | mg/kg | 4 | 6120504 | AC | 05-Dec-16 | 4500-Cl-B | |
|-----------------|-------------|--|------|-------|---|---------|----|-----------|-----------|--|

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:TETRA TECH
1910 N. BIG SPRING STREET
MIDLAND TX, 79705Project: BLUE JAY FEDERAL #1H
Project Number: 212C-MD-00679.01
Project Manager: IKE TAVAREZ
Fax To: (432) 682-3946Reported:
07-Dec-16 11:25**T-1 3**
H602693-03 (Soil)

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---------|--------|-----|--------------------|-------|----------|-------|---------|----------|--------|-------|
|---------|--------|-----|--------------------|-------|----------|-------|---------|----------|--------|-------|

Cardinal Laboratories**Inorganic Compounds**

| | | | | | | | | | | |
|----------|------|--|------|-------|---|---------|----|-----------|-----------|--|
| Chloride | 32.0 | | 16.0 | mg/kg | 4 | 6120504 | AC | 05-Dec-16 | 4500-Cl-B | |
|----------|------|--|------|-------|---|---------|----|-----------|-----------|--|

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:TETRA TECH
1910 N. BIG SPRING STREET
MIDLAND TX, 79705Project: BLUE JAY FEDERAL #1H
Project Number: 212C-MD-00679.01
Project Manager: IKE TAVAREZ
Fax To: (432) 682-3946Reported:
07-Dec-16 11:25**T-1 4**
H602693-04 (Soil)

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---------|--------|-----|--------------------|-------|----------|-------|---------|----------|--------|-------|
|---------|--------|-----|--------------------|-------|----------|-------|---------|----------|--------|-------|

Cardinal Laboratories**Inorganic Compounds**

| | | | | | | | | | | |
|-----------------|-------------|--|------|-------|---|---------|----|-----------|-----------|--|
| Chloride | 16.0 | | 16.0 | mg/kg | 4 | 6120504 | AC | 05-Dec-16 | 4500-Cl-B | |
|-----------------|-------------|--|------|-------|---|---------|----|-----------|-----------|--|

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
1910 N. BIG SPRING STREET
MIDLAND TX, 79705

Project: BLUE JAY FEDERAL #1H
Project Number: 212C-MD-00679.01
Project Manager: IKE TAVAREZ
Fax To: (432) 682-3946

Reported:
07-Dec-16 11:25

T-2 0-1
H602693-05 (Soil)

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---------|--------|-----|-----------------|-------|----------|-------|---------|----------|--------|-------|
|---------|--------|-----|-----------------|-------|----------|-------|---------|----------|--------|-------|

Cardinal Laboratories

Inorganic Compounds

| | | | | | | | | | | |
|----------|-------|--|------|-------|---|---------|----|-----------|-----------|--|
| Chloride | <16.0 | | 16.0 | mg/kg | 4 | 6120504 | AC | 05-Dec-16 | 4500-Cl-B | |
|----------|-------|--|------|-------|---|---------|----|-----------|-----------|--|

Volatile Organic Compounds by EPA Method 8021

| | | | | | | | | | | |
|---------------------------------------|--------|--|-------|-------|----------|---------|----|-----------|-------|--|
| Benzene* | <0.050 | | 0.050 | mg/kg | 50 | 6120501 | MS | 05-Dec-16 | 8021B | |
| Toluene* | <0.050 | | 0.050 | mg/kg | 50 | 6120501 | MS | 05-Dec-16 | 8021B | |
| Ethylbenzene* | <0.050 | | 0.050 | mg/kg | 50 | 6120501 | MS | 05-Dec-16 | 8021B | |
| Total Xylenes* | <0.150 | | 0.150 | mg/kg | 50 | 6120501 | MS | 05-Dec-16 | 8021B | |
| Total BTEX | <0.300 | | 0.300 | mg/kg | 50 | 6120501 | MS | 05-Dec-16 | 8021B | |
| Surrogate: 4-Bromofluorobenzene (PID) | | | 118 % | | 73.6-140 | 6120501 | MS | 05-Dec-16 | 8021B | |

Petroleum Hydrocarbons by GC FID

| | | | | | | | | | | |
|-------------------------------|-------|--|--------|-------|--------|---------|----|-----------|-------|--|
| GRO C6-C10 | <10.0 | | 10.0 | mg/kg | 1 | 6120204 | MS | 03-Dec-16 | 8015B | |
| DRO >C10-C28 | <10.0 | | 10.0 | mg/kg | 1 | 6120204 | MS | 03-Dec-16 | 8015B | |
| Surrogate: 1-Chlorooctane | | | 74.6 % | | 35-147 | 6120204 | MS | 03-Dec-16 | 8015B | |
| Surrogate: 1-Chlorooctadecane | | | 73.3 % | | 28-171 | 6120204 | MS | 03-Dec-16 | 8015B | |

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:TETRA TECH
1910 N. BIG SPRING STREET
MIDLAND TX, 79705Project: BLUE JAY FEDERAL #1H
Project Number: 212C-MD-00679.01
Project Manager: IKE TAVAREZ
Fax To: (432) 682-3946Reported:
07-Dec-16 11:25**T-2 2**
H602693-06 (Soil)

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---------|--------|-----|--------------------|-------|----------|-------|---------|----------|--------|-------|
|---------|--------|-----|--------------------|-------|----------|-------|---------|----------|--------|-------|

Cardinal Laboratories**Inorganic Compounds**

| | | | | | | | | | | |
|----------|-------|--|------|-------|---|---------|----|-----------|-----------|--|
| Chloride | <16.0 | | 16.0 | mg/kg | 4 | 6120504 | AC | 05-Dec-16 | 4500-Cl-B | |
|----------|-------|--|------|-------|---|---------|----|-----------|-----------|--|

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:TETRA TECH
1910 N. BIG SPRING STREET
MIDLAND TX, 79705Project: BLUE JAY FEDERAL #1H
Project Number: 212C-MD-00679.01
Project Manager: IKE TAVAREZ
Fax To: (432) 682-3946Reported:
07-Dec-16 11:25**T-2 3**
H602693-07 (Soil)

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---------|--------|-----|--------------------|-------|----------|-------|---------|----------|--------|-------|
|---------|--------|-----|--------------------|-------|----------|-------|---------|----------|--------|-------|

Cardinal Laboratories**Inorganic Compounds**

| | | | | | | | | | | |
|----------|-------|--|------|-------|---|---------|----|-----------|-----------|--|
| Chloride | <16.0 | | 16.0 | mg/kg | 4 | 6120504 | AC | 05-Dec-16 | 4500-Cl-B | |
|----------|-------|--|------|-------|---|---------|----|-----------|-----------|--|

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:TETRA TECH
1910 N. BIG SPRING STREET
MIDLAND TX, 79705Project: BLUE JAY FEDERAL #1H
Project Number: 212C-MD-00679.01
Project Manager: IKE TAVAREZ
Fax To: (432) 682-3946Reported:
07-Dec-16 11:25**T-2 4**
H602693-08 (Soil)

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---------|--------|-----|--------------------|-------|----------|-------|---------|----------|--------|-------|
|---------|--------|-----|--------------------|-------|----------|-------|---------|----------|--------|-------|

Cardinal Laboratories**Inorganic Compounds**

| | | | | | | | | | | |
|----------|-------|--|------|-------|---|---------|----|-----------|-----------|--|
| Chloride | <16.0 | | 16.0 | mg/kg | 4 | 6120504 | AC | 05-Dec-16 | 4500-Cl-B | |
|----------|-------|--|------|-------|---|---------|----|-----------|-----------|--|

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 TETRA TECH
 1910 N. BIG SPRING STREET
 MIDLAND TX, 79705

 Project: BLUE JAY FEDERAL #1H
 Project Number: 212C-MD-00679.01
 Project Manager: IKE TAVAREZ
 Fax To: (432) 682-3946

 Reported:
 07-Dec-16 11:25

Inorganic Compounds - Quality Control
Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC Limits | RPD | RPD Limit | Notes |
|-------------------------------------|--------|--------------------|-------|----------------|--------------------------------|----------------|------|--------------|-------|
| Batch 6120504 - 1:4 DI Water | | | | | | | | | |
| Blank (6120504-BLK1) | | | | | Prepared & Analyzed: 05-Dec-16 | | | | |
| Chloride | ND | 16.0 | mg/kg | | | | | | |
| LCS (6120504-BS1) | | | | | Prepared & Analyzed: 05-Dec-16 | | | | |
| Chloride | 416 | 16.0 | mg/kg | 400 | 104 | 80-120 | | | |
| LCS Dup (6120504-BSD1) | | | | | Prepared & Analyzed: 05-Dec-16 | | | | |
| Chloride | 400 | 16.0 | mg/kg | 400 | 100 | 80-120 | 3.92 | 20 | |

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
1910 N. BIG SPRING STREET
MIDLAND TX, 79705

Project: BLUE JAY FEDERAL #1H
Project Number: 212C-MD-00679.01
Project Manager: IKE TAVAREZ
Fax To: (432) 682-3946

Reported:
07-Dec-16 11:25

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 6120501 - Volatiles

Blank (6120501-BLK1)

Prepared & Analyzed: 02-Dec-16

| | | | | | | | | | | |
|---------------------------------------|--------|-------|-------|--------|--|-----|----------|--|--|--|
| Benzene | ND | 0.050 | mg/kg | | | | | | | |
| Toluene | ND | 0.050 | mg/kg | | | | | | | |
| Ethylbenzene | ND | 0.050 | mg/kg | | | | | | | |
| Total Xylenes | ND | 0.150 | mg/kg | | | | | | | |
| Total BTEX | ND | 0.300 | mg/kg | | | | | | | |
| Surrogate: 4-Bromofluorobenzene (PID) | 0.0575 | | mg/kg | 0.0500 | | 115 | 73.6-140 | | | |

LCS (6120501-BS1)

Prepared & Analyzed: 02-Dec-16

| | | | | | | | | | | |
|---------------------------------------|--------|-------|-------|--------|--|-----|----------|--|--|--|
| Benzene | 2.02 | 0.050 | mg/kg | 2.00 | | 101 | 82.6-122 | | | |
| Toluene | 2.06 | 0.050 | mg/kg | 2.00 | | 103 | 72.9-122 | | | |
| Ethylbenzene | 2.01 | 0.050 | mg/kg | 2.00 | | 101 | 65.4-131 | | | |
| Total Xylenes | 6.09 | 0.150 | mg/kg | 6.00 | | 102 | 73.8-125 | | | |
| Surrogate: 4-Bromofluorobenzene (PID) | 0.0580 | | mg/kg | 0.0500 | | 116 | 73.6-140 | | | |

LCS Dup (6120501-BSD1)

Prepared & Analyzed: 02-Dec-16

| | | | | | | | | | | |
|---------------------------------------|--------|-------|-------|--------|--|-----|----------|------|------|--|
| Benzene | 2.08 | 0.050 | mg/kg | 2.00 | | 104 | 82.6-122 | 3.18 | 8.23 | |
| Toluene | 2.13 | 0.050 | mg/kg | 2.00 | | 106 | 72.9-122 | 3.09 | 8.71 | |
| Ethylbenzene | 2.07 | 0.050 | mg/kg | 2.00 | | 104 | 65.4-131 | 3.08 | 9.46 | |
| Total Xylenes | 6.26 | 0.150 | mg/kg | 6.00 | | 104 | 73.8-125 | 2.75 | 8.66 | |
| Surrogate: 4-Bromofluorobenzene (PID) | 0.0578 | | mg/kg | 0.0500 | | 116 | 73.6-140 | | | |

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
1910 N. BIG SPRING STREET
MIDLAND TX, 79705

Project: BLUE JAY FEDERAL #1H
Project Number: 212C-MD-00679.01
Project Manager: IKE TAVAREZ
Fax To: (432) 682-3946

Reported:
07-Dec-16 11:25

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|

Batch 6120204 - General Prep - Organics

Blank (6120204-BLK1)

Prepared & Analyzed: 02-Dec-16

| | | | | | | | | | | |
|-------------------------------|------|------|-------|------|--|------|--------|--|--|--|
| GRO C6-C10 | ND | 10.0 | mg/kg | | | | | | | |
| DRO >C10-C28 | ND | 10.0 | mg/kg | | | | | | | |
| EXT DRO >C28-C35 | ND | 10.0 | mg/kg | | | | | | | |
| Total TPH C6-C28 | ND | 10.0 | mg/kg | | | | | | | |
| Surrogate: 1-Chlorooctane | 39.0 | | mg/kg | 50.0 | | 78.1 | 35-147 | | | |
| Surrogate: 1-Chlorooctadecane | 39.4 | | mg/kg | 50.0 | | 78.7 | 28-171 | | | |

LCS (6120204-BS1)

Prepared & Analyzed: 02-Dec-16

| | | | | | | | | | | |
|-------------------------------|------|------|-------|------|--|------|----------|--|--|--|
| GRO C6-C10 | 182 | 10.0 | mg/kg | 200 | | 90.9 | 76.7-115 | | | |
| DRO >C10-C28 | 192 | 10.0 | mg/kg | 200 | | 96.0 | 78.3-122 | | | |
| Total TPH C6-C28 | 374 | 10.0 | mg/kg | 400 | | 93.5 | 79.8-117 | | | |
| Surrogate: 1-Chlorooctane | 39.1 | | mg/kg | 50.0 | | 78.3 | 35-147 | | | |
| Surrogate: 1-Chlorooctadecane | 39.8 | | mg/kg | 50.0 | | 79.7 | 28-171 | | | |

LCS Dup (6120204-BSD1)

Prepared & Analyzed: 02-Dec-16

| | | | | | | | | | | |
|-------------------------------|------|------|-------|------|--|------|----------|------|------|--|
| GRO C6-C10 | 185 | 10.0 | mg/kg | 200 | | 92.6 | 76.7-115 | 1.79 | 9.42 | |
| DRO >C10-C28 | 197 | 10.0 | mg/kg | 200 | | 98.4 | 78.3-122 | 2.43 | 13.2 | |
| Total TPH C6-C28 | 382 | 10.0 | mg/kg | 400 | | 95.5 | 79.8-117 | 2.12 | 10.7 | |
| Surrogate: 1-Chlorooctane | 40.0 | | mg/kg | 50.0 | | 80.0 | 35-147 | | | |
| Surrogate: 1-Chlorooctadecane | 40.8 | | mg/kg | 50.0 | | 81.6 | 28-171 | | | |

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

| | |
|-----|--|
| ND | Analyte NOT DETECTED at or above the reporting limit |
| RPD | Relative Percent Difference |
| ** | Samples not received at proper temperature of 6°C or below. |
| *** | Insufficient time to reach temperature. |
| - | Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report |

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

