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RJ Unit #108
(2RP-5417)

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1.0 Introduction, Background and Regulatory

Introduction

TRC Environmental Corporation (TRC), on behalf of COG Operating, LLC (COG), has prepared this *Remediation Summary and Site Closure Request* for the Release at the Site known as the RJ Unit #108 (the Site). The legal description of the Site is Unit Letter "F", Section 27, Township 17 South, Range 29 East, in Eddy County, New Mexico. The subject property is owned by the United States Department of the Interior and administered by The Bureau of Land Management (BLM). The GPS coordinates for the Site are N32.80802°, W104.06369°. A topographical map is provided as **Figure 1**. Photographs are provided in the photolog as **Appendix B**.

Background

On April 17, 2019, COG discovered a produced water release had occurred at the Site. The Release was caused by a fitting on the Braden head blowing out. The Release area is located on an active production pad and fluids flowed west and south toward the adjacent pastureland and Draw. The pad is shared with another production well operated by Apache Corporation located north of the COG well. COG has plugged the production well and removed the lines/equipment from the pad.

On the discovery date, COG notified the New Mexico Oil and Conservation Division (NMOCD) and BLM of the Release. The Release was assigned an NMOCD Reference number of 2RP-5417. During initial response activities, a vacuum truck was dispatched to recover all freestanding fluids.

On April 22, 2019, the initial Release Notification and Corrective Action (Form C-141) was submitted to the NMOCD. The Form C-141 indicated a volume greater than 13,690 barrels (bbls) of produced water was released. Approximately 13,690 bbls of produced water was recovered during initial response activities. The Release affected an area measuring approximately 400' x 1,500'. A copy of the submitted Form C-141 for the Release is provided in **Appendix A**.

Regulatory

A groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) did not identify any registered water wells in Section 27, Township 17 South, Range 29 East. The nearest water well identified in the NMOSE database is located in Section 22, approximately 0.90 miles north of the Site. The NMOSE database indicated the reported depth to groundwater was approximately seventy-six (76) feet (ft.) below ground surface (bgs). In addition, the United States Geological Survey (USGS) database identifies one (1) water well in Section 29, approximately 1.60 miles to the southwest of the Site, with a reported depth to groundwater of 210 ft. bgs. In addition, two (2) monitor wells (2 and 4 inches in diameter) were discovered approximately 2.85 miles east of the Site (32.813690, -104.018250). The two (2) monitor wells were not listed on the USGS or NMOSE database. COG personnel gauged the monitor wells and reported the 2-inch diameter water well was dry with a total depth of approximately 157 ft. bgs. The 4-inch diameter monitor well exhibited a static water level of 266 ft. bgs, but the total depth

of the well could not be determined. No surface water was observed within one thousand (1,000) ft. of the Release. An aerial map of the Site location is provided as **Figure 2**.

Based on the NMOCD ranking criteria, the NMOCD regulatory guidelines for the RJ Unit #108 Release Site are as follows:

- Benzene – 10 mg/kg
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) – 50 mg/kg
- Total Petroleum Hydrocarbons (TPH) –100 mg/kg
- Chloride – 600 mg/kg

2.0 Initial Delineation Investigation

Based on the initial investigation results summarized below, the TPH and BTEX concentrations detected were not significant and not the constituents of concern. The analytical table summarizing the TPH and BTEX from the initial investigation are shown in Appendix C.

Geoprobe® Advancement and Sampling

- On May 9-10, 2019, a total of twenty (20) Geoprobe® bores (BH-1 through BH-20) were advanced in the Release footprint to total depths ranging from zero (0) to one (1) ft. and twelve (12) ft. bgs.
- Selected soil samples were collected and submitted to the laboratory for TPH analysis by Method SW 846 8015 modified, BTEX by SW 846 Method 8021B, and chloride by EPA Method 300.0.
- Analytical results indicated concentrations below the laboratory reporting limit (RL) for benzene, total BTEX, and/or TPH, with the exception of Geoprobe® BH-13, which exhibited a TPH concentration of 539 mg/kg at two (2) ft bgs.
- Geoprobe® BH-12, BH-14, and BH-19 were not vertically delineated to 600 mg/kg chlorides at depths ranging from seven (7) to eleven (11) ft. bgs.
- The remaining boreholes were vertically defined to 600 mg/kg at depths ranging from two (2) to twelve (12) ft. bgs.

Horizontal Extents and Overspray Sampling

- On May 15, 2019, a total of twenty (20) auger holes (S-1 through S-20) were advanced to total depth of approximately one (1) ft. to two (2) ft. bgs.
- Auger holes (S-1 through S-8) were advanced in the overspray area to the northeast of the pad and auger holes (S-9 through S-20) were advanced around the perimeter of the Release footprint for horizontal delineation.

- The soil samples were collected and submitted to the laboratory for TPH analysis by Method SW 846 8015 modified, BTEX by Method SW 846 8021B, and chloride by EPA Method 300.0.
- Analytical results indicated concentrations below the laboratory RL for benzene, BTEX, and/or TPH.
- In addition, chloride concentrations were below laboratory RL with concentrations ranging from less than 16.0 mg/kg to 160 mg/kg
- The Release footprint was horizontally delineated.

3.0 Additional Soil Delineation and Re-Evaluation

Borehole Installation and Sampling

Due to heavy rains, additional soil delineation and re-evaluation was conducted at the Site between June 1-12, 2019. The additional assessment activities were conducted to re-evaluate the subsurface soils and evaluate the chloride distribution and/or chloride concentrations in the subsurface soils due to the heavy rain. Evaluation for TPH and BTEX was not performed due to the initial assessment not showing concentrations above the regulatory limit.

- Twenty-four (24) boreholes (BH-1 through BH-24) were advanced in the Release footprint to total depth of approximately one (1) to forty (40) ft. bgs.
- Soil samples were collected and submitted to the laboratory for chloride by EPA Method 300.0.

North and South Draw Areas

- Seven (7) boreholes (BH-12, BH-13, BH-17, BH-18, BH-19, BH-20, and BH-24) were advanced along the north draw area and eight (8) boreholes (BH-5, BH-6, BH-7, BH-8, BH-9, BH-10, BH-11, and BH-22) were advanced along the south draw area.
- The analytical results indicated the north draw area exhibited chloride concentrations exceeding 5,000 mg/kg, in the areas of BH-12, BH-13, BH-17, BH-18, BH-19, and BH-20 at depths ranging from approximately four (4) to twelve (12) ft. bgs.
- The analytical results indicated boreholes BH-12 and BH-13 exhibited chloride concentrations below 600 mg/kg in the shallow soils from surface to approximately three (3) to four (4) ft. bgs before increasing with depth to chloride concentrations of 9,800 mg/kg at five (5) ft. and 8,660 mg/kg at six (6) ft bgs, respectively.
- Chloride concentrations were below the NMOCD regulatory guidelines in the area represented by BH-24.
- Boreholes in the north draw area were vertically delineated to chloride concentrations below 600 mg/kg at depths ranging from nine (9) to thirty-five (35) ft. bgs.

- The south draw area exhibited chloride concentrations above 5,000 mg/kg, in boreholes BH-5, BH-6, BH-8, BH-9, and BH-10 in the subsurface soils at depths ranging from surface to twelve (12) ft. bgs.
- Boreholes BH-7, BH-8, BH-9, BH-10, and BH-11 did not exhibit chloride impact in the shallow soil from approximately three (3) to four (4) ft. bgs before increasing with depth.
- Chloride concentrations were below NMOCD regulatory guidelines in the area represented by BH-22.
- Boreholes in the south area were vertically delineated to below 600 mg/kg at depths ranging from six (6) to twenty-five (25) ft. bgs.

Pad Area

- A total of five (5) boreholes (BH-1, BH-2, BH-3, BH-4, and BH-23) were advanced on the pad area.
- Chloride concentrations exceeding 5,000 mg/kg, were identified in the area represented by boreholes BH-2, BH-3, and BH-23 at depths ranging from surface to three (3) ft. bgs.
- Chloride concentrations in the area represented by borehole BH-1 and BH-4 exhibited chloride concentrations of 1,620 mg/kg at four (4) ft. and 3,280 mg/kg at zero (0) to one (1) ft. bgs, respectively declined with depth to below the NMOCD regulatory guidelines at five (5) ft. bgs.
- Boreholes were vertically delineated to below 600 mg/kg for chloride at depths ranging from approximately four (4) to eight (8) ft. bgs.

South Pad Area/Pasture

- A total of four (4) boreholes (BH-14, BH-15, BH-16, and BH-21) were advanced in the south pad/pasture area.
- Chloride with concentrations exceeding 5,000 mg/kg, were identified in borehole BH-21 to a depth of approximately twenty (20) ft. bgs. Upon further review, historical aerial photography appears to indicate a closured reserve pit.
- Borehole BH-14 exhibited chloride concentrations of 4,320 mg/kg at surface and was vertically delineated to below 600 mg/kg at approximately eight (8) ft. bgs.
- Borehole BH-14 and BH-16 did not exhibit elevated chloride concentrations above the NMOCD regulatory guidelines.

4.0 NMOCD Approved Workplan

On April 22, 2019, the proposed workplan was approved as proposed by the NMOCD. Based on the initial investigation, the NMOCD approved chloride confirmation sampling for the remediation. The NMOCD approved workplan and all associated documentation of the initial delineation activities are provided as **Appendix C**. COG proposed the following field activities designed to advance the RJ Unit #108 Release Site toward an NMOCD-approved closure:

Proposed - North Draw Area

- The impacted area represented by BH-12, BH-13, BH-17, BH-5, and BH-6 were to be excavated to an approximate depth of at least seven (7) to eight (8) ft. bgs to remove the elevated chlorides in bottom, prior to capping the area with 20 mil liner.
- Impacted soil in the area represented by boreholes BH-18, BH-19, and BH-20, was to be excavated to an approximate depth of four (4) ft. bgs.
- A 20-mil liner was to be installed and backfilled the north draw.

Proposed - South Draw Area

- The impacted area represented by BH-5 and BH-6 was to be excavated to an approximate depth of seven (7) to eight (8) ft. bgs to remove the elevated chlorides in bottom, prior to capping area with 20 mil liner.
- Impacted soil in the area represented by boreholes BH- 7, BH-8, BH-9, BH-10, BH-11, and BH-12 was to be sampled and segregated into approximately fifty (50) to seventy-five (75) cubic yard stockpiles.
- Segregated stockpiles were screened for chloride concentrations by Method E300.0.
- Chloride concentrations below 600 mg/kg were to be utilized as backfill material.
- Chloride concentrations above 600 mg/kg were transported to an NMOCD approved disposal.
- A 20-mil liner was to be installed and backfilled the south draw.

Proposed - Pad Area

- Impacted soil in the area represented by BH-1, BH-2, BH-4, and BH-23 was to be excavated to approximately one (1) ft. bgs.
- Impacted soil in the area represented by BH-3 was to be excavated to a depth of approximately four (4) ft. bgs.
- Excavated soil was to be transported to an NMOCD approved disposal and backfilled with non-impacted “like” material.

South Pad Area/Pasture (Former Reserve Pit)

- Impacted soil in the area represented by borehole BH-21 was to be excavated to a depth of approximately four (4) ft. bgs and capped with a 20-mil liner.
- Impacted soil in the area represented by borehole BH-15 was to be excavated to a depth of approximately four (4) ft..
- Excavated material was to be transported to an NMOCD approved disposal and backfilled with non-impacted "like" material.

5.0 Summary of Soil Remediation Activities

COG has plugged the production well and removed the lines/equipment from the pad. In addition, the pad is shared with another production well operated by Apache Corporation located north of the COG plugged well. The pad area around the COG plugged well was reclaimed, prior to performing the remediation.

North and South Draw Area and Liner Installation

On November 18, 2019, remediation activities commenced at the Release Site. Utilizing a trackhoe and a loader, excavation began in the northern draw, and excavation activities continued toward the south and east of the Release area. The excavation depths ranged from 4 ft. to 8 ft. bgs. Deeper excavations were performed in selected areas to remove the elevated chlorides from the bottom of the excavations. Once excavation depths were achieved, the north and south draw areas were capped with a 20 mil- liner at a depth of approximately four (4) ft. bgs and backfilled to grade. All of the excavated material was transported to an NMOCD approved disposal and backfilled with non-impacted "like" material.

During soil remediation activities, a total of twenty-two (22) five-point composite sidewall samples were collected from the north draw and nine (9) five-point composite sidewall samples were collected from the south draw area. Sidewalls were collected from the excavation on a 1,000 square foot (sq. ft.) basis. In addition, as stated in the NMOCD approved work plan, a total of seven (7) random composite bottom samples were collected in the area to attempt to remove the elevated chlorides from the bottom excavation, prior to liner installation. The samples collected were transported and submitted to Xenco Laboratories (Xenco) in Carlsbad, NM for chloride analysis by EPA Method E300.0. A summary of analytical data is shown in **Table 1**. Confirmation soil sample locations are depicted on **Figure 4**. Laboratory analytical reports are provided in **Appendix D**.

Referring to Table 1, the laboratory analytical results indicated sidewalls chloride concentrations were all below NMOCD regulatory guidelines, with the exception of N-NSW 3 @ 2' (630 mg/kg), N-WSW1 @ 2' (703 mg/kg), N-WSW2 @ 2' (846 mg/kg), N-WSW2A @ 2' (675 mg/kg). These impacted areas (N-WSW1A @ 2', N-WSW2A @ 2', and N-NSW 3 @ 2') were excavated and re-

sampled for chlorides. Analytical results showed chloride concentrations below NMOCD regulatory guidelines for the submitted samples.

Plains Pipeline Excavation

Previous investigations identified an in-active Plains Pipeline (buried line) located along the north and south Release areas. During the removal of the impacted soil, two (2) lines were identified in the area. The lines are in-active and encountered at depth of approximately three (3) ft. bgs. For proper removal and capping area, the impacted soil around and under the Plains Pipeline was removed to the appropriate depths to install the 20-mil liner underneath the lines.

Well Pad Production Area

From January 2020 to February 2020, remediation activities continued due north of the Release area. The Well Pad Area is represented by the active Apache production pad. A total of nine (9) five- point composite sidewall samples and thirteen (13) five-point composite bottom confirmation samples were collected from the area of concern. Confirmation samples were collected from the excavation on a 900 sq. ft. basis.

The samples collected were transported and submitted to Xenco in Carlsbad, NM for chloride analysis by EPA Method E300.0. A summary of analytical data is shown in **Table 1**. Confirmation soil sample locations are depicted on **Figure 4**. Laboratory analytical reports are provided in **Appendix D**.

Referring to Table 1, the sidewall samples indicated chloride concentrations below NMOCD regulatory guidelines, with the exception of Pad-SSW2 @ 0.75' (844 mg/kg). Following additional excavation activities in the area of Pad-SSW2 @ 0.75', the area was re-sampled and showed chloride concentrations below regulatory guidelines.

For the bottom samples, all bottom hole samples were below regulatory guidelines, with the exception of Pad-Bottomhole-3 @ 1' (615 mg/kg), Pad-Bottomhole-3 (1) @ 1.5' (659 mg/kg), Pad-Bottomhole-3 (2) @ 1.5' (727 mg/kg), and Pad-Bottomhole-3 (3) @ 1.5' (928 mg/kg). Following additional excavation activities, the areas were re-sampled and showed chloride concentrations below regulatory guidelines.

South Pad Area (Plugged Well) and South Pasture Area (Former Reserve Pit Area)

From December 2019 to February 2020, remediation activities continued toward the west and south side of the Release area. The South Pad Area represents the former reserve pit and the former production pad for the RJ Unit #108, which had been reclaimed prior to remediation and will be referred to as the area of reclaim. Upon further review, aerial photography and chloride concentrations exhibit that the former reserve pit extends further west and north than originally stated in the approved work plan. The initial assessment did not find the extents for the north and

west edges of the former reserve pit and appears that the former reserve pit may have affected or influenced the north edge of the well pad.

A total of fifteen (15) five- point composite sidewall samples were collected from the excavation on a 900 sq. ft. basis. A total of eleven (11) five- point composite bottom samples were collected from the area. The confirmation samples (Reclaim-Bottomhole- 2 through Reclaim-Bottomhole-12) were collected from the excavation on a 900 sq. ft. basis.

Samples collected were transported and submitted to Xenco in Carlsbad, NM for chloride analysis by EPA Method E300.0. A summary of analytical data is shown in **Table 1**. Confirmation soil sample locations are depicted on **Figure 5**. Laboratory analytical reports are provided in **Appendix D**.

Referring to Table 1, the review of laboratory analytical results indicated sidewalls chloride concentrations were all below NMOCD regulatory guidelines, with the exception of soil samples Reclaim-ESW2 @ 2' (3,760 mg/kg), N-NWSW @ 2' (1,160 mg/kg), N-SWSW @ 2' (1,430 mg/kg). Following additional excavation activities, these areas were re-sampled and showed chloride concentrations below regulatory guidelines.

For the bottom hole samples, the laboratory analytical results indicated chloride concentrations were below the NMOCD regulatory guidelines for Reclaim-Bottomhole-8 @ 4', Reclaim-Bottomhole-9 @ 4' Reclaim-Bottomhole-10 @ 4', Reclaim-Bottomhole-11 @ 4', and Reclaim-Bottomhole-12 @ 4'. The remaining areas (Reclaim-Bottomhole- 2 through Reclaim-Bottomhole-7) were above the regulatory guidelines.

Per New Mexico Administrative Code (NMAC) 19.15.29.14, a 20-mil liner was installed at a depth of approximately four (4) ft. bgs in the areas represented by Reclaim-Bottomhole-2 through Reclaim-Bottomhole-7. All of the excavated material was transported to an NMOCD approved disposal and backfilled with non-impacted "like" material.

Stockpile Sampling & Evaluation

As approved, the shallow soil was scraped and segregated into approximately fifty (50) to seventy-five (75) cubic yard stockpiles adjacent to the Release area. A total of fifty-six (56) stockpiles were created and collected 10-point composite samples from each and submitted to Xenco for TPH (8015M), BTEX (8021B), and chloride (E300) analyses. A summary of analytical data is shown in **Table 2**. Laboratory analytical reports are provided in **Appendix D**.

Referring to Table 2, analytical results indicated TPH, BTEX, and chloride concentrations were all below NMOCD regulatory guidelines for the submitted samples, with the exception of Stockpile-3. Stockpile-3 exhibited a chloride concentration of 669 mg/kg and transported to an NMOCD approved disposal. As approved, the remaining stockpiles below regulatory guidelines were used to backfill the excavations at the site.

6.0 Site Closure Request

Remediation activities were conducted in accordance with NMCOD guidelines and in adherence to the NMOCD approved workplan. Based on the laboratory analytical results from the soil samples collected from November 2019 to February 2020, the Release Site was remediated to below NMOCD regulatory guidelines. Approximately 14,000 cubic yards of impacted soil was transported under manifest to the R360 Halfway Facility. The excavation was backfilled, and the production pad was reclaimed per the NMOCD and BLM requirements by a third-party contractor. The North and South Draw Area and the South Pad Area were seeded with BLM seed mixture. Based on laboratory analytical results and field activities conducted to date, TRC recommends COG provide copies of this Remediation Summary and Site Closure Request to the NMOCD and BLM and request closure status to the RJ Unit #108.

7.0 Limitation

TRC has prepared this Remediation Summary and Site Closure Request to the best of its ability. No other warranty, expressed or implied, is made or intended.

TRC has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. TRC has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. TRC has prepared this report, in a professional manner, using the degree of skill and care exercised by similar environmental consultants. TRC also notes that the facts and conditions referenced in this report may change over time and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of COG Operating, LLC. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of TRC and/or COG Operating, LLC.

8.0 Distribution

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COG- RJ Unit #108
Date: 03/19/2020

Table 1 Concentrations of Chloride in Soil				
Sample ID	**Sampling Date**	**Depth (ft)**	**Soil Status**	**Chlorides (mg/kg)**
North Draw (Sidewalls)				
N-NSW @ 2'	11/21/2019	2'	In-Situ	129
N-NSW 3 @ 2'	1/6/2020	2'	Excavated	**630**
N-NSW3-A @ 2'	1/14/2020	2'	In-Situ	207
N-NSW4 @ 2'	1/8/2020	2'	In-Situ	103
N-WSW1 @ 2'	11/21/2019	2'	Excavated	**703**
N-WSW1A @ 2'	11/22/2019	2'	In-Situ	<10.1
N-WSW2 @ 2'	11/21/2019	2'	Excavated	**846**
N-WSW2A @ 2'	11/22/2019	2'	Excavated	**675**
N-WSW2B @ 2'	11/26/2019	2'	In-Situ	193
N-WSW3 @ 2'	12/3/2019	2'	In-Situ	13.3
N-WSW4 @ 3.5'	12/5/2019	3.5'	In-Situ	332
N-WSW5 @ 1.75'	12/5/2019	1.75'	In-Situ	54.4
N-WSW6 @ 2'	12/16/2019	2'	In-Situ	37.7
N-WSW8 @ 2'	1/8/2020	2'	In-Situ	149
N-ESW1 @ 2'	11/21/2019	2'	In-Situ	25.0
N-ESW2 @ 2'	11/21/2019	2'	In-Situ	28.2
N-ESW3 @ 3.5'	11/22/2019	3.5'	In-Situ	46.4
N-ESW4 @ 1.75'	12/3/2019	1.75'	In-Situ	69.7
N-ESW5 @ 2'	12/3/2019	2'	In-Situ	61.6
N-ESW7 @ 2'	1/8/2020	2'	In-Situ	105
N-SSW1 @ 2'	12/3/2019	2'	In-Situ	27.6
N-SSW 3 @ 2'	1/6/2020	2'	In-Situ	147
South Draw (Sidewalls)				
S-SSW @ 3.5'	12/12/2019	3.5'	In-Situ	173
S-ESW1 @ 1.5'	11/26/2019	1.5'	In-Situ	28.4
S-ESW2 @ 1.5'	12/13/2019	1.5'	In-Situ	<10.1
S-ESW3 @1.5'	12/13/2019	1.5'	In-Situ	<10.1
S-ESW4 @ 3.5'	12/11/2019	3.5'	In-Situ	<9.94
S-WSW1 @ 1.5'	12/13/2019	1.5'	In-Situ	36.1
S-WSW2 @ 1.5'	12/6/2019	1.75'	In-Situ	<9.96
S-WSW3 @ 1.5'	12/6/2019	1.75'	In-Situ	<9.98
S-WSW4 @ 3.5'	12/11/2019	3.5'	In-Situ	65.1
North & South Draw (Bottom Samples)				
Bottomhole-1 @ 7'	11/26/2019	7'	In-Situ	98.5
Bottomhole-2 @ 7'	12/11/2019	7'	In-Situ	**3,760**
Bottomhole-3 @ 7'	12/11/2019	7'	Excavated	**5,720**
Bottomhole-3 @ 8'	12/12/2019	8'	In-Situ	**2,960**
Bottomhole-4 @ 4'	12/16/2019	4'	In-Situ	14.8
Bottomhole-5 @ 4'	12/16/2019	4'	In-Situ	265
Reclaim (Draw)-Bottomhole-1 @ 14'	1/31/2020	14'	In-Situ	1040
NMOCD Closure Criteria				**600**

Areas Excavated above 600 mg/kg
Excavation Bottom Capped with 20 mil Liner at 4.0' bgs

COG- RJ Unit #108
Date: 03/19/2020

Table 1 Concentrations of Chloride in Soil				
Sample ID	**Sampling Date**	**Depth (ft)**	**Soil Status**	**Chlorides (mg/kg)**
Well Pad Area (Sidewalls)				
Pad-NSW 1 @ 2'	1/23/2020	2'	In-Situ	386
Pad-NSW 2 @ 0.5'	1/24/2020	0.5'	In-Situ	471
Pad-NSW4 @ 0.75'	2/10/2020	0.75'	In-Situ	154
Pad-ESW 1 @ 2'	1/23/2020	2'	In-Situ	219
Pad-ESW 2 @0.5'	1/24/2020	0.5'	In-Situ	414
Pad-SSW 1 @ 2'	1/23/2020	2'	In-Situ	202
Pad-SSW2 @ 0.75'	1/27/2020	0.75'	Excavated	**844**
Pad-SSW2A @ 1.25'	2/6/2020	1.25'	In-Situ	141
Pad-WSW 1 @ 2'	1/23/2020	2'	In-Situ	129
Pad- WSW2 @ 0.75'	1/27/2020	0.75'	In-Situ	429
Well Pad Area (Bottom Samples)				
Pad-Bottomhole-1 @ 4'	1/23/2020	4'	In-Situ	295
Pad-Bottomhole-2 @ 4'	1/23/2020	4'	In-Situ	81.9
Pad-Bottomhole-6 @ 4'	2/6/2020	4'	In-Situ	114
Pad-Bottomhole-3 @ 1'	1/24/2020	1'	Excavated	**615**
Pad-Bottomhole-3 (1) @ 1.5'	1/31/2020	1.5'	Excavated	**659**
Pad-Bottomhole-3 (1A) @ 2.5'	2/6/2020	2.5'	In-Situ	454
Pad-Bottomhole-3 (2) @ 1.5'	1/31/2020	1.5'	Excavated	**727**
Pad-Bottomhole-3 (2A) @ 2.5'	2/6/2020	2.5'	In-Situ	336
Pad-Bottomhole-3 @ 1.5'	9/28/2020	1.5	Excavated	**928**
Pad-Bottomhole-3 (3A) @ 2.5'	2/6/2020	2.5'	In-Situ	388
Pad-Bottomhole-4 @ 1'	1/24/2020	1'	In-Situ	505
Pad-Bottomhole-5@1.5'	1/27/2020	1.5'	In-Situ	208
Pad-Bottomhole-5 (2) @ 1.5'	2/6/2020	1.5'	In-Situ	289
Pad-Bottomhole-5 (3) @ 1.5'	2/6/2020	1.5'	In-Situ	5.24
Pad-Bottomhole-5 (4) @ 1.5'	2/6/2020	1.5'	In-Situ	299
Pad-Bottomhole-5 (5) @ 1.5'	2/6/2020	1.5'	In-Situ	228
NMOCD Closure Criteria				**600**

Areas Excavated above 600 mg/kg
Excavation Bottom Capped with 20 mil Liner at 4.0' bgs

COG- RJ Unit #108
Date: 03/19/2020

Table 1 Concentrations of Chloride in Soil				
Sample ID	**Sampling Date**	**Depth (ft)**	**Soil Status**	**Chlorides (mg/kg)**
Well Pad: Reclaimed Area (Sidewalls)				
Reclaim-NSW @ 2'	1/30/2020	2'	In-Situ	416
Reclaim-ESW1 @ 2'	1/30/2020	2'	In-Situ	183
Reclaim-ESW2 @ 2'	1/30/2020	2'	Excavated	**3,760**
Reclaim-ESW2 A @ 2'	2/3/2020	2'	In-Situ	40.7
Reclaim-WSW 1 @ 2'	2/3/2020	2'	In-Situ	30.0
Reclaim-NSW2 @ 2'	2/3/2020	2'	In-Situ	284
Reclaim-NSW3 @ 2'	2/3/2020	2'	In-Situ	289
Reclaim-ESW3 @ 2'	2/3/2020	2'	In-Situ	488
Reclaim-SSW @ 2'	2/4/2020	2'	In-Situ	66.8
Reclaim-SSW2 @ 2'	2/10/2020	2'	In-Situ	81.7
Well Pad: Reclaim (Bottom Samples)				
Reclaim-Bottomhole-2 @ 4'	2/3/2020	4'	In-Situ	**8,140**
Reclaim-Bottomhole-3 @ 4'	1/31/2020	4'	In-Situ	**4,230**
Reclaim-Bottomhole-4 @ 4'	1/31/2020	4'	In-Situ	**7,050**
Reclaim-Bottomhole-5 @ 4'	1/31/2020	4'	In-Situ	**5,040**
Reclaim-Bottomhole-6 @ 4'	2/3/2020	4'	In-Situ	**4,210**
Reclaim-Bottomhole-7 @ 4'	2/3/2020	4'	In-Situ	**1,780**
Reclaim-Bottomhole-8 @ 4'	2/3/2020	4'	In-Situ	42.1
Reclaim-Bottomhole-9 @ 4'	2/3/2020	4'	In-Situ	267
Reclaim-Bottomhole-10 @ 4'	2/3/20	4'	In-Situ	45.5
Reclaim-Bottomhole-11 @ 4'	2/3/20	4'	In-Situ	59.0
Reclaim-Bottomhole-12 @ 4'	2/3/20	4'	In-Situ	375
South Pad Pasture Area: Former Reserve Pit Area (Sidewalls and Bottom Sample)				
N-NSW2 @ 2'	12/18/2019	2'	In-Situ	169
N-SSW2 @ 2'	12/18/2019	2'	In-Situ	133
N-ESW6 @ 2'	12/18/2019	2'	In-Situ	19.8
N-WSW7 @ 2'	1/2/2020	2'	In-Situ	148
N-NWSW @ 2'	1/2/2020	2'	Excavated	**1,160**
N-NWSW-A @ 2'	1/7/2020	2'	In-Situ	490
N-SWSW @ 2'	1/2/2020	2'	Excavated	**1,430**
N-SWSW-A @ 2'	1/8/2020	2'	In-Situ	66.0
Bottomhole-6 @ 4'	12/18/2019	4'	In-Situ	**3,950**
NMOCD Closure Criteria				**600**

Areas Excavated above 600 mg/kg
Excavation Bottom Capped with 20 mil Liner at 4.0' bgs

COG- RJ Unit #108
Date: 03/19/2020

Table 2
Concentrations of BTEX, TPH, and/or Chloride in Soil

Sample ID	Date	Type Sample	SW 846 8021B		SW 846 8015M Ext.					E 300
			Benzene (mg/kg)	BTEX (mg/kg)	GRO C_6-C_{10} (mg/kg)	DRO C_{10}-C_{28} (mg/kg)	GRO + DRO C_6-C_{28} (mg/kg)	ORO C_{28}-C_{36} (mg/kg)	TPH C_6-C_{36} (mg/kg)	Chloride (mg/kg)
Stockpile										
Stockpile-1	11/25/2019	Composite	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	162
Stockpile-2	11/25/2019	Composite	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	96.2
Stockpile-3	11/25/2019	Composite	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	**669**
Stockpile-4	11/25/2019	Composite	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	158
Stockpile-5	11/25/2019	Composite	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	98.4
Stockpile-6	11/26/2019	Composite	0.00238	0.00481	<49.8	<49.8	<49.8	<49.8	<49.8	185
Stockpile-7	12/3/2019	Composite	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	241
Stockpile-8	12/5/2019	Composite	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	476
Stockpile-9	12/5/2019	Composite	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	401
Stockpile-10	12/5/2019	Composite	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	456
Stockpile-11	12/5/2019	Composite	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	36.4
Stockpile-12	12/5/2019	Composite	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	43.1
Stockpile-13	12/5/2019	Composite	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	12.8
Stockpile-14	12/5/2019	Composite	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	14.1
Stockpile-15	12/5/2019	Composite	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	21.5
Stockpile-16	12/5/2019	Composite	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	14.3
Stockpile-17	12/6/2019	Composite	<0.00198	<0.00198	<49.8	<49.8	<49.8	<49.8	<49.8	10.1
Stockpile-18	12/6/2019	Composite	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	45.2
Stockpile-19	12/6/2019	Composite	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	12.0
Stockpile-20	12/6/2019	Composite	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<50.1	<9.98
Stockpile-21	12/6/2019	Composite	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	<9.92
Stockpile-22	12/6/2019	Composite	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	16.9
Stockpile-23	12/6/2019	Composite	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	16.6
Stockpile-24	12/6/2019	Composite	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	100
Stockpile-25	12/6/2019	Composite	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	42.3
Stockpile-26	12/9/2019	Composite	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	82.3
Stockpile-27	12/9/2019	Composite	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	36.9
NMOCD Closure Criteria			**10**	**50**	**-**	**-**	**-**	**-**	**100**	**600**

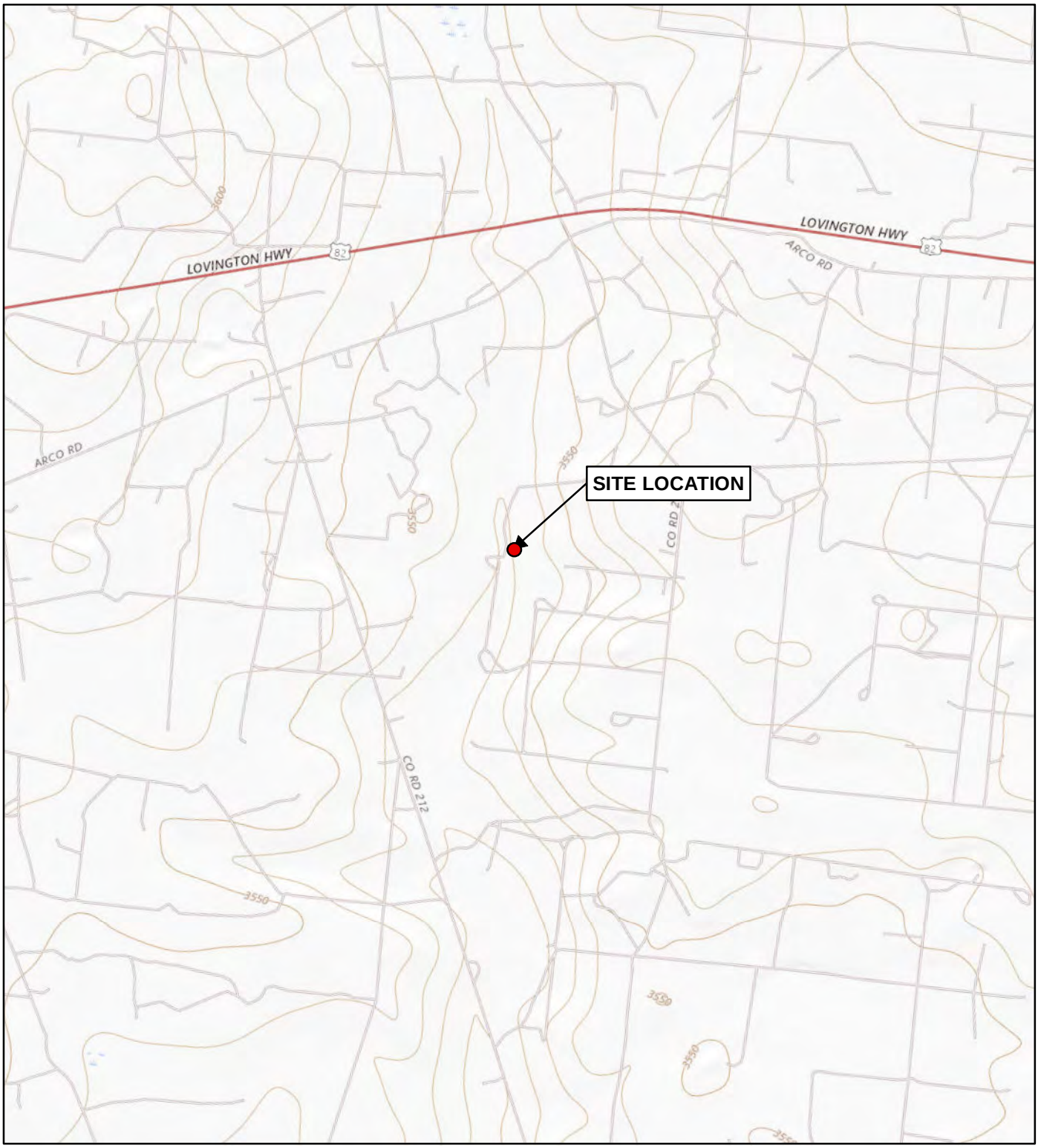
Stockpile Hauled to Disposal

COG- RJ Unit #108
Date: 03/19/2020

Table 2
Concentrations of BTEX, TPH, and/or Chloride in Soil

Sample ID	Date	Type Sample	SW 846 8021B		SW 846 8015M Ext.					E 300
			Benzene (mg/kg)	BTEX (mg/kg)	GRO C_6-C_{10} (mg/kg)	DRO C_{10}-C_{28} (mg/kg)	GRO + DRO C_6-C_{28} (mg/kg)	ORO C_{28}-C_{36} (mg/kg)	TPH C_6-C_{36} (mg/kg)	Chloride (mg/kg)
Stockpile										
Stockpile-28	12/9/2019	Composite	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	30.3
Stockpile-29	12/9/2019	Composite	<0.00198	<0.00198	<50.2	<50.2	<50.2	<50.2	<50.2	23.6
Stockpile-32	12/13/2019	Composite	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	11.9
Stockpile-33	12/13/2019	Composite	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	<9.92
Stockpile-34	12/16/2019	Composite	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	<49.8	95.6
Stockpile-35	12/16/2019	Composite	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	292
Stockpile-36	12/16/2019	Composite	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	22.5
Stockpile-37	12/20/19	Composite	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	22.4
Stockpile-38	12/20/19	Composite	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	12.8
Stockpile-39	12/20/19	Composite	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	<49.8	10.3
Stockpile-40	12/20/19	Composite	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	15.5
Stockpile-41	12/20/19	Composite	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	66.7
Stockpile-42	12/20/19	Composite	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	46.9
Stockpile-43	12/20/19	Composite	<0.00197	<0.00197	<49.8	<49.8	<49.8	<49.8	<49.8	39.9
Stockpile-44	12/20/19	Composite	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	212
Stockpile-45	12/30/19	Composite	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	94.0
Stockpile-46	12/30/19	Composite	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	60.8
Stockpile-47	12/30/19	Composite	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<50.1	23.4
Stockpile-48	12/30/19	Composite	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	21.3
Stockpile-49	1/2/20	Composite	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	456
Stockpile-50	1/2/20	Composite	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	235
Stockpile-51	1/2/20	Composite	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	127
Stockpile-52	1/2/20	Composite	<0.00198	<0.00198	<50.2	<50.2	<50.2	<50.2	<50.2	55.4
Stockpile-53	1/2/20	Composite	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	184
Stockpile-54	1/2/20	Composite	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	112
Stockpile-55	1/2/20	Composite	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	523
Stockpile-56	1/2/20	Composite	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	72.7
NMOCD Closure Criteria			**10**	**50**	**-**	**-**	**-**	**-**	**100**	**600**

Stockpile Hauled to Disposal



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES - RED LAKE SE, NEW MEXICO (2019).

N

1 " = 2,000 '
1:24,000

0 2,000 4,000
FEET

TRC
505 East Huntland Drive
Suite #250
Austin, TX 78752
Phone: 512.329.6080
TRC - GIS

PROJECT:

CONCHO RESOURCES
RJ UNIT #108
EDDY COUNTY, NEW MEXICO

TITLE:

TOPOGRAPHIC MAP

DRAWN BY:	S. RAY
CHECKED BY:	--
APPROVED BY:	--
DATE:	MARCH 2020
PROJ. NO.:	373071
FILE:	373071_1.mxd

FIGURE 1

S:\1-PROJECTS\ConchoResources\373071_RJU#108\mxd\373071_1.mxd -- Saved By: SRAY on 3/5/2020, 14:58:36 PM

Plot Date: 3/2/2020, 14:21:45 PM by SRAY -- LAYOUT: ANSI B (11"x17")
Path: S:\1-PROJECTS\ConchoResources\373071_RJU#108\mxd\373071_2.mxd

Coordinate System: NAD 1983 2011 StatePlane New Mexico East FIPS 3001 Ft US (Foot US)
Map Rotation: 0

TRC - GIS

LEGEND

Monitoring Well
Water Well
1/2 Mile Radius
100-Year Floodplain
Excavated Area

SOURCE: BASEMAP FROM GOOGLE AND THEIR DATA PARTNERS (12/21/2019).

0 2,000 4,000
FEET
1 " = 4,000 '
1:48,000

N

TRC
505 East Huntland Drive
Suite #250
Austin, TX 78752
Phone: 512.329.6080

PROJECT:
CONCHO RESOURCES
RJ UNIT #108
EDDY COUNTY, NEW MEXICO

TITLE:
AERIAL MAP

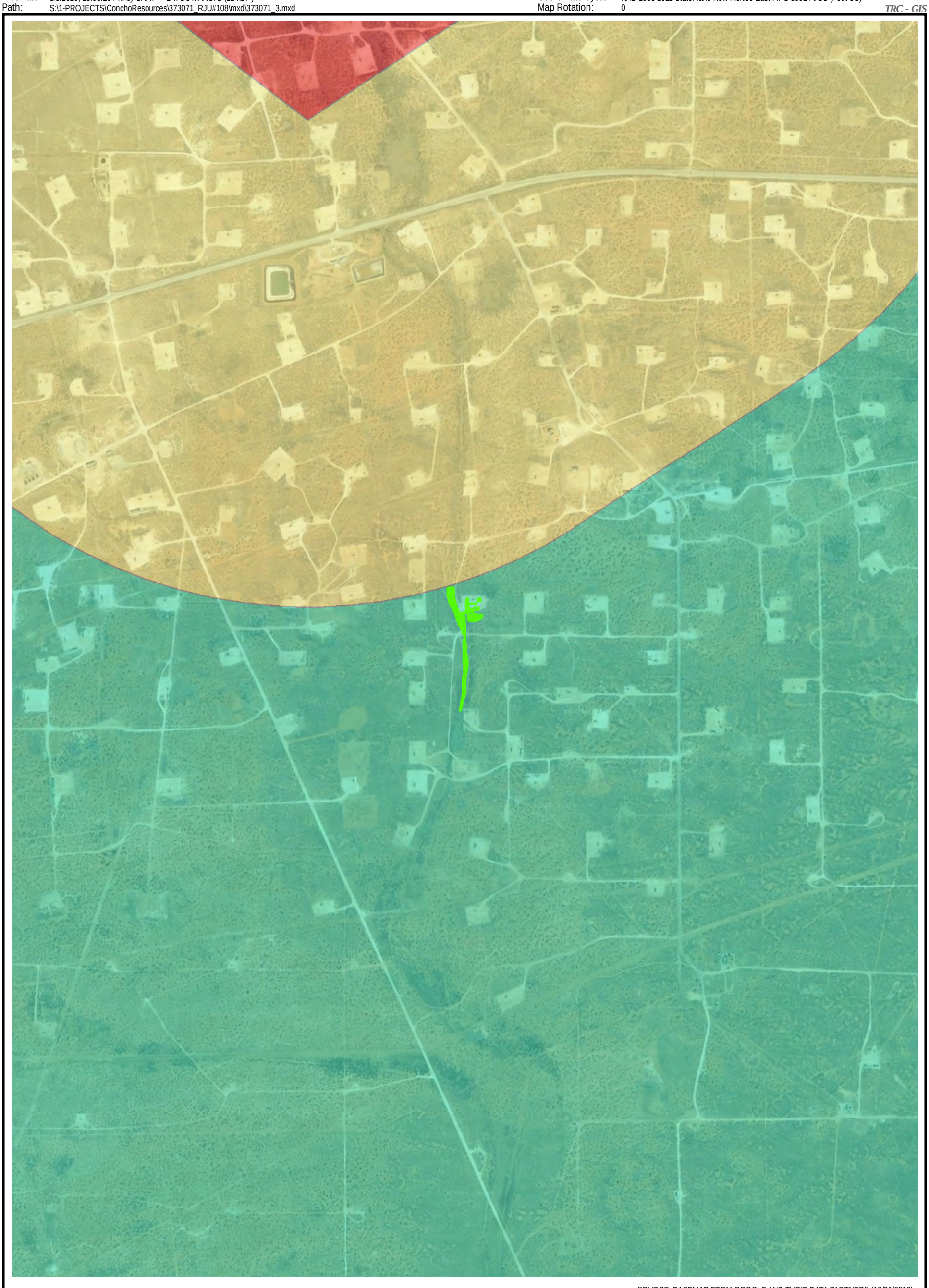
DRAWN BY:	S. RAY
CHECKED BY:	–
APPROVED BY:	–
DATE:	MARCH 2020
PROJ. NO.:	373071
FILE:	373071_2.mxd

FIGURE 2

Plot Date: 3/5/2020, 15:03:20 PM by SRAY -- LAYOUT: ANSI B (11"x17")
Path: S:\1-PROJECTS\ConchoResources\373071_RJU#108\mxd\373071_3.mxd

Coordinate System: NAD 1983 2011 StatePlane New Mexico East FIPS 3001 Ft US (Foot US)
Map Rotation: 0

TRC - GIS



LEGEND

- Low Karst Potential
- Medium Karst Potential
- High Karst Potential
- Impacted Area

SOURCE: BASEMAP FROM GOOGLE AND THEIR DATA PARTNERS (12/21/2019).
KARST DATA FROM THE NEW MEXICO BLM (2018).

0 500 1,000 FEET

1 " = 1,000 '

1:12,000

N

TRC

505 East Huntland Drive
Suite #250
Austin, TX 78752
Phone: 512.329.6080

PROJECT:

CONCHO RESOURCES
RJ UNIT #108
EDDY COUNTY, NEW MEXICO

TITLE:

KARST MAP

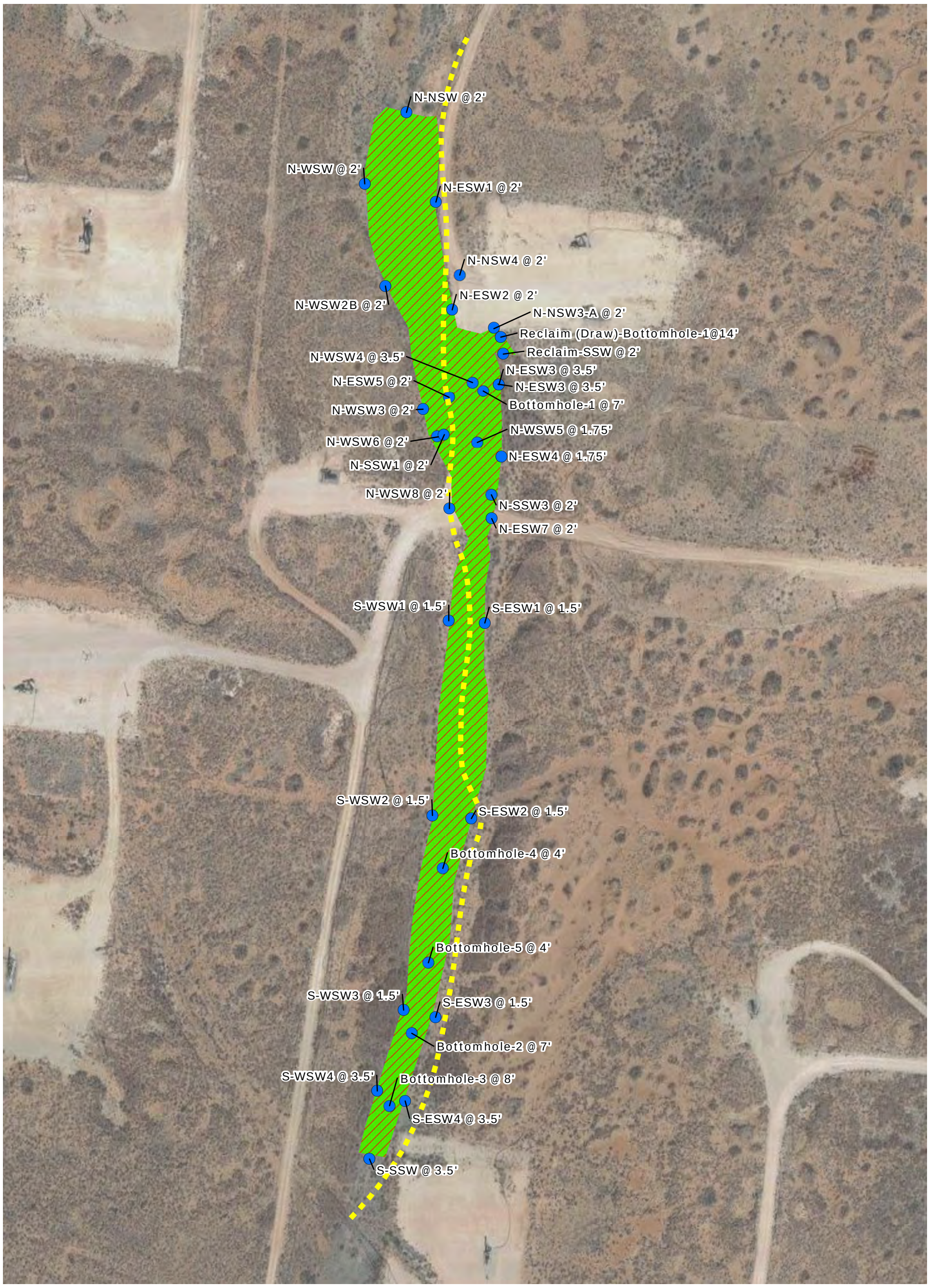
DRAWN BY:	S. RAY
CHECKED BY:	–
APPROVED BY:	–
DATE:	MARCH 2020
PROJ. NO.:	373071
FILE:	373071_3.mxd

FIGURE 3

Plot Date: 3/19/2020, 11:40:49 AM by SRAY -- LAYOUT: ANSI B (11"x17")
Path: S:\1-PROJECTS\ConchoResources\373071_RJU#108\mxd\373071_4.mxd

Coordinate System: NAD 1983 UTM Zone 15N (Meter)
Map Rotation: 0

TRC - GIS



LEGEND

Soil Sample Locations
Excavated Area
Lined Area
Plains Pipeline

N

0 125 250
FEET

1 " = 125 '
1:1,500

SOURCE: BASEMAP FROM GOOGLE AND THEIR DATA PARTNERS (12/21/2019).

TRC
505 East Huntland Drive
Suite #250
Austin, TX 78752
Phone: 512.329.6080

PROJECT:
CONCHO RESOURCES
RJ UNIT #108
EDDY COUNTY, NEW MEXICO

TITLE:
NORTH AND SOUTH DRAW AREA

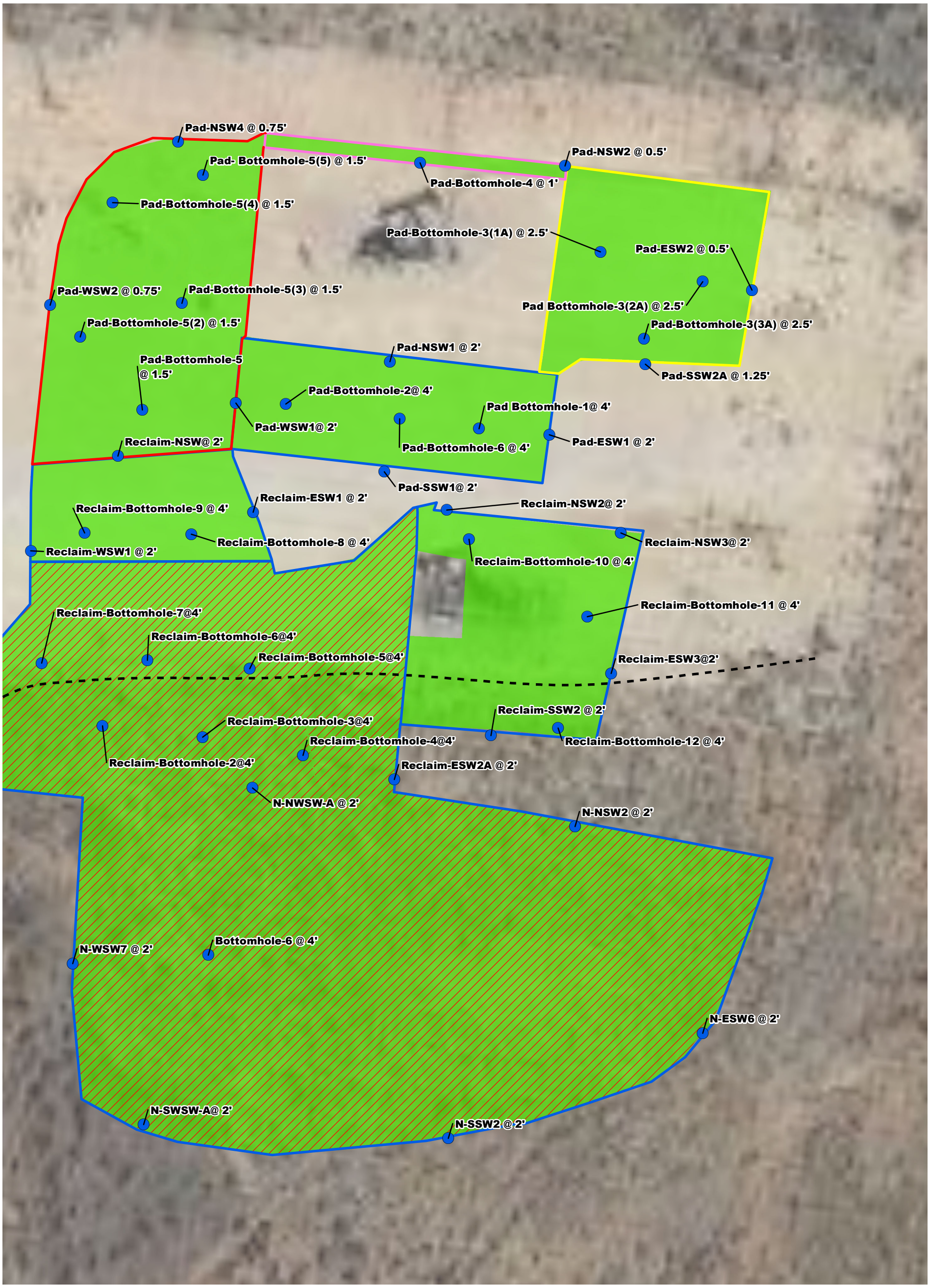
DRAWN BY:	S. RAY
CHECKED BY:	–
APPROVED BY:	–
DATE:	MARCH 2020
PROJ. NO.:	373071
FILE:	373071_4.mxd

FIGURE 4

Plot Date: 3/20/2020, 12:45:26 PM by SRAY -- LAYOUT: ANSI B (11"x17")
Path: S:\1-PROJECTS\ConchoResources\373071_RJU#108\mxd\373071_5.mxd

Coordinate System: NAD 1983 UTM Zone 15N (Meter)
Map Rotation: 0

TRC - GIS



LEGEND

- Soil Sample Locations
- Excavated to a depth of 1' bgs
- Excavated to a depth of 1.5' bgs
- Excavated to a depth of 2.5' bgs
- Excavated to a depth of 4' bgs
- Edge of Pad Area
- Excavated Area
- Lined Area

SOURCE: BASEMAP FROM GOOGLE AND THEIR DATA PARTNERS (12/21/2019).

0 25 50 FEET
1 " = 25 '
1:300

TRC
505 East Huntland Drive
Suite #250
Austin, TX 78752
Phone: 512.329.6080

PROJECT:
CONCHO RESOURCES
RJ UNIT #108
EDDY COUNTY, NEW MEXICO

TITLE:
EXCAVATION AND SAMPLE LOCATIONS MAP - WELL PAD PRODUCTION AREA, SOUTH PAD AREA & SOUTH PASTURE AREA

DRAWN BY:	S. RAY
CHECKED BY:	–
APPROVED BY:	–
DATE:	MARCH 2020
PROJ. NO.:	373071
FILE:	373071_5.mxd

FIGURE 5

Appendix A: Release Notification and Corrective Action (Form C-141)

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NAB1913558566
District RP	2RP-5417
Facility ID	
Application ID	pAB1913557193

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Jennifer Knowlton	Contact Telephone	(575) 748-1570
Contact email	JKnowlton@concho.com	Incident # *(assigned by OCD)*	NAB1913558566
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.80802 Longitude -104.06369

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	RJ Unit #108	Site Type	Wellhead
Date Release Discovered	April 17, 2019	API# *(if applicable)*	30-015-31127

Unit Letter	Section	Township	Range	County
F	27	17S	29E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) >13,690 (unknown)	Volume Recovered (bbls) 13,690
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was caused by the fitting on the Braden head blowing out due to corrosion. A valve has been installed. The release was on location and in the pasture. A vacuum truck was dispatched to remove all freestanding fluids. Concho will evaluate the site to determine if we may commence remediation immediately or delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1913558566
District RP	2RP-5417
Facility ID	
Application ID	pAB1913557193

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? The volume released was greater than 25 barrels.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Immediate notice was given by DeAnn Grant via e-mail April 17, 2019 at 2:48 pm to Mike Bratcher and Crystal Weaver.

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

- ■ The source of the release has been stopped.
- ■ The impacted area has been secured to protect human health and the environment.
- ■ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ■ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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.

Printed Name: DeAnn Grant Title: HSE Administrative Assistant

Signature: DeAnn Grant Date: 4/22/2019

email: agrant@concho.com Telephone: (432) 253-4513

OCD Only

Received by: Date: 5/15/2019

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP 5417
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	76 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church? 515	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☒ Yes ☐ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
☐ Field data
☒ Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
☒ Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5417
Facility ID	
Application ID	

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.

Printed Name: Ike Tavarez Title: Senior HSE Supervisor

Signature:  Date: 9/17/19

email: itavarez@concho.com Telephone: 432-685-2573

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5417
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- ☑ Detailed description of proposed remediation technique
- ☑ Scaled sitemap with GPS coordinates showing delineation points
- ☑ Estimated volume of material to be remediated
- ☑ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☑ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☑ Extents of contamination must be fully delineated.

☑ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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.

Printed Name: Ike Tavarez Title: Senior HSE Supervisor

Signature:  Date: 9/17/19

email: itavarez@concho.com Telephone: 432-685-2573

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5417
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: Ike Tavarez Title: Senior HSE Supervisor

Signature: _____ Date: 3/20/20

email: itavarez@concho.com Telephone: (432) 701- 8630

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: _____

Appendix B: Photographic Documentation

COG-RJ Unit #108
Date: 02/27/20

Photographic Documentation

Photograph No. 1 **Date:** **4/17/2019** **Direction:** **East** **Description:** **View of Release area**	
Photograph No. 2 **Date:** **4/18/2019** **Direction:** **North** **Description:** **View of Release area**	

Photographic Documentation

Photograph No. 3 **Date:** **4/18/2019** **Direction:** **Southwest** **Description:** **View of Release area**	
Photograph No. 4 **Date:** **4/18/2019** **Direction:** **South** **Description:** **View of Release area.**	

Photographic Documentation

Photograph No. 5 **Date:** **11/21/2019** **Direction:** **Northwest** **Description:** **View of excavation activities in North Draw.**	
Photograph No. 6 **Date:** **11/21/2019** **Direction:** **Southeast** **Description:** **View of excavation activities in North Draw.**	

Photographic Documentation

Photograph No. 7 **Date:** **12/6/2019** **Direction:** **Northwest** **Description:** **View of excavation activities in South Draw.**	
Photograph No. 8 **Date:** **12/6/2019** **Direction:** **Southeast** **Description:** **View of excavation activities in South Draw.**	

Photographic Documentation

Photograph No. 9 **Date: 12/13/2019** **Direction: Northeast** **Description: View of excavation activities of South Draw.**	
Photograph No. 10 **Date: 12/18/2019** **Direction: Southeast** **Description: View of excavation activities of South Pad Area.**	

Photographic Documentation

Photograph No. 11 **Date: 1/27/2020** **Direction: Northeast** **Description: View of excavation activities in Pad Area.**	
Photograph No. 12 **Date: 1/27/2020** **Direction: Northwest** **Description: View of excavation activities of Pad Area**	

Photographic Documentation

Photograph No. 13 **Date: 2/7/2020** **Direction: Southwest** **Description: View of excavation activities of South Pad Area**	
Photograph No. 14 **Date: 2/4/2020** **Direction: Northeast** **Description: View of excavation activities of South Pad Area**	

Photographic Documentation

Photograph No. 15 **Date: 12/6/2020** **Direction: Northeast** **Description: View of Stockpile.**	
Photograph No. 16 **12/6/2020** **Direction: Southwest** **Description: View of stockpile.**	

Photographic Documentation

Photograph No. 17 **Date: 12/16/2020** **Direction: Northwest** **Description: View of 20-mil liner in North Draw.**	
Photograph No. 18 **Date: 12/16/2020** **Direction: South** **Description: View of 20-mil liner in South Draw.**	

Photographic Documentation

Photograph No.19 **Date: 2/7/2020** **Direction: West** **Description: View of 20-mil liner in South Pad.**	
Photograph No. 20 **Date: 2/25/2020** **Direction: Northwest** **Description: View of remediated area in South Draw.**	

Photographic Documentation

Photograph No. 21 **Date: 2/25/2020** **Direction: South** **Description: View of remediated area in North Draw.**	
Photograph No. 22 **Date: 2/25/2020** **Direction:** **East** **Description: View of remediated area in Pad.**	

Photographic Documentation

Photograph No. 23 **Date: 2/25/2020** **Direction: Southeast** **Description: View of remediated area in South Pad.**	

Appendix C: NMOCD Approved Workplan

SITE INFORMATION

Report Type: Work Plan 2RP-5417

General Site Information:						
Site:	**RJ Unit #108**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit F**	**Sec. 27**	**T 17S**	**R 29E**		
Lease Number:						
County:	**Eddy County**					
GPS:	**32.808046**			**-104.06373**		
Surface Owner:	**Federal**					
Mineral Owner:						
Directions:	From the intersection of Lovington Hwy and Valley Gas Rd turn South on Valley Gas Rd and go .59 miles and turn east and go .57 miles and turn south and go .40 miles and arrive on site					

Release Data:	
Date Released:	4/17/2019
Type Release:	Produced Water
Source of Contamination:	Braden Head blowout
Fluid Released:	>13,690 bbls Produced water
Fluids Recovered:	13,690 bbls produced water

Official Communication:			
Name:	Ike Tavarez		Clair Gonzales
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		901 West Wall Street
	600 W. Illinois Ave.		Suite 100
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	itavarez@concho.com		Clair.Gonzales@tetratech.com

Site Characterization	
Depth to Groundwater:	*76' bgs*
Floodplain:	*Within Floodplain*

Recommended Remedial Action Levels (RRALs)			
Benzene	***Total BTEX***	***TPH (GRO+DRO+MRO)***	***Chlorides***
10 mg/kg	*50 mg/kg*	*100 mg/kg*	*600 mg/kg*

TETRA TECH

September 10, 2019

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

Re: Work Plan for the COG Operating, LLC, RJ Unit #108, Unit F, Section 27, Township 17 South, Range 29 East, Eddy County, New Mexico.
2RP-5417

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG) to assess a release that occurred at the RJ Unit #108, Unit F, Section 27, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are 32.808046°, -104.063730°. The site location is shown on **Figures 1 and 2**.

Background

According to the State of New Mexico C-141 Initial Report, the release was discovered on April 17, 2019 and released greater than 13,690 barrels of produced water due to a fitting on the Braden head blowing out. A vacuum truck was dispatched to remove all freestanding fluids, recovering approximately 13,690 barrels of produced water. As shown on **Figure 3**, the release occurred on pad and pasture impacting an area measuring approximately 400' x 1,500'. The C-141 form is included in Appendix A.

Site Characterization

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

The nearest water well is reported in Section 22 on the New Mexico Office of the State Engineer's (NMOSE) database, approximately 0.90 miles North of the site, and has a reported depth to groundwater of 79 feet below surface. The USGS database lists one well located in Section 35, approximately 1.25 miles to the southeast, has a reported depth to groundwater of 152 feet below surface. The USGS database also lists one well in Section 29, approximately 1.60 miles to the southwest of the site, with a reported depth to groundwater of 210 feet below

Tetra Tech
901 West Wall St, Suite 100, Midland, TX 79701
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

surface. Additionally, two monitor wells (2" and 4") were found approximately 2.85 miles east of the site (32.813690, -104.018250), that were not listed with the USGS or NMOSE database. COG personnel gauged the monitor wells and found that the 2" well was dry with a total depth of 157' below surface. The 4" monitor well gauged showed a static water level of 266' below surface but could not measure the total depth of the well. The site characterization data is shown in Appendix B.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills, and Releases, updated August 14, 2018. 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 on the site characterization, the proposed RRAL for TPH is 100 mg/kg (GRO + DRO + MRO). Additionally, based on the site characterization, the proposed RRAL for chlorides is 600 mg/kg.

Initial Soil Assessment

Geo-Probe Installation and Sampling

On May 9-10, 2019, Talon personnel were onsite to evaluate and sample the release area. A total of twenty (20) Geoprobe bores (BH-1 through BH-20) were installed in the release footprint to total depths ranging from 0-1' and 12' below surface. Selected soil samples were collected and submitted to the laboratory 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 D. The sampling results are summarized in Table 1. The sample locations are shown on **Figure 4**.

Referring to Table 1, none of the samples collected showed benzene, total BTEX, or TPH concentrations above the laboratory reporting limits, with the exception of BH-13, which showed a TPH concentration of 539 mg/kg at 2.0' below surface. However, all boreholes showed elevated chloride concentrations. The areas of BH-12, BH-14, and BH-19 were not vertically defined at 600 mg/kg chlorides at depths ranging from 7.0' to 11.0' below surface. The remaining boreholes were vertically defined to 600 mg/kg at depths ranging from 2.0' to 12.0' below surface.

Horizontal and Overspray Sampling

On May 15, 2019, Talon personnel returned to the site to collect additional samples to assess the overspray area and establish horizontal delineation of the release footprint. A total of twenty (20) auger holes (S-1 through S-20) were installed to total depths 0-1'and 2.0' below surface. Auger holes (S-1 through S-8) were installed in the overspray area to the northeast of the pad and auger holes (S-9 through S-20) were installed around the perimeter of the release footprint for horizontal delineation. The soil samples were collected and submitted to the laboratory 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 D. The sampling results are summarized in Table 1. The sample locations are shown on **Figure 5**.

Referring to Table 1, none of the samples collected showed benzene, total BTEX, or TPH concentrations above the laboratory reporting limits. Additionally, none of the samples showed any significant chloride concentrations, with concentrations ranging from <16.0 mg/kg to 160 mg/kg and the release footprint was horizontally defined.

Additional Soil Assessment and Re-Evaluation

Borehole Installation and Sampling

Due to recent heavy rains, Tetra Tech personnel returned to the site between June 1-12, 2019 to install boreholes at the site. The additional assessment was performed in order to re-evaluate the subsurface soils to determine if the heavy rains affected the chlorides distribution or concentrations in the subsurface soils.

A total of twenty-four (24) boreholes (BH-1 through BH-24) were installed in the release footprint to total depths ranging from 0-1' to 40.0' below surface. The soil samples were collected and submitted to the laboratory for chloride by EPA method 300.0. The drilling logs are included in Appendix C. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix D. The sampling results are summarized in Table 2. The sample locations are shown on **Figure 4 and 6**.

North and South Draw Areas

As shown in Figure 4, a total of seven (7) boreholes (BH-12, BH-13, BH-17, BH-18, BH-19, BH-20, and BH-24) were installed along the north draw area and eight (8) boreholes (BH-5, BH-6, BH-7, BH-8, BH-9, BH-10, BH-11, and BH-22) were installed along the south draw area. A chloride concentration distribution Cross-Section (A-A') of these areas are shown on **Figure 7A.**

The north draw area shows the heaviest chloride load, with concentrations exceeding 5,000 mg/kg, in the areas of BH-12, BH-13, BH-17, BH-18, BH-19, and BH-20 in the subsurface soils at depths ranging between 4.0' and 12.0' below surface. However, the areas of BH-12 and BH-13 showed chloride concentrations below 600 mg/kg in the shallow soils from surface to 3.0'-4.0' below surface before increasing with depth to chloride highs of 9,800 mg/kg at 5.0' and 8,660 mg/kg at 6.0' below surface, respectively. The area of BH-24 did not show any chloride concentrations above the RRALs. All of the boreholes in this north draw area were vertically defined to below 600 mg/kg at depths ranging from 9.0' to 35.0' below surface.

The south draw area showed the heaviest chloride loads, with concentrations above 5,000 mg/kg, in the areas of BH-5, BH-6, BH-8, BH-9, and BH-10 in the subsurface soils at depths ranging from surface to 12.0' below surface. The areas of BH-7, BH-8, BH-9, BH-10, and BH-11 did not show a significant chloride impact in the shallow soil from approximately 3'.0 to 4.0' below surface before increasing with depth. The area of BH-22 did not show any elevated chloride concentrations above the RRALs. All of the boreholes in the south area were vertically defined to below 600 mg/kg at depths ranging from 6.0' to 25.0' below surface

Pad Area

A total of five (5) boreholes (BH-1, BH-2, BH-3, BH-4, and BH-23) were installed on the pad area. A chloride concentration distribution Cross-Section (B-B') of these areas is shown on **Figure 8A.**

Referring to Figure 8A, the heaviest chloride loads, with chloride concentrations exceeding 5,000 mg/kg, are in the shallow soils in the areas of BH-2, BH-3, and BH-23 at depths ranging from surface to 3.0' below surface. The areas of BH-1 and BH-4 showed chloride highs of 1,620 mg/kg at 4.0' and 3,280 mg/kg at 0-1', respectively, before declining with depth to below the RRALs at 5.0' below surface. All boreholes were vertically defined to below 600 mg/kg at depths ranging from 4.0' and 8.0' below surface.

South Pad Area/Pasture

A total of four (4) boreholes (BH-14, BH-15, BH-16, and BH-21) were installed in the south pad/pasture area. A chloride concentration distribution Cross-Section (C-C') of these areas is also shown on **Figure 8A.**

Referring to Figure 8A, the heaviest chloride loads, with concentrations exceeding 5,000 mg/kg, are in the area of BH-21 to a depth of 20.0' below surface. Upon further review, the historical aerial photographs appear to show a closured reserve pit in the area. The area of BH-14 showed a chloride high of 4,320 mg/kg at surface and was vertically defined to below 600 mg/kg at 8.0' below surface. The areas of BH-14 and BH-16 did not show any elevated chloride concentrations above the RRALs.

Proposed Work Plan

North and South Draw Areas

In the north draw area, COG proposes to excavate the areas as shown on **Figures 7B and 9A.** To remove some of elevated chlorides, the areas of boreholes (BH-12, BH-13 and, BH-17) will be excavated to a depth of approximately 7.0'-8.0' below surface and 4.0' in the areas of boreholes (BH-18, BH-19, and BH-20). Once excavated to the appropriate depth, the north area will be capped with a 20-mil liner and backfilled with clean soil. All of the material will be hauled to proper disposal.

In the south draw area, COG proposes to excavate the areas as shown on **Figures 7B and 9A**. The areas of boreholes (BH-5 and BH-6) will be excavated to an approximate depth of 7.0'-8.0' below surface and transported to proper disposal. In addition, the areas of boreholes (BH-7, BH-8, BH-9, BH-10, BH-11, and BH-12) will be excavated to a depth of approximately 4.0' below surface. The south draw area will be capped with a 20-mil liner at 4.0' below surface.

South Draw Area - Stockpile Sampling and Evaluation

As shown in **Figure 7B**, the top 4.0' of material did not show a significant chloride impact to the shallow soils in the areas of boreholes (BH-7, BH-8, BH-9, BH-10, BH-11, and BH-12). This area will be excavated to a depth of approximately 4.0' below surface. The excavated material will be segregated into approximately 50-75 cubic yard stockpiles and sampled for chloride analysis evaluation. Based on the sampling results, the stockpile material will be placed back into the excavated areas, if chloride concentrations are below 600 mg/kg. If the material exceeds 600 mg/kg, the excavated soil will be transported to proper disposal and the excavation will be backfilled with clean soil.

Pad Area

Based on the laboratory results, COG proposes to excavate the areas as shown on the on **Figure 8B and 9B**. The areas of BH-1, BH-2, BH-4, and BH-23 will be excavated to a depth of 1.0' below surface. The area of BH-3 will be excavated to a depth of 4.0' below surface. The excavated areas will be backfilled with clean soil. All of the material will be hauled to proper disposal.

South Pad Area/Pasture

In the south pad area, COG proposes to excavate the areas as shown on **Figure 8B and 9B**. The area of BH-21, which appears to be in the area of a closed reserve pit, will be excavated to a depth of 4.0' below surface and capped with a 20-mil liner to prevent further vertical migration of the deeper impacts. The area of BH-15 will be excavated to a depth of 4.0' below surface. The excavated areas will be backfilled with clean soil. All of the material will be hauled to proper disposal.

Liner Variance and Alternative Sampling Plan

Per rule 19.15.29.14, COG requests a variance to install a 20-mil liner at 4.0' in the closed reserve pit for the area of BH-21 and in the North and South Draw areas (BH-5, BH-6, BH-7, BH-8, BH-9, BH-11, BH-12, BH-13, and BH-17, BH-18, BH-19, and BH-20) to prevent vertical migration of the deeper chloride concentrations detected. Composite sidewall samples will be collected every 2,500 square feet (50' x 50' areas) in the North and South Draw areas. In addition, composite sidewall and bottom hole samples will be collected every 900 square feet (30' x 30') on the Pad and South Pad/Pasture areas. All of the composite samples will be analyzed for chlorides by EPA method 300.0.

An active Plains Pipeline (buried line) is located along the North and South Draw release areas. For proper capping of the impacted areas, the 20-mil liner will be placed underneath the Plains Pipeline. The location of the Plains Pipeline is shown on **Figure 4 and 9A**.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. Also, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safety concerns for onsite personnel. As such, COG will excavate the impacted soils to the maximum extent practicable.

Once the excavation is complete, the areas will be backfilled with clean material to surface grade. COG estimates approximately 27,000 cubic yards will be excavated, and the remediation to be implemented 90 days after the work plan is approved.

Conclusion

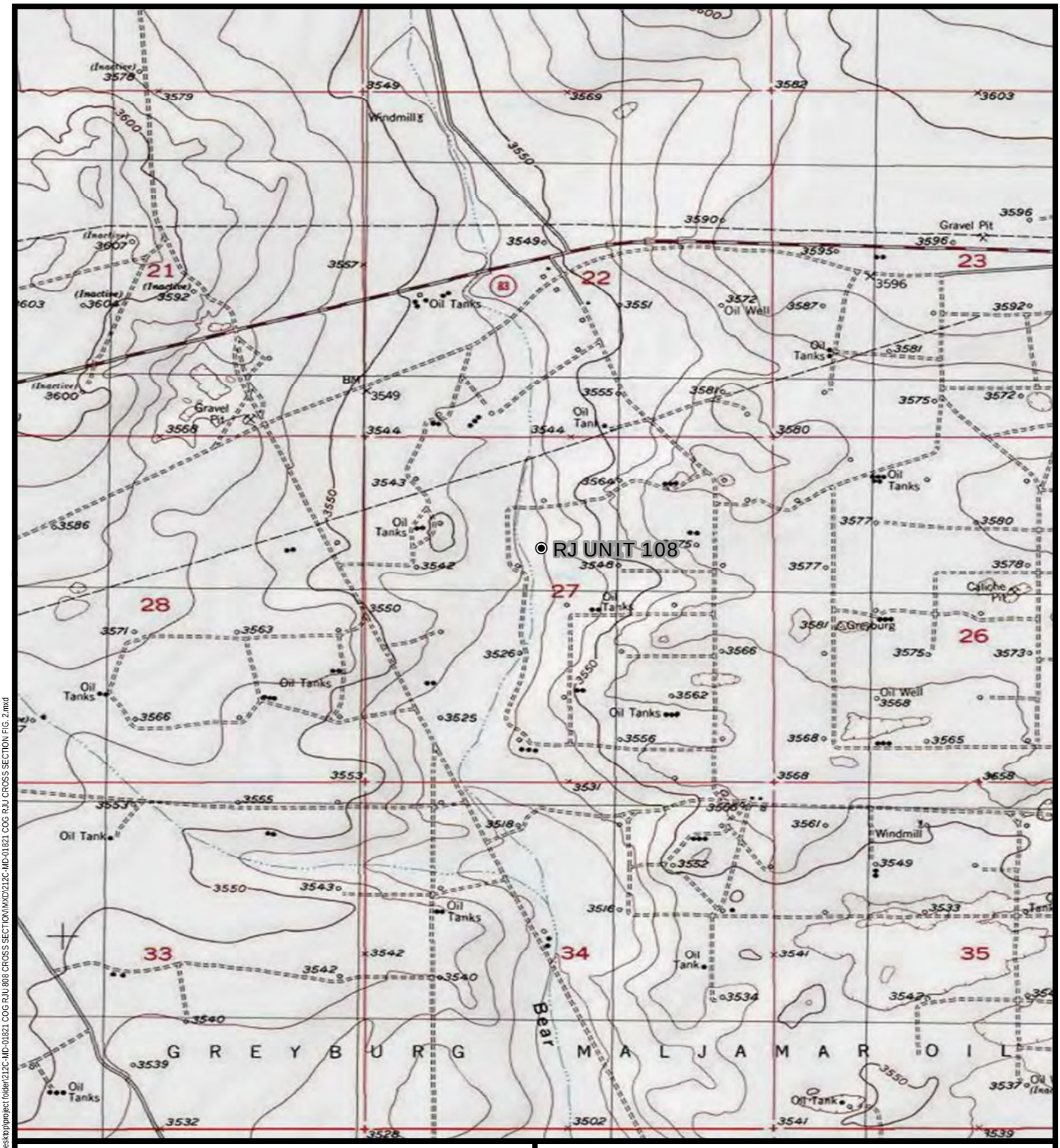
Once the remediation activities have been completed, a final report will be submitted. If you have any questions or comments concerning the assessment or remediation activities for this site, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Clair Gonzales, P.G.
Project Manager

cc:
Ike Tavarez - COG

Figures



SITE LOCATION

N
W E
S

0 1,000 2,000

Approximate Scale in Feet

STATE LOCATOR MAP

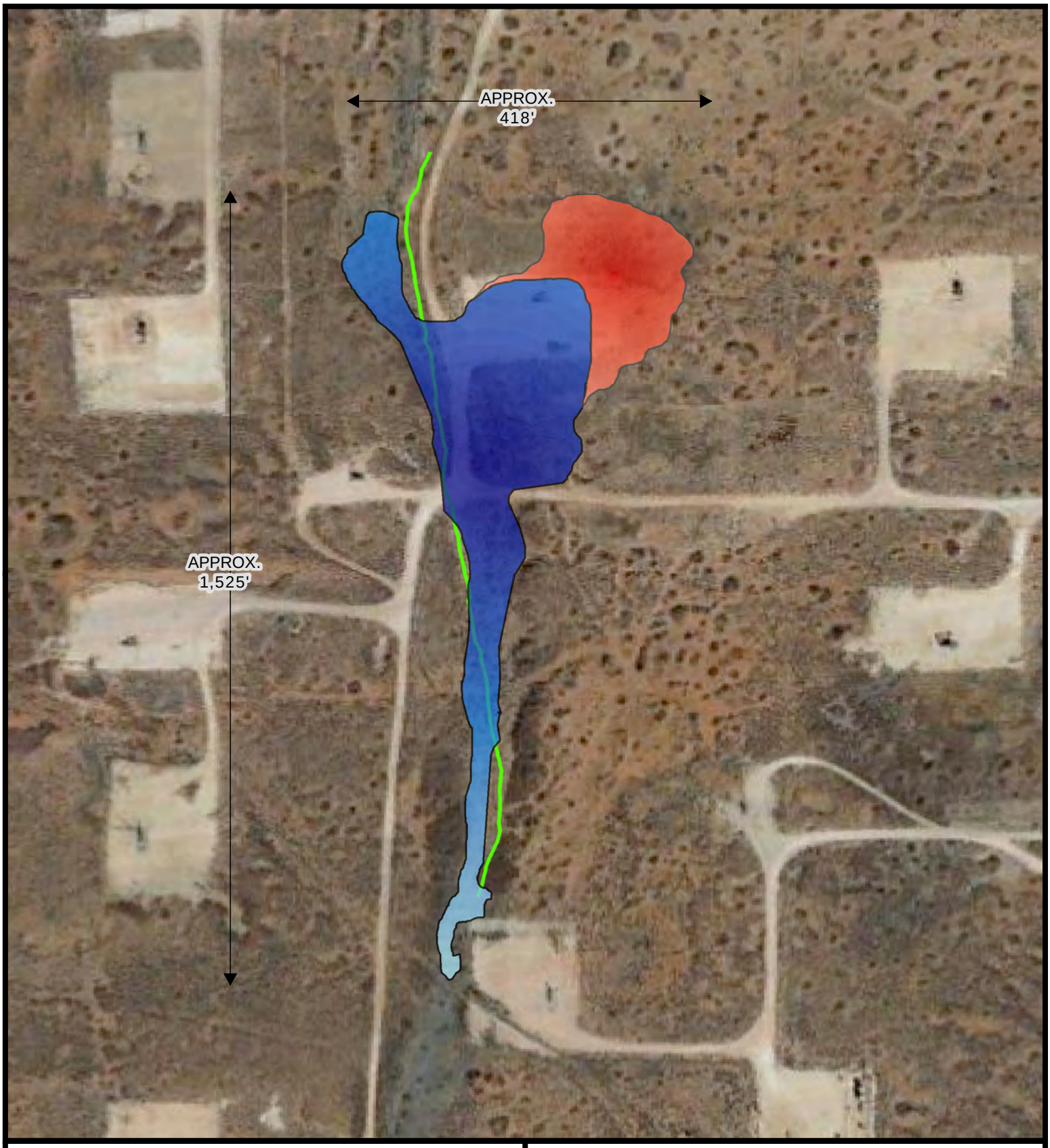
TOPOGRAPHIC MAP
RJ UNIT 108
PROPERTY LOCATED AT32.808046°,-104.063730°
EDDY COUNTY, NEW MEXICO

CONCHO

Project #:
212C-HN-01821

FIGURE
2

Date: 7/24/2019 Document Path: C:\Users\MISTI.MORGAN\Desktop\project folder\212C-MD-01821 COG RJU 808 CROSS SECTION\MXD\212C-MD-01821 COG RJU CROSS SECTION FIG. 2.mxd



PLAINS PIPELINE

AFFECTED SPILL AREA

OVERSPRAY SPILL AREA

N

W E

S

0 125 250

Approximate Scale in Feet

Source: "New Mexico". 32°48'28.97"N, 104° 3'49.43"W. GOOGLE EARTH. December 2016. July 23,2019

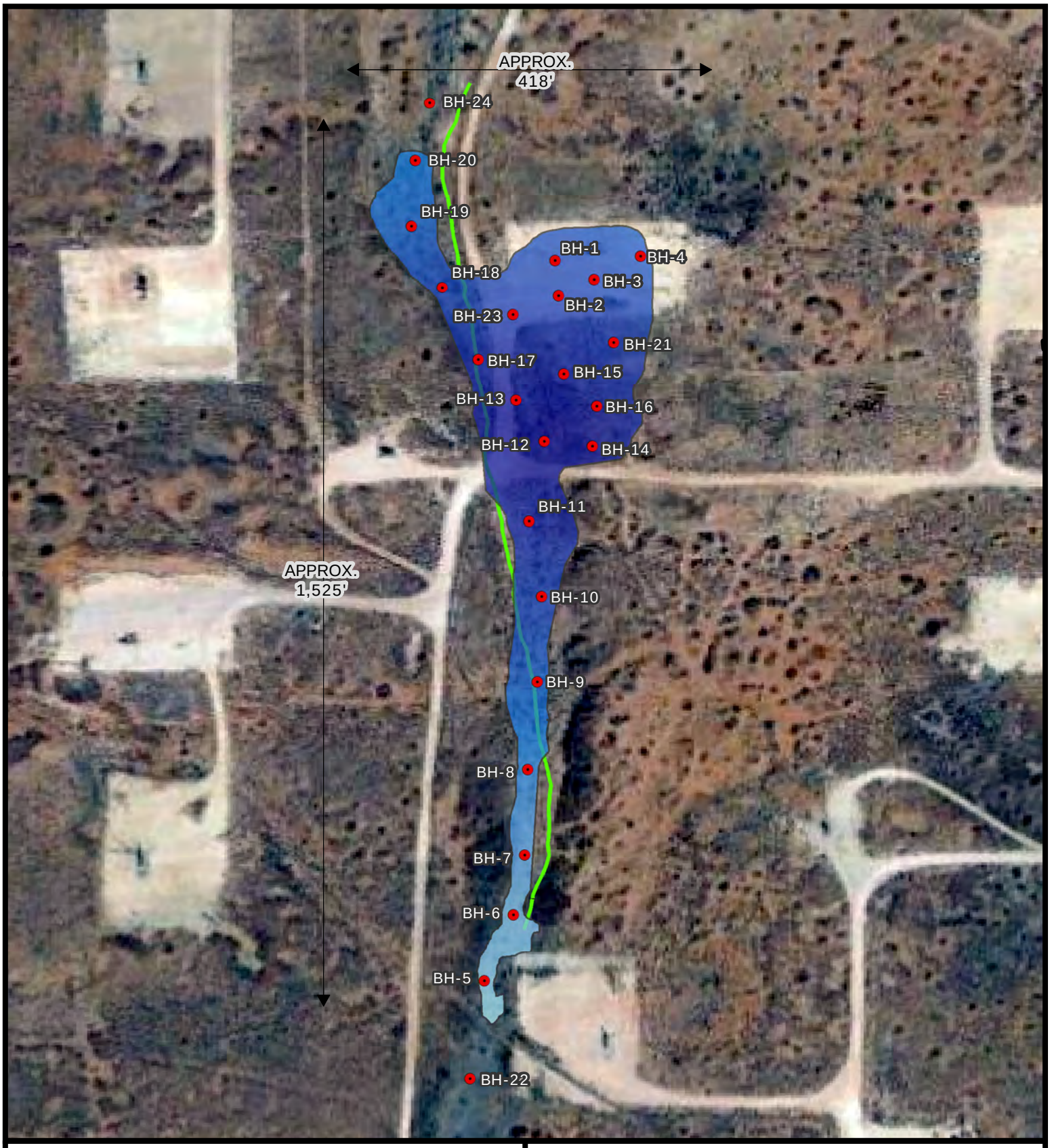
SITE MAP
RJ UNIT 108
PROPERTY LOCATED AT32.808046°,-104.063730°
EDDY COUNTY, NEW MEXICO

CONCHO

Project #:
212C-MD-01821

FIGURE
3

Date: 8/22/2019 Document Path: H:\GIS\CONCHO RESOURCES - COG\212C-MD-01821 COG RJU 8\08 CROSS SECTION\MXD\212C-MD-01821 COG RJU CROSS SECTION FIG. 3.mxd



BOREHOLE SAMPLE LOCATION

PLAINS PIPELINE

AFFECTED SPILL AREA

N
W E
S

0 125 250

Approximate Scale in Feet

Source: "New Mexico". 32°48'28.97"N, 104° 3'49.43"W. GOOGLE EARTH. December 2016. July 23,2019

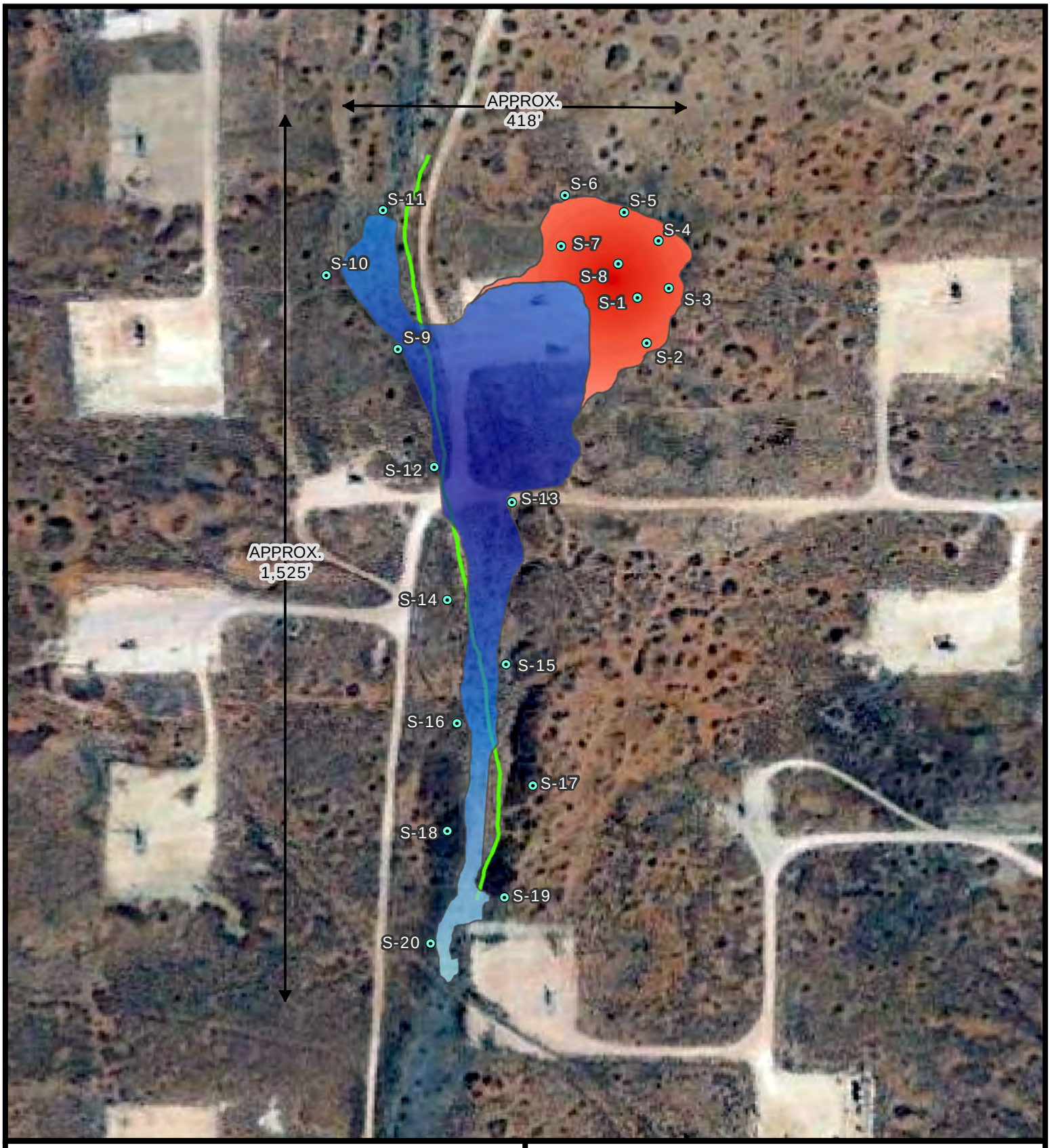
SPILL ASSESSMENT MAP - BOREHOLE LOCATIONS
RJ UNIT 108
PROPERTY LOCATED AT32.808046°,-104.063730°
EDDY COUNTY, NEW MEXICO

CONCHO

Project #:
212C-MD-01821

FIGURE
4

Date: 8/22/2019 Document Path: H:\GIS\CONCHO RESOURCES - COG\212C-MD-01821 COG RJU 8\08 CROSS SECTION\MXD\212C-MD-01821 COG RJU CROSS SECTION FIG. 4.mxd



HORIZONTAL SAMPLE LOCATIONS

PLAINS PIPELINE

OVERSPRAY AFFECTED AREA

AFFECTED SPILL AREA

N

W E

S

0 125 250

Approximate Scale in Feet

Source: "New Mexico". 32°48'28.97"N, 104° 3'49.43"W. GOOGLE EARTH. December 2016. July 23,2019

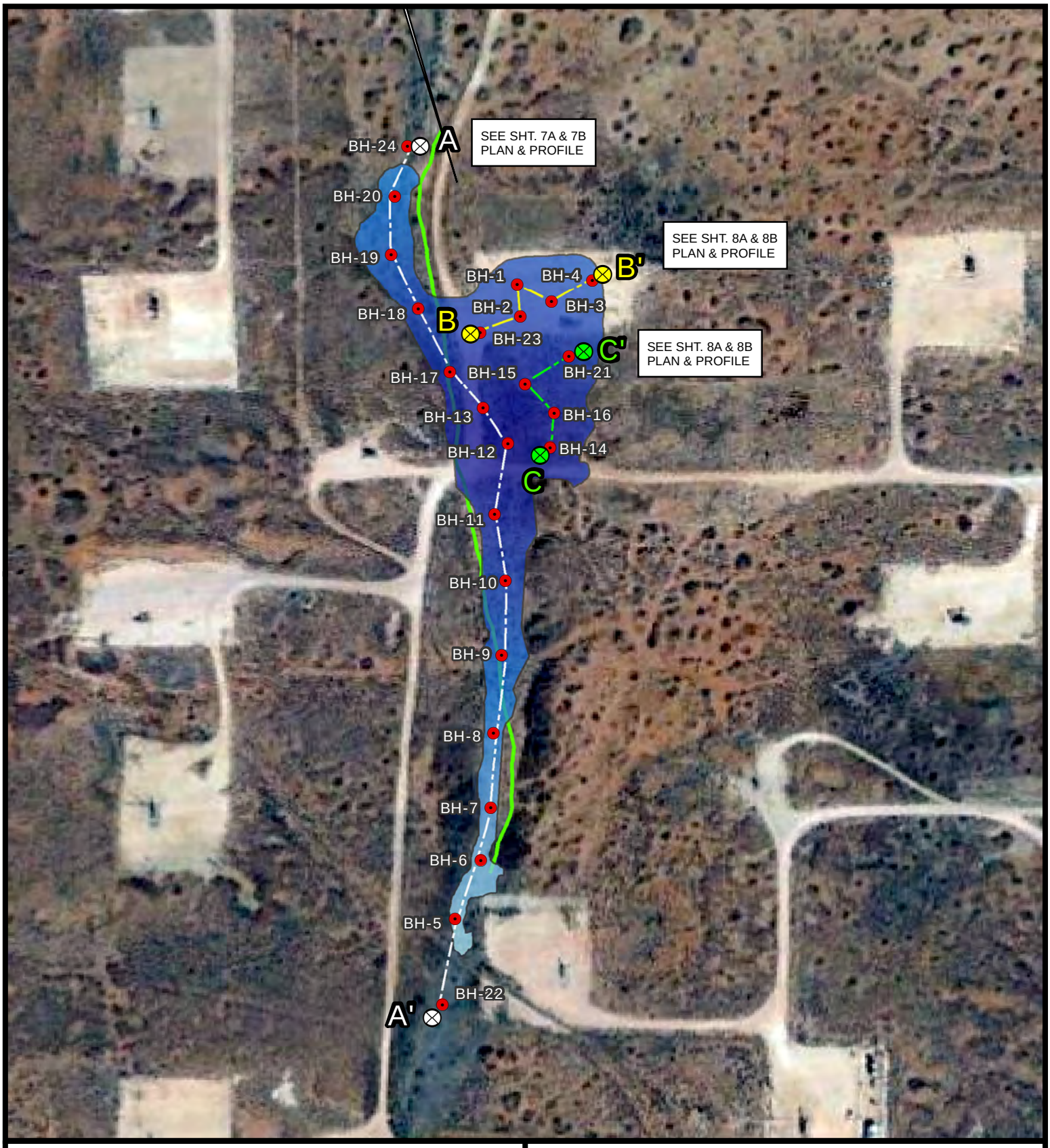
SPILL ASSESSMENT MAP-HORIZONTAL SAMPLE LOCATIONS
RJ UNIT 108
PROPERTY LOCATED AT32.808046°,-104.063730°
EDDY COUNTY, NEW MEXICO

CONCHO

Project #:
212C-MD-01821

FIGURE
5

Date: 8/22/2019 Document Path: H:\GIS\CONCHO RESOURCES - COG\212C-MD-01821 COG RJU 8\08 CROSS SECTION\MXD\212C-MD-01821 COG RJU CROSS SECTION FIG. 5.mxd



BOREHOLE SAMPLE LOCATIONS

DENOTES CROSS SECTION LINE

PLAINS PIPELINE

AFFECTED SPILL AREA

N
W
E
S

0 125 250

Approximate Scale in Feet

Source: "New Mexico". 32°48'28.97"N, 104° 3'49.43"W. GOOGLE EARTH. December 2016. July 23,2019

SITE MAP- BOREHOLE LOCATIONS A-A', B-B' & C-C'
RJ UNIT 108
PROPERTY LOCATED AT32.808046°,-104.063730°
EDDY COUNTY, NEW MEXICO

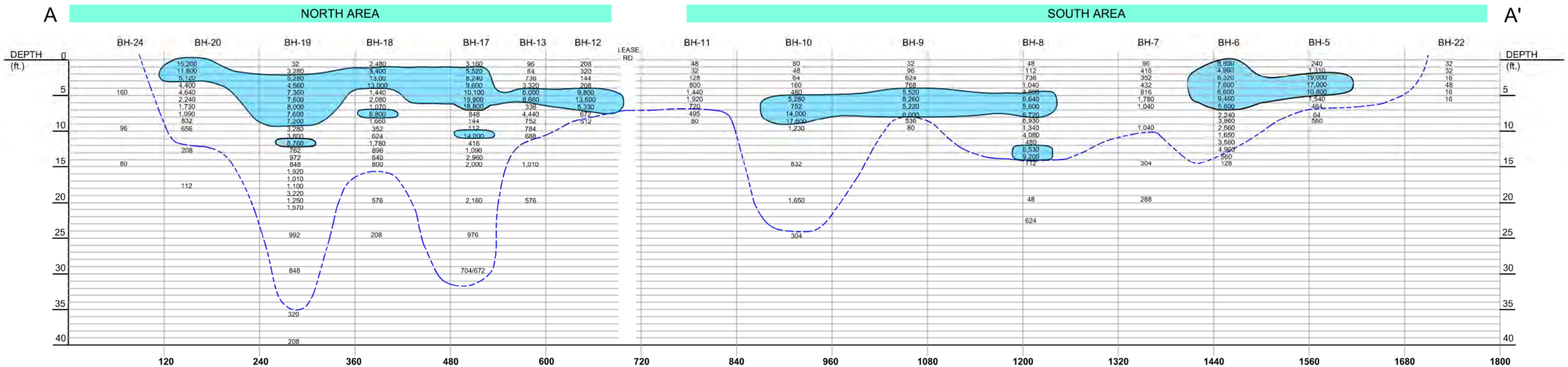
CONCHO

Project #:
212C-MD-01821

FIGURE
6

Date: 8/22/2019 Document Path: H:\GIS\CONCHO RESOURCES - COG\212C-MD-01821 COG RJU 8\08 CROSS SECTION\MXD\212C-MD-01821 COG RJU CROSS SECTION FIG. 5a.mxd

CROSS SECTION
A-A'



HORIZ. SCALE 1"=120'

LEGEND

>5000 PPM CHLORIDE

>600 PPM CHLORIDE

NOTES:

TETRA TECH
901 W. Wall St. Ste. 100,
Midland, TX 79701
(432) 682-4559

CONCHO

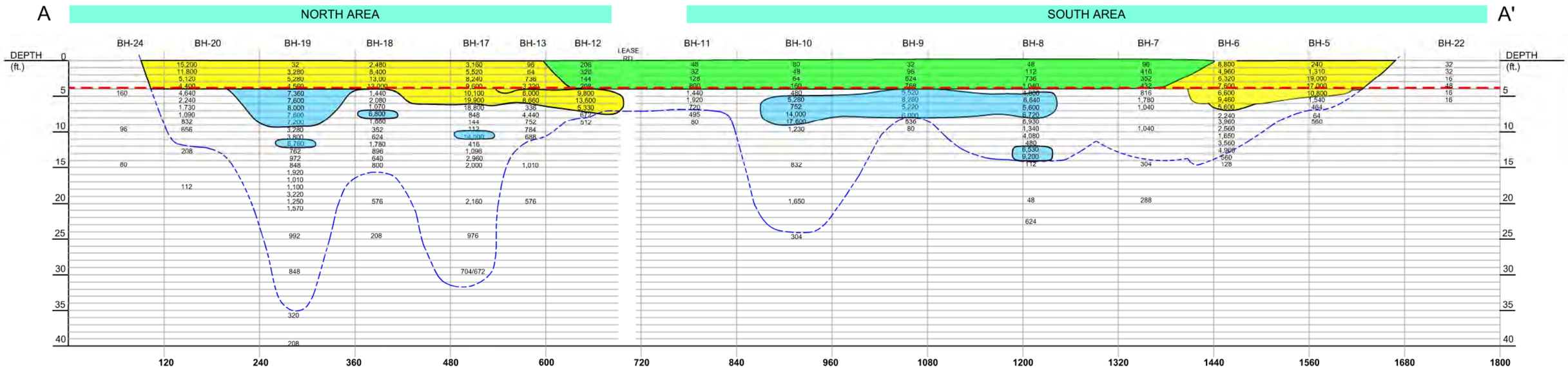
NORTH

0 40 120ft

FIGURE 7A
CROSS SECTION A-A'
CHLORIDE CONCENTRATION DISTRIBUTION(mg/kg)
RJ UNIT 108
PROPERTY LOCATED AT 32.808046°,-104.063730°
EDDY COUNTY, NEW MEXICO

Project: 212C-MD-01821
Date: 8/20/2019
File: FIGURE 7A

CROSS SECTION
A-A'



HORIZ. SCALE 1"=120'

LEGEND

- PROPOSED EXCAVATION
- PROPOSED EXCAVATION / SAMPLE / PLACE MATERIAL BACK INTO EXCAVATED AREA
- >5000 PPM CHLORIDE
- >600 PPM CHLORIDE
- LINER

NOTES:

TETRA TECH
901 W. Wall St. Ste. 100,
Midland, TX 79701
(432) 682-4559

CONCHO

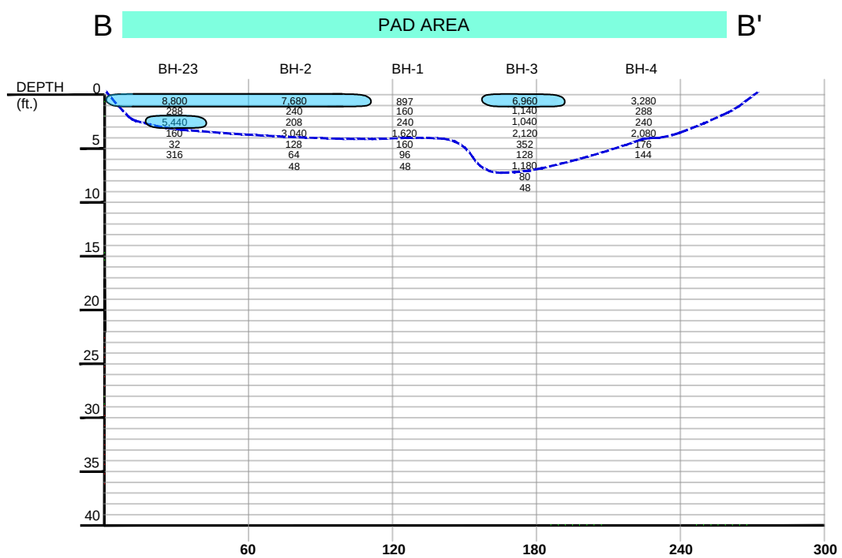
NORTH

0 40 120ft

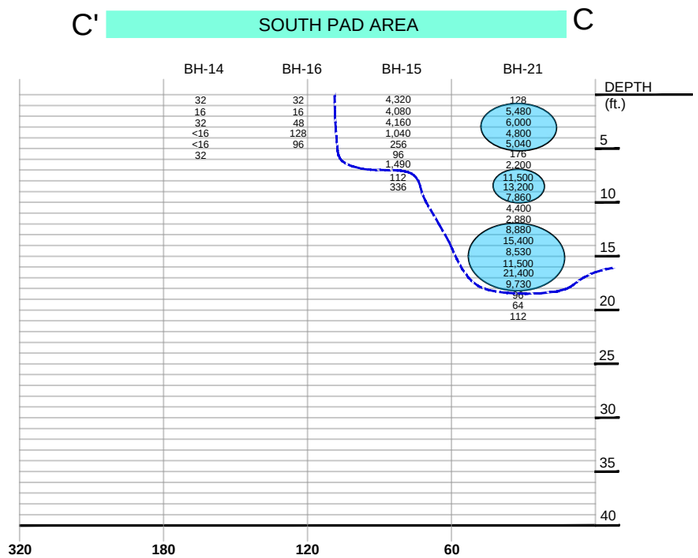
FIGURE 7B
CROSS SECTION A-A'
PROPOSED EXCAVATION MAP
RJ UNIT 108
PROPERTY LOCATED AT 32.808046°,-104.063730°
EDDY COUNTY, NEW MEXICO

Project: 212C-MD-01821
Date: 8/20/2019
File: FIGURE 7B

CROSS SECTION
B-B'



CROSS SECTION
C-C'



HORIZ. SCALE 1"=60'

LEGEND

>5000 PPM CHLORIDE
>600 PPM CHLORIDE

NOTES:

TETRA TECH
901 W. Wall St. Ste. 100,
Midland, TX 79701
(432) 682-4559

CONCHO

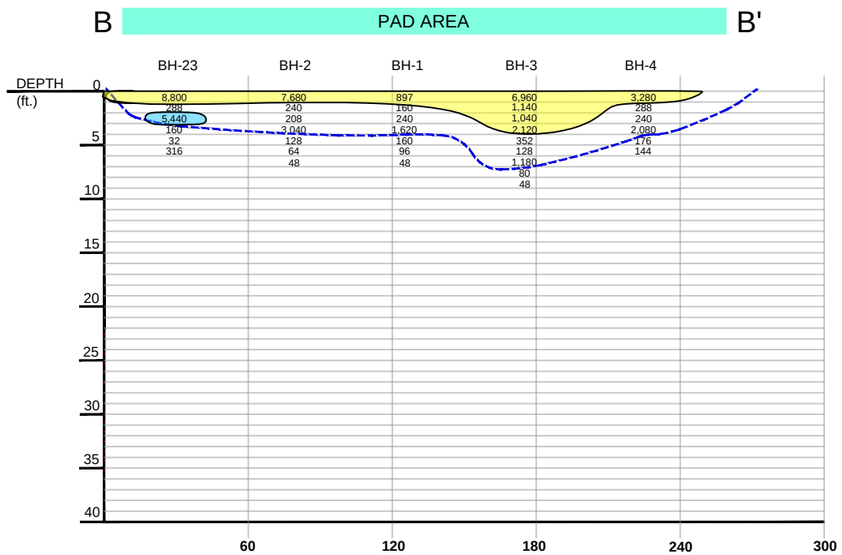
NORTH

0 20 60ft

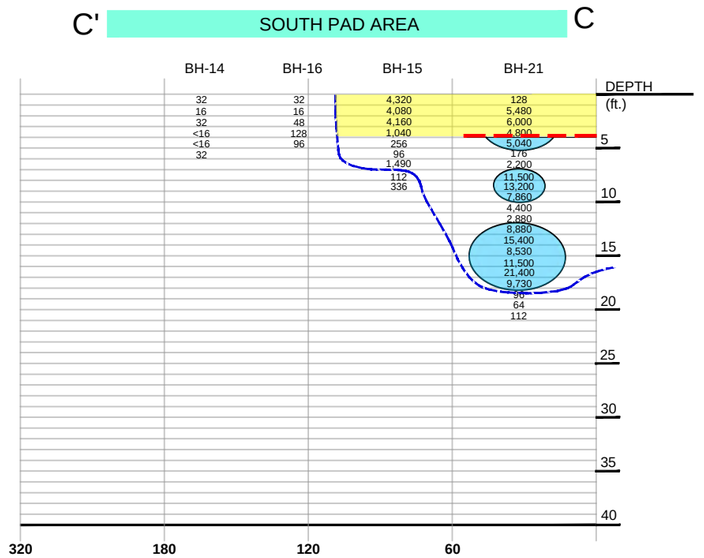
FIGURE 8A
CROSS SECTION B-B' & C-C'
CHLORIDE CONCENTRATION DISTRIBUTION(mg/kg)
RJ UNIT 108
PROPERTY LOCATED AT 32.808046°,-104.063730°
EDDY COUNTY, NEW MEXICO

Project: 212C-MD-01821
Date: 8/19/2019
File: FIGURE 5B

CROSS SECTION
B-B'



CROSS SECTION
C-C'



HORIZ. SCALE 1"=60'

LEGEND

- PROPOSED EXCAVATION
- >5000 PPM CHLORIDE
- >600 PPM CHLORIDE
- LINER

NOTES:

TETRA TECH
901 W. Wall St. Ste. 100,
Midland, TX 79701
(432) 682-4559

CONCHO

NORTH

0 20 60ft

FIGURE 8B

CROSS SECTION B-B' & C-C'
PROPOSED EXCAVATION MAP
RJ UNIT 108
PROPERTY LOCATED AT 32.808046°,-104.063730°
EDDY COUNTY, NEW MEXICO

Project: 212C-MD-01821
Date: 8/19/2019
File: FIGURE 8B

LEGEND

- BOREHOLE SAMPLE LOCATION
- PLAINS PIPELINE
- 4.0' PROPOSED EXCAVATION
- 7.0'-8.0' PROPOSED EXCAVATION
- LINER

NOTES:

TETRA TECH
901 W. Wall St. Ste. 100,
Midland, TX 79701
(432) 682-4559

CONCHO

NORTH

0 40 120ft

FIGURE 9A

PROPOSED EXCAVATION PASTURE MAP
RJ UNIT 108
PROPERTY LOCATED AT 32.808046°,-104.063730°
EDDY COUNTY, NEW MEXICO

Project: 212C-MD-01821
Date: 8/22/2019
File: FIGURE 7A

CROSS SECTION B-B'

PAD AREA

B

B'

BH-1

BH-2

BH-3

BH-4

BH-23

C

BH-21

BH-15

BH-16

BH-14

C'

CROSS SECTION C-C'

SOUTH PAD AREA

POSSIBLE RESERVE PIT

LEASE ROAD

LEASE ROAD

LEGEND

- BOREHOLE SAMPLE LOCATION
- PLAINS PIPELINE
- 1'-0' PROPOSED EXCAVATION
- 4.0' PROPOSED EXCAVATION
- LINER

NOTES:

TETRA TECH
901 W. Wall St. Ste. 100,
Midland, TX 79701
(432) 682-4559

CONCHO

NORTH

0 20 60ft

FIGURE 9B

PROPOSED EXCAVATION PAD & SOUTH PAD MAP
RJ UNIT 108
PROPERTY LOCATED AT 32.808046°,-104.063730°
EDDY COUNTY, NEW MEXICO

Project: 212C-MD-01821
Date: 8/20/2019
File: FIGURE 7B

Tables

COG Operating
RJU #108

Sample ID	Sample Date	Depth (BGS)	BTEX mg/kg	Benzene mg/kg	GRO mg/kg	DRO mg/kg	MRO mg/kg	Total TPH mg/kg	Cl mg/kg
NMOCD RRAL's for Site Rankings 20			50 mg/kg	10 mg/kg	100 mg/kg			100 mg/kg	600 mg/kg
Pad Area									
BH-1	5/9/2019	0-1	ND	ND	ND	ND	ND	ND	**12000**
		2	ND	ND	ND	ND	ND	ND	260
BH-2	5/9/2019	0-1	ND	ND	ND	ND	ND	ND	**1900**
		2	ND	ND	ND	ND	ND	ND	160
BH-3	5/9/2019	0-1	ND	ND	ND	ND	ND	ND	**7400**
		2	ND	ND	ND	ND	ND	ND	**920**
		3							**650**
		4							**1800**
		6							160
		8							170
		10							130
BH-4	5/9/2019	0-1	ND	ND	ND	ND	ND	ND	**1400**
		2	ND	ND	ND	ND	ND	ND	170
South Draw Area									
BH-5	5/9/2019	0-1	ND	ND	ND	ND	ND	ND	**26000**
		2	ND	ND	ND	ND	ND	ND	**9700**
		3							**4200**
		4							**3200**
		6							ND
BH-6	5/9/2019	0-1	ND	ND	ND	ND	ND	ND	**40000**
		2	ND	ND	ND	ND	ND	ND	**7700**
		3							**3000**
		4							**12000**
		6							**2100**
		8							**7500**
		10							110
BH-7	5/9/2019	0-1	ND	ND	ND	ND	ND	ND	**23000**
		2							**18000**
		3							**11000**
		4							**7000**
		6							280
BH-8	5/9/2019	0-1	ND	ND	ND	ND	ND	ND	**22000**
		2	ND	ND	ND	ND	ND	ND	**16000**
		3							**5300**
		4							**33000**
		6							ND
BH-9	5/9/2019	0-1	ND	ND	ND	ND	ND	ND	**33000**
		2	ND	ND	ND	ND	ND	ND	**8800**
		3							**4900**
		4							**13000**
		6							180
BH-10	5/9/2019	0-1	ND	ND	ND	ND	ND	ND	**14000**
		2	ND	ND	ND	ND	ND	ND	**4600**
		3							**6300**
		4							**10000**
		6							230
BH-11	5/9/2019	0-1	ND	ND	ND	ND	ND	ND	**17000**
		2	ND	ND	ND	ND	ND	ND	**10000**
		3							**12000**
		4							**23000**
		8							**20000**
		10							ND

COG Operating
RJU #108

Sample ID	Sample Date	Depth (BGS)	BTEX mg/kg	Benzene mg/kg	GRO mg/kg	DRO mg/kg	MRO mg/kg	Total TPH mg/kg	Cl mg/kg
NMOCD RRAL's for Site Rankings 20			50 mg/kg	10 mg/kg	100 mg/kg			100 mg/kg	600 mg/kg
South of Pad - Pasture Area									
BH-14	5/10/2019	0-1	ND	ND	ND	ND	ND	ND	**17000**
		2	ND	ND	ND	ND	ND	ND	**13000**
		3							**13000**
		4							**28000**
		6							**17000**
		8							**22000**
		10							**20000**
BH-15	5/10/2019	0-1	ND	ND	ND	ND	ND	ND	**15000**
		2	ND	ND	ND	ND	ND	ND	**3100**
		3							**6400**
		4							**3200**
		6							ND
BH-16	5/10/2019	0-1	ND	ND	ND	ND	ND	ND	1100
		2	ND	ND	ND	ND	ND	ND	ND
North Draw Area									
BH-12	5/10/2019	0-1	ND	ND	ND	ND	ND	ND	**27000**
		2	ND	ND	ND	ND	ND	ND	**9400**
		3							**12000**
		4							**14000**
		6							**21000**
		8							**13000**
		10							**4800**
BH-13	5/10/2019	0-1	ND	ND	ND	ND	ND	ND	**22000**
		2	ND	ND	ND	69	470	539	**11000**
		3							**12000**
		4							**3800**
		6							ND
BH-17	5/10/2019	0-1	ND	ND	ND	ND	ND	ND	**24000**
		2	ND	ND	ND	ND	ND	ND	**18000**
		3							**9700**
		6							**33000**
		8							**74000**
		10							**6000**
BH-18	5/10/2019	0-1	ND	ND	ND	ND	ND	ND	**42000**
		2	ND	ND	ND	9.5	ND	9.5	**15000**
		3							**1800**
		4							**2200**
		6							310
BH-19	5/10/2019	0-1	ND	ND	ND	ND	ND	ND	**12000**
		2	ND	ND	ND	ND	ND	ND	**22000**
		4							**40000**
		6							**1500**
BH-20	5/10/2019	0-1	ND	ND	ND	ND	ND	ND	**15000**
		2	ND	ND	ND	ND	ND	ND	**7700**
		3							**970**
		4							**21000**
		6							**14000**
		8							560
		10							**730**
		12							550

Table 2
COG
RJ Unit #108 (4.17.19)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	Total						
BH-1	7/1/2019	0-1	X		-	-	-	-	-	-	-	-	-	**896**
	"	2	X		-	-	-	-	-	-	-	-	-	160
	"	3	X		-	-	-	-	-	-	-	-	-	240
	"	4	X		-	-	-	-	-	-	-	-	-	**1,620**
	"	5	X		-	-	-	-	-	-	-	-	-	160
	"	6	X		-	-	-	-	-	-	-	-	-	96.0
	"	7	X		-	-	-	-	-	-	-	-	-	48.0
BH-2	7/1/2019	0-1	X		-	-	-	-	-	-	-	-	-	**7,680**
	"	2	X		-	-	-	-	-	-	-	-	-	240
	"	3	X		-	-	-	-	-	-	-	-	-	208
	"	4	X		-	-	-	-	-	-	-	-	-	**3,040**
	"	5	X		-	-	-	-	-	-	-	-	-	128
	"	6	X		-	-	-	-	-	-	-	-	-	64.0
	"	7	X		-	-	-	-	-	-	-	-	-	48.0
BH-3	7/1/2019	0-1	X		-	-	-	-	-	-	-	-	-	**6,960**
	"	2	X		-	-	-	-	-	-	-	-	-	**1,140**
	"	3	X		-	-	-	-	-	-	-	-	-	**1,040**
	"	4	X		-	-	-	-	-	-	-	-	-	**2,120**
	"	5	X		-	-	-	-	-	-	-	-	-	352
	"	6	X		-	-	-	-	-	-	-	-	-	128
	"	7	X		-	-	-	-	-	-	-	-	-	**1,180**
	"	8	X		-	-	-	-	-	-	-	-	-	80.0
	"	9	X		-	-	-	-	-	-	-	-	-	48.0
BH-4	7/1/2019	0-1	X		-	-	-	-	-	-	-	-	-	**3,280**
	"	2	X		-	-	-	-	-	-	-	-	-	288
	"	3	X		-	-	-	-	-	-	-	-	-	240
	"	4	X		-	-	-	-	-	-	-	-	-	**2,080**
	"	5	X		-	-	-	-	-	-	-	-	-	176
	"	6	X		-	-	-	-	-	-	-	-	-	144

Table 2
COG
RJ Unit #108 (4.17.19)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	Total						
BH-5	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	240
	"	2	X		-	-	-	-	-	-	-	-	-	**1,310**
	"	3	X		-	-	-	-	-	-	-	-	-	**19,000**
	"	4	X		-	-	-	-	-	-	-	-	-	**17,000**
	"	5	X		-	-	-	-	-	-	-	-	-	**10,800**
	"	6	X		-	-	-	-	-	-	-	-	-	**1,540**
	"	7	X		-	-	-	-	-	-	-	-	-	464
	"	8	X		-	-	-	-	-	-	-	-	-	64.0
	"	9	X		-	-	-	-	-	-	-	-	-	560
BH-6	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	**8,800**
	"	2	X		-	-	-	-	-	-	-	-	-	**4,960**
	"	3	X		-	-	-	-	-	-	-	-	-	**6,320**
	"	4	X		-	-	-	-	-	-	-	-	-	**7,600**
	"	5	X		-	-	-	-	-	-	-	-	-	**6,600**
	"	6	X		-	-	-	-	-	-	-	-	-	**9,460**
	"	7	X		-	-	-	-	-	-	-	-	-	**2,240**
	"	8	X		-	-	-	-	-	-	-	-	-	**3,960**
	"	9	X		-	-	-	-	-	-	-	-	-	**2,560**
	"	10	X		-	-	-	-	-	-	-	-	-	**1,650**
	"	11	X		-	-	-	-	-	-	-	-	-	**3,560**
	"	12	X		-	-	-	-	-	-	-	-	-	**4,960**
	"	13	X		-	-	-	-	-	-	-	-	-	560
	"	14	X		-	-	-	-	-	-	-	-	-	96.0
	"	15	X		-	-	-	-	-	-	-	-	-	128

Table 2
COG
RJ Unit #108 (4.17.19)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	Total						
BH-7	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	96.0
	"	2	X		-	-	-	-	-	-	-	-	-	416
	"	3	X		-	-	-	-	-	-	-	-	-	352
	"	4	X		-	-	-	-	-	-	-	-	-	432
	"	5	X		-	-	-	-	-	-	-	-	-	**816**
	"	6	X		-	-	-	-	-	-	-	-	-	**1,780**
	"	7	X		-	-	-	-	-	-	-	-	-	**1,040**
BH-7	7/10/2019	5	X		-	-	-	-	-	-	-	-	-	**5,680**
	"	10	X		-	-	-	-	-	-	-	-	-	400
	"	15	X		-	-	-	-	-	-	-	-	-	304
	"	20	X		-	-	-	-	-	-	-	-	-	288
BH-8	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	48.0
	"	2	X		-	-	-	-	-	-	-	-	-	112
	"	3	X		-	-	-	-	-	-	-	-	-	**736**
	"	4	X		-	-	-	-	-	-	-	-	-	**1,040**
	"	5	X		-	-	-	-	-	-	-	-	-	**4,800**
	"	6	X		-	-	-	-	-	-	-	-	-	**6,640**
	"	7	X		-	-	-	-	-	-	-	-	-	**5,600**
	"	8	X		-	-	-	-	-	-	-	-	-	**6,720**
	"	9	X		-	-	-	-	-	-	-	-	-	**6,930**
	"	10	X		-	-	-	-	-	-	-	-	-	**1,340**
	"	11	X		-	-	-	-	-	-	-	-	-	**4,080**
	"	12	X		-	-	-	-	-	-	-	-	-	480
	"	13	X		-	-	-	-	-	-	-	-	-	**6,530**
	"	14	X		-	-	-	-	-	-	-	-	-	**9,200**
BH-8	7/10/2019	10	X		-	-	-	-	-	-	-	-	-	**6,800**
	"	15	X		-	-	-	-	-	-	-	-	-	112
	"	20	X		-	-	-	-	-	-	-	-	-	48.0
	"	25	X		-	-	-	-	-	-	-	-	-	624

Table 2
COG
RJ Unit #108 (4.17.19)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	Total						
BH-9	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	32.0
	"	2	X		-	-	-	-	-	-	-	-	-	96.0
	"	3	X		-	-	-	-	-	-	-	-	-	**624**
	"	4	X		-	-	-	-	-	-	-	-	-	**768**
	"	5	X		-	-	-	-	-	-	-	-	-	**5,520**
	"	6	X		-	-	-	-	-	-	-	-	-	**8,260**
	"	7	X		-	-	-	-	-	-	-	-	-	**5,920**
	"	8	X		-	-	-	-	-	-	-	-	-	**6,000**
	"	9	X		-	-	-	-	-	-	-	-	-	336
	"	10	X		-	-	-	-	-	-	-	-	-	80.0
BH-10	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	80.0
	"	2	X		-	-	-	-	-	-	-	-	-	48.0
	"	3	X		-	-	-	-	-	-	-	-	-	64.0
	"	4	X		-	-	-	-	-	-	-	-	-	160
	"	5	X		-	-	-	-	-	-	-	-	-	480
	"	6	X		-	-	-	-	-	-	-	-	-	**5,280**
	"	7	X		-	-	-	-	-	-	-	-	-	**752**
	"	8	X		-	-	-	-	-	-	-	-	-	**14,000**
	"	9	X		-	-	-	-	-	-	-	-	-	**17,600**
BH-10	7/10/2019	5	X		-	-	-	-	-	-	-	-	-	**4,240**
	"	10	X		-	-	-	-	-	-	-	-	-	**1,230**
	"	15	X		-	-	-	-	-	-	-	-	-	**832**
	"	20	X		-	-	-	-	-	-	-	-	-	**1,650**
	"	25	X		-	-	-	-	-	-	-	-	-	304

Table 2
COG
RJ Unit #108 (4.17.19)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	Total						
BH-11	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	48.0
	"	2	X		-	-	-	-	-	-	-	-	-	32.0
	"	3	X		-	-	-	-	-	-	-	-	-	128
	"	4	X		-	-	-	-	-	-	-	-	-	**800**
	"	5	X		-	-	-	-	-	-	-	-	-	**1,440**
	"	6	X		-	-	-	-	-	-	-	-	-	**1,920**
	"	7	X		-	-	-	-	-	-	-	-	-	**720**
	"	8	X		-	-	-	-	-	-	-	-	-	496
	"	9	X		-	-	-	-	-	-	-	-	-	80.0
BH-12	7/1/2019	0-1	X		-	-	-	-	-	-	-	-	-	208
	"	2	X		-	-	-	-	-	-	-	-	-	320
	"	3	X		-	-	-	-	-	-	-	-	-	144
	"	4	X		-	-	-	-	-	-	-	-	-	208
	"	5	X		-	-	-	-	-	-	-	-	-	**9,800**
	"	6	X		-	-	-	-	-	-	-	-	-	**13,600**
	"	7	X		-	-	-	-	-	-	-	-	-	**5,330**
	"	8	X		-	-	-	-	-	-	-	-	-	**672**
	"	9	X		-	-	-	-	-	-	-	-	-	512
BH-13	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	96.0
	"	2	X		-	-	-	-	-	-	-	-	-	64.0
	"	3	X		-	-	-	-	-	-	-	-	-	736
	"	4	X		-	-	-	-	-	-	-	-	-	**3,320**
	"	5	X		-	-	-	-	-	-	-	-	-	**6,000**
	"	6	X		-	-	-	-	-	-	-	-	-	**8,660**
	"	7	X		-	-	-	-	-	-	-	-	-	336
	"	8	X		-	-	-	-	-	-	-	-	-	**4,400**
	"	9	X		-	-	-	-	-	-	-	-	-	**752**
	"	10	X		-	-	-	-	-	-	-	-	-	**784**
	"	11	X		-	-	-	-	-	-	-	-	-	**688**
BH-13	7/10/2019	10	X		-	-	-	-	-	-	-	-	-	320
	"	15	X		-	-	-	-	-	-	-	-	-	**1,010**
	"	20	X		-	-	-	-	-	-	-	-	-	576

Table 2
COG
RJ Unit #108 (4.17.19)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	Total						
BH-14	7/1/2019	0-1	X		-	-	-	-	-	-	-	-	-	32.0
	"	2	X		-	-	-	-	-	-	-	-	-	16.0
	"	3	X		-	-	-	-	-	-	-	-	-	32.0
	"	4	X		-	-	-	-	-	-	-	-	-	<16.0
	"	5	X		-	-	-	-	-	-	-	-	-	<16.0
	"	6	X		-	-	-	-	-	-	-	-	-	32.0
BH-14	7/11/2019	5	X		-	-	-	-	-	-	-	-	-	48.0
	"	10	X		-	-	-	-	-	-	-	-	-	48.0
	"	15	X		-	-	-	-	-	-	-	-	-	48.0
BH-15	7/1/2019	0-1	X		-	-	-	-	-	-	-	-	-	**4,320**
	"	2	X		-	-	-	-	-	-	-	-	-	**4,080**
	"	3	X		-	-	-	-	-	-	-	-	-	**4,160**
	"	4	X		-	-	-	-	-	-	-	-	-	**1,040**
	"	5	X		-	-	-	-	-	-	-	-	-	256
	"	6	X		-	-	-	-	-	-	-	-	-	96.0
	"	7	X		-	-	-	-	-	-	-	-	-	**1,490**
	"	8	X		-	-	-	-	-	-	-	-	-	112
	"	9	X		-	-	-	-	-	-	-	-	-	336
BH-16	7/1/2019	0-1	X		-	-	-	-	-	-	-	-	-	32.0
	"	2	X		-	-	-	-	-	-	-	-	-	16.0
	"	3	X		-	-	-	-	-	-	-	-	-	48.0
	"	4	X		-	-	-	-	-	-	-	-	-	128
	"	5	X		-	-	-	-	-	-	-	-	-	128
	"	6	X		-	-	-	-	-	-	-	-	-	96.0
BH-16	7/11/2019	5	X		-	-	-	-	-	-	-	-	-	64.0
	"	10	X		-	-	-	-	-	-	-	-	-	**3,920**
	"	15	X		-	-	-	-	-	-	-	-	-	496
	"	20	X		-	-	-	-	-	-	-	-	-	**2,200**
	"	25	X		-	-	-	-	-	-	-	-	-	592

Table 2
COG
RJ Unit #108 (4.17.19)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	Total						
BH-17	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	**3,160**
	"	2	X		-	-	-	-	-	-	-	-	-	**5,520**
	"	3	X		-	-	-	-	-	-	-	-	-	**8,240**
	"	4	X		-	-	-	-	-	-	-	-	-	**9,600**
	"	5	X		-	-	-	-	-	-	-	-	-	**10,100**
	"	6	X		-	-	-	-	-	-	-	-	-	**19,800**
	"	7	X		-	-	-	-	-	-	-	-	-	**18,800**
	"	8	X		-	-	-	-	-	-	-	-	-	**848**
	"	9	X		-	-	-	-	-	-	-	-	-	144
	"	10	X		-	-	-	-	-	-	-	-	-	112
	"	11	X		-	-	-	-	-	-	-	-	-	**14,000**
	"	12	X		-	-	-	-	-	-	-	-	-	416
	"	13	X		-	-	-	-	-	-	-	-	-	**1,090**
	"	14	X		-	-	-	-	-	-	-	-	-	**2,960**
BH-17	7/11/2019	10	X		-	-	-	-	-	-	-	-	-	**1,520**
	"	15	X		-	-	-	-	-	-	-	-	-	**2,000**
	"	20	X		-	-	-	-	-	-	-	-	-	**2,160**
	"	25	X		-	-	-	-	-	-	-	-	-	**976**
	"	30	X		-	-	-	-	-	-	-	-	-	**704**
		Re-run												**672**

Table 2
COG
RJ Unit #108 (4.17.19)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	Total						
BH-18	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	**2,480**
	"	2	X		-	-	-	-	-	-	-	-	-	**8,400**
	"	3	X		-	-	-	-	-	-	-	-	-	**13,000**
	"	4	X		-	-	-	-	-	-	-	-	-	**8,130**
	"	5	X		-	-	-	-	-	-	-	-	-	**1,440**
	"	6	X		-	-	-	-	-	-	-	-	-	**2,080**
	"	7	X		-	-	-	-	-	-	-	-	-	**1,070**
	"	8	X		-	-	-	-	-	-	-	-	-	**6,800**
	"	9	X		-	-	-	-	-	-	-	-	-	**1,360**
	"	10	X		-	-	-	-	-	-	-	-	-	352
	"	11	X		-	-	-	-	-	-	-	-	-	**624**
	"	12	X		-	-	-	-	-	-	-	-	-	**1,790**
	"	13	X		-	-	-	-	-	-	-	-	-	**896**
	"	14	X		-	-	-	-	-	-	-	-	-	**640**
	"	15	X		-	-	-	-	-	-	-	-	-	**800**
BH-18	7/11/2019	15	X		-	-	-	-	-	-	-	-	-	**960**
	"	20	X		-	-	-	-	-	-	-	-	-	576
	"	25	X		-	-	-	-	-	-	-	-	-	208

Table 2
COG
RJ Unit #108 (4.17.19)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	Total						
BH-19	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	32
	"	2	X		-	-	-	-	-	-	-	-	-	**3,280**
	"	3	X		-	-	-	-	-	-	-	-	-	**5,200**
	"	4	X		-	-	-	-	-	-	-	-	-	**4,560**
	"	5	X		-	-	-	-	-	-	-	-	-	**7,360**
	"	6	X		-	-	-	-	-	-	-	-	-	**7,600**
	"	7	X		-	-	-	-	-	-	-	-	-	**8,000**
	"	8	X		-	-	-	-	-	-	-	-	-	**7,600**
	"	9	X		-	-	-	-	-	-	-	-	-	**7,200**
	"	10	X		-	-	-	-	-	-	-	-	-	**3,280**
	"	11	X		-	-	-	-	-	-	-	-	-	**3,800**
	"	12	X		-	-	-	-	-	-	-	-	-	**6,260**
	"	13	X		-	-	-	-	-	-	-	-	-	**752**
	"	14	X		-	-	-	-	-	-	-	-	-	**976**
	"	15	X		-	-	-	-	-	-	-	-	-	**848**
	"	16	X		-	-	-	-	-	-	-	-	-	**1,920**
	"	17	X		-	-	-	-	-	-	-	-	-	**1,010**
	"	18	X		-	-	-	-	-	-	-	-	-	**1,100**
	"	19	X		-	-	-	-	-	-	-	-	-	**3,320**
	"	20	X		-	-	-	-	-	-	-	-	-	**1,250**
	"	21	X		-	-	-	-	-	-	-	-	-	**1,570**
BH-19	7/12/2019	20	X		-	-	-	-	-	-	-	-	-	**736**
	"	25	X		-	-	-	-	-	-	-	-	-	**992**
	"	30	X		-	-	-	-	-	-	-	-	-	**848**
	"	35	X		-	-	-	-	-	-	-	-	-	320
	"	40	X		-	-	-	-	-	-	-	-	-	208

Table 2
COG
RJ Unit #108 (4.17.19)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	Total						
BH-20	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	**15,200**
	"	2	X		-	-	-	-	-	-	-	-	-	**11,800**
	"	3	X		-	-	-	-	-	-	-	-	-	**5,120**
	"	4	X		-	-	-	-	-	-	-	-	-	**4,400**
	"	5	X		-	-	-	-	-	-	-	-	-	**4,640**
	"	6	X		-	-	-	-	-	-	-	-	-	**2,240**
	"	7	X		-	-	-	-	-	-	-	-	-	**1,730**
	"	8	X		-	-	-	-	-	-	-	-	-	**1,090**
	"	9	X		-	-	-	-	-	-	-	-	-	**832**
	"	10	X		-	-	-	-	-	-	-	-	-	**944**
	"	11	X		-	-	-	-	-	-	-	-	-	**736**
	"	12	X		-	-	-	-	-	-	-	-	-	**656**
BH-20	7/12/2019	10	X		-	-	-	-	-	-	-	-	-	**1,140**
	"	15	X		-	-	-	-	-	-	-	-	-	208
	"	20	X		-	-	-	-	-	-	-	-	-	112
BH-21	7/1/2019	0-1	X		-	-	-	-	-	-	-	-	-	**128**
	"	2	X		-	-	-	-	-	-	-	-	-	**5,840**
	"	3	X		-	-	-	-	-	-	-	-	-	**6,000**
	"	4	X		-	-	-	-	-	-	-	-	-	**4,800**
	"	5	X		-	-	-	-	-	-	-	-	-	**5,040**
	"	6	X		-	-	-	-	-	-	-	-	-	176
	"	7	X		-	-	-	-	-	-	-	-	-	**2,220**
	"	8	X		-	-	-	-	-	-	-	-	-	**11,500**
	"	9	X		-	-	-	-	-	-	-	-	-	**13,200**
	"	10	X		-	-	-	-	-	-	-	-	-	**7,860**
	"	11	X		-	-	-	-	-	-	-	-	-	**4,400**
	"	12	X		-	-	-	-	-	-	-	-	-	**2,880**
	"	13	X		-	-	-	-	-	-	-	-	-	**8,880**
	"	14	X		-	-	-	-	-	-	-	-	-	**15,400**
	"	15	X		-	-	-	-	-	-	-	-	-	**8,530**
	"	16	X		-	-	-	-	-	-	-	-	-	**11,500**
	"	17	X		-	-	-	-	-	-	-	-	-	**21,400**
	"	18	X		-	-	-	-	-	-	-	-	-	**9,730**
BH-21	7/10/2019	15	X		-	-	-	-	-	-	-	-	-	496
	"	20	X		-	-	-	-	-	-	-	-	-	96.0
	"	25	X		-	-	-	-	-	-	-	-	-	64.0
	"	30	X		-	-	-	-	-	-	-	-	-	112

Table 2
COG
RJ Unit #108 (4.17.19)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	Total						
BH-22	7/2/2019	0-1	X		-	-	-	-	-	-	-	-	-	32.0
	"	2	X		-	-	-	-	-	-	-	-	-	32.0
	"	3	X		-	-	-	-	-	-	-	-	-	16.0
	"	4	X		-	-	-	-	-	-	-	-	-	48.0
	"	5	X		-	-	-	-	-	-	-	-	-	16.0
	"	6	X		-	-	-	-	-	-	-	-	-	16.0
BH-23	7/1/2019	0-1	X		-	-	-	-	-	-	-	-	-	**8,800**
	"	2	X		-	-	-	-	-	-	-	-	-	288
	"	3	X		-	-	-	-	-	-	-	-	-	80.0
	"	4	X		-	-	-	-	-	-	-	-	-	**5,440**
	"	5	X		-	-	-	-	-	-	-	-	-	160
	"	6	X		-	-	-	-	-	-	-	-	-	32.0
	"	7	X		-	-	-	-	-	-	-	-	-	16.0
BH-24	7/12/2019	5	X		-	-	-	-	-	-	-	-	-	160
	"	10	X		-	-	-	-	-	-	-	-	-	96.0
	"	15	X		-	-	-	-	-	-	-	-	-	80.0

(-) Not Analyzed

Proposed Excavation Depths

Proposed Liner Depth

Photos

COG Operating LLC
RJ Unit 108
Eddy County, New Mexico

View South – Pad Area

View North – Pad Area

COG Operating LLC
RJ Unit 108
Eddy County, New Mexico

View South – South Pad Area

Looking South – South Pad Area

COG Operating LLC
RJ Unit 108
Eddy County, New Mexico

View South – South Pad Area

Looking North – South Pad Area

COG Operating LLC
RJ Unit 108
Eddy County, New Mexico

View South – North Pasture Area

View North – North Pasture Area

COG Operating LLC
RJ Unit 108
Eddy County, New Mexico

View North – North Pasture Area

View South – South Pasture Area

COG Operating LLC
RJ Unit 108
Eddy County, New Mexico

View South – South Pasture Area

View South – South Pasture Area

COG Operating LLC
RJ Unit 108
Eddy County, New Mexico

View North – South Pasture Area

View South – South Pasture Area

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NAB1913558566
District RP	2RP-5417
Facility ID	
Application ID	pAB1913557193

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Jennifer Knowlton	Contact Telephone	(575) 748-1570
Contact email	JKnowlton@concho.com	Incident # *(assigned by OCD)*	NAB1913558566
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.80802 Longitude -104.06369

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	RJ Unit #108	Site Type	Wellhead
Date Release Discovered	April 17, 2019	API# *(if applicable)*	30-015-31127

Unit Letter	Section	Township	Range	County
F	27	17S	29E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) >13,690 (unknown)	Volume Recovered (bbls) 13,690
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was caused by the fitting on the Braden head blowing out due to corrosion. A valve has been installed. The release was on location and in the pasture. A vacuum truck was dispatched to remove all freestanding fluids. Concho will evaluate the site to determine if we may commence remediation immediately or delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1913558566
District RP	2RP-5417
Facility ID	
Application ID	pAB1913557193

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? The volume released was greater than 25 barrels.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Immediate notice was given by DeAnn Grant via e-mail April 17, 2019 at 2:48 pm to Mike Bratcher and Crystal Weaver.

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

- ■ The source of the release has been stopped.
- ■ The impacted area has been secured to protect human health and the environment.
- ■ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ■ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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.

Printed Name: DeAnn Grant Title: HSE Administrative Assistant

Signature: DeAnn Grant Date: 4/22/2019

email: agrant@concho.com Telephone: (432) 253-4513

OCD Only

Received by: Date: 5/15/2019

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5417
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	76 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☐ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☐ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☐ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☐ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☐ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☐ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☐ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☐ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☑ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☑ Data table of soil contaminant concentration data
- ☑ Depth to water determination
- ☑ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☑ Boring or excavation logs
- ☑ Photographs including date and GIS information
- ☑ Topographic/Aerial maps
- ☑ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5417
Facility ID	
Application ID	

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.

Printed Name: Ike Tavarez Title: Senior HSE Supervisor

Signature:  Date: 9/17/19

email: itavarez@concho.com Telephone: 432-685-2573

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5417
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- ☑ Detailed description of proposed remediation technique
- ☑ Scaled sitemap with GPS coordinates showing delineation points
- ☑ Estimated volume of material to be remediated
- ☑ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☑ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☑ Extents of contamination must be fully delineated.

☑ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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.

Printed Name: Ike Tavarez Title: Senior HSE Supervisor

Signature:  Date: 9/17/19

email: itavarez@concho.com Telephone: 432-685-2573

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
RJ Unit #108
Eddy County, New Mexico

Artesia

16 South 28 East

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

16 South 29 East

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

16 South 30 East

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

17 South 28 East

6	5	4	3	2 28	1
7	8	9	10	11	12
18	17	16	15	14 80	13
19 224	20	21	22 45 79	23	24
30	29	28	27	26	25
31	32	33	34	35 **258**	36

17 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 76 80	23	24
30	29 210 **208**	28	27 Site	26	25
31	32	33	34	35 153	36

17 South 30 East

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

18 South 28 East

6	5	4 **108**	3	2 55	1
7 **49**	8 81 **69**	9	10	11	12
18	17	16	15 80	14	13
19	20	21 **226**	22	23	24
30 137	29	28	27	26	25
31	32	33	34	35	36

18 South 29 East

6	5	4	3	2	1
7	8	9	10 **95**	11	12
18	17	16	15	14	13
19	20	21	22	23	24 158
30	29	28	27	26	25
31	32	33	34	35	36

18 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23 44	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

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 324935104040401

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 324935104040401 17S.29E.22.112311

Eddy County, New Mexico
Latitude 32°49'35", Longitude 104°04'04" NAD27
Land-surface elevation 3,541 feet above NAVD88
This well is completed in the San Andres Limestone (313SADR) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

1948-11-29		D	79.70			2		U		U	A

Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Method of measurement	U	Unknown method.
Source of measurement	U	Source is unknown.

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)

OD Number	Code	OD Sub-basin	County	4	1	4	Sec	Tws	Rng					Depth Well	Depth Water	Water Column
RA 11807 POD1		RA	ED	1	2	3	22	17S	29E	5873	0	3	31585	131	7	55

Average Depth to Water: **7 feet**

Minimum Depth: **7 feet**

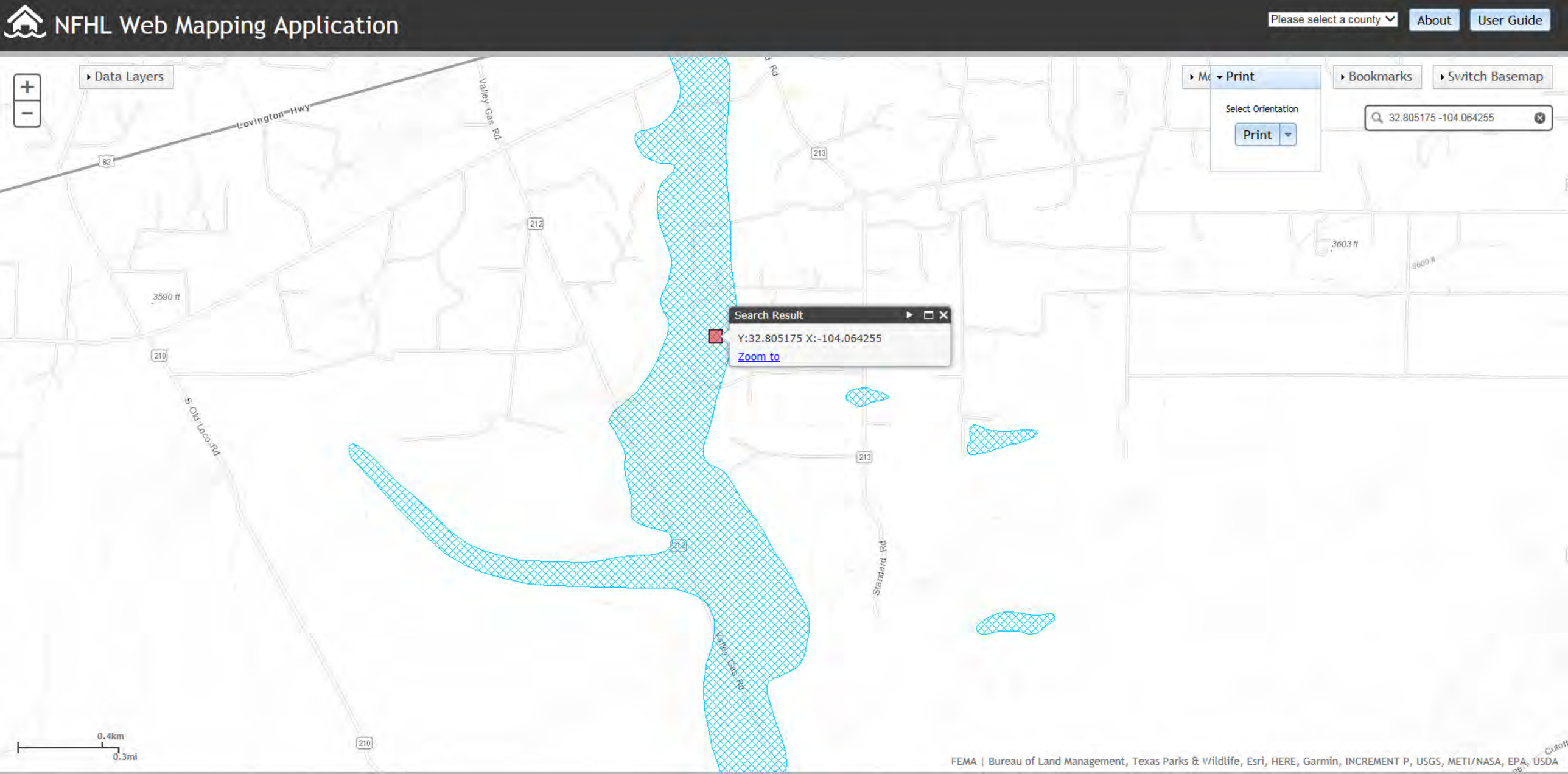
Maximum Depth: **7 feet**

Record Count: 1

LSS Search:

Township: 17S **Range:** 29E


COG RJU Unit #108
Legend
High
Low
Medium
82
Lovington Hwy
32.805175 -104.064255
Google Earth
© 2018 Google
N
1 mi


NFHL Web Mapping Application
Please select a county
About
User Guide
Data Layers
Print
Select Orientation
Print
Bookmarks
Switch Basemap
32.805175 -104.064255
Search Result
Y:32.805175 X:-104.064255
Zoom to
Lovington Hwy
Valley Gas Rd
S Old Loco Rd
Standard Rd
82
210
212
213
3590 ft
3603 ft
3600 ft
0.4km
0.3mi
FEMA | Bureau of Land Management, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

Appendix C

TETRA TECH

Borehole ID:
BH-7

Soil Drilling Log with Field Testing Results

Project Name : COG RJU Unit #108
Project No. : 212C-MD-01821
Location : Eddy County, New Mexico
Coordinates : 32.805175 -104.064255
Elevation : NA

Date : Wednesday, July 10, 2019
Sampler : Conner Moehring
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
0		Brown Silty/Sand (Soft)		
5		Brown Silty/Clay with Caliche (soft) nodues (Loose)	1,200	OL
		Dense Layer of Caliche Interbedded Layers of Caliche with clay		
10		Brown Soft Sand w/ Caliche nodules	500	520
		Interedded gravel layer with Fine sands		
15		Dense layer of gravel with cobble with loose fine brown sand	295	400
20		Red Fine sand with gravel & cobble (0.5" to 1.5")	440	400
		Total Depth Drilled: 20'		
25				
30				
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
50				
55				
60				
65				
70				
75				
		Comments:		

* *H.O. = Heavy Odor*
* *H.S. = Heavy Staining*
* *L.O. = Low Odor*
* *L.S. = Low Staining*

TETRA TECH

Borehole ID:
BH-8

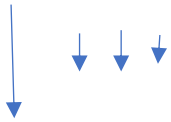
Soil Drilling Log with Field Testing Results

Project Name : COG RJU Unit #108
Project No. : 212C-MD-01821
Location : Eddy County, New Mexico
Coordinates : 32.805175 -104.064255
Elevation : NA

Date : Wednesday, July 10, 2019
Sampler : Conner Moehring
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
0				
5		Fine Brown Silty Sand (loose)		
10		Fine Brown Silty Sandwith Clay (loose)	5,610	
		Fine Sand with interbedded gravel		
15		Fine Brown Sand with Gravel (loose)	105	
20		Brown Fine sand with gravel (loose)	97	120
25		Damp Gravel with Clay (loose)	425	400
30				
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
50				
55				
60				
65				
70				
75				
		Comments:		



* *H.O. = Heavy Odor*
* *H.S. = Heavy Staining*
* *L.O. = Low Odor*
* *L.S. = Low Staining*

TETRA TECH

Borehole ID:
BH-10

Soil Drilling Log with Field Testing Results

Project Name : COG RJU Unit #108
Project No. : 212C-MD-01821
Location : Eddy County, New Mexico
Coordinates : 32.805717-104.063998
Elevation : NA

Date : Wednesday, July 10, 2019
Sampler : Conner Moehring
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
0		Fine Brown Silty Sand with clay (loose)		
5		Fine Brown Silty Sand with clay (loose)	4,510	
		Damp Green Fine Sand (loose)		
10		Fine Brown/Green Silty Sandwith Clay (Moist) (loose)	1,110	
15		Coarse Brown Sand with Clay (Damp) (loose)	600	
20		Brown Coasre sand with Clay & gravel (Loose)	1,720	840
		Layer Gypsum (Dense)		
25		Fine Gypsum with Sand (Dense)	860	400
		Total Depth Drilled: 25'		
30				
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
50				
55				
60				
65				
70				
75		Comments:		

* *H.O. = Heavy Odor*
* *H.S. = Heavy Staining*
* *L.O. = Low Odor*
* *L.S. = Low Staining*

TETRA TECH

Borehole ID:
BH-13

Soil Drilling Log with Field Testing Results

Project Name : COG RJU Unit #108
Project No. : 212C-MD-01821
Location : Eddy County, New Mexico
Coordinates : 32.807680 -104.0664151
Elevation : NA

Date : Wednesday, July 10, 2019
Sampler : Conner Moehring
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
0		Fine Brown Silty Sand (loose)		
5		Fine Brown Silty Sand(loose)		
10		Brown Clay with Silty Sand (loose)	760	
15		Brown Clay nodules with Sand (Loose)	970	
		Damp Brown Clay nodules (Dense)		
20		Brown Clay Nodules (Dense)	286	240
25				
		Total Depth Drilled: 20'		
30				
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
50				
55				
60				
65				
70				
75				
		Comments:		

* *H.O. = Heavy Odor*
* *H.S. = Heavy Staining*
* *L.O. = Low Odor*
* *L.S. = Low Staining*

TETRA TECH

Borehole ID:
BH-14

Soil Drilling Log with Field Testing Results

Project Name : COG RJU Unit #108
Project No. : 212C-MD-01821
Location : Eddy County, New Mexico
Coordinates : 32.807518 -104.063798
Elevation : NA

Date : Thursday, July 11, 2019
Sampler : Conner Moehring
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
0		Red Silty/ Sand (Dry) (Loose)		
5		Fine Red Silty/Sand	49	
		Grey Sand with Clay		
10		Grey / Brown sand with Clay (Loose)	107	
		Red Clay nodules intermittent		
15		Red Clay nodules with fine sand with gypsum.	900	240
20				
25				
		Total Depth Drilled: 15'		
30				
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
50				
55				
60				
65				
70				
75				
		Comments:		

** H.O. = Heavy Odor*
** H.S. = Heavy Staining*
** L.O. = Low Odor*
** L.S. = Low Staining*

TETRA TECH

Borehole ID:
BH-16

Soil Drilling Log with Field Testing Results

Project Name : COG RJU Unit #108
Project No. : 212C-MD-01821
Location : Eddy County, New Mexico
Coordinates : 32.807635 -104.063770
Elevation : NA

Date : Thursday, July 11, 2019
Sampler : Conner Moehring
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
0		Red Silty/ Sand (Dry) (Loose)		
5		Fine Red Silty/Sand	150	
		Grey Sand with Clay		
10		Grey / Brown sand with Clay (Loose)	2,710	
		Red Clay nodules intermittent		
15		Red sand with Clay nodules Dense	942	1,200
20		Black/Brown Silty sand with clay Dense	2,160	O.L
		Dense layer of gravel		
25		Dense Layer of Gravel and sand	322	120
		Total Depth Drilled: 25'		
30				
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
50				
55				
60				
65				
70				
75		Comments:		

* *H.O. = Heavy Odor*
* *H.S. = Heavy Staining*
* *L.O. = Low Odor*
* *L.S. = Low Staining*

TETRA TECH

Borehole ID:
BH-18

Soil Drilling Log with Field Testing Results

Project Name : COG RJU Unit #108
Project No. : 212C-MD-01821
Location : Eddy County, New Mexico
Coordinates : 32.805113 -104.064490
Elevation : NA

Date : Thursday, July 11, 2019
Sampler : Conner Moehring
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
0		Red Silty/ Sand (Mosit) (Loose)		
5		Red Silty/ Clay with gravel (Mosit) (Loose)		
		Dense layer of clay with gravel (Moist)		
10		Red Clay nodules very moist and dense		
		Very dense layer of clay		
15		Moist Dense layer of red clay nodules wth gravel		
		Fine Red Silty sand with clay nodules (Loose) (Dry)		
20		Fine Brown Silty Sand with Clay (Loose)	695	510
		Fine Powdery redish silty sand (Loose) with clay		
25		Fine Powdery redish silty sand (Loose) with clay	372	240
30		Total Depth: 25'		
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
50				
55				
60				
65				
70				
75		Comments:		

** H.O. = Heavy Odor*
** H.S. = Heavy Staining*
** L.O. = Low Odor*
** L.S. = Low Staining*

TETRA TECH

Borehole ID:
BH-19

Soil Drilling Log with Field Testing Results

Project Name : COG RJU Unit #108
Project No. : 212C-MD-01821
Location : Eddy County, New Mexico
Coordinates : 32.806234 -104.064098
Elevation : NA

Date : Friday, July 12, 2019
Sampler : Conner Moehring
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
0		Loose Brown Sand		
5		Loose Brown Silty sand with clay (Loose) (Dry)		
		Layer of Gravel		
10		Red clay nodules with gravel (Dense) (Slightly Damp)		
		ine red silty sand (Loose) (Dry)		
15		Fine Red sand with Clay and Gravel (Dense) (Slightly damp)		
		Dense layer of Gravel		
20		Fine Red Sand with clay and gravel (Dense) (Slightly damp)	642	
		Large Cobble (1"-2") tan sand (dense) (Dry)		
25		Pink Sand with Gravel & cobble (1" - 2") (Dense slightly damp)	962	
30		Fine Brown silty sand with Gravel (loose) (Slightly damp)	772	800
35		Gravel with Red isg Fine sand (Loose) (Slightly damp)	420	
40		Gravel with Red Sand (Loosing pressure)	290	240
45		Total Depth: 40'		
50				

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
50				
55				
60				
65				
70				
75		Comments:		

* *H.O. = Heavy Odor*
* *H.S. = Heavy Staining*
* *L.O. = Low Odor*
* *L.S. = Low Staining*

TETRA TECH

Borehole ID:
BH-20

Soil Drilling Log with Field Testing Results

Project Name : COG RJU Unit #108
Project No. : 212C-MD-01821
Location : Eddy County, New Mexico
Coordinates : 32.808745 -104.064615
Elevation : NA

Date : Friday, July 12, 2019
Sampler : Conner Moehring
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
0		Red loose sand (Dry)		
5		Fine loose red clay with red sand (Dense) (Slightly damp)		
10		Moderatly damp red clay nodules (Dense)	725	
		Grey Sand with clay (Dense) (Dry)		
15		Grey gravel with Cobble With clay and sand (Dry)(Loose)	315	
20		Fine grey sand with gravel (Loose)(Dry)	306	240
		Total Depth: 20'		
25				
30				
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
50				
55				
60				
65				
70				
75				
		Comments:		

* *H.O. = Heavy Odor*
* *H.S. = Heavy Staining*
* *L.O. = Low Odor*
* *L.S. = Low Staining*

TETRA TECH

Borehole ID:
BH-21

Soil Drilling Log with Field Testing Results

Project Name : COG RJU Unit #108
Project No. : 212C-MD-01821
Location : Eddy County, New Mexico
Coordinates : 32.807838 -104.063779
Elevation : NA

Date : Wednesday, July 10, 2019
Sampler : Conner Moehring
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
0		Fine Brown Silty Sand (loose)		
5		Fine Brown Silty Sand with clay nodules (loose)		
10		Brown Clay with Silty Sand (loose)		
15		Fine Black/Brown silty sand (Loose)	460	
20		Brown/Black Fine silt/ sand with clay (Loose)	266	
		Interedded layers of gravel		
25		Gravel with Dense clay	180	240
30		Brown Dense clay with sand	270	240
		Total Depth Drilled: 30'		
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
50				
55				
60				
65				
70				
75				
		Comments:		

* *H.O. = Heavy Odor*
* *H.S. = Heavy Staining*
* *L.O. = Low Odor*
* *L.S. = Low Staining*

TETRA TECH

Borehole ID:
BH-24

Soil Drilling Log with Field Testing Results

Project Name : COG RJU Unit #108
Project No. : 212C-MD-01821
Location : Eddy County, New Mexico
Coordinates : 32.808947 -104.064519
Elevation : NA

Date : Friday, July 12, 2019
Sampler : Conner Moehring
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
0		Red sand with clay		
5		Red Clay nodules with silty sand (Dry) (loose) Dense layer of Gypsum (Dense) (Dry)	181	
10		Gypsum with gravel (Dense)	118	200
15		Gypsum Layer	201	240
		Total Depth:15'		
20				
25				
30				
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Chloride Field Test (ppm)	Field Titration Test (ppm)
50				
55				
60				
65				
70				
75				
		Comments:		

* *H.O. = Heavy Odor*
* *H.S. = Heavy Staining*
* *L.O. = Low Odor*
* *L.S. = Low Staining*

Appendix D: Laboratory Analytical Reports