SITE INFORMATION

Report Type: Work Plan

General Site Information:						
Site:	**Stratocaster 20 Federal 3&4 Battery**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit I**	**Sec. 20**	**T 23S**	**R 34E**		
Lease Number:	**API No. 30-025-27051**					
County:	**Lea County**					
GPS:	**32.28857**			**-103.48573**		
Surface Owner:	**Federal**					
Mineral Owner:						
Directions:	From the intersection of HWY 128 and CR 21 (Delaware Basin Rd), travel north on CR 21 for approximately 5.10 miles, turn east onto lease road and continue for 1.80 miles, turn north onto lease road for additional 0.20 miles to the location.					

Release Data:	
Date Released:	4/14/2019
Type Release:	Produced Water
Source of Contamination:	Load Line
Fluid Released:	22 bbls
Fluids Recovered:	15 bbls

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:	*300+' below surface*
Karst Potential:	*Low*
Surface Water	*USGS Topo Map - Blue Line within 300'*

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

July 11, 2019

Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

Re: Work Plan for the COG Operating, LLC, Stratocaster 20 Federal 3&4 Battery, Unit I, Section 20, Township 23 South, Range 34 East, Lea County, New Mexico.

Mr. Ross-Coss:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG) to assess a release that occurred at the Stratocaster 20 Federal 3&4 Battery, Unit I, Section 20, Township 23 South, Range 34 East, Lea County, New Mexico (Site). The spill site coordinates are 32.28857°, -103.48573 °. 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 14, 2019, and released approximately 22 barrels of produced water due to a 3rd party leaving the load line valve partially open. A vacuum truck was dispatched to remove all freestanding fluids, recovering approximately 15 barrels of produced water. The release occurred on the facility pad and impacted an area measuring approximately 28' x 128'. The C-141 Form is included in Appendix A.

Site Characterization

A site characterization was performed for the site and no lakebeds, sinkholes, playa lakes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the specified distances. Additionally, the site is located in a low karst potential area. However, a watercourse is located within 300' of the site, according to the USGS topographic map.

The nearest water well is listed on the USGS National Water Information Database in Section 16, approximately 0.70 miles north of the site, and has a reported depth to groundwater of 345' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is approximately 300' below surface. The site characterization data is shown in Appendix B.

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

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, 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 upon 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.

Soil Assessment and Analytical Results

Initial Sampling

On May 1, 2019, Tetra Tech personnel were onsite to evaluate and sample the release area. A total of five (5) trenches (T-1, T-2, T-3, T-4, and T-5) were installed in the release area to total depths ranging from 2.0' to 5.0' below surface. Deeper samples were not collected due to a dense formation in the area. 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 results of the sampling are summarized in Table 1. The sample locations are shown on Figure 3.

Referring to Table 1, none of the samples analyzed showed benzene or total BTEX concentrations above the laboratory reporting limits. However, the areas of trenches T-1, T-2, T-3, T-4, and T-5 showed elevated TPH and chloride concentrations in the shallow soils. Trenches T-2 and T-5 showed TPH concentrations that declined with depth to below the RRAL at 2.0' below surface. The remaining trenches were not vertically defined for TPH. Additionally, trenches T-1, T-2, and T-4 were not vertically defined for chlorides.

Bore Holes

Based on the laboratory data, Tetra Tech returned on May 29, 2019, to install three boreholes (BH-1, BH-2, and BH-3) in the areas of trenches T-1, T-2, and T-4, in order to vertically define the impacted soils. The boreholes were drilled to depths ranging from 9'-10' to 19'-20' 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. Copies of the boring logs are included in Appendix C. The results of the sampling are summarized in Table 1. The sample locations are shown on Figure 3.

Referring to Table 1, none of the samples analyzed showed benzene or total BTEX concentrations above the laboratory reporting limit. Additionally, BH-1, BH-2, and BH-3 showed TPH concentrations that declined with depth to below the RRAL at depths of 2'-3' and 4'-5' below surface. Borehole BH-1 showed a chloride high of 3,750 mg/kg at 4'-5', which declined with depth to 451 mg/kg at 14'-15' below surface. Borehole BH-2 also showed chloride concentrations that declined with depth to below the RRAL at 6-7' below surface. Borehole BH-3 showed chlorides above the RRAL to a total depth of 2'-3' below surface before declining to 555 mg/kg at 4'-5' below surface.

TETRA TECH

Work Plan

Based on the laboratory results and the background chloride concentrations detected, COG proposes to excavate the areas as shown on Figure 4 and highlighted (green) on Table 1. The areas of trenches T-1 and T-2 will be excavated to 4.0'-5.0' below surface. The areas of trenches T-3, T-4, and T-5 will be excavated to between 2.0'-3.0' below surface. In addition, composite bottom hole and sidewall samples will be collected every 200 square feet.

Variance

Per rule 19.15.29.14, COG requests a variance to install a 20-mil liner at 3.0'-4.0' below surface in the areas of trenches T-1 and T-2, to prevent vertical migration of the deeper chloride concentrations detected. Prior to the liner installation, composite sidewall samples will be collected every 200 square feet, to be representative of the release area, for documentation purposes.

Once the excavation is complete, the areas will be backfilled with clean material to surface grade. COG estimates approximately 600 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

Clair Gonzales, P.G.
Project Manager

Figures

CONCHO

FIGURE 1

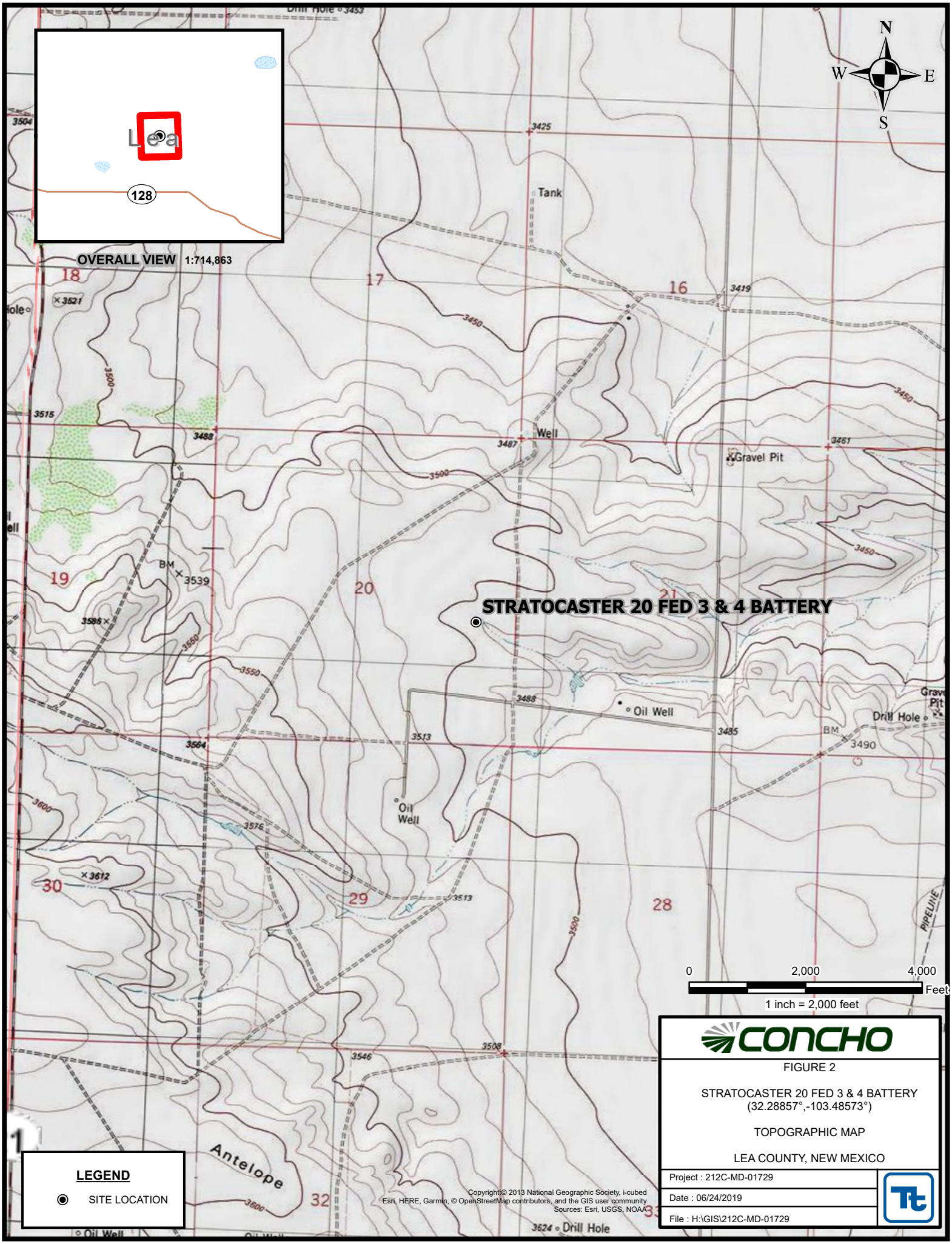
STRATOCATSTER 20 FED 3 & 4 BATTERY
(32.28857°,-103.48573°)

OVERVIEW MAP

LEA COUNTY, NEW MEXICO

Project : 212C-MD-001729	
Date : 06/24/2019	
File : H:\GIS\212C-MD-01729	

MAPPED BY: MISTI MORGAN



CONCHO

FIGURE 2

STRATOCASTER 20 FED 3 & 4 BATTERY
(32.28857°,-103.48573°)

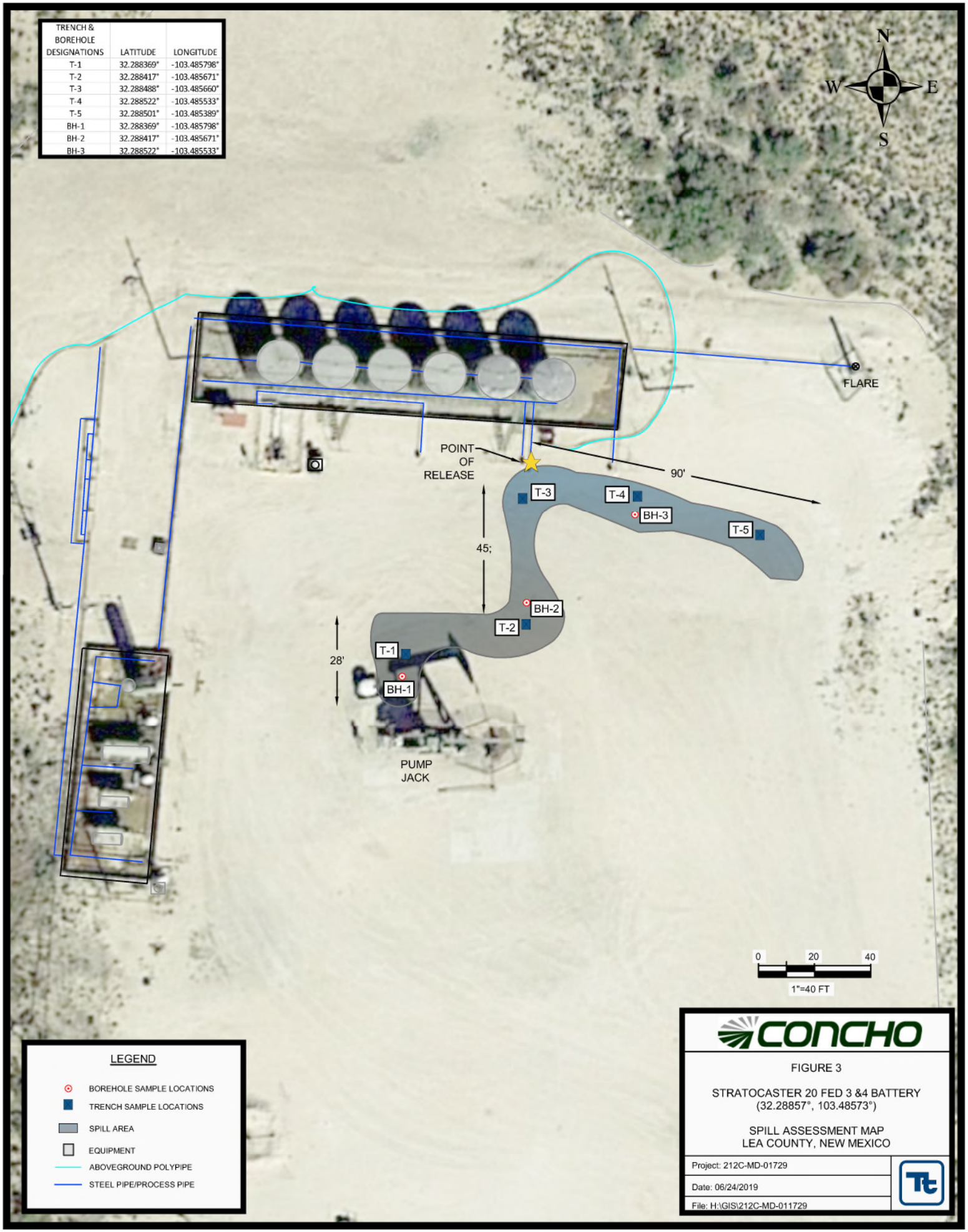
TOPOGRAPHIC MAP

LEA COUNTY, NEW MEXICO

Project : 212C-MD-01729	
Date : 06/24/2019	
File : H:\GIS\212C-MD-01729	

MAPPED BY: MISTI MORGAN

TRENCH & BOREHOLE DESIGNATIONS	LATITUDE	LONGITUDE
T-1	32.288369°	-103.485798°
T-2	32.288417°	-103.485671°
T-3	32.288488°	-103.485660°
T-4	32.288522°	-103.485533°
T-5	32.288501°	-103.485389°
BH-1	32.288369°	-103.485798°
BH-2	32.288417°	-103.485671°
BH-3	32.288522°	-103.485533°



LEGEND

- BOREHOLE SAMPLE LOCATIONS
- TRENCH SAMPLE LOCATIONS
- SPILL AREA
- EQUIPMENT
- ABOVEGROUND POLYPIPE
- STEEL PIPE/PROCESS PIPE

CONCHO

FIGURE 3

STRATOCASTER 20 FED 3 &4 BATTERY
(32.28857°, 103.48573°)

SPILL ASSESSMENT MAP
LEA COUNTY, NEW MEXICO

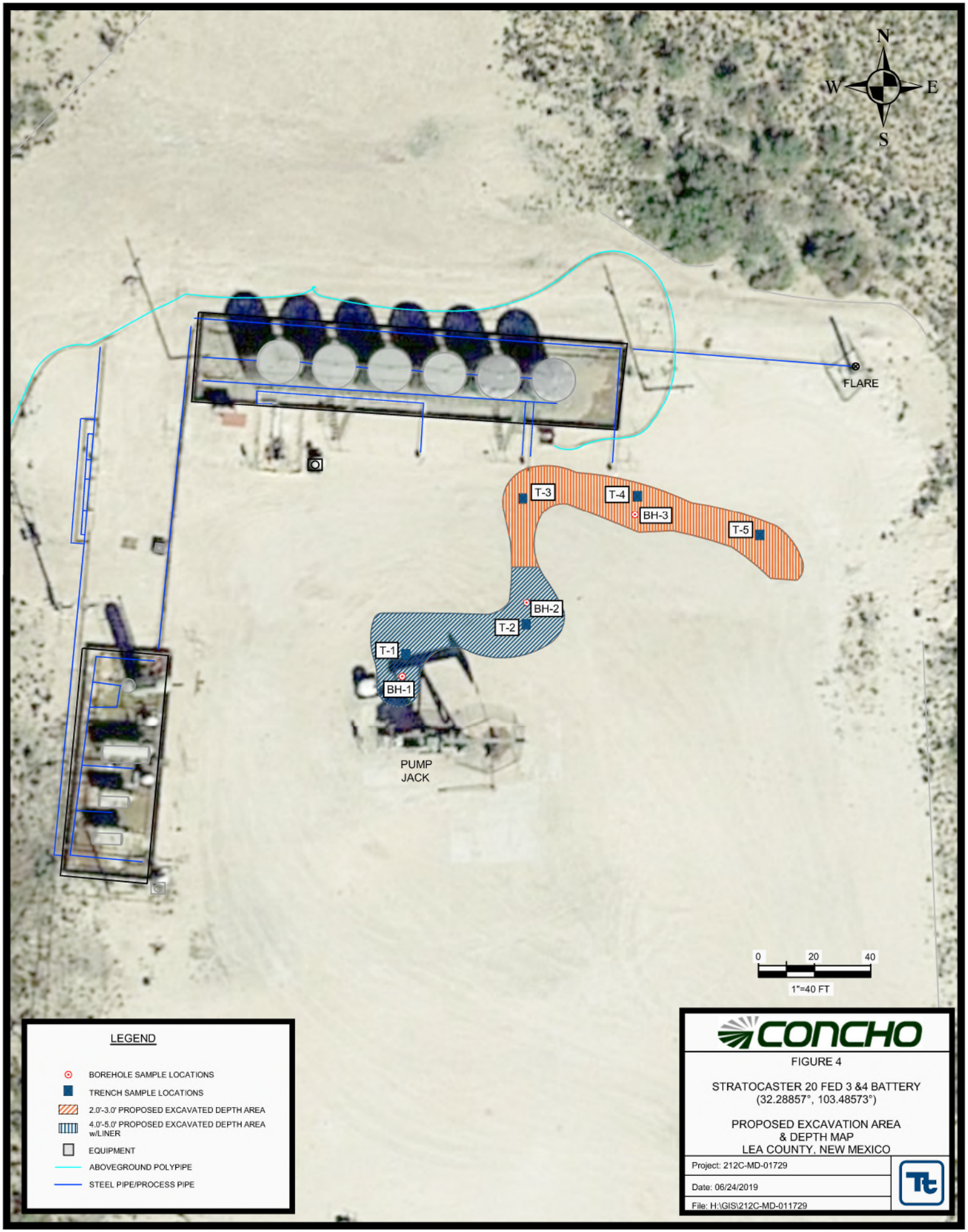
Project: 212C-MD-01729

Date: 06/24/2019

File: H:\GIS\212C-MD-011729

Drawn By: MISTI MORGAN

SOURCE: GOOGLE IMAGE



LEGEND

- BOREHOLE SAMPLE LOCATIONS
- TRENCH SAMPLE LOCATIONS
- 2.0'-3.0' PROPOSED EXCAVATED DEPTH AREA
- 4.0'-5.0' PROPOSED EXCAVATED DEPTH AREA w/LINER
- EQUIPMENT
- ABOVEGROUND POLYPIPE
- STEEL PIPE/PROCESS PIPE

CONCHO

FIGURE 4

STRATOCASTER 20 FED 3 &4 BATTERY
(32.28857°, 103.48573°)

PROPOSED EXCAVATION AREA
& DEPTH MAP
LEA COUNTY, NEW MEXICO

Project: 212C-MD-01729

Date: 06/24/2019

File: H:\GIS\212C-MD-011729

Drawn By: MISTI MORGAN

SOURCE: GOOGLE IMAGE

Tables

Table 1
COG
Stratocaster Federal 3&4 TB
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB 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	ORO	Total						
Trench 1	5/1/2019	1	-	X		<15.0	148	27.9	**398**	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**1,770**
	"	2	-	X		<15.0	106	<15.0	**106**	-	-	-	-	-	**2,310**
BH-1	5/29/2019	0-1'				<15.0	344	<15.0	**344**	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	**2,510**
	"	2-3'				<15.0	281	<15.0	**281**	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	**1,980**
	"	4-5'				<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	**3,750**
	"	6-7'				-	-	-	-	-	-	-	-	-	**1,240**
	"	9-10'				-	-	-	-	-	-	-	-	-	**694**
	"	14-15'				-	-	-	-	-	-	-	-	-	451
	"	19-20'				-	-	-	-	-	-	-	-	-	525
Trench 2	5/1/2019	1	-	X		<14.9	234	<14.9	**234**	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	**6,800**
	"	2	-	X		<15.0	32.8	<15.0	32.8	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	**4,660**
	"	4	-	X		-	-	-	-	-	-	-	-	-	**2,230**
	"	5	-	X		-	-	-	-	-	-	-	-	-	**985**
BH-2	5/29/2019	0-1'				<15.0	53.2	<15.0	53.2	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**5,490**
	"	2-3'				<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	**3,960**
	"	4-5'				-	-	-	-	-	-	-	-	-	**1,560**
	"	6-7'				-	-	-	-	-	-	-	-	-	**826**
	"	9-10'				-	-	-	-	-	-	-	-	-	483
	"	14-15'				-	-	-	-	-	-	-	-	-	266
	"	19-20'				-	-	-	-	-	-	-	-	-	226
Trench 3	5/1/2019	1	-	X		<14.9	219	27.2	**246**	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	**927**
	"	2	-	X		<15.0	300	24.9	**325**	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	**2,620**
	"	3	-	X		<15.0	27.4	<15.0	27.4	-	-	-	-	-	308
	"	4	-	X		<14.9	40.4	<14.9	40.4	-	-	-	-	-	448
Trench 4	5/1/2019	1	-	X		<15.0	64.2	17.0	81.2	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**1,610**
	"	2	-	X		<15.0	104	31.1	**135**	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	**1,140**
BH-3	5/29/2019	0-1'		X		<14.9	144	30.1	**174**	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**1,430**
	"	2-3'		X		<15.0	43.2	<15.0	43.2	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	**907**
	"	4-5'		X		-	-	-	-	-	-	-	-	-	555
	"	6-7'		X		-	-	-	-	-	-	-	-	-	220
	"	9-10'		X		-	-	-	-	-	-	-	-	-	175
Trench 5	5/1/2019	1	-	X		<15.0	233	29.6	**263**	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	**3,290**
	"	2	-	X		<15.0	30.6	<15.0	30.6	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**1,900**
	"	3	-	X		-	-	-	-	-	-	-	-	-	**752**
	"	4	-	X		-	-	-	-	-	-	-	-	-	579
	"	5	-	X		-	-	-	-	-	-	-	-	-	303

Proposed 20 Mil Liner Depth

(-) Not Analyzed

Proposed Excavation Depth

Photos

COG Operating LLC
Stratocaster 20 Fed 3&4
Lea County, New Mexico

View West – Area of T-1 and T-2

View North – Area of T-3

COG Operating LLC
Stratocaster 20 Fed 3&4
Lea County, New Mexico

View East – Area of T-4 and T-5

View South – Area of BH-1

COG Operating LLC
Stratocaster 20 Fed 3&4
Lea County, New Mexico

View Northeast – Area of BH-2

View East – Area of BH-3

Appendix A

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG Stratocaster 20 Federal 3&4
Lea County, New Mexico

22 South 33 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13 391
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South 34 East

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

22 South 35 East

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

23 South 33 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

23 South 34 East

6 329	5	4	3	2	1 137
7	8 255	9	10	11	12
18	17	16 345	15	14	13
19	20	21	22 282 295	23 233 265	24
30	29	28	27	26	25
31	32 160 130	33	34	35	36

23 South 35 East

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

24 South 33 East

6	5	4	3	2	1
7	8	9	10 24.6	11	12
18	17	16	15	14	13
19	20	21	22	23 208	24 16.9
30	29	28	27	26	25
31	32	33 93.2	34	35	36

24 South 34 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

24 South 35 East

6	5	4	3	2	1
7	8	9	10 300	11	12
18	17	16	15	14	13
19	20 97	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

90 Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location

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

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

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 03620 POD1	CUB	LE	1	4	3	32	23S	34E	641790	3569941	480	130	350
CP 00556 POD1	CP	LE	4	4	3	08	23S	34E	641762	3576206	497	255	242
CP 00580	CP	LE	3	4	3	23	23S	34E	646524	3572948*	220		
CP 00606	CP	LE		4	1	23	23S	34E	646613	3573854*	650	265	385
CP 00618	CP	LE	1	2	4	22	23S	34E	645713	3573539*	428	295	133
CP 00637	CP	LE	3	3	4	15	23S	34E	645293	3574541*	430	430	0
CP 00872 POD1	CP	LE	1	1	1	08	23S	34E	641225	3577504*	494	305	189
CP 01075 POD1	CP	LE	1	1	1	08	23S	34E	641278	3577525	430	20	410
CP 01120 POD1	CP	LE			3	14	23S	34E	646366	3574753	397	318	79
CP 01130 POD1	CP	LE	2	1	2	07	23S	34E	640662	3577558	27		
CP 01130 POD2	CP	LE	2	1	2	07	23S	34E	640674	3577549	27		
CP 01258 POD1	CP	LE	1	4	3	22	23S	34E	645015	3573221	25		
CP 01258 POD2	CP	LE	1	4	3	22	23S	34E	644941	3572883	65		
CP 01258 POD3	CP	LE	1	4	3	22	23S	34E	644938	3573097	25		
CP 01502 POD1	CP	LE	4	3	3	05	23S	34E	641316	3577635	648	200	448
CP 01502 POD2	CP	LE	4	3	3	05	23S	34E	642074	3577676	680	300	380
CP 01730 POD1	CP	LE	2	2	1	16	23S	34E	643549	3575824	594	200	394

Average Depth to Water: **247 feet**

Minimum Depth: **20 feet**

Maximum Depth: **430 feet**

Record Count: 17

PLSS Search:

Township: 23S **Range:** 34E

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

USGS
science for a changing world

National Water Information System: Mapper

Sites | Map

Search

Surface-Water Sites

Groundwater Sites

Active Sites
Any data
Instantaneous data
Daily data
Water-quality data
Measurements
Annual Report

Inactive Sites
Any data
Instantaneous data
Daily data
Water-quality data
Measurements
Annual Report

Springs

Atmospheric Sites

Other Sites

Site Information

National Water Information System: Web Interface

Click to hideNews Bulletins

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

Groundwater levels for New Mexico

Click to hide state-specific text

Search Results -- 1 sites found

site_no list =

- 321734103290001

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

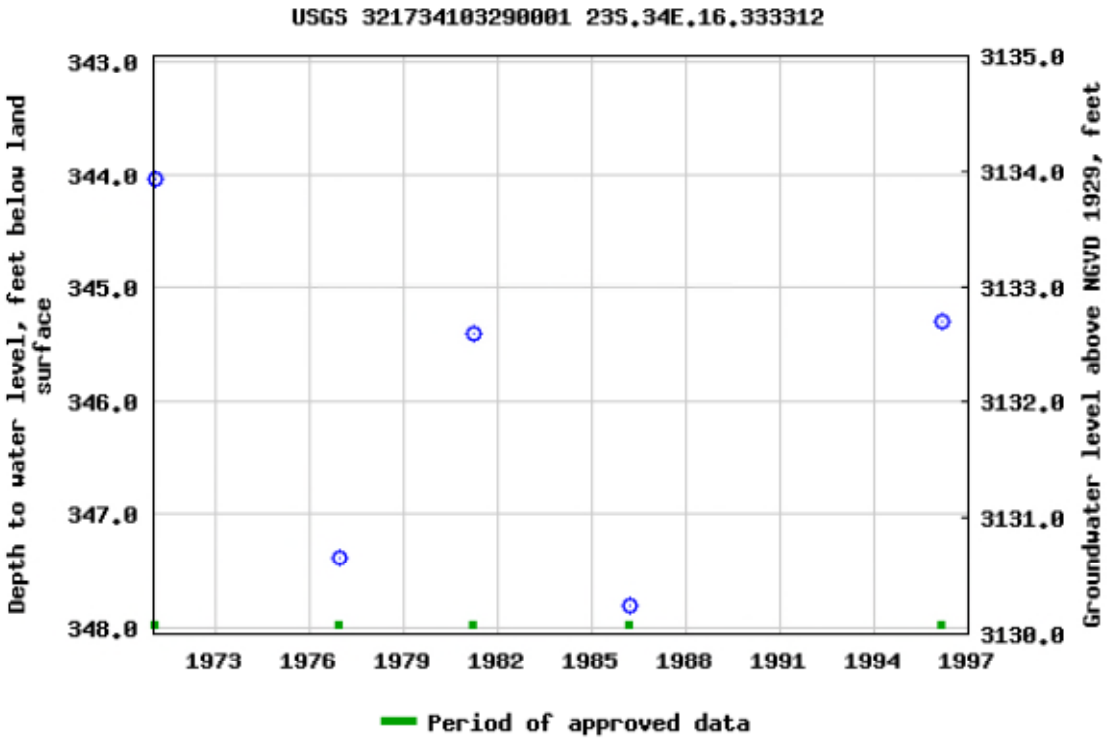
USGS 321734103290001 23S.34E.16.333312

Available data for this site Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°17'53", Longitude 103°28'59" NAD27
Land-surface elevation 3,478.00 feet above NGVD29
The depth of the well is 400 feet below land surface.
This well is completed in the Chinle Formation (231CHNL) local aquifer.

Output formats

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



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

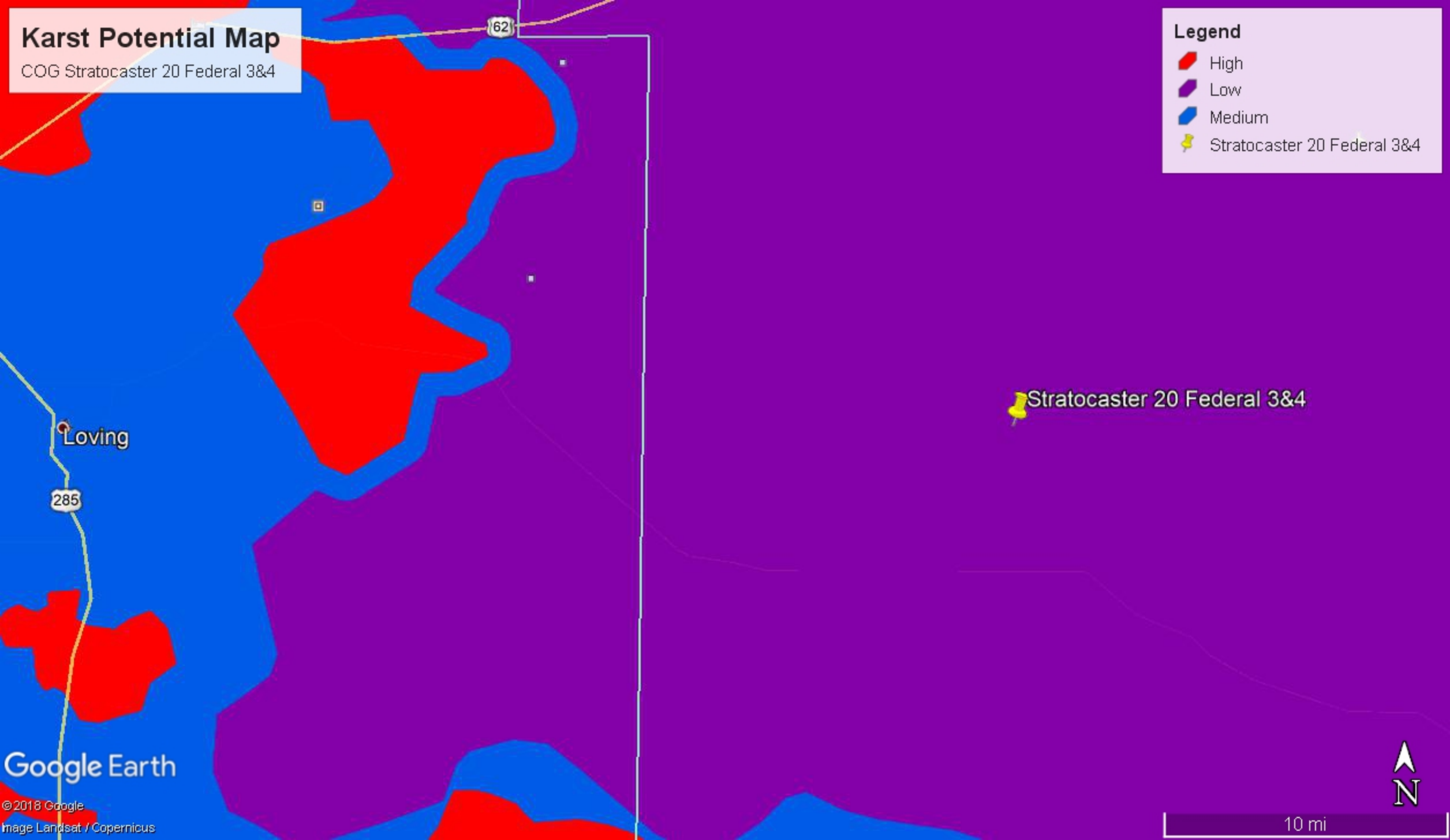
Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey

Title: Groundwater for New Mexico: Water Levels
URL: https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?

Page Contact Information: New Mexico Water Data Maintainer
Page Last Modified: 2019-06-19 10:39:29 EDT
1.12 1 nadww01


Karst Potential Map
COG Stratocaster 20 Federal 3&4
Legend
High
Low
Medium
Stratocaster 20 Federal 3&4
62
Loving
285
Stratocaster 20 Federal 3&4
Google Earth
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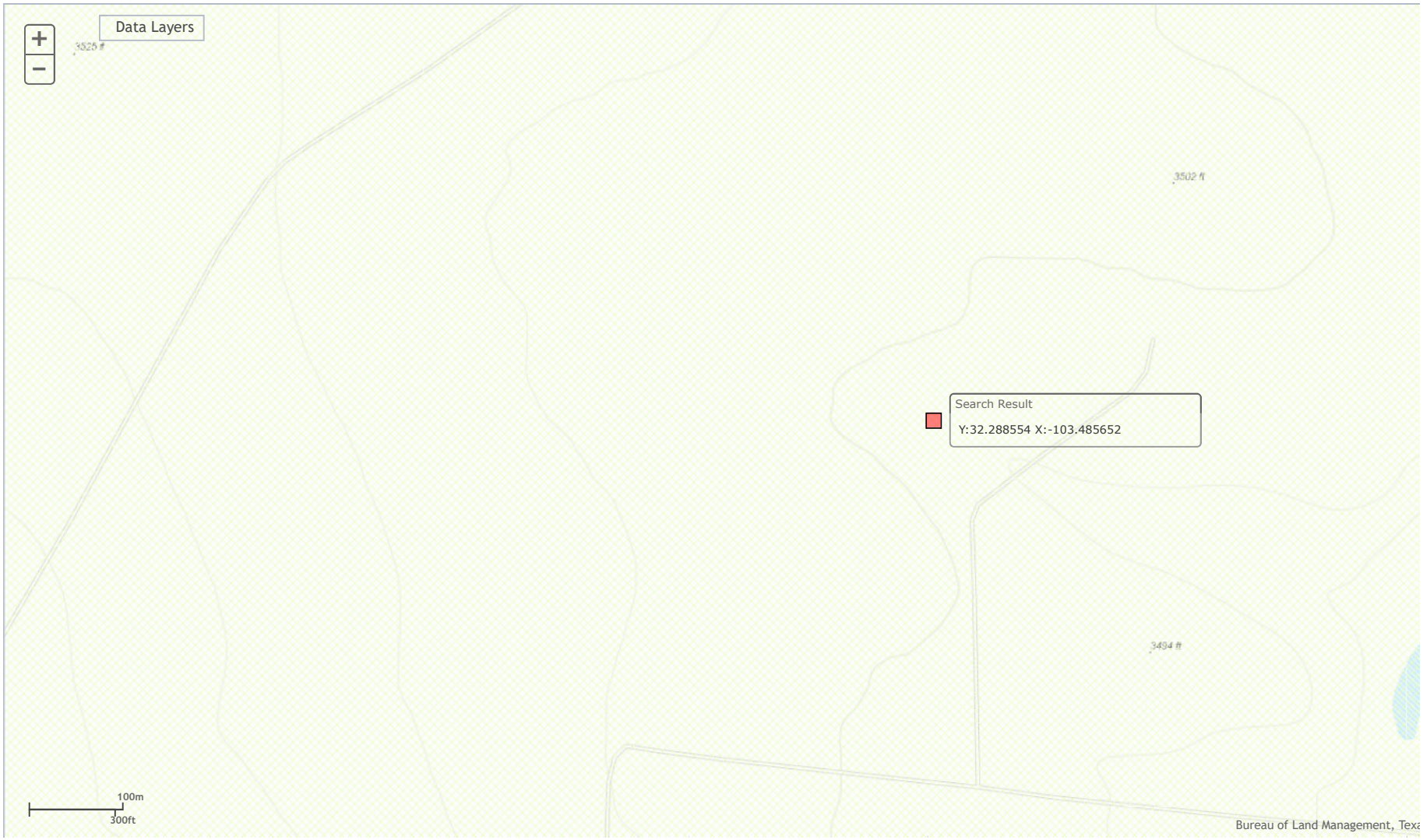
N
10 mi

NFHL Web Mapping Application



Appendix C

TETRA TECH

Borehole ID:
BH-1

Soil Drilling Log with Field Testing Results

Project Name : COG Stratocaster 20 3&4 TB
Project No. : 212C-MD-01729
Location : Lea County, New Mexico
Coordinates : 32.288369, -103.485798
Elevation : NA

Date : Wednesday, May 29,2019
Sampler : Mike Carmona
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Organic Analyzer (ppm)	Chloride Field Test (ppm)
0		Gravelly fine sand- L.O/N.S	3.4	2.62 PPT
			3.0	2.30 PPT
5		Dense N.O/ N.S	0.6	3.6 PPT
		Yellowish Brwn Fine silty sand	0.4	996 PPM
10			0.8	400 PPM
15			0.9	420 PPM
20		Terminate Bore @20'	0.2	400 PPM
25				
30				
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Organic Analyzer (ppm)	Chloride Field Test (ppm)
50				
55				
60				
65				
70				
75				
80				
85				
		Comments: Terminate Bore @20' Area Scraped 3"-6"		

* *H.O. = Heavy Odor*
* *H.S. = Heavy Staining*
L.O. = Light Odor
L.S. = Heavy Staining
* *N.O. = No Odor*
* *N.S = Low Staining*

TETRA TECH

Borehole ID:
BH-2

Soil Drilling Log with Field Testing Results

Project Name : COG Stratocaster 20 3&4 TB
Project No. : 212C-MD-01729
Location : Lea County, New Mexico
Coordinates : 32.288417, -103.485671
Elevation : NA

Date : Wednesday, May 29,2019
Sampler : Mike Carmona
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Organic Analyzer (ppm)	Chloride Field Test (ppm)
0		Gravelly fine sand- N.O/N.S	1.2	4.05PPT
			0.9	3.80 PPT
			0.8	1.32 PPT
5		Dense		
			0.7	1.10 PPT
			0.3	463 PPM
10		Yellowish Brwn Fine Silty Sand		
			0.3	440 PPM
15				
			0.3	340 PPM
20		Terminate Bore @ 20'		
25				
30				
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Organic Analyzer (ppm)	Chloride Field Test (ppm)
50				
55				
60				
65				
70				
75				
80				
85				
		Comments: Terminate Bore @ 20' Area Scraped 3"-6"		

* *H.O. = Heavy Odor*
* *N.O. = No Odor*
* *H.S. = Heavy Staining*
* *N.S = Low Staining*

TETRA TECH

Borehole ID:
BH-3

Soil Drilling Log with Field Testing Results

Project Name : COG Stratocaster 20 3&4 TB
Project No. : 212C-MD-01729
Location : Lea County, New Mexico
Coordinates : 32.288522, -103.485533
Elevation : NA

Date : Wednesday, May 29,2019
Sampler : Mike Carmona
Driller : Scarborough Drilling
Method : Air Rotary

Depth (ft.)	WL	Soil Description	Organic Analyzer (ppm)	Chloride Field Test (ppm)
0		Gravelly fine sand- N.O/N.S	0.8	1.75 PPT
			0.8	1.01 PPT
5		Dense	0.5	608 PPM
		Pinkish Red Silty Sand w/ Gravel	0.4	300 PPM
10		Terminate Bore Hole @ 10'	0.8	250 PPM
15				
20				
25				
30				
35				
40				
45				
50				

Depth (ft.)	WL	Soil Description	Organic Analyzer (ppm)	Chloride Field Test (ppm)
50				
55				
60				
65				
70				
75				
80				
85				
		Comments: Terminate Bore @10' Area Scraped 1'		

* *H.O. = Heavy Odor*
* *H.S. = Heavy Staining*
* *N.O. = No Odor*
* *N.S = Low Staining*

Appendix D