CONCHO

December 10, 2018

Mike Bratcher
Oil Conservation Division, District 2
811 S First St.
Artesia, NM 88210

Ryan Mann
New Mexico State Land Office
1001 S. Atkinson
Roswell, NM 88230

Re: Work Plan
SRO State Com 5H (9/20/18)
API #: 30-015-37425
RP#: 2RP-4982
GPS: 32.05143 -104.11671
Unit Letter M, Section 8, Township 26 South, Range 28 East
Eddy County, New Mexico

Mr. Bratcher and Mr. Mann,

COG Operating, LLC (COG) is pleased to submit the following work plan in response to a release that occurred at the SRO State Com 5H located in Unit Letter M, Section 8 Township 26 South and Range 28 East in Eddy County, New Mexico.

BACKGROUND

The release was discovered on September 20, 2018 and a C-141 initial report was submitted and approved by the New Mexico Oil Conservation Division (NMOCD). The initial C-141 is shown in Appendix A. The release was caused by a block ram failure. Approximately 0.25 barrels of crude oil and fourteen (14) barrels of produced water were released and recovered twelve (12) of produced water. All of the fluids remained on the pad.

GROUNDWATER AND REGULATORY FRAMEWORK

According to the New Mexico Office of the State Engineer (NMOSE), a water well was reported in Section 22 with a depth of 120 feet below surface. In addition, the USGS showed a depth to water <50 feet below surface. In addition, the Chevron Trend Map show depth to groundwater in the area <50 feet below surface for the area. The water well information is shown in Appendix B.

A risk based evaluation and site determinations were performed in accordance to the New Mexico Oil Conservation Division (NMOCD) Rule (Title 19 Chapter 15 Part 29) for releases on oil and gas development and production in New Mexico (effective August 14, 2018). According to the site characterization evaluation, the area is in a medium karst and no other receptors (water wells, playas, water course, lake beds or ordinance boundaries) were located within each specific boundaries or distance from the site. The groundwater data and the site characterization evaluation data is summarized in Appendix B. The delineation and closure criteria are listed below:

General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (ft.)
Medium Karst Area	<50 feet

Delineation and Closure Criteria:

Remedial Action Levels (RALs)	
Chlorides	600 mg/kg
TPH (GRO and DRO and MRO)	100 mg/kg
TPH (GRO and DRO)	NA
Benzene	10 mg/kg
Total BTEX	50 mg/kg

PROPOSED WORK PLAN

- The areas of S-1 and S-2 will be excavated to a depth of 1.0' and 3.0' below surface, respectively. The proposed remediation will remove all of the chloride impacted soil above the RAL.
- All of the excavated material will be hauled to an NMOCD approved solid waste disposal facility.
- The excavation will be backfilled with clean backfilled material.

SAMPLING PLAN

Once the excavation is complete, soil confirmation samples will be collected from the excavated areas for the constituents of concern. To collect representative samples, composite samples (5-point composite) will be collected every 200 square feet for the final confirmation sampling for the constituents of concern. Discrete soil samples will be collected from the excavation if any "hot spots" are encountered during the excavation.

REMEDIATION TIMEFRAME AND ESTIMATED VOLUME

The remediation will be performed 90 days after the work plan has been approved. Approximately 230 cubic yards of soil will be excavated and hauled offsite for proper disposal.

SITE RECLAMATION AND RESTORATION

All of the soil remained on the pad and no reclamation activities will be required at the site.

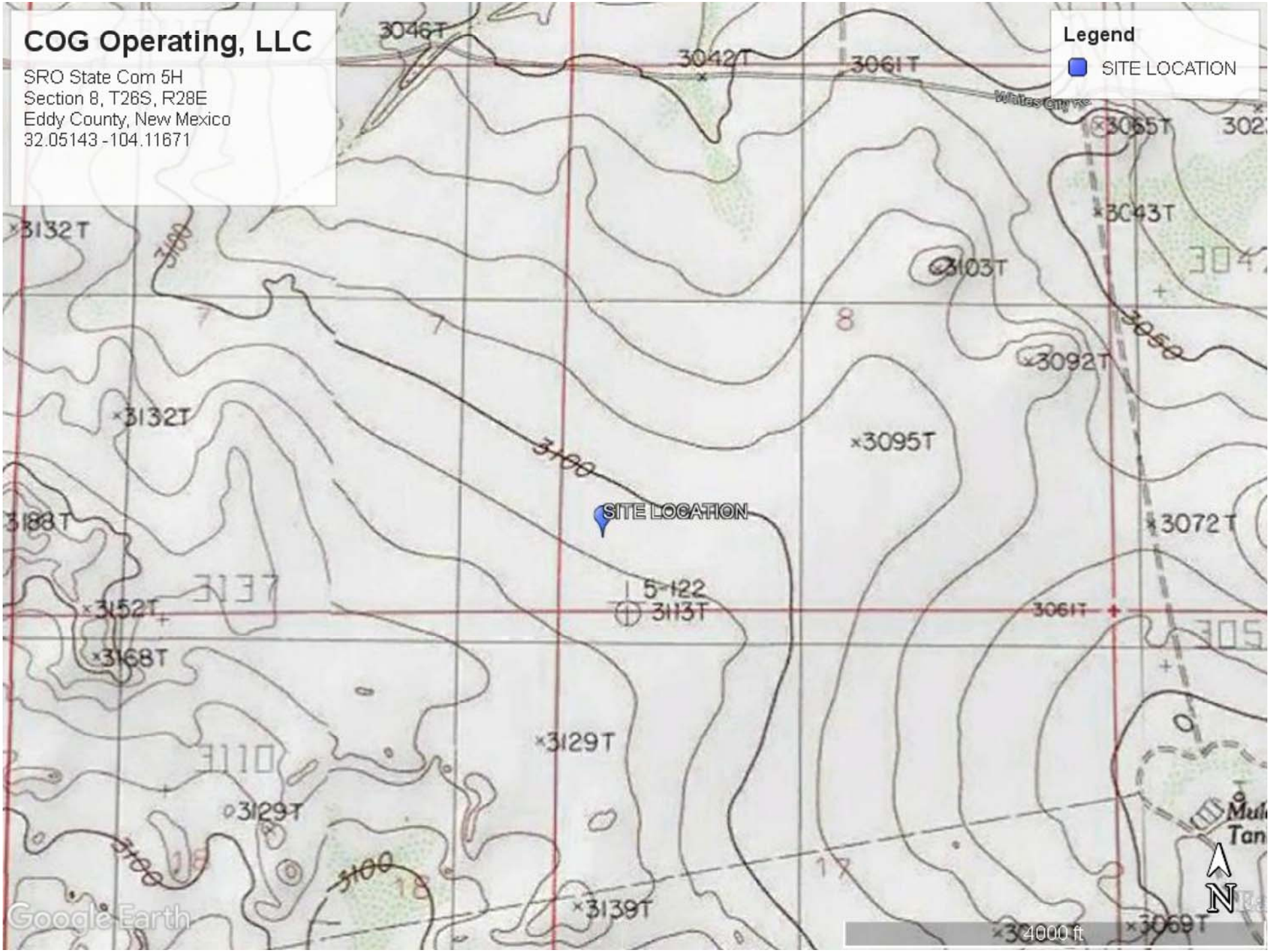
Once the proposed remediation is performed. COG will prepare a closure report. Should you have any questions or concerns on the proposed remediation activities, please do not hesitate to contact me.

Sincerely,
Concho Operating, LLC

Ike Tavarez, P. G.
Senior HSE Supervisor
itavarez@concho.com

cc: file

Figures


COG Operating, LLC
SRO State Com 5H
Section 8, T26S, R28E
Eddy County, New Mexico
32.05143 -104.11671
Legend
SITE LOCATION
SITE LOCATION
5-122
3113T
3046T
3042T
3061T
3065T
3043T
3103T
3092T
3095T
3072T
3132T
3188T
3152T
3168T
3129T
3139T
3069T
3100
3060
N
2000 ft
Google Earth


COG Operating, LLC
SRO State Com 5H
Section 8, T26S, R28E
Eddy County, New Mexico
32.05143 -104.11671
Legend
Sample Locations
Spill Area
S3
S2
S1
N
200 ft
Google Earth


COG Operating
SRO State Com 5H
32.05143 -104.11671
Proposed Excavation
Legend
Proposed Excavation (1.0')
Proposed Excavation (3.0')
Sample Locations
Spill Area
S3
S2
S1
N
200 ft
Google Earth

Tables

Table 1
COG Operating LLC.
SRO State Unit COM 5H
Eddy County, New Mexico

Sample ID	Sample GPS	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	MRO	*Total*			
Average Depth to Groundwater (ft)												
NMOCD RAL Limits (mg/kg)						**-**	**-**	**-**	**100**	**10**	**50**	**600**
S-1	32.051651° -104.117056°	11/19/2018	Surface	X		<10.0	84.1	25.1	**109.2**	<0.025	<0.15	**6,240**
		11/19/2018	1	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	80
S-2	32.051734° -104.117110°	11/19/2018	Surface	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	**2,080**
		11/19/2018	1	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	**2,560**
		11/19/2018	2			<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	**816**
		11/19/2018	3									208
S-3	32.051651° -104.117056°	11/19/2018	Surface	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	80

Proposed Excavation Depth

(-) Not Analyzed

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	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Robert McNeill	Contact Telephone	(432) 683-7443
Contact email	RMcNeill@concho.com	Incident # *(assigned by OCD)*	
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.05143 Longitude -104.11671

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	SRO State Com #005H	Site Type	Wellhead
Date Release Discovered	September 20, 2018	API# *(if applicable)*	30-015-37425

Unit Letter	Section	Township	Range	County
M	08	26S	28E	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) 0.25	Volume Recovered (bbls) 0
■ Produced Water	Volume Released (bbls) 14	Volume Recovered (bbls) 12
	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 a block ram failure. The rams have been repaired.
The release was on location. 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	
District RP	
Facility ID	
Application ID	

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

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: 9/24/18

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

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP 4982
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?	<50 (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
515 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 4982
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: 12/7/18

email: itavarez@concho.com Telephone: 432-683-7443

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP 4982
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

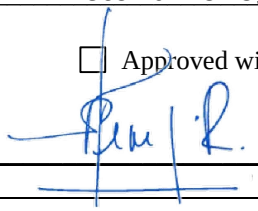
Signature:  Date: 12/7/18

email: itavarez@concho.com Telephone: 432-683-7443

OCD Only

Received by: Victoria Venegas Date: 02/12/2019

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

Signature:  Date: 02/15/2019

Appendix B

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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Twn	Rng	X	Y		Depth Well	Depth Water	Water Column
C 01668		CUB	ED		3	3	12	26S	28E	589957	3546554*		250	100	150
C 02160		CUB	ED	4	1	2	14	26S	28E	589243	3546044*		300	120	180
C 02160 S		CUB	ED	1	1	2	14	26S	28E	589043	3546244*		300	120	180
C 02160 S2		CUB	ED	1	1	2	14	26S	28E	589043	3546244*		300	120	180
C 02160 S3		CUB	ED	2	2	1	14	26S	28E	588834	3546241*		300	120	180
C 02160 S4		CUB	ED	2	2	1	14	26S	28E	588834	3546241*		300	120	180
C 02160 S5		CUB	ED	1	1	1	14	26S	28E	588225	3546237*		300	120	180
C 02160 S6		CUB	ED	3	3	1	14	26S	28E	588232	3545635*		300	120	180
C 02160 S7		CUB	ED	3	3	1	22	26S	28E	586638	3543998*		300	120	180
C 02160 S8		CUB	ED	2	3	3	12	26S	28E	590056	3546653*		200	120	80
C 02160 S9		CUB	ED	3	3	2	02	26S	28E	589020	3548868*		300	120	180
C 02477		CUB	ED		1	1	03	26S	28E	586687	3549347*		150		
C 02478		CUB	ED		2	1	05	26S	28E	583848	3549325*		100		
C 02479		CUB	ED		4	4	10	26S	28E	587909	3546534*		200		
C 02480		CUB	ED		4	4	10	26S	28E	587909	3546534*		150		
C 02481		CUB	ED		1	1	14	26S	28E	588326	3546138*		200		
C 02894		C	ED	2	2	3	12	26S	28E	590458	3547061*		240		
C 02924		C	ED	1	3	2	11	26S	28E	589032	3547451*				
C 04022 POD1		CUB	ED	4	4	2	15	26S	28E	588082	3545647		220	175	45
C 04022 POD2		CUB	ED	2	2	2	27	26S	28E	588106	3543082		250	145	105

Average Depth to Water: **124 feet**

Minimum Depth: **100 feet**

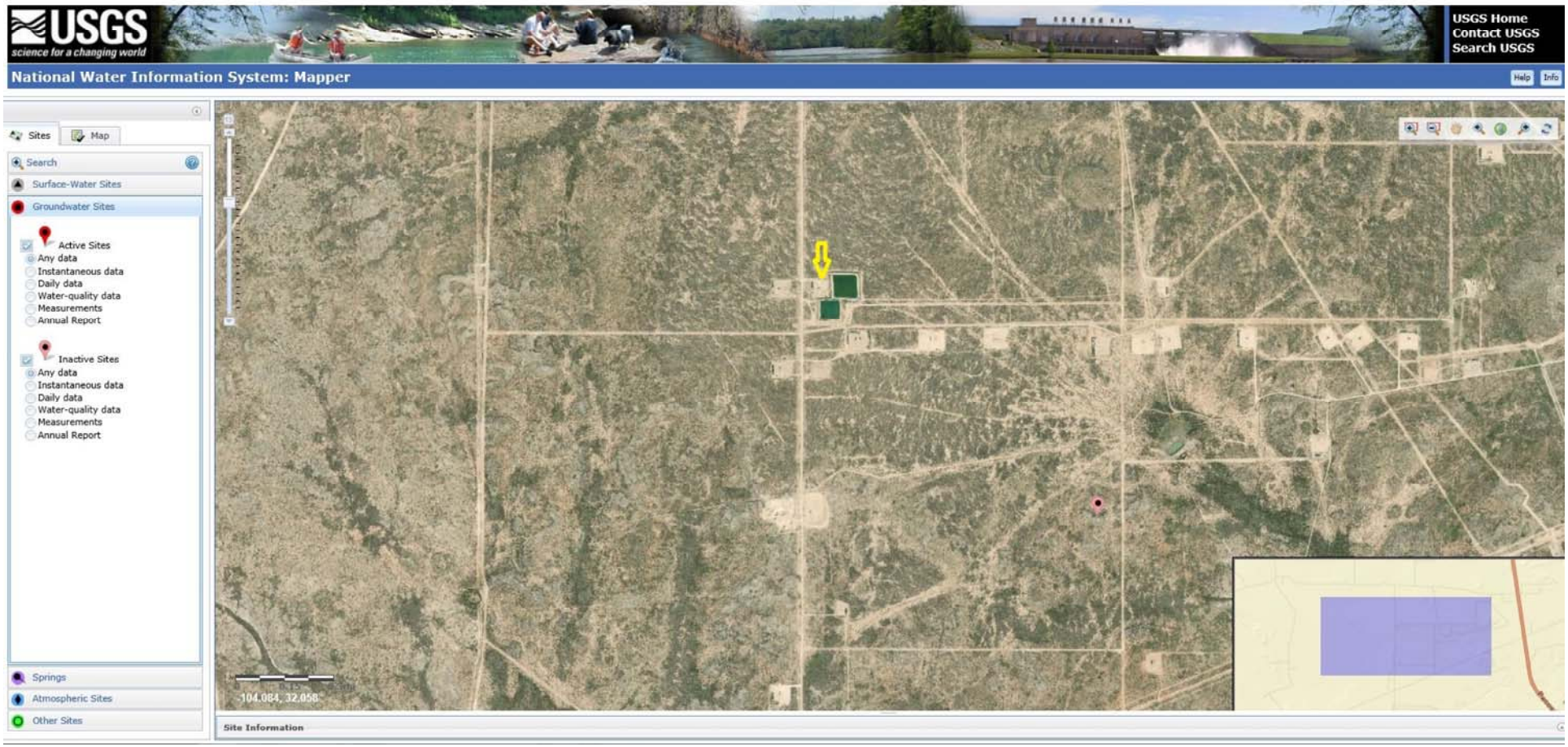
Maximum Depth: **175 feet**

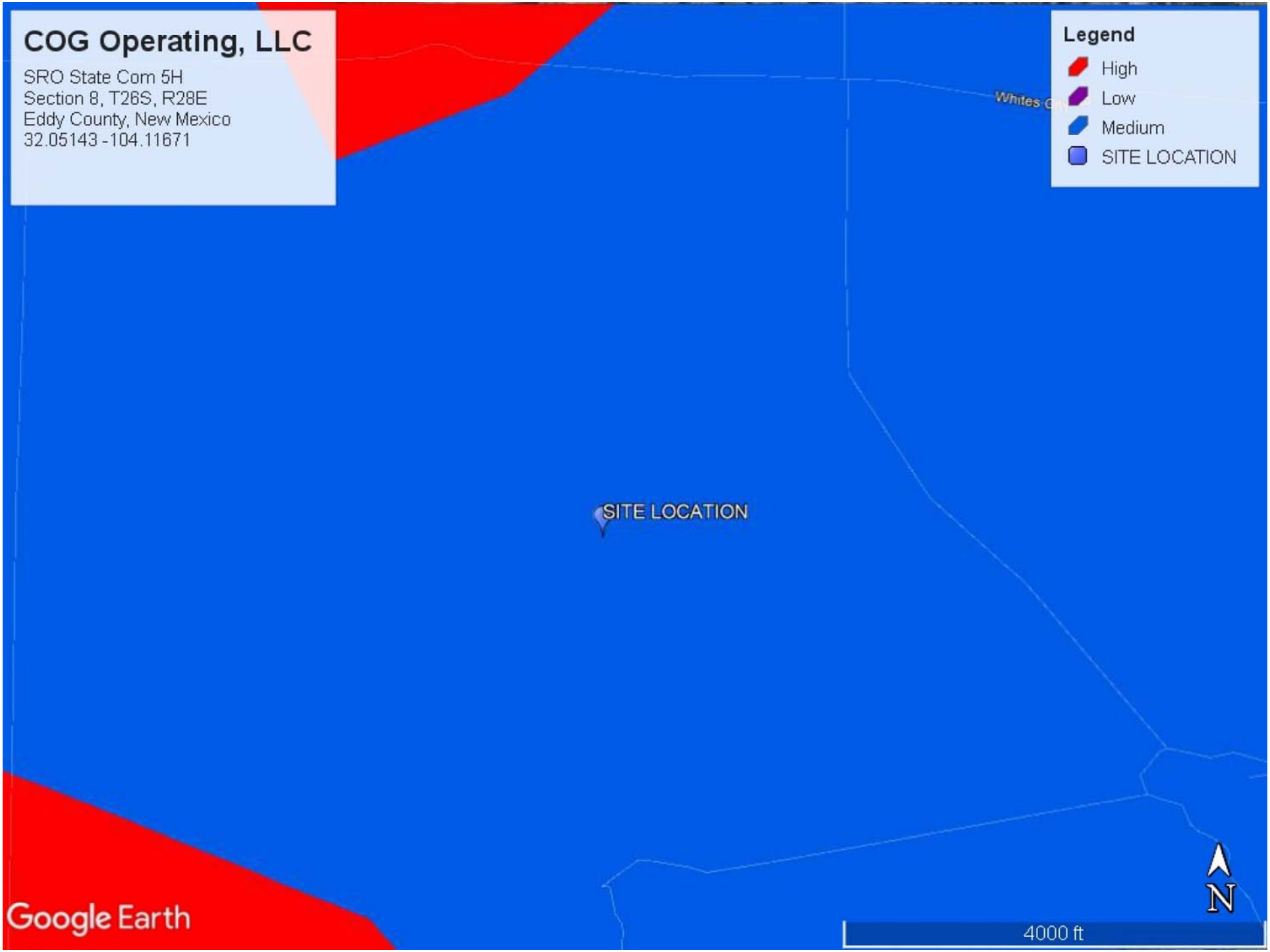
Record Count: 20

PLSS Search:

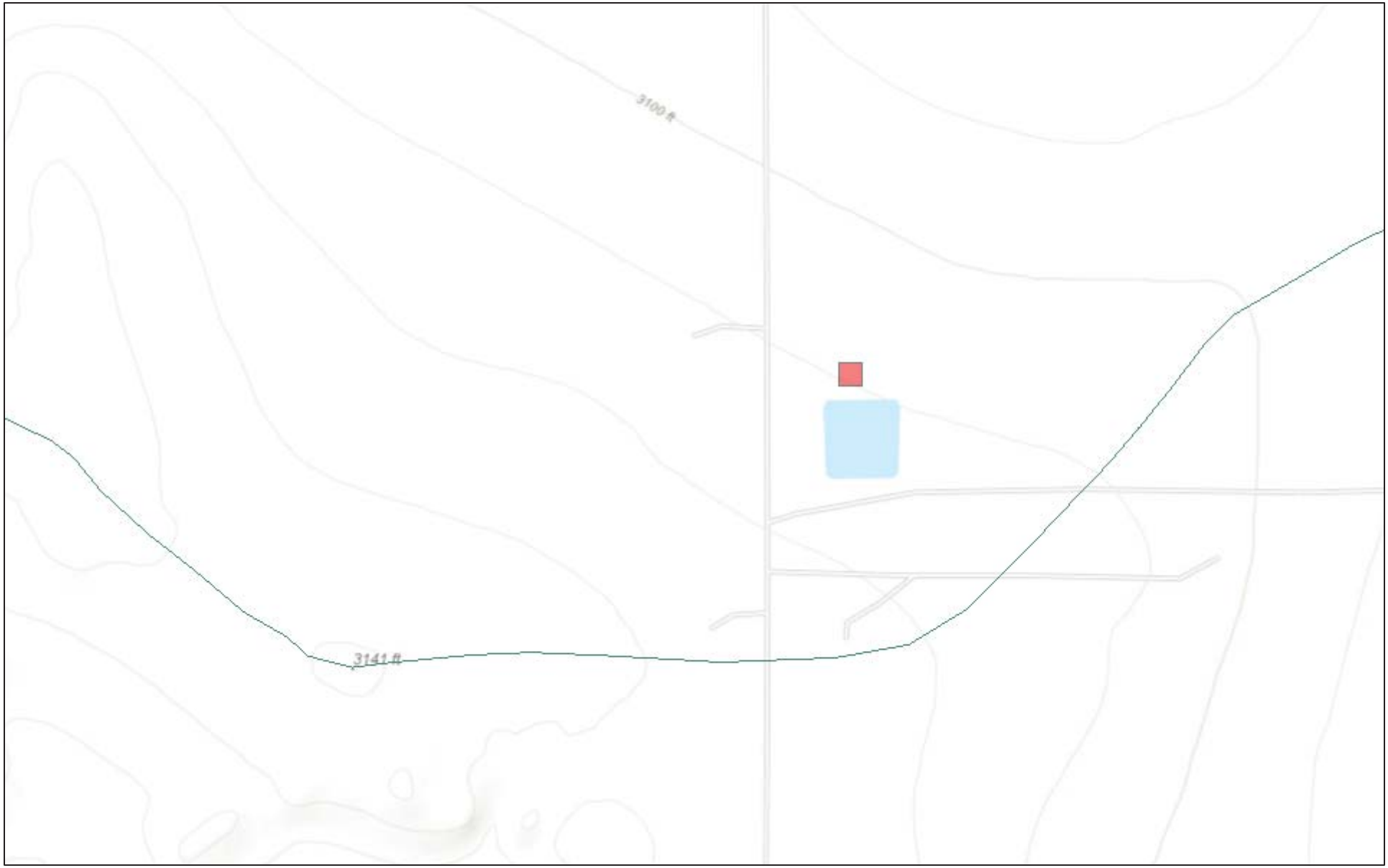
Township: 26S **Range:** 28E

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


USGS
science for a changing world
USGS Home
Contact USGS
Search USGS
National Water Information System: Mapper
Help
Info
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
-104.084, 32.058
Site Information


COG Operating, LLC
SRO State Com 5H
Section 8, T26S, R28E
Eddy County, New Mexico
32.05143 -104.11671
Legend
High
Low
Medium
SITE LOCATION
SITE LOCATION
Google Earth
N
4000 ft

New Mexico NFHL Data



December 7, 2018

1:9,028

0 0.075 0.15 0.3 mi

0 0.1 0.2 0.4 km

FEMA
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

Click to hideNews Bulletins

- Please see news on new formats
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 320230104060601

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

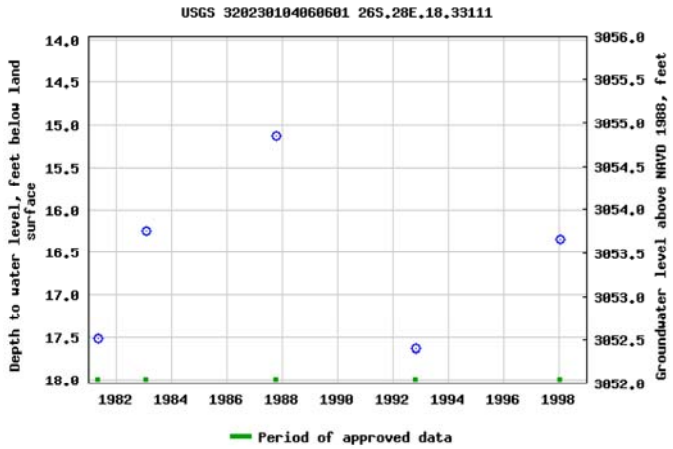
USGS 320230104060601 26S.28E.18.33111

Available data for this site | Groundwater: Field measurements | GO

Eddy County, New Mexico
Hydrologic Unit Code --
Latitude 32°02'30", Longitude 104°06'06" NAD27
Land-surface elevation 3,070 feet above NAVD88
This well is completed in the Castile Gypsum (312CSTL) 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

Appendix C

CARDINAL Laboratories

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

November 29, 2018

DAKOTA NEEL

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: SRO STATE UNIT COM #5H

Enclosed are the results of analyses for samples received by the laboratory on 11/20/18 11:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING
DAKOTA NEEL
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	SRO STATE UNIT COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S1 - SURFACE (H803395-01)

BTEX 8260B mg/kg **Analyzed By: ms**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	11/26/2018	ND	2.20	110	2.00	5.84	
Toluene*	**0.028**	0.025	11/26/2018	ND	2.26	113	2.00	2.70	
Ethylbenzene*	<0.025	0.025	11/26/2018	ND	2.18	109	2.00	0.118	
Total Xylenes*	<0.075	0.075	11/26/2018	ND	7.28	121	6.00	4.01	
Total BTEX	<0.150	0.150	11/26/2018	ND					

Surrogate: Dibromofluoromethane	*100 %*	*90.4-111*
Surrogate: Toluene-d8	*101 %*	*85.3-114*
Surrogate: 4-Bromofluorobenzene	*94.5 %*	*80.1-121*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**6240**	16.0	11/28/2018	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/26/2018	ND	208	104	200	0.163	
DRO >C10-C28*	**84.1**	10.0	11/26/2018	ND	234	117	200	0.618	
EXT DRO >C28-C36	**25.1**	10.0	11/26/2018	ND					

Surrogate: 1-Chlorooctane	*72.0 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*86.9 %*	*37.6-147*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING
DAKOTA NEEL
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	SRO STATE UNIT COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S1 - 1' (H803395-02)

BTEX 8260B mg/kg **Analyzed By: ms**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	11/26/2018	ND	2.20	110	2.00	5.84	
Toluene*	<0.025	0.025	11/26/2018	ND	2.26	113	2.00	2.70	
Ethylbenzene*	<0.025	0.025	11/26/2018	ND	2.18	109	2.00	0.118	
Total Xylenes*	<0.075	0.075	11/26/2018	ND	7.28	121	6.00	4.01	
Total BTEX	<0.150	0.150	11/26/2018	ND					

Surrogate: Dibromofluoromethane	*99.8 %*	*90.4-111*
Surrogate: Toluene-d8	*104 %*	*85.3-114*
Surrogate: 4-Bromofluorobenzene	*86.0 %*	*80.1-121*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	11/28/2018	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/26/2018	ND	208	104	200	0.163	
DRO >C10-C28*	<10.0	10.0	11/26/2018	ND	234	117	200	0.618	
EXT DRO >C28-C36	<10.0	10.0	11/26/2018	ND					

Surrogate: 1-Chlorooctane	*79.9 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*86.8 %*	*37.6-147*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

COG OPERATING
DAKOTA NEEL
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	SRO STATE UNIT COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S2 - SURFACE (H803395-08)

BTEX 8260B mg/kg **Analyzed By: ms**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	11/26/2018	ND	2.20	110	2.00	5.84	
Toluene*	<0.025	0.025	11/26/2018	ND	2.26	113	2.00	2.70	
Ethylbenzene*	<0.025	0.025	11/26/2018	ND	2.18	109	2.00	0.118	
Total Xylenes*	<0.075	0.075	11/26/2018	ND	7.28	121	6.00	4.01	
Total BTEX	<0.150	0.150	11/26/2018	ND					

Surrogate: Dibromofluoromethane	*100 %*	*90.4-111*
Surrogate: Toluene-d8	*104 %*	*85.3-114*
Surrogate: 4-Bromofluorobenzene	*86.6 %*	*80.1-121*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2080**	16.0	11/28/2018	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/26/2018	ND	208	104	200	0.163	
DRO >C10-C28*	<10.0	10.0	11/26/2018	ND	234	117	200	0.618	
EXT DRO >C28-C36	<10.0	10.0	11/26/2018	ND					

Surrogate: 1-Chlorooctane	*85.2 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*93.5 %*	*37.6-147*

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Analytical Results For:

COG OPERATING
DAKOTA NEEL
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	SRO STATE UNIT COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S2 - 1' (H803395-09)

BTEX 8260B mg/kg **Analyzed By: ms**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	11/26/2018	ND	2.20	110	2.00	5.84	
Toluene*	<0.025	0.025	11/26/2018	ND	2.26	113	2.00	2.70	
Ethylbenzene*	<0.025	0.025	11/26/2018	ND	2.18	109	2.00	0.118	
Total Xylenes*	<0.075	0.075	11/26/2018	ND	7.28	121	6.00	4.01	
Total BTEX	<0.150	0.150	11/26/2018	ND					

Surrogate: Dibromofluoromethane	*106 %*	*90.4-111*
Surrogate: Toluene-d8	*104 %*	*85.3-114*
Surrogate: 4-Bromofluorobenzene	*84.8 %*	*80.1-121*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2560**	16.0	11/28/2018	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/26/2018	ND	208	104	200	0.163	
DRO >C10-C28*	<10.0	10.0	11/26/2018	ND	234	117	200	0.618	
EXT DRO >C28-C36	<10.0	10.0	11/26/2018	ND					

Surrogate: 1-Chlorooctane	*78.2 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*85.1 %*	*37.6-147*

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Analytical Results For:

COG OPERATING
DAKOTA NEEL
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	SRO STATE UNIT COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S2 - 2' (H803395-10)

BTEX 8260B mg/kg **Analyzed By: ms**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	11/26/2018	ND	2.20	110	2.00	5.84	
Toluene*	<0.025	0.025	11/26/2018	ND	2.26	113	2.00	2.70	
Ethylbenzene*	<0.025	0.025	11/26/2018	ND	2.18	109	2.00	0.118	
Total Xylenes*	<0.075	0.075	11/26/2018	ND	7.28	121	6.00	4.01	
Total BTEX	<0.150	0.150	11/26/2018	ND					

Surrogate: Dibromofluoromethane	*101 %*	*90.4-111*
Surrogate: Toluene-d8	*102 %*	*85.3-114*
Surrogate: 4-Bromofluorobenzene	*85.2 %*	*80.1-121*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**816**	16.0	11/28/2018	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/26/2018	ND	208	104	200	0.163	
DRO >C10-C28*	<10.0	10.0	11/26/2018	ND	234	117	200	0.618	
EXT DRO >C28-C36	<10.0	10.0	11/26/2018	ND					

Surrogate: 1-Chlorooctane	*83.8 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*93.1 %*	*37.6-147*

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Analytical Results For:

COG OPERATING
DAKOTA NEEL
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	SRO STATE UNIT COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S2 - 3' (H803395-11)

BTEX 8260B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	11/26/2018	ND	2.20	110	2.00	5.84	
Toluene*	<0.025	0.025	11/26/2018	ND	2.26	113	2.00	2.70	
Ethylbenzene*	<0.025	0.025	11/26/2018	ND	2.18	109	2.00	0.118	
Total Xylenes*	<0.075	0.075	11/26/2018	ND	7.28	121	6.00	4.01	
Total BTEX	<0.150	0.150	11/26/2018	ND					

Surrogate: Dibromofluoromethane	*103 %*	*90.4-111*
Surrogate: Toluene-d8	*102 %*	*85.3-114*
Surrogate: 4-Bromofluorobenzene	*86.8 %*	*80.1-121*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**208**	16.0	11/28/2018	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/26/2018	ND	208	104	200	0.163	
DRO >C10-C28*	<10.0	10.0	11/26/2018	ND	234	117	200	0.618	
EXT DRO >C28-C36	<10.0	10.0	11/26/2018	ND					

Surrogate: 1-Chlorooctane	*82.2 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*91.5 %*	*37.6-147*

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Analytical Results For:

COG OPERATING
DAKOTA NEEL
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	SRO STATE UNIT COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S3 - SURFACE (H803395-14)

BTEX 8260B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	11/26/2018	ND	2.20	110	2.00	5.84	
Toluene*	<0.025	0.025	11/26/2018	ND	2.26	113	2.00	2.70	
Ethylbenzene*	<0.025	0.025	11/26/2018	ND	2.18	109	2.00	0.118	
Total Xylenes*	<0.075	0.075	11/26/2018	ND	7.28	121	6.00	4.01	
Total BTEX	<0.150	0.150	11/26/2018	ND					

Surrogate: Dibromofluoromethane	*102 %*	*90.4-111*
Surrogate: Toluene-d8	*104 %*	*85.3-114*
Surrogate: 4-Bromofluorobenzene	*86.6 %*	*80.1-121*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	11/28/2018	ND	400	100	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/26/2018	ND	208	104	200	0.163	
DRO >C10-C28*	<10.0	10.0	11/26/2018	ND	234	117	200	0.618	
EXT DRO >C28-C36	<10.0	10.0	11/26/2018	ND					

Surrogate: 1-Chlorooctane	*80.0 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*84.2 %*	*37.6-147*

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Celey D. Keene, Lab Director/Quality Manager

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Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
BS1	Blank spike recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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1 of 3

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: COG	**BILL TO**
Project Manager:	P.O. #:
Address:	Company: COG
City: State: Zip:	Attn: Dakota Neel
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: SRO State Unit Com #5H	State: Zip:
Project Location:	Phone #:
Sampler Name: Lupe Carrasco	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST		
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	BTEX	TPH	Chlorides
H803395																	
1	SI - Surface	X				X							11/19/18		X	X	X
2	SI - 1'	X													X	X	X
3	SI - 2'	X													X	X	X
4	SI - 3'	X													X	X	X
5	SI - 6'														X	X	X
6	SI - 8'														X	X	X
7	SI - 10'														X	X	X

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Relinquished By:	Date: 11/20/18	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Time: 11:20am	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
	Date:		REMARKS: * Run until Chlorides fall below 600ppm
	Time:		lupemarketing@gmail.com

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 4.1°C #97

Sample Condition		CHECKED BY: (Initials)
Cool: ☑ Yes ☐ No	Intact: ☑ Yes ☐ No	TO

+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: COG	BILL TO
Project Manager:	P.O. #:
Address:	Company: COG
City: State: Zip:	Attn: Dakota
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: SRO State Unit Com #5H	State: Zip:
Project Location:	Phone #:
Sampler Name: Lupe Carrasco	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX	TPH	Chlorides
8	52 - Surface	G	1			X							11/19/14		X	X	X
9	52 - 1'	G	1			X									X	X	X
10	52 - 2'	G	1			X									X	X	X
11	52 - 3'	G	1			X									X	X	X
12	52 - 4'	G	1			X									X	X	X
13	52 - 6'	G	1			X							11/19/14		X	X	X

Relinquished By:	Date: 11/20/14	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 11:20am	Tamara Oldaker	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 4.1° #67

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No
CHECKED BY: (Initials) T.O.

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CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	COG
Project Manager:	[illegible]
Address:	
City:	State: Zip:
Phone #:	Fax #:
Project #:	Project Owner:
Project Name:	SRO State Unit Com #5H
Project Location:	
Sampler Name:	Lupe Carrasco

BILL TO	
P.O. #:	
Company:	COG
Attn:	Dakota
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX	TPH	Chlorides
14	53 - Surface												11/19/18		X	X	X
15	53 - 1'														X	X	X
16	53 - 2'														X	X	X
17	53 - 3'														X	X	X
18	53 - 4'														X	X	X
19	53 - 6'												11/19/18		X	X	X

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Relinquished By:	Date: 11/20/18	Received By:	Tamara Oldaker
Relinquished By:	Time: 11:29am	Received By:	
Delivered By: (Circle One)	Date:		
Sampler - UPS - Bus - Other:	Time:		

Sample Condition		CHECKED BY: (Initials)
Cool: Yes / No	Intact: Yes / No	
4.1°	#97	TO

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326