



February 14, 2018

Ms. Crystal Weaver  
New Mexico Oil Conservation Division (OCD), District 2  
811 South First Street  
Artesia, NM 88210

Re: Site Characterization Work Plan  
Central Dagger Draw Water Station  
2RP-4298  
Section 3, T20S-R24E  
Eddy County, New Mexico

Dear Ms. Weaver:

On behalf of EOG Resources, Inc. (EOG Y), Ranger Environmental Services, Inc. (Ranger) has prepared the following work plan in response to the C-141 report dated July 24, 2017 for the referenced release location.

## **SITE LOCATION**

The Central Dagger Draw Water Station is located on BLM land (surface and mineral) approximately 15 miles south of Artesia along Rock Daisy Road in Eddy County, New Mexico. The facility is situated in Section 3, T20S-R24E at GPS coordinates 32.60096; -104.56909.

## **BACKGROUND**

On July 21, 2017, EOG Y submitted to the NMOCD District II office a Form C-141 for the release of 18 B/PW with 15 B/PW recovered. An approximate area of 36' x 16' was affected within the unlined and bermed battery between the production tanks. The release was caused by the failure of a valve to the booster pumps which caused a release of produced water. Vacuum trucks were dispatched to the site to remove all standing fluids which amounted to 15 bbls of produced water. NMOCD approved the initial Form C-141 on July 24, 2017 and issued remediation permit 2RP-4298. A copy of the approved initial Form C-141 is included as an attachment.

The facility storage tanks have been relocated north of the release location and a new tank battery has been constructed. Therefore, the former tank battery location is cleared to conduct proper assessment and remediation activities. Initial delineation samples were collected on October 11, 2017 and October 18, 2017 and sent to a NMOCD approved laboratory (results enclosed). A total of eight soil borings were installed, and 63 soil samples were collected for analysis of BTEX, TPH and chlorides. Laboratory reports and a table summarizing the laboratory results from the October 2017 sampling is included as an attachment. Additionally, an aerial site map documenting the location of the October 2017 soil borings is attached.

## SURFACE AND GROUND WATER

The New Mexico Office of the State Engineer (NM OSE) displays a groundwater depth for this area (Section 3, T20S-R24E) to be approximately 268 feet and the ChevronTexaco Trend Map displays a groundwater depth to be approximately 228 feet, making the site ranking a zero (0). Watercourses in the area are dry except for infrequent flows in response to major precipitation events.

The ranking for this site is zero (0) based on the as following:

<b>Ranking Criteria</b>		<b>Ranking Score</b>
Depth to Groundwater:	>100'	0
Wellhead Protection Area	>1,000'	0
Distance to Surface Water Body:	>1,000'	<u>0</u>
<b>Total Ranking Score:</b>		<b>0</b>

### **Site RRALS**

Benzene:	10 mg/Kg
BTEX:	50 mg/Kg
TPH:	5,000 mg/Kg

### **Chloride Delineation Goals**

Chloride:	600 mg/Kg
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## DELINEATION STATUS

### **Soil Delineation Current Status**

- Horizontal & Vertical BTEX/TPH Delineation:

**Horizontal** - The horizontal BTEX/TPH delineation goals were not achieved during the initial October 2017 soil assessment activities. Based on the sample results, there were documented exceedances of the site RRALS in soil borings S2, S3, S4 and S6. The exceedances were limited to soils occurring at depths of four (4) feet or shallower. The horizontal extent of the BTEX/TPH RRAL exceedances thus far have not been defined. **Additional Horizontal BTEX/TPH Delineation Required.**

**Vertical** - The vertical BTEX/TPH delineation goals were achieved during the initial October 2017 soil assessment activities. Based on the sample results, there were no exceedances of the site RRALS in any of the three soil boring beneath eight (8) feet. Benzene was delineated to nondetectable concentrations in each soil boring. The terminal drilling depth BTEX concentrations in the soil borings ranged from nondetectable to a maximum of 6.02 mg/Kg at a depth of 5' in boring S3. The terminal drilling depth TPH concentrations in the soil borings ranged from nondetectable to a maximum of 707.9 mg/Kg (at a depth of 5' in boring S3). **No Additional Vertical BTEX/TPH Delineation Required.**

- Horizontal & Vertical Chloride Delineation:

**Horizontal** - The horizontal chloride delineation goal is to delineate the soil chloride concentrations to below 600 mg/Kg, most critically in the 0'-4' depth interval. All eight (8)

Central Dagger Draw Water Station  
Site Characterization Work Plan

soil borings (S1 through S8) installed in October 2017 were found to exhibit chloride concentrations in excess of 600 mg/Kg within the 0' - 4' depth interval. The maximum documented soil chloride concentration (6,960 mg/Kg) was found in soil boring S2 at a depth of four (4) feet. Thus, the horizontal extent of chloride concentrations in excess of 600 mg/Kg have not been defined. ***Additional Horizontal Chloride Delineation Required.***

**Vertical** - The vertical chloride delineation goal is to delineate the soil chloride concentrations to below 600 mg/Kg, and to document at least 10' of separation between the base of the 600 mg/Kg chlorides level and the underlying groundwater. Soil boring S2 had the highest documented site chloride concentration (6,960 mg/Kg @ 4'). This boring also exhibited the deepest chloride impact in excess of 600 mg/kg (1,170 mg/Kg @ 10'). Boring S-2 was only advanced to 12', so only 2' of soil with <600 mg/Kg chloride was documented in October 2017. Thus, the vertical chloride delineation goal of documenting at least 10' of separation between the base of the 600 mg/Kg chlorides level and the underlying groundwater was not achieved. ***Additional Vertical Chloride Delineation Required.***

### ***Soil Delineation Work Plan***

As summarized above, additional horizontal BTEX/TPH delineation activities are needed to delineate the BTEX/TPH concentrations to below the site RRALs. Additional horizontal and vertical chloride delineation is needed to delineate the extent of the soil chlorides impact to 600 mg/Kg. As the release occurred within the bermed area around the former site storage tanks, it is suspected that the horizontal extent of the impacts may be largely confined to the former bermed area.

#### **BTEX/TPH Horizontal Delineation**

Ranger proposes to install four (4) horizontal delineation soil borings north, east, and south of S2, S3, S4, and S6 and just outside of the former bermed area where the release occurred. As RRAL exceedances were noted to a depth of 4 feet in soil borings S3 and S4, the horizontal delineation borings will be installed to a depth of 4 feet in order to delineate both the BTEX/TPH RRAL exceedances. Four soil samples will be collected for laboratory analysis from each boring at depths of 1', 2', 3', and 4'. The samples will be analyzed for BTEX using either Method 8021 or 8260 and TPH using Method 8015 extended range (GRO+DRO+MRO; C6-C36).

#### **BTEX/TPH Vertical Delineation**

None

#### **Chloride Horizontal Delineation**

Ranger proposes to install seven (7) horizontal delineation soil borings in all cardinal directions of the former tank battery. The horizontal delineation borings will be installed to a depth of 4 feet so that the boundaries of chloride-affected soils requiring remediation can be determined. Four soil samples will be collected for laboratory analysis from each boring at depths of 1', 2', 3', and 4'. The samples will be analyzed for chlorides using Method 300 (or equivalent). If elevated chloride concentrations are suspected within the proposed horizontal delineation borings based upon the field screening results, then Ranger may advance additional horizontal delineation soil borings and collect soil samples from appropriate depth intervals for laboratory analysis.

### **Chloride Vertical Delineation**

Ranger proposes to install one (1) vertical delineation soil boring offset to existing soil boring S2. The vertical delineation boring will be installed in order to attempt to delineate the soil chloride concentrations to below 600 mg/Kg, and to document at least 10' of separation between the base of the 600 mg/Kg chlorides level and the underlying groundwater. Ranger anticipates this boring to be installed to 20' bgs. Since boring S2 was already sampled to a depth of 12 feet, these depth intervals will not be re-sampled. Samples will be collected at appropriate depths in order to comply with the requirement that vertical characterization samples be taken at depth intervals no greater than five feet apart. Thus, the proposed boring will be sampled at 16' and 20'. The samples will be analyzed for chlorides using Method 300 (or equivalent). Please note that Ranger will also conduct field screening activities using a soil electrical conductivity (EC) meter. If elevated chloride concentrations are suspected at the 20' depth interval based upon the field screening results, then Ranger may advance the chloride vertical delineation soil boring to a depth greater than 20' and collect additional soil samples for laboratory analysis.

Attached are figures illustrating the locations of the proposed horizontal and vertical soil borings. Please note that a vertical BTEX/TPH delineation map is not included since no further BTEX/TPH vertical delineation was determined to be needed.

### ***Soil Remediation Work Plan***

Once the soil delineation activities are completed, all soil in excess of the BTEX and TPH RRALs will be excavated and backfilled with clean fill material. All soils in the depth interval of 0'-4' which contain chlorides in excess of 600 mg/Kg will also be excavated, a competent liner will be placed within the excavation, and the excavation will be backfilled with clean fill material. Excavation confirmation samples will be collected following site excavation to confirm removal of all soils in excess of the target remediation levels. The excavated soil will be hauled to a NMOCD-approved facility for disposal.

As previously indicated, the tank battery at this facility has been relocated north of the release location; however, the earthen berm associated with the former tank battery is still in place. The material associated with the facility berm will be stockpiled on visqueen plastic at the site and one soil sample per every 100 cubic yards will be collected. The soil samples collected from this material will be analyzed for BTEX using either Method 8021 or 8260, TPH using Method 8015 extended range, and chlorides using Method 300 (or equivalent). If the samples document that this material is below RRALs and chloride concentrations of 600 mg/Kg, then Ranger proposes to utilize this material as backfill for the site excavation. If the samples document this material is above RRALs or chloride concentrations of 600 mg/Kg, the material will be hauled to a NMOCD-approved facility for disposal.

When the remediation work is completed, a C-141 Final Report will be submitted to the NMOCD and site closure will be requested. The Final Report will include a summary of all completed site activities, including all analytical results, figures and analytical summary tables.

Central Dagger Draw Water Station  
Site Characterization Work Plan

Ranger sincerely appreciates your regulatory oversight. If you have any questions or need any additional information, please contact us at 512/335-1785.

Sincerely,

**RANGER ENVIRONMENTAL SERVICES, INC.**

A handwritten signature in blue ink, appearing to read 'P. Finn', with a long horizontal stroke extending to the right.

Patrick K. Finn  
Project Geologist

A handwritten signature in blue ink, appearing to read 'M. Cook', with a long horizontal stroke extending to the right.

Max Cook  
Project Manager

MC/PKF

Attachments

INITIAL C-141  
(2RP-4298)

**NM OIL CONSERVATION**

**NM OIL CONSERVATION**

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

ARTESIA DISTRICT  
State of New Mexico  
Energy Minerals and Natural Resources

ARTESIA DISTRICT  
Form C-141  
Revised August 8, 2011

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

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

RECEIVED

RECEIVED

FAB1720532799  
NAB1720532956

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

Name of Company EOG Y Resources, Inc.	Contact Chase Settle
Address 104 S. 4 <sup>th</sup> Street	Telephone No. 575-748-1471
Facility Name Central Dagger Draw Water Station	Facility Type Water Transfer Station

Surface Owner Federal	Mineral Owner Federal	API No. N/A
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	3	20S	24E	2080	South	660	East	Eddy

Latitude 32.60096 Longitude -104.56909

**NATURE OF RELEASE**

Type of Release Produced Water	Volume of Release 18 B/PW	Volume Recovered 15 B/PW
Source of Release Valve failure on booster pump	Date and Hour of Occurrence 7/10/2017; 2:30 PM	Date and Hour of Discovery 7/11/2017; 1:20 PM
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom? N/A	Date and Hour N/A	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*  
Describe Cause of Problem and Remedial Action Taken.\*  
There was a failure of a valve to the booster pumps which caused a release of produced water.  
Describe Area Affected and Cleanup Action Taken.\*  
An approximate area of 36 x 16 feet was affected within the bermed battery, between the production tanks. Vacuum trucks were called to recover any standing fluid. Excavated soils will be hauled to a NMOCD approved facility. Vertical and horizontal delineation samples will be taken and analysis ran for TPH & BTEX (chlorides for documentation). If initial analytical results for TPH & BTEX are under RRAL's (site ranking is 0) a Final Report, C-141 will be submitted to the OCD requesting closure. **Depth to Ground Water: >100' (approximately 228', Section 3, T20S-R24E, per Trend Map), Wellhead Protection Area: No, Distance to Surface Water Body: >1000', SITE RANKING IS ZERO (0).**  
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Chase Settle	Approved by Environmental Specialist	
Title: Rep Safety & Environmental II	Approval Date: 7/24/17	Expiration Date: N/A
E-mail Address: chase_settle@eogresources.com	Conditions of Approval: <i>see attached</i>	Attached <input checked="" type="checkbox"/>
Date: July 20, 2017	Phone: 575-748-4171	

Please refer to the New Mexico Oil Conservation Division Website for updated form(s) at:  
<http://www.emnrd.state.nm.us/OCD/forms.html>  
Thank you

2RP-4298

7/24/17 AB

Operator/Responsible Party,

The OCD has received the form C-141 you provided on **7/21/17** regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-4298 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

*The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]*

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District II office in Artesia on or before 8/21/17. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

**Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.**

**Jim Griswold**

OCD Environmental Bureau Chief

1220 South St. Francis Drive

Santa Fe, New Mexico 87505

505-476-3465

[jim.griswold@state.nm.us](mailto:jim.griswold@state.nm.us)

## Weaver, Crystal, EMNRD

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**From:** Darlene Chavarria <Darlene\_Chavarria@eogresources.com>  
**Sent:** Friday, July 21, 2017 2:05 PM  
**To:** Bratcher, Mike, EMNRD; Weaver, Crystal, EMNRD; jamos@blm.gov; stucker@blm.gov  
**Cc:** Chase Settle; Bob Asher; Katie Parker; Yvette Moore  
**Subject:** Central Dagger Draw Water Station  
**Attachments:** Central Dagger Draw Water Station.pdf

Good Afternoon,

Please find attached the C-141 Initial for the below listed location. The release occurred between the 2 rows of storage tanks within the berm of the battery facility. The proximity of the two rows of tanks, the electrical lines between the tanks, and the underground production lines do not allow for any mechanical sampling to occur safely, therefore all work will be delayed until the tanks have been removed during the relocation procedure of this transfer facility which is already underway and will be completed in the next month or two.

Central Dagger Draw Water Station

Thank you.



Darlene Chavarria  
Safety & Environmental  
Office 575-748-4368  
Extension 54368  
[Darlene\\_chavarria@eogresources.com](mailto:Darlene_chavarria@eogresources.com)

## SITE MAP & TABLES



NEW TANK BATTERY LOCATION

FORMER TANK BATTERY LOCATION

S1

S2

S3

S4

S5

S6

S7

S8

1" = ~25'

**LEGEND**

● - SAMPLE LOCATION  
\* ALL PROPERTY BOUNDARIES ARE APPROXIMATE & NOT TO BE USED FOR CONSTRUCTION PURPOSES

**RANGER ENVIRONMENTAL SERVICES, INC.**

SITE MAP  
CENTRAL DAGGER DRAW WATER STATION  
SECTION 3, T20S-R24E  
EDDY COUNTY, NEW MEXICO

DATE: | **RANGER REFERENCE #5375**

COMMENTS:

### Central Dagger Draw Sample Analysis

Sample ID	Depth (ft. bgs)	Date	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH (GRO)	TPH (DRO)	TPH EXT DRO	Total TPH	Chlorides
S1-1'	1'	10/11/17	1.67	6.80	9.96	17.9	36.3	157	711	132	1000	5680
S1-2'	2'	10/11/17	0.136	0.276	0.45	1.31	2.18	55.5	8.63	170	234.13	5670
S1-3'	3'	10/11/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	11.5	11.5	1120
S1-4'	4'	10/11/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	12.1	<10.0	12.1	2000
S1-6'	6'	10/11/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2960
S1-8'	8'	10/11/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	3080
S1-10'	10'	10/11/17	<0.050	<0.050	0.183	0.486	<0.300	24.0	302	52.1	378.1	560
S1-11.5'	11.5'	10/11/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	272
S2-1'	1'	10/11/17	0.209	<0.050	0.131	0.359	0.699	36.6	1000	200	1236.6	3120
S2-2'	2'	10/11/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	32.2	15.1	47.3	3120
S3-3'	3'	10/11/17	2.33	14.0	31.9	56.6	105	1030	4100	646	5776	4000
S2-4'	4'	10/11/17	<0.050	0.050	0.098	0.158	0.306	<10.0	10.2	<10.0	10.2	6960
S2-6'	6'	10/11/17	<0.050	0.568	0.944	1.83	3.35	22.1	275	74.8	371.9	3360
S2-8'	8'	10/11/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2000
S2-10'	10'	10/11/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1170
S2-12'	12'	10/11/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	512
S3-1'	1'	10/11/17	<0.500	3.57	<0.500	127	130	1230	9110	1450	11790	1920
S3-2'	2'	10/11/17	29.4	135	35.7	248	448	3090	11700	1840	16630	1410
S3-3'	3'	10/11/17	45.5	226	137	321	729	2130	7760	1210	11100	4240
S3-4'	4'	10/18/17	5.08	28.3	13.7	70.5	118	902	6250	1070	8222	2280
S3-5'	5'	10/18/17	<0.050	0.781	1.65	3.60	6.02	55.9	550	102	707.9	400
S4-1'	1'	10/18/17	0.069	<0.050	1.74	2.62	4.43	409	5560	1140	7109	448
S4-2'	2'	10/18/17	2.43	1.40	4.83	6.32	15.0	336	4560	927	5823	368
S4-3'	3'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	246	111	357	384
S4-4'	4'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	94.2	6360	1460	7914.2	784
S4-6'	6'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	2400	901	3301	608
S4-8'	8'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	18.0	45.2	63.2	432
S4-10'	10'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	384
S4-12'	12'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	224
S4-13.5	13.5'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	112
S5-1'	1'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	26.0	2510	743	3279	608
S5-2'	2'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	14.4	28.6	43	624
S5-3'	3'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	192
S5-4'	5'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	224
S5-6'	6'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	64
S5-8'	8'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	48
S5-10'	10'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	64
S5-12'	12'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	160
S6-1'	1'	10/18/17	<2.00	36.7	30.2	239	305	4480	1970	477	6927	1420
S6-2'	2'	10/18/17	<2.00	11.0	18.6	186	216	3500	1850	405	5755	1920
S6-3'	3'	10/18/17	<0.500	8.66	12.9	138	159	869	409	105	1383	560
S6-4'	4'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	34.3	24.6	58.9	208
S6-6'	6'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	15.5	87.1	33.3	135.9	144
S6-8'	8'	10/18/17	<0.050	<0.050	<0.050	0.284	<0.300	33.9	554	257	844.9	432
S6-10'	10'	10/18/17	<0.100	<0.100	<0.100	8.70	8.70	330	1310	370	2010	144
S6-12'	12'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	18.2	639	291	948.2	240
S6-14'	14'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	20.0	20.0	224
S6-16'	16'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	11.5	<10.0	11.5	512
S7-1'	1'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1280
S7-2'	2'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	145	84	129	1250
S7-3'	3'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	38.1	19.3	57.4	3080
S7-4'	4'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	136	121	257	480
S7-6'	6'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	25.5	21.9	47.4	3280
S7-8'	8'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	51.7	34.8	86.5	672
S7-10'	10'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	320
S7-12'	12'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	384
S7-14'	14'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	480
S8-1'	1'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1060
S8-2'	2'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1520
S8-3'	3'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2360
S8-4'	4'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	288
S8-5'	5'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	244	136	380	256
S8-6'	6'	10/18/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	80

# LABORATORY REPORT(S)



October 24, 2017

CHASE SETTLE  
EOG Y RESOURCES, INC  
105 SOUTH 4TH STREET  
ARTESIA, NM 88210

RE: CENTRAL DAGGER DRAW WATER STATION

Enclosed are the results of analyses for samples received by the laboratory on 10/18/17 15:59.

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

Cardinal Laboratories is accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene  
Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S1 - 1' (H702828-01)**

BTEX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>1.67</b>	0.050	10/20/2017	ND	1.72	86.2	2.00	0.526	
<b>Toluene*</b>	<b>6.80</b>	0.050	10/20/2017	ND	1.73	86.5	2.00	0.748	
<b>Ethylbenzene*</b>	<b>9.96</b>	0.050	10/20/2017	ND	1.75	87.6	2.00	1.02	
<b>Total Xylenes*</b>	<b>17.9</b>	0.150	10/20/2017	ND	5.30	88.3	6.00	2.27	
<b>Total BTEX</b>	<b>36.3</b>	0.300	10/20/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 150 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>5680</b>	16.0	10/23/2017	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
<b>GRO C6-C10</b>	<b>157</b>	10.0	10/19/2017	ND	224	112	200	8.96	
<b>DRO &gt;C10-C28</b>	<b>711</b>	10.0	10/19/2017	ND	241	120	200	13.4	
<b>EXT DRO &gt;C28-C36</b>	<b>132</b>	10.0	10/19/2017	ND					

Surrogate: 1-Chlorooctane 103 % 28.3-164

Surrogate: 1-Chlorooctadecane 96.5 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S1 - 2' (H702828-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>0.136</b>	0.050	10/20/2017	ND	1.72	86.2	2.00	0.526	
<b>Toluene*</b>	<b>0.276</b>	0.050	10/20/2017	ND	1.73	86.5	2.00	0.748	
<b>Ethylbenzene*</b>	<b>0.455</b>	0.050	10/20/2017	ND	1.75	87.6	2.00	1.02	
<b>Total Xylenes*</b>	<b>1.31</b>	0.150	10/20/2017	ND	5.30	88.3	6.00	2.27	
<b>Total BTEX</b>	<b>2.18</b>	0.300	10/20/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 148 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>5760</b>	16.0	10/23/2017	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
<b>GRO C6-C10</b>	<b>55.5</b>	10.0	10/19/2017	ND	224	112	200	8.96	
<b>DRO &gt;C10-C28</b>	<b>863</b>	10.0	10/19/2017	ND	241	120	200	13.4	
<b>EXT DRO &gt;C28-C36</b>	<b>170</b>	10.0	10/19/2017	ND					

Surrogate: 1-Chlorooctane 98.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 97.0 % 34.7-157

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S1 - 3' (H702828-03)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/20/2017	ND	1.71	85.3	2.00	1.15	QR-03	
Toluene*	<0.050	0.050	10/20/2017	ND	1.70	84.8	2.00	0.528	QR-03	
Ethylbenzene*	<0.050	0.050	10/20/2017	ND	1.70	84.9	2.00	1.24	QR-03	
Total Xylenes*	<0.150	0.150	10/20/2017	ND	5.05	84.2	6.00	1.09	QR-03	
Total BTEX	<0.300	0.300	10/20/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1120</b>	16.0	10/23/2017	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	10/19/2017	ND	224	112	200	8.96		
DRO >C10-C28	<10.0	10.0	10/19/2017	ND	241	120	200	13.4		
<b>EXT DRO &gt;C28-C36</b>	<b>11.5</b>	10.0	10/19/2017	ND						

Surrogate: 1-Chlorooctane 86.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 81.0 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S1 - 4' (H702828-04)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/20/2017	ND	1.71	85.3	2.00	1.15		
Toluene*	<0.050	0.050	10/20/2017	ND	1.70	84.8	2.00	0.528		
Ethylbenzene*	<0.050	0.050	10/20/2017	ND	1.70	84.9	2.00	1.24		
Total Xylenes*	<0.150	0.150	10/20/2017	ND	5.05	84.2	6.00	1.09		
Total BTEX	<0.300	0.300	10/20/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>2000</b>	16.0	10/23/2017	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	10/19/2017	ND	224	112	200	8.96		
<b>DRO &gt;C10-C28</b>	<b>12.1</b>	10.0	10/19/2017	ND	241	120	200	13.4		
EXT DRO >C28-C36	<10.0	10.0	10/19/2017	ND						

Surrogate: 1-Chlorooctane 82.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 79.2 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S1 - 6' (H702828-05)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/20/2017	ND	1.71	85.3	2.00	1.15		
Toluene*	<0.050	0.050	10/20/2017	ND	1.70	84.8	2.00	0.528		
Ethylbenzene*	<0.050	0.050	10/20/2017	ND	1.70	84.9	2.00	1.24		
Total Xylenes*	<0.150	0.150	10/20/2017	ND	5.05	84.2	6.00	1.09		
Total BTEX	<0.300	0.300	10/20/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2960	16.0	10/23/2017	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	10/19/2017	ND	224	112	200	8.96		
DRO >C10-C28	<10.0	10.0	10/19/2017	ND	241	120	200	13.4		
EXT DRO >C28-C36	<10.0	10.0	10/19/2017	ND						

Surrogate: 1-Chlorooctane 85.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 81.2 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S1 - 8' (H702828-06)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/20/2017	ND	1.71	85.3	2.00	1.15	
Toluene*	<0.050	0.050	10/20/2017	ND	1.70	84.8	2.00	0.528	
Ethylbenzene*	<0.050	0.050	10/20/2017	ND	1.70	84.9	2.00	1.24	
Total Xylenes*	<0.150	0.150	10/20/2017	ND	5.05	84.2	6.00	1.09	
Total BTEX	<0.300	0.300	10/20/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>3080</b>	16.0	10/23/2017	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	10/19/2017	ND	224	112	200	8.96	
DRO >C10-C28	<10.0	10.0	10/19/2017	ND	241	120	200	13.4	
EXT DRO >C28-C36	<10.0	10.0	10/19/2017	ND					

Surrogate: 1-Chlorooctane 94.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 90.7 % 34.7-157

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S1 - 10' (H702828-07)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/21/2017	ND	1.71	85.3	2.00	1.15	
Toluene*	<0.050	0.050	10/21/2017	ND	1.70	84.8	2.00	0.528	
<b>Ethylbenzene*</b>	<b>0.183</b>	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24	
<b>Total Xylenes*</b>	<b>0.486</b>	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09	
<b>Total BTEX</b>	<b>0.669</b>	0.300	10/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>560</b>	16.0	10/23/2017	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
<b>GRO C6-C10</b>	<b>24.0</b>	10.0	10/19/2017	ND	224	112	200	8.96	
<b>DRO &gt;C10-C28</b>	<b>302</b>	10.0	10/19/2017	ND	241	120	200	13.4	
<b>EXT DRO &gt;C28-C36</b>	<b>52.1</b>	10.0	10/19/2017	ND					

Surrogate: 1-Chlorooctane 98.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 98.9 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S1 - 11.5' (H702828-08)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/21/2017	ND	1.71	85.3	2.00	1.15		
Toluene*	<0.050	0.050	10/21/2017	ND	1.70	84.8	2.00	0.528		
Ethylbenzene*	<0.050	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24		
Total Xylenes*	<0.150	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09		
Total BTEX	<0.300	0.300	10/21/2017	ND						

*Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>272</b>	16.0	10/23/2017	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	10/19/2017	ND	224	112	200	8.96		
DRO >C10-C28	<10.0	10.0	10/19/2017	ND	241	120	200	13.4		
EXT DRO >C28-C36	<10.0	10.0	10/19/2017	ND						

*Surrogate: 1-Chlorooctane 89.0 % 28.3-164*
*Surrogate: 1-Chlorooctadecane 86.5 % 34.7-157*

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- 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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Celey D. Keene, Lab Director/Quality Manager



October 24, 2017

CHASE SETTLE  
EOG Y RESOURCES, INC  
105 SOUTH 4TH STREET  
ARTESIA, NM 88210

RE: CENTRAL DAGGER DRAW WATER STATION

Enclosed are the results of analyses for samples received by the laboratory on 10/18/17 16:05.

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

Cardinal Laboratories is accredited 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  
Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S2 - 1' (H702829-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>0.209</b>	0.050	10/21/2017	ND	1.71	85.3	2.00	1.15	
Toluene*	<0.050	0.050	10/21/2017	ND	1.70	84.8	2.00	0.528	
<b>Ethylbenzene*</b>	<b>0.131</b>	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24	
<b>Total Xylenes*</b>	<b>0.359</b>	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09	
<b>Total BTEX</b>	<b>0.699</b>	0.300	10/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>3120</b>	16.0	10/23/2017	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
<b>GRO C6-C10</b>	<b>36.6</b>	10.0	10/20/2017	ND	214	107	200	2.10	
<b>DRO &gt;C10-C28</b>	<b>1000</b>	10.0	10/20/2017	ND	217	108	200	4.09	QM-07
<b>EXT DRO &gt;C28-C36</b>	<b>200</b>	10.0	10/20/2017	ND					

Surrogate: 1-Chlorooctane 92.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 98.5 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S2 - 2' (H702829-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/21/2017	ND	1.71	85.3	2.00	1.15	
Toluene*	<0.050	0.050	10/21/2017	ND	1.70	84.8	2.00	0.528	
Ethylbenzene*	<0.050	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24	
Total Xylenes*	<0.150	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09	
Total BTEX	<0.300	0.300	10/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>3120</b>	16.0	10/23/2017	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	10/20/2017	ND	214	107	200	2.10	
<b>DRO &gt;C10-C28</b>	<b>32.2</b>	10.0	10/20/2017	ND	217	108	200	4.09	
<b>EXT DRO &gt;C28-C36</b>	<b>15.1</b>	10.0	10/20/2017	ND					

Surrogate: 1-Chlorooctane 89.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 90.6 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S2 - 3' (H702829-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>2.33</b>	0.500	10/21/2017	ND	1.71	85.3	2.00	1.15	
<b>Toluene*</b>	<b>14.0</b>	0.500	10/21/2017	ND	1.70	84.8	2.00	0.528	
<b>Ethylbenzene*</b>	<b>31.9</b>	0.500	10/21/2017	ND	1.70	84.9	2.00	1.24	
<b>Total Xylenes*</b>	<b>56.6</b>	1.50	10/21/2017	ND	5.05	84.2	6.00	1.09	
<b>Total BTEX</b>	<b>105</b>	3.00	10/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 117 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>4000</b>	16.0	10/23/2017	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10</b>	<b>1030</b>	50.0	10/20/2017	ND	214	107	200	2.10		
<b>DRO &gt;C10-C28</b>	<b>4100</b>	50.0	10/20/2017	ND	217	108	200	4.09		
<b>EXT DRO &gt;C28-C36</b>	<b>646</b>	50.0	10/20/2017	ND						

Surrogate: 1-Chlorooctane 165 % 28.3-164

Surrogate: 1-Chlorooctadecane 133 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S2 - 4' (H702829-04)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/21/2017	ND	1.71	85.3	2.00	1.15		
<b>Toluene*</b>	<b>0.050</b>	0.050	10/21/2017	ND	1.70	84.8	2.00	0.528		
<b>Ethylbenzene*</b>	<b>0.098</b>	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24		
<b>Total Xylenes*</b>	<b>0.158</b>	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09		
<b>Total BTEX</b>	<b>0.306</b>	0.300	10/21/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>6960</b>	16.0	10/23/2017	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	10/20/2017	ND	214	107	200	2.10		
<b>DRO &gt;C10-C28</b>	<b>10.2</b>	10.0	10/20/2017	ND	217	108	200	4.09		
EXT DRO >C28-C36	<10.0	10.0	10/20/2017	ND						

Surrogate: 1-Chlorooctane 93.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 94.5 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S2 - 6' (H702829-05)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/21/2017	ND	1.71	85.3	2.00	1.15	
<b>Toluene*</b>	<b>0.568</b>	0.050	10/21/2017	ND	1.70	84.8	2.00	0.528	
<b>Ethylbenzene*</b>	<b>0.944</b>	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24	
<b>Total Xylenes*</b>	<b>1.83</b>	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09	
<b>Total BTEX</b>	<b>3.35</b>	0.300	10/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>3360</b>	16.0	10/23/2017	ND	432	108	400	3.64	QM-07

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>22.1</b>	10.0	10/20/2017	ND	214	107	200	2.10	
<b>DRO &gt;C10-C28</b>	<b>275</b>	10.0	10/20/2017	ND	217	108	200	4.09	
<b>EXT DRO &gt;C28-C36</b>	<b>74.8</b>	10.0	10/20/2017	ND					

Surrogate: 1-Chlorooctane 101 % 28.3-164

Surrogate: 1-Chlorooctadecane 109 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S2 - 8' (H702829-06)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/21/2017	ND	1.71	85.3	2.00	1.15		
Toluene*	<0.050	0.050	10/21/2017	ND	1.70	84.8	2.00	0.528		
Ethylbenzene*	<0.050	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24		
Total Xylenes*	<0.150	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09		
Total BTEX	<0.300	0.300	10/21/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2000	16.0	10/23/2017	ND	432	108	400	3.64		

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	10/20/2017	ND	214	107	200	2.10		
DRO >C10-C28	<10.0	10.0	10/20/2017	ND	217	108	200	4.09		
EXT DRO >C28-C36	<10.0	10.0	10/20/2017	ND						

Surrogate: 1-Chlorooctane 99.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 92.5 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S2 - 10' (H702829-07)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/21/2017	ND	1.71	85.3	2.00	1.15		
Toluene*	<0.050	0.050	10/21/2017	ND	1.70	84.8	2.00	0.528		
Ethylbenzene*	<0.050	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24		
Total Xylenes*	<0.150	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09		
Total BTEX	<0.300	0.300	10/21/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1170</b>	16.0	10/23/2017	ND	432	108	400	3.64		

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	10/20/2017	ND	214	107	200	2.10		
DRO >C10-C28	<10.0	10.0	10/20/2017	ND	217	108	200	4.09		
EXT DRO >C28-C36	<10.0	10.0	10/20/2017	ND						

Surrogate: 1-Chlorooctane 93.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 94.5 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S2 - 12' (H702829-08)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/21/2017	ND	1.71	85.3	2.00	1.15	
Toluene*	<0.050	0.050	10/21/2017	ND	1.70	84.8	2.00	0.528	
Ethylbenzene*	<0.050	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24	
Total Xylenes*	<0.150	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09	
Total BTEX	<0.300	0.300	10/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>512</b>	16.0	10/23/2017	ND	432	108	400	3.64	

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	10/20/2017	ND	214	107	200	2.10	
DRO >C10-C28	<10.0	10.0	10/20/2017	ND	217	108	200	4.09	
EXT DRO >C28-C36	<10.0	10.0	10/20/2017	ND					

Surrogate: 1-Chlorooctane 89.1 % 28.3-164

Surrogate: 1-Chlorooctadecane 85.9 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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



Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- 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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Celey D. Keene, Lab Director/Quality Manager



October 24, 2017

CHASE SETTLE  
EOG Y RESOURCES, INC  
105 SOUTH 4TH STREET  
ARTESIA, NM 88210

RE: CENTRAL DAGGER DRAW WATER STATION

Enclosed are the results of analyses for samples received by the laboratory on 10/18/17 16:09.

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

Cardinal Laboratories is accredited 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  
Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S3 - 1' (H702830-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.500	0.500	10/21/2017	ND	1.71	85.3	2.00	1.15	
<b>Toluene*</b>	<b>3.57</b>	0.500	10/21/2017	ND	1.70	84.8	2.00	0.528	
Ethylbenzene*	<0.500	0.500	10/21/2017	ND	1.70	84.9	2.00	1.24	
<b>Total Xylenes*</b>	<b>127</b>	1.50	10/21/2017	ND	5.05	84.2	6.00	1.09	
<b>Total BTEX</b>	<b>130</b>	3.00	10/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 138 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1920</b>	16.0	10/23/2017	ND	432	108	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10</b>	<b>1230</b>	50.0	10/20/2017	ND	214	107	200	2.10		
<b>DRO &gt;C10-C28</b>	<b>9110</b>	50.0	10/20/2017	ND	217	108	200	4.09		
<b>EXT DRO &gt;C28-C36</b>	<b>1450</b>	50.0	10/20/2017	ND						

Surrogate: 1-Chlorooctane 128 % 28.3-164

Surrogate: 1-Chlorooctadecane 199 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S3 - 2' (H702830-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>29.4</b>	1.00	10/21/2017	ND	1.71	85.3	2.00	1.15	
<b>Toluene*</b>	<b>135</b>	1.00	10/21/2017	ND	1.70	84.8	2.00	0.528	
<b>Ethylbenzene*</b>	<b>35.7</b>	1.00	10/21/2017	ND	1.70	84.9	2.00	1.24	
<b>Total Xylenes*</b>	<b>248</b>	3.00	10/21/2017	ND	5.05	84.2	6.00	1.09	
<b>Total BTEX</b>	<b>448</b>	6.00	10/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1410</b>	16.0	10/23/2017	ND	432	108	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10</b>	<b>3090</b>	50.0	10/20/2017	ND	214	107	200	2.10		
<b>DRO &gt;C10-C28</b>	<b>11700</b>	50.0	10/20/2017	ND	217	108	200	4.09		
<b>EXT DRO &gt;C28-C36</b>	<b>1840</b>	50.0	10/20/2017	ND						

Surrogate: 1-Chlorooctane 147 % 28.3-164

Surrogate: 1-Chlorooctadecane 247 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/18/2017	Sampling Date:	10/11/2017
Reported:	10/24/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S3 - 3' (H702830-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>45.5</b>	1.00	10/21/2017	ND	1.71	85.3	2.00	1.15	
<b>Toluene*</b>	<b>226</b>	1.00	10/21/2017	ND	1.70	84.8	2.00	0.528	
<b>Ethylbenzene*</b>	<b>137</b>	1.00	10/21/2017	ND	1.70	84.9	2.00	1.24	
<b>Total Xylenes*</b>	<b>321</b>	3.00	10/21/2017	ND	5.05	84.2	6.00	1.09	
<b>Total BTEX</b>	<b>729</b>	6.00	10/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 118 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>4240</b>	16.0	10/23/2017	ND	432	108	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10</b>	<b>2130</b>	50.0	10/20/2017	ND	214	107	200	2.10		
<b>DRO &gt;C10-C28</b>	<b>7760</b>	50.0	10/20/2017	ND	217	108	200	4.09		
<b>EXT DRO &gt;C28-C36</b>	<b>1210</b>	50.0	10/20/2017	ND						

Surrogate: 1-Chlorooctane 139 % 28.3-164

Surrogate: 1-Chlorooctadecane 167 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- 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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Celey D. Keene, Lab Director/Quality Manager





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

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October 30, 2017

CHASE SETTLE  
EOG Y RESOURCES, INC  
105 SOUTH 4TH STREET  
ARTESIA, NM 88210

RE: CENTRAL DAGGER DRAW WATER STATION

Enclosed are the results of analyses for samples received by the laboratory on 10/23/17 14:12.

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

Cardinal Laboratories is accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style.

Celey D. Keene  
Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S3 - 4' (H702895-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>5.08</b>	0.500	10/26/2017	ND	1.90	95.2	2.00	2.07	
<b>Toluene*</b>	<b>28.3</b>	0.500	10/26/2017	ND	1.91	95.4	2.00	3.85	
<b>Ethylbenzene*</b>	<b>13.7</b>	0.500	10/26/2017	ND	1.88	94.1	2.00	2.80	
<b>Total Xylenes*</b>	<b>70.5</b>	1.50	10/26/2017	ND	5.57	92.9	6.00	2.07	
<b>Total BTEX</b>	<b>118</b>	3.00	10/26/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 138 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>2280</b>	16.0	10/26/2017	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10</b>	<b>902</b>	100	10/25/2017	ND	165	82.4	200	0.162		
<b>DRO &gt;C10-C28</b>	<b>6250</b>	100	10/25/2017	ND	178	88.8	200	3.09		
<b>EXT DRO &gt;C28-C36</b>	<b>1070</b>	100	10/25/2017	ND						

Surrogate: 1-Chlorooctane 142 % 28.3-164

Surrogate: 1-Chlorooctadecane 166 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S3 - 5' (H702895-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/26/2017	ND	1.90	95.2	2.00	2.07	
<b>Toluene*</b>	<b>0.781</b>	0.050	10/26/2017	ND	1.91	95.4	2.00	3.85	
<b>Ethylbenzene*</b>	<b>1.65</b>	0.050	10/26/2017	ND	1.88	94.1	2.00	2.80	
<b>Total Xylenes*</b>	<b>3.60</b>	0.150	10/26/2017	ND	5.57	92.9	6.00	2.07	
<b>Total BTEX</b>	<b>6.02</b>	0.300	10/26/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 138 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>400</b>	16.0	10/26/2017	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
<b>GRO C6-C10</b>	<b>55.9</b>	10.0	10/25/2017	ND	165	82.4	200	0.162	
<b>DRO &gt;C10-C28</b>	<b>550</b>	10.0	10/25/2017	ND	178	88.8	200	3.09	
<b>EXT DRO &gt;C28-C36</b>	<b>102</b>	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 81.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 101 % 34.7-157

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S4 - 1' (H702895-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>0.069</b>	0.050	10/26/2017	ND	1.90	95.2	2.00	2.07	
Toluene*	<0.050	0.050	10/26/2017	ND	1.91	95.4	2.00	3.85	
<b>Ethylbenzene*</b>	<b>1.74</b>	0.050	10/26/2017	ND	1.88	94.1	2.00	2.80	
<b>Total Xylenes*</b>	<b>2.62</b>	0.150	10/26/2017	ND	5.57	92.9	6.00	2.07	
<b>Total BTEX</b>	<b>4.43</b>	0.300	10/26/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 126 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>448</b>	16.0	10/26/2017	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10</b>	<b>409</b>	10.0	10/25/2017	ND	165	82.4	200	0.162		
<b>DRO &gt;C10-C28</b>	<b>5560</b>	10.0	10/25/2017	ND	178	88.8	200	3.09		
<b>EXT DRO &gt;C28-C36</b>	<b>1140</b>	10.0	10/25/2017	ND						

Surrogate: 1-Chlorooctane 140 % 28.3-164

Surrogate: 1-Chlorooctadecane 185 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S4 - 2' (H702895-04)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Benzene*</b>	<b>2.43</b>	0.050	10/26/2017	ND	1.90	95.2	2.00	2.07		
<b>Toluene*</b>	<b>1.40</b>	0.050	10/26/2017	ND	1.91	95.4	2.00	3.85		
<b>Ethylbenzene*</b>	<b>4.83</b>	0.050	10/26/2017	ND	1.88	94.1	2.00	2.80		
<b>Total Xylenes*</b>	<b>6.32</b>	0.150	10/26/2017	ND	5.57	92.9	6.00	2.07		
<b>Total BTEX</b>	<b>15.0</b>	0.300	10/26/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 124 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>368</b>	16.0	10/26/2017	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS							S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
<b>GRO C6-C10</b>	<b>336</b>	10.0	10/25/2017	ND	165	82.4	200	0.162			
<b>DRO &gt;C10-C28</b>	<b>4560</b>	10.0	10/25/2017	ND	178	88.8	200	3.09			
<b>EXT DRO &gt;C28-C36</b>	<b>927</b>	10.0	10/25/2017	ND							

Surrogate: 1-Chlorooctane 135 % 28.3-164

Surrogate: 1-Chlorooctadecane 175 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S4 - 3' (H702895-05)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/26/2017	ND	1.90	95.2	2.00	2.07	
Toluene*	<0.050	0.050	10/26/2017	ND	1.91	95.4	2.00	3.85	
Ethylbenzene*	<0.050	0.050	10/26/2017	ND	1.88	94.1	2.00	2.80	
Total Xylenes*	<0.150	0.150	10/26/2017	ND	5.57	92.9	6.00	2.07	
Total BTEX	<0.300	0.300	10/26/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>384</b>	16.0	10/26/2017	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	10/25/2017	ND	165	82.4	200	0.162	
<b>DRO &gt;C10-C28</b>	<b>246</b>	10.0	10/25/2017	ND	178	88.8	200	3.09	
<b>EXT DRO &gt;C28-C36</b>	<b>111</b>	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 81.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 94.9 % 34.7-157

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S4 - 4' (H702895-06)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/26/2017	ND	1.90	95.2	2.00	2.07	
Toluene*	<0.050	0.050	10/26/2017	ND	1.91	95.4	2.00	3.85	
Ethylbenzene*	<0.050	0.050	10/26/2017	ND	1.88	94.1	2.00	2.80	
Total Xylenes*	<0.150	0.150	10/26/2017	ND	5.57	92.9	6.00	2.07	
Total BTEX	<0.300	0.300	10/26/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 136 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>784</b>	16.0	10/26/2017	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10</b>	<b>94.2</b>	10.0	10/24/2017	ND	212	106	200	0.749		
<b>DRO &gt;C10-C28</b>	<b>6360</b>	10.0	10/24/2017	ND	221	110	200	1.00		
<b>EXT DRO &gt;C28-C36</b>	<b>1460</b>	10.0	10/24/2017	ND						

Surrogate: 1-Chlorooctane 106 % 28.3-164

Surrogate: 1-Chlorooctadecane 203 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S4 - 6' (H702895-07)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/26/2017	ND	1.77	88.6	2.00	0.210	
Toluene*	<0.050	0.050	10/26/2017	ND	1.77	88.5	2.00	0.749	
Ethylbenzene*	<0.050	0.050	10/26/2017	ND	1.74	86.9	2.00	1.30	
Total Xylenes*	<0.150	0.150	10/26/2017	ND	5.18	86.4	6.00	0.648	
Total BTEX	<0.300	0.300	10/26/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 128 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>608</b>	16.0	10/26/2017	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	10/24/2017	ND	212	106	200	0.749	
<b>DRO &gt;C10-C28</b>	<b>2400</b>	10.0	10/24/2017	ND	221	110	200	1.00	
<b>EXT DRO &gt;C28-C36</b>	<b>901</b>	10.0	10/24/2017	ND					

Surrogate: 1-Chlorooctane 98.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 153 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S4 - 8' (H702895-08)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/26/2017	ND	1.77	88.6	2.00	0.210		
Toluene*	<0.050	0.050	10/26/2017	ND	1.77	88.5	2.00	0.749		
Ethylbenzene*	<0.050	0.050	10/26/2017	ND	1.74	86.9	2.00	1.30		
Total Xylenes*	<0.150	0.150	10/26/2017	ND	5.18	86.4	6.00	0.648		
Total BTEX	<0.300	0.300	10/26/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 119 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>432</b>	16.0	10/26/2017	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	10/24/2017	ND	212	106	200	0.749		
<b>DRO &gt;C10-C28</b>	<b>18.0</b>	10.0	10/24/2017	ND	221	110	200	1.00		
<b>EXT DRO &gt;C28-C36</b>	<b>45.2</b>	10.0	10/24/2017	ND						

Surrogate: 1-Chlorooctane 91.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 87.6 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S4 - 10' (H702895-09)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210		
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648		
Total BTEX	<0.300	0.300	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 116 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>384</b>	16.0	10/26/2017	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	10/24/2017	ND	212	106	200	0.749		
DRO >C10-C28	<10.0	10.0	10/24/2017	ND	221	110	200	1.00		
EXT DRO >C28-C36	<10.0	10.0	10/24/2017	ND						

Surrogate: 1-Chlorooctane 92.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 90.8 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S4 - 12' (H702895-10)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210		
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648		
Total BTEX	<0.300	0.300	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>224</b>	16.0	10/26/2017	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	10/24/2017	ND	212	106	200	0.749		
DRO >C10-C28	<10.0	10.0	10/24/2017	ND	221	110	200	1.00		
EXT DRO >C28-C36	<10.0	10.0	10/24/2017	ND						

Surrogate: 1-Chlorooctane 88.9 % 28.3-164

Surrogate: 1-Chlorooctadecane 76.8 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- 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







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

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October 30, 2017

CHASE SETTLE

EOG Y RESOURCES, INC

105 SOUTH 4TH STREET

ARTESIA, NM 88210

RE: CENTRAL DAGGER DRAW WATER STATION

Enclosed are the results of analyses for samples received by the laboratory on 10/23/17 14:12.

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

Cardinal Laboratories is accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S4 - 13.5' (H702896-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210	
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	10/26/2017	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	10/25/2017	ND	198	99.2	200	4.23	
DRO >C10-C28	<10.0	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	<10.0	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 86.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 85.8 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S5 - 1' (H702896-02)**

BTEX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210	
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 162 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>608</b>	16.0	10/26/2017	ND	416	104	400	3.77	QM-07

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>26.0</b>	10.0	10/25/2017	ND	198	99.2	200	4.23	
<b>DRO &gt;C10-C28</b>	<b>2510</b>	10.0	10/25/2017	ND	216	108	200	6.25	
<b>EXT DRO &gt;C28-C36</b>	<b>743</b>	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 94.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 137 % 34.7-157

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S5 - 2' (H702896-03)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210		
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648		
Total BTEX	<0.300	0.300	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>624</b>	16.0	10/26/2017	ND	416	104	400	3.77		

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	10/25/2017	ND	198	99.2	200	4.23		
<b>DRO &gt;C10-C28</b>	<b>14.4</b>	10.0	10/25/2017	ND	216	108	200	6.25		
<b>EXT DRO &gt;C28-C36</b>	<b>28.6</b>	10.0	10/25/2017	ND						

Surrogate: 1-Chlorooctane 92.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 91.2 % 34.7-157

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S5 - 3' (H702896-04)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210		
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648		
Total BTEX	<0.300	0.300	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>192</b>	16.0	10/26/2017	ND	416	104	400	3.77		

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	10/25/2017	ND	198	99.2	200	4.23		
DRO >C10-C28	<10.0	10.0	10/25/2017	ND	216	108	200	6.25		
EXT DRO >C28-C36	<10.0	10.0	10/25/2017	ND						

Surrogate: 1-Chlorooctane 86.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 86.8 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S5 - 4' (H702896-05)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210		
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648		
Total BTEX	<0.300	0.300	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>224</b>	16.0	10/26/2017	ND	416	104	400	3.77		

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	10/25/2017	ND	198	99.2	200	4.23		
DRO >C10-C28	<10.0	10.0	10/25/2017	ND	216	108	200	6.25		
EXT DRO >C28-C36	<10.0	10.0	10/25/2017	ND						

Surrogate: 1-Chlorooctane 93.9 % 28.3-164

Surrogate: 1-Chlorooctadecane 92.6 % 34.7-157

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S5 - 6' (H702896-06)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210	
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>64.0</b>	16.0	10/26/2017	ND	416	104	400	3.77	

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	10/25/2017	ND	198	99.2	200	4.23	
DRO >C10-C28	<10.0	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	<10.0	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 89.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 88.6 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S5 - 8' (H702896-07)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210		
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648		
Total BTEX	<0.300	0.300	10/27/2017	ND						

*Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>48.0</b>	16.0	10/26/2017	ND	416	104	400	3.77		

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	10/25/2017	ND	198	99.2	200	4.23		
DRO >C10-C28	<10.0	10.0	10/25/2017	ND	216	108	200	6.25		
EXT DRO >C28-C36	<10.0	10.0	10/25/2017	ND						

*Surrogate: 1-Chlorooctane 90.7 % 28.3-164*
*Surrogate: 1-Chlorooctadecane 92.7 % 34.7-157*

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S5 - 10' (H702896-08)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210		
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648		
Total BTEX	<0.300	0.300	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.1 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>64.0</b>	16.0	10/26/2017	ND	416	104	400	3.77		

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	10/25/2017	ND	198	99.2	200	4.23		
DRO >C10-C28	<10.0	10.0	10/25/2017	ND	216	108	200	6.25		
EXT DRO >C28-C36	<10.0	10.0	10/25/2017	ND						

Surrogate: 1-Chlorooctane 88.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 86.5 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S5 - 12' (H702896-09)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210		
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648		
Total BTEX	<0.300	0.300	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.6 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>160</b>	16.0	10/26/2017	ND	416	104	400	3.77		

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	10/25/2017	ND	198	99.2	200	4.23		
DRO >C10-C28	<10.0	10.0	10/25/2017	ND	216	108	200	6.25		
EXT DRO >C28-C36	<10.0	10.0	10/25/2017	ND						

Surrogate: 1-Chlorooctane 95.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 92.6 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S6 - 1' (H702896-10)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<2.00	2.00	10/27/2017	ND	1.77	88.6	2.00	0.210		
<b>Toluene*</b>	<b>36.7</b>	2.00	10/27/2017	ND	1.77	88.5	2.00	0.749		
<b>Ethylbenzene*</b>	<b>30.2</b>	2.00	10/27/2017	ND	1.74	86.9	2.00	1.30		
<b>Total Xylenes*</b>	<b>239</b>	6.00	10/27/2017	ND	5.18	86.4	6.00	0.648		
<b>Total BTEX</b>	<b>305</b>	12.0	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1420</b>	16.0	10/26/2017	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10</b>	<b>4480</b>	10.0	10/25/2017	ND	198	99.2	200	4.23		
<b>DRO &gt;C10-C28</b>	<b>1970</b>	10.0	10/25/2017	ND	216	108	200	6.25		
<b>EXT DRO &gt;C28-C36</b>	<b>477</b>	10.0	10/25/2017	ND						

Surrogate: 1-Chlorooctane 146 % 28.3-164

Surrogate: 1-Chlorooctadecane 113 % 34.7-157

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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







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

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October 30, 2017

CHASE SETTLE  
EOG Y RESOURCES, INC  
105 SOUTH 4TH STREET  
ARTESIA, NM 88210

RE: CENTRAL DAGGER DRAW WATER STATION

Enclosed are the results of analyses for samples received by the laboratory on 10/23/17 14:12.

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

Cardinal Laboratories is accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene  
Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S6 - 2' (H702897-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<2.00	2.00	10/27/2017	ND	1.77	88.6	2.00	0.210	
<b>Toluene*</b>	<b>11.0</b>	2.00	10/27/2017	ND	1.77	88.5	2.00	0.749	
<b>Ethylbenzene*</b>	<b>18.6</b>	2.00	10/27/2017	ND	1.74	86.9	2.00	1.30	
<b>Total Xylenes*</b>	<b>186</b>	6.00	10/27/2017	ND	5.18	86.4	6.00	0.648	
<b>Total BTEX</b>	<b>216</b>	12.0	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1920</b>	16.0	10/26/2017	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>3500</b>	10.0	10/25/2017	ND	198	99.2	200	4.23	
<b>DRO &gt;C10-C28</b>	<b>1850</b>	10.0	10/25/2017	ND	216	108	200	6.25	
<b>EXT DRO &gt;C28-C36</b>	<b>405</b>	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 124 % 28.3-164

Surrogate: 1-Chlorooctadecane 89.5 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S6 - 3' (H702897-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.500	0.500	10/27/2017	ND	1.76	88.1	2.00	0.245	
<b>Toluene*</b>	<b>8.66</b>	0.500	10/27/2017	ND	1.76	88.2	2.00	0.177	QM-07
<b>Ethylbenzene*</b>	<b>12.9</b>	0.500	10/27/2017	ND	1.73	86.5	2.00	0.312	QM-07
<b>Total Xylenes*</b>	<b>138</b>	1.50	10/27/2017	ND	5.15	85.8	6.00	0.757	QM-07, QR-03
<b>Total BTEX</b>	<b>159</b>	3.00	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 133 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>560</b>	16.0	10/26/2017	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>869</b>	10.0	10/25/2017	ND	198	99.2	200	4.23	
<b>DRO &gt;C10-C28</b>	<b>409</b>	10.0	10/25/2017	ND	216	108	200	6.25	
<b>EXT DRO &gt;C28-C36</b>	<b>105</b>	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 106 % 28.3-164

Surrogate: 1-Chlorooctadecane 98.4 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S6 - 4' (H702897-03)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.76	88.1	2.00	0.245		
Toluene*	<0.050	0.050	10/27/2017	ND	1.76	88.2	2.00	0.177		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.73	86.5	2.00	0.312		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.757		
Total BTEX	<0.300	0.300	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>208</b>	16.0	10/26/2017	ND	416	104	400	3.77		

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	10/25/2017	ND	198	99.2	200	4.23		
<b>DRO &gt;C10-C28</b>	<b>34.3</b>	10.0	10/25/2017	ND	216	108	200	6.25		
<b>EXT DRO &gt;C28-C36</b>	<b>24.6</b>	10.0	10/25/2017	ND						

Surrogate: 1-Chlorooctane 90.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 92.3 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S6 - 6' (H702897-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.76	88.1	2.00	0.245	
Toluene*	<0.050	0.050	10/27/2017	ND	1.76	88.2	2.00	0.177	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.73	86.5	2.00	0.312	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.757	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 124 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>144</b>	16.0	10/26/2017	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>15.5</b>	10.0	10/25/2017	ND	198	99.2	200	4.23	
<b>DRO &gt;C10-C28</b>	<b>87.1</b>	10.0	10/25/2017	ND	216	108	200	6.25	
<b>EXT DRO &gt;C28-C36</b>	<b>33.3</b>	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 91.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 96.8 % 34.7-157

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S6 - 8' (H702897-05)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.76	88.1	2.00	0.245	
Toluene*	<0.050	0.050	10/27/2017	ND	1.76	88.2	2.00	0.177	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.73	86.5	2.00	0.312	
<b>Total Xylenes*</b>	<b>0.284</b>	0.150	10/27/2017	ND	5.15	85.8	6.00	0.757	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>432</b>	16.0	10/26/2017	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>33.9</b>	10.0	10/25/2017	ND	198	99.2	200	4.23	
<b>DRO &gt;C10-C28</b>	<b>554</b>	10.0	10/25/2017	ND	216	108	200	6.25	
<b>EXT DRO &gt;C28-C36</b>	<b>257</b>	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 90.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 106 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S6 - 10' (H702897-06)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.100	0.100	10/27/2017	ND	1.76	88.1	2.00	0.245	
Toluene*	<0.100	0.100	10/27/2017	ND	1.76	88.2	2.00	0.177	
Ethylbenzene*	<0.100	0.100	10/27/2017	ND	1.73	86.5	2.00	0.312	
<b>Total Xylenes*</b>	<b>8.70</b>	0.300	10/27/2017	ND	5.15	85.8	6.00	0.757	
<b>Total BTEX</b>	<b>8.70</b>	0.600	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 143 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>144</b>	16.0	10/26/2017	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>330</b>	10.0	10/25/2017	ND	198	99.2	200	4.23	
<b>DRO &gt;C10-C28</b>	<b>1310</b>	10.0	10/25/2017	ND	216	108	200	6.25	
<b>EXT DRO &gt;C28-C36</b>	<b>370</b>	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 103 % 28.3-164

Surrogate: 1-Chlorooctadecane 108 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S6 - 12' (H702897-07)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.76	88.1	2.00	0.245	
Toluene*	<0.050	0.050	10/27/2017	ND	1.76	88.2	2.00	0.177	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.73	86.5	2.00	0.312	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.757	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>240</b>	16.0	10/26/2017	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>18.2</b>	10.0	10/25/2017	ND	198	99.2	200	4.23	
<b>DRO &gt;C10-C28</b>	<b>639</b>	10.0	10/25/2017	ND	216	108	200	6.25	
<b>EXT DRO &gt;C28-C36</b>	<b>291</b>	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 84.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 98.8 % 34.7-157

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S6 - 14' (H702897-08)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.76	88.1	2.00	0.245	
Toluene*	<0.050	0.050	10/27/2017	ND	1.76	88.2	2.00	0.177	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.73	86.5	2.00	0.312	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.757	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>224</b>	16.0	10/26/2017	ND	416	104	400	3.77	

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	10/25/2017	ND	198	99.2	200	4.23	
DRO >C10-C28	<10.0	10.0	10/25/2017	ND	216	108	200	6.25	
<b>EXT DRO &gt;C28-C36</b>	<b>20.0</b>	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 92.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 90.6 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S6 - 16' (H702897-09)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.76	88.1	2.00	0.245		
Toluene*	<0.050	0.050	10/27/2017	ND	1.76	88.2	2.00	0.177		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.73	86.5	2.00	0.312		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.757		
Total BTEX	<0.300	0.300	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.7 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>512</b>	16.0	10/26/2017	ND	416	104	400	3.77		

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	10/25/2017	ND	198	99.2	200	4.23		
<b>DRO &gt;C10-C28</b>	<b>11.5</b>	10.0	10/25/2017	ND	216	108	200	6.25		
EXT DRO >C28-C36	<10.0	10.0	10/25/2017	ND						

Surrogate: 1-Chlorooctane 91.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 89.8 % 34.7-157

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S7 - 1' (H702897-10)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.76	88.1	2.00	0.245	
Toluene*	<0.050	0.050	10/27/2017	ND	1.76	88.2	2.00	0.177	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.73	86.5	2.00	0.312	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.757	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1280</b>	16.0	10/26/2017	ND	416	104	400	3.77	

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	10/25/2017	ND	198	99.2	200	4.23	
DRO >C10-C28	<10.0	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	<10.0	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 76.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 74.3 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- QR-03            The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QM-07            The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- 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







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

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October 30, 2017

CHASE SETTLE  
EOG Y RESOURCES, INC  
105 SOUTH 4TH STREET  
ARTESIA, NM 88210

RE: CENTRAL DAGGER DRAW WATER STATION

Enclosed are the results of analyses for samples received by the laboratory on 10/23/17 14:12.

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

Cardinal Laboratories is accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene  
Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S7 - 2' (H702898-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.76	88.1	2.00	0.245	
Toluene*	<0.050	0.050	10/27/2017	ND	1.76	88.2	2.00	0.177	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.73	86.5	2.00	0.312	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.757	
Total BTEX	<0.300	0.300	10/27/2017	ND					

*Surrogate: 4-Bromofluorobenzene (PID) 98.0 % 72-148*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1250</b>	16.0	10/26/2017	ND	416	104	400	3.77	

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	10/26/2017	ND	157	78.6	200	6.02	
<b>DRO &gt;C10-C28</b>	<b>145</b>	10.0	10/26/2017	ND	171	85.6	200	7.78	
<b>EXT DRO &gt;C28-C36</b>	<b>84.0</b>	10.0	10/26/2017	ND					

*Surrogate: 1-Chlorooctane 74.6 % 28.3-164*
*Surrogate: 1-Chlorooctadecane 88.1 % 34.7-157*

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S7 - 3' (H702898-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774	QR-03
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.2 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>3080</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
<b>DRO &gt;C10-C28</b>	<b>38.1</b>	10.0	10/26/2017	ND	171	85.6	200	7.78	
<b>EXT DRO &gt;C28-C36</b>	<b>19.3</b>	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 76.9 % 28.3-164

Surrogate: 1-Chlorooctadecane 87.4 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S7 - 4' (H702898-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.1 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>480</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
<b>DRO &gt;C10-C28</b>	<b>136</b>	10.0	10/26/2017	ND	171	85.6	200	7.78	
<b>EXT DRO &gt;C28-C36</b>	<b>121</b>	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 72.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 94.5 % 34.7-157

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S7 - 6' (H702898-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.6 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>3280</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
<b>DRO &gt;C10-C28</b>	<b>25.5</b>	10.0	10/26/2017	ND	171	85.6	200	7.78	
<b>EXT DRO &gt;C28-C36</b>	<b>21.9</b>	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 81.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 90.5 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S7 - 8' (H702898-05)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>672</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
<b>DRO &gt;C10-C28</b>	<b>51.7</b>	10.0	10/26/2017	ND	171	85.6	200	7.78	
<b>EXT DRO &gt;C28-C36</b>	<b>34.8</b>	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 77.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 84.8 % 34.7-157

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S7 - 10' (H702898-06)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774		
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319		
Total BTEX	<0.300	0.300	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>320</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02		
DRO >C10-C28	<10.0	10.0	10/26/2017	ND	171	85.6	200	7.78		
EXT DRO >C28-C36	<10.0	10.0	10/26/2017	ND						

Surrogate: 1-Chlorooctane 79.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 85.2 % 34.7-157

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S7 - 12' (H702898-07)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.5 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>384</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
DRO >C10-C28	<10.0	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	<10.0	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 78.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 83.1 % 34.7-157

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S7 - 14' (H702898-08)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>480</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
DRO >C10-C28	<10.0	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	<10.0	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 77.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 85.0 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S8 - 1' (H702898-09)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1060</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
DRO >C10-C28	<10.0	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	<10.0	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 86.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 86.5 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S8 - 2' (H702898-10)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774		
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319		
Total BTEX	<0.300	0.300	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1520</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02		
DRO >C10-C28	<10.0	10.0	10/26/2017	ND	171	85.6	200	7.78		
EXT DRO >C28-C36	<10.0	10.0	10/26/2017	ND						

Surrogate: 1-Chlorooctane 75.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 81.8 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- QR-03            The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QM-07            The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- 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







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

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October 30, 2017

CHASE SETTLE  
EOG Y RESOURCES, INC  
105 SOUTH 4TH STREET  
ARTESIA, NM 88210

RE: CENTRAL DAGGER DRAW WATER STATION

Enclosed are the results of analyses for samples received by the laboratory on 10/23/17 14:12.

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

Cardinal Laboratories is accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene  
Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S8 - 3' (H702899-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774		
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319		
Total BTEX	<0.300	0.300	10/27/2017	ND						

*Surrogate: 4-Bromofluorobenzene (PID) 97.5 % 72-148*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>2360</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02		
DRO >C10-C28	<10.0	10.0	10/26/2017	ND	171	85.6	200	7.78		
EXT DRO >C28-C36	<10.0	10.0	10/26/2017	ND						

*Surrogate: 1-Chlorooctane 71.1 % 28.3-164*
*Surrogate: 1-Chlorooctadecane 75.8 % 34.7-157*

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S8 - 4' (H702899-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>288</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
DRO >C10-C28	<10.0	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	<10.0	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 74.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 76.5 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S8 - 5' (H702899-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.4 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>256</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
<b>DRO &gt;C10-C28</b>	<b>244</b>	10.0	10/26/2017	ND	171	85.6	200	7.78	
<b>EXT DRO &gt;C28-C36</b>	<b>136</b>	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 76.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 99.6 % 34.7-157

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 EOG Y RESOURCES, INC  
 CHASE SETTLE  
 105 SOUTH 4TH STREET  
 ARTESIA NM, 88210  
 Fax To: (575) 748-4131

Received:	10/23/2017	Sampling Date:	10/18/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

**Sample ID: S8 - 6' (H702899-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.3 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>80.0</b>	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
DRO >C10-C28	<10.0	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	<10.0	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 75.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 82.8 % 34.7-157

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

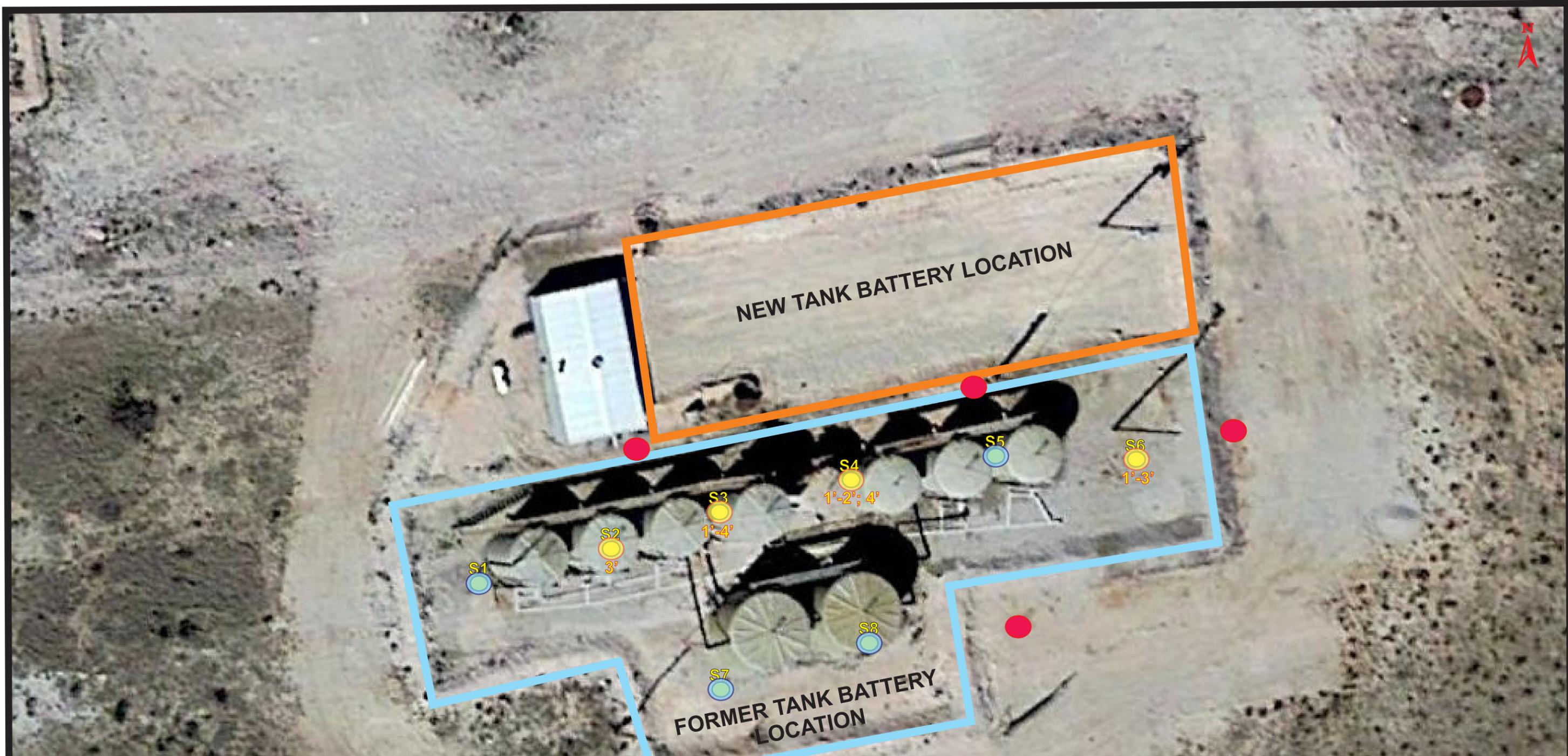
**Notes and Definitions**

- QR-03      The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCS/D recovery and/or RPD values.
- 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





# PROPOSED SOIL BORING LOCATIONS



**LEGEND**

- - All soil analytical results < RRALs for benzene, BTEX and TPH
- - Soil analytical results > RRALs for benzene, BTEX and/or TPH. Sample depths where RRALs were exceeded are noted.
- - Proposed Horizontal 4'-deep Delineation Soil Boring

**Horizontal BTEX/TPH Delineation:** The horizontal BTEX/TPH delineation goal is to delineate the soil benzene, BTEX and TPH concentrations to below the site RRALs (10 mg/Kg benzene; 50 mg/Kg BTEX; and 5,000 mg/Kg TPH). The October 2017 soil assessment activities documented exceedances of the referenced RRALs in soil borings S2, S3, S4 and S6. The exceedances were limited to soils occurring at depths of four (4) feet or shallower. The horizontal extent of the BTEX/TPH RRAL exceedances thus have not been defined. It is suspected that the BTEX/TPH impacts may be largely confined to the former bermed area around the tanks.

**Status: Additional Horizontal BTEX/TPH Delineation Required to Delineate BTEX/TPH Concentrations To < RRALs**

● - SAMPLE LOCATION

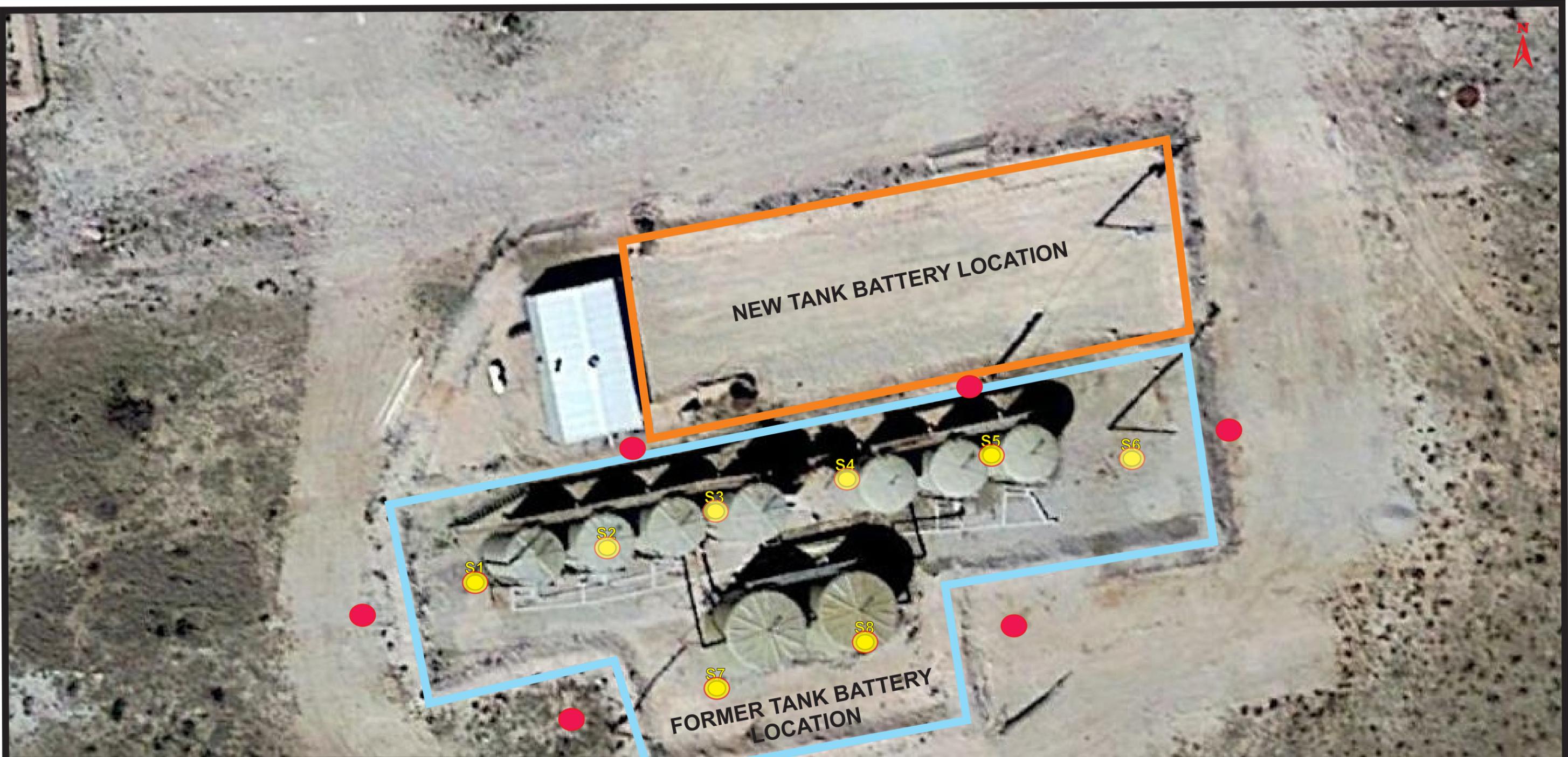
\* ALL PROPERTY BOUNDARIES ARE APPROXIMATE & NOT TO BE USED FOR CONSTRUCTION PURPOSES

1" = ~25'

**RANGER ENVIRONMENTAL SERVICES, INC.**

HORIZONTAL BENZENE, BTEX & TPH DELINEATION MAP  
 CENTRAL DAGGER DRAW WATER STATION  
 SECTION 3, T20S-R24E  
 EDDY COUNTY, NEW MEXICO

DATE: **RANGER REFERENCE #5375**  
 COMMENTS:



**LEGEND**

- - Soils 0'-4' contain >600 mg/Kg Chlorides
- - Proposed Horizontal 4'-deep Delineation Soil Boring (for Chlorides)

**Horizontal Chlorides Delineation:** The horizontal chlorides delineation goal is to delineate the soil chloride concentrations to below 600 mg/Kg, most critically in the 0'-4' depth interval which will require remediation if found to contain chlorides in excess of 600 mg/kg. All eight (8) soil borings (S1 through S8) installed in October 2017 were found to exhibit chloride concentrations in excess of 600 mg/Kg within the 0' - 4' depth interval. The maximum documented soil chloride concentration (6,960 mg/Kg) was found in soil boring S2 at a depth of four (4) feet. Thus, the horizontal extent of chloride concentrations in excess of 600 mg/Kg have not been defined. It is suspected that the impacts may be largely confined to the former bermed area around the tanks.

**Status: Additional Horizontal Chlorides Delineation Required To Delineate Extent of Chlorides Impact to 600 mg/Kg.**

● - SAMPLE LOCATION

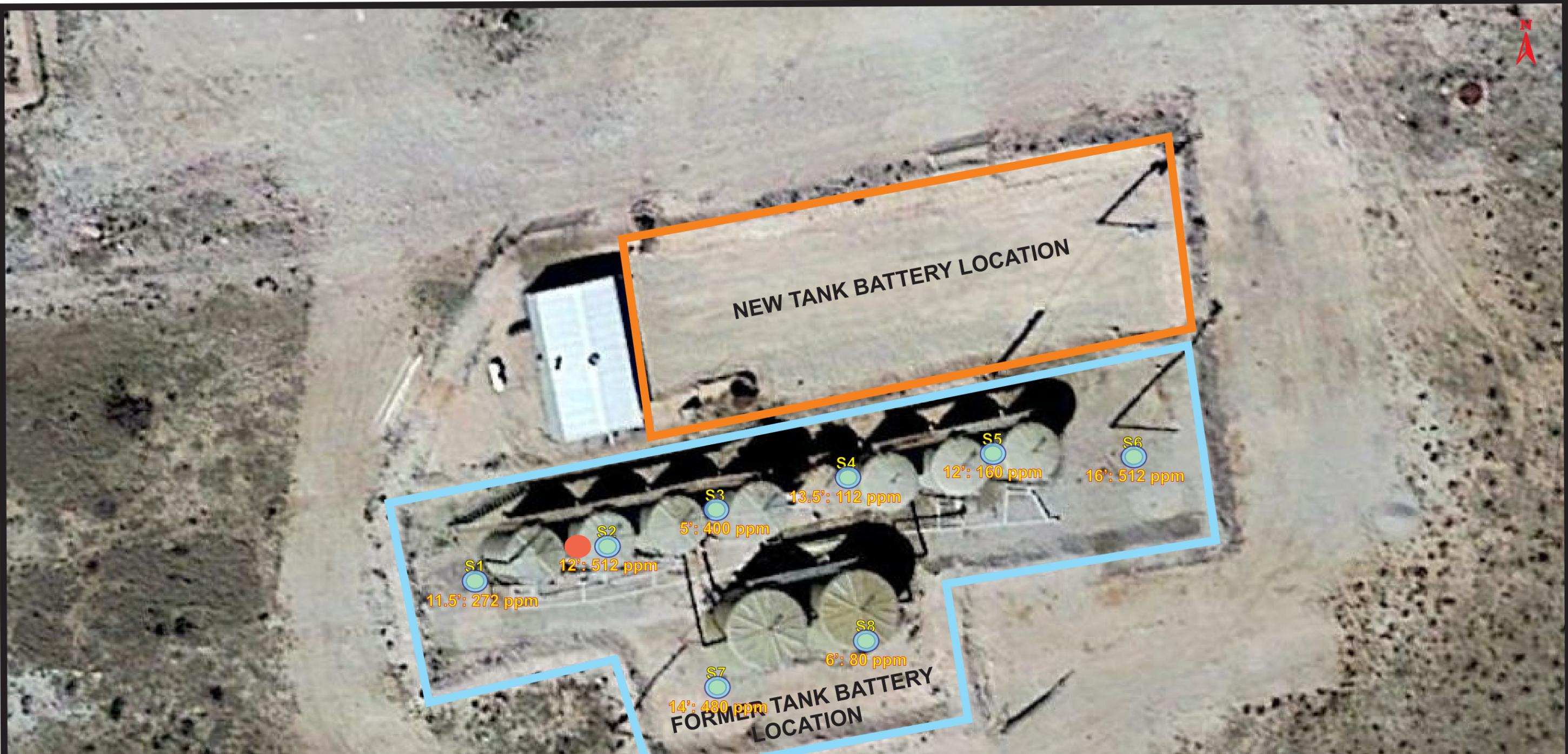
\* ALL PROPERTY BOUNDARIES ARE APPROXIMATE & NOT TO BE USED FOR CONSTRUCTION PURPOSES

1" = ~25'

**RANGER ENVIRONMENTAL SERVICES, INC.**

HORIZONTAL CHLORIDES DELINEATION MAP  
 CENTRAL DAGGER DRAW WATER STATION  
 SECTION 3, T20S-R24E  
 EDDY COUNTY, NEW MEXICO

DATE: | **RANGER REFERENCE #5375**  
 COMMENTS:



**LEGEND**

- - Appears to be vertically delineated to 600 mg/Kg chlorides. Depth and concentration shown is current vertical delineation depth and chloride concentration (ppm)
- - Proposed 20'-deep vertical chloride delineation boring.

Vertical Chlorides Delineation: The vertical chlorides delineation goal is to delineate the soil chloride concentrations to below 600 mg/Kg, and to document at least 10' of separation between the base of the 600 mg/Kg chlorides level and the underlying groundwater. Soil boring S2 had the highest documented site chloride concentration (6,960 mg/Kg @ 4'). This boring also exhibited the deepest chloride impact in excess of 600 mg/kg (1,170 mg/Kg @ 10'). Boring S-2 was only advanced to 12', so only 2' of soil with <600 mg/Kg chloride was documented in October 2017. Thus, the vertical chloride delineation goal of documenting at least 10' of separation between the base of the 600 mg/Kg chlorides level and the underlying groundwater was not achieved.

**Status: Additional Vertical Chlorides Delineation Required to Document at Least 10' of Separation Between the Base of the 600 mg/Kg Chlorides Level and the Underlying Groundwater.**

● - SAMPLE LOCATION

\* ALL PROPERTY BOUNDARIES ARE APPROXIMATE & NOT TO BE USED FOR CONSTRUCTION PURPOSES

1" = ~25'

**RANGER ENVIRONMENTAL SERVICES, INC.**

VERTICAL CHLORIDES DELINEATION MAP  
 CENTRAL DAGGER DRAW WATER STATION  
 SECTION 3, T20S-R24E  
 EDDY COUNTY, NEW MEXICO

DATE: | **RANGER REFERENCE #5375**  
 COMMENTS: