



April 23, 2018

Mr. Mike Bratcher
New Mexico Oil Conservation Division (OCD), District 2
811 South First Street
Artesia, NM 88210

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

Dear Mr. Bratcher:

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 Bureau of Land Management (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 2 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 barrels (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 in this work plan as an attachment (*Appendix C*).

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 was 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 benzene, toluene, ethylbenzene, total xylenes (BTEX), total petroleum hydrocarbons (TPH), and chloride.

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On February 14, 2018, Ranger submitted a Site Characterization Work Plan to the NMOCD District 2 office. Prior to site characterization work being initiated, Ranger personnel met with NMOCD District 2 representatives. Ranger personnel was informed that it would be more than 60 days before NMOCD District 2 representatives would review and approve the Site Characterization Work Plan; therefore, as long as the proposed work plan meets NMOCD rules and guidance for delineation, operators and consultants are encouraged to begin site characterization as soon as possible.

Ranger personnel collected supplemental delineation soil samples on February 21, 2018 and March 20, 2018. A total of 12 soil borings were installed and 46 soil samples were collected for analysis of chlorides with select samples being analyzed for BTEX and TPH. A copy of a site map and analytical summary table documenting all the delineation soil sample locations is included as an attachment (*Appendix A*). All laboratory analytical reports are also included as an attachment (*Appendix B*).

On April 12, 2018, NMOCD District 2 representatives approved the Site Characterization Work Plan. A copy of the submitted Site Characterization Work Plan and NMOCD District 2 approval is included as an attachment (*Appendix C*).

DELINEATION STATUS

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

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

Site Recommended Remedial Action Levels (RRALs)

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

Chloride Delineation Goals

Chloride: 600 mg/Kg

Soil Delineation 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 occurring at depths of four (4) feet or shallower. The horizontal BTEX/TPH delineation goals were achieved during the February 2018 soil assessment activities based on the sample results in soil borings S12, S13, S14 and S15.

Vertical - The vertical BTEX/TPH delineation goals were achieved during the initial October 2017 soil assessment activities.

- *Horizontal & Vertical Chloride Delineation:*

Horizontal - 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 horizontal chloride delineation goals were also not fully achieved during the February 2018 soil assessment activities based on the sample results in soil borings S11, S12, S13, and S15. The horizontal chloride delineation goals were achieved in all but one soil sample during the March 2018 soil assessment activities based on the sample results (S17, S18, and S19). Soil boring S16 exhibited elevated chloride in the sample collected at 2'; however, the samples above and below this depth interval within S16 were below the 600 mg/Kg.

Vertical - The vertical chloride delineation goals were not achieved during the October 2017 soil assessment activities. Soil boring S2 had the highest documented site chloride concentration (6,960 mg/Kg at 4'). This boring also exhibited the deepest chloride impact in excess of 600 mg/kg (1,170 mg/Kg at 10'). Boring S2 was advanced to 12' below ground surface, and only 2' of soil with less than 600 mg/Kg chloride was documented in October 2017. The vertical chloride delineation goal was achieved during the February 2018 soil assessment activities based on the sample results in soil borings S2(B).

REMEDIATION WORK PLAN

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 in 100 cubic yard stockpiles. Ranger personnel will collect one five part composite soil sample within each 100 cubic yard of stockpiled material. The soil samples collected from each stockpile will be analyzed for BTEX using either Method 8021 or 8260, TPH using Method 8015 extended range, and chloride using Method 300 (or equivalent). If the sample documents that the material is below RRALs and a chloride concentration of 600 mg/Kg, then Ranger will utilize that designated stockpile material as backfill for the site excavation. If the sample documents the material is above RRALs or chloride concentrations of 600 mg/Kg, the material from that designated stockpile will be hauled to a NMOCD-approved facility for disposal.

Based on the results of the soil delineation sampling, the entirety of the former tank battery will need to be excavated; however, excavation will be completed at various depth intervals throughout the former tank battery location based on delineation sample results. The following general soil excavation plan will be implemented:

1. All soil in excess of the BTEX and TPH RRALs will be excavated and hauled to a NMOCD-approved facility for disposal.
2. All soils in the depth interval of 0'-4' which contain chloride in excess of 600 mg/Kg will be excavated and hauled to a NMOCD-approved facility for disposal. If soils below the depth interval of 0'-4' contain chloride in excess of 600 mg/Kg, a competent liner will be placed within the excavation above these soils.
3. The extent and depth of the excavation areas at the site has been determined based on the results of the delineation sampling program. Excavation sidewall samples are proposed only to ensure horizontal attainment of RRALs and chloride being below 600

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mg/Kg; however, if delineation samples already documented these results, confirmation sidewall samples will not be proposed in these specific areas. Excavation base samples are proposed only to ensure vertical attainment of RRALs and chloride being below 600 mg/Kg; however, if delineation samples already documented these results, confirmation base samples will not be proposed in these specific areas.

4. A total of 17 excavation confirmation samples will be collected following site excavation activities. The majority of the confirmation soil samples (13) will be analyzed for chloride using Method 300. The remaining confirmation soil samples (4) will be analyzed for BTEX using either Method 8021 or 8260, TPH using Method 8015 extended range, and chloride using Method 300.
5. Ranger personnel will utilize field instruments (organic vapor monitor, electrical conductivity (EC) meter, and chloride test strips) in an attempt to assist in determining the extent of the excavation areas.
6. If confirmation samples document the excavation has achieved cleanup levels, a liner will be installed (if proposed) and the excavation will be backfilled with clean fill material. If confirmation samples document excavation has not achieved cleanup levels, additional excavation and confirmation sampling will be performed until attainment of cleanup levels.

Based on the results of the delineation soil sampling, the following tasks are proposed:

- Excavation around samples S1, S2, S3, S4, S7, and S15 will be completed to 4'. Four (4) sidewall samples and one (1) sample at the base of the excavation will be collected. All samples will be analyzed for chloride; however, the sample at the base of the excavation will be further analyzed for BTEX and TPH. If the confirmation samples document attainment of cleanup levels for chloride, a competent liner will be installed at 4' and the area will be backfilled.
- Excavation around samples S6, S8, S11, and S13 will be completed to 3'. A total of four (4) sidewall and two (2) base samples will be collected. All samples will be analyzed for chloride; however, the samples in the area of S6 will be further analyzed for BTEX and TPH. If the confirmation samples document attainment of cleanup levels, the area will be backfilled.
- Excavation around sample S5 will be completed to 2'. A total of two (2) sidewall and one (1) base sample will be collected and analyzed for chloride. If the confirmation samples document attainment of cleanup levels, the area will be backfilled.
- Excavation around sample S12 will be completed to 1'. A total of one (1) base sample will be collected and analyzed for chloride. If the confirmation sample documents attainment of cleanup levels, the area will be backfilled.
- Confirmation samples will be collected at the total depth of both the base and sidewall of each excavation area.
- A map illustrating the proposed excavation depths and confirmation soil sample locations is included as an attachment (*Appendix A*).

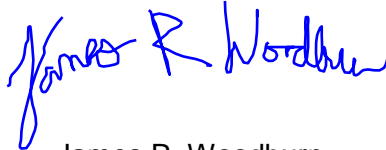
When the remediation work is completed, a C-141 Final Report will be submitted to the NMOCD, and site closure will be requested. The Final Report will include a summary of all completed site activities, including all analytical results, figures and analytical summary tables.

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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.



James R. Woodburn
Project Geologist



Max Cook
Project Manager

MC/RW

Attachments

APPENDIX A

SITE MAP & TABLES

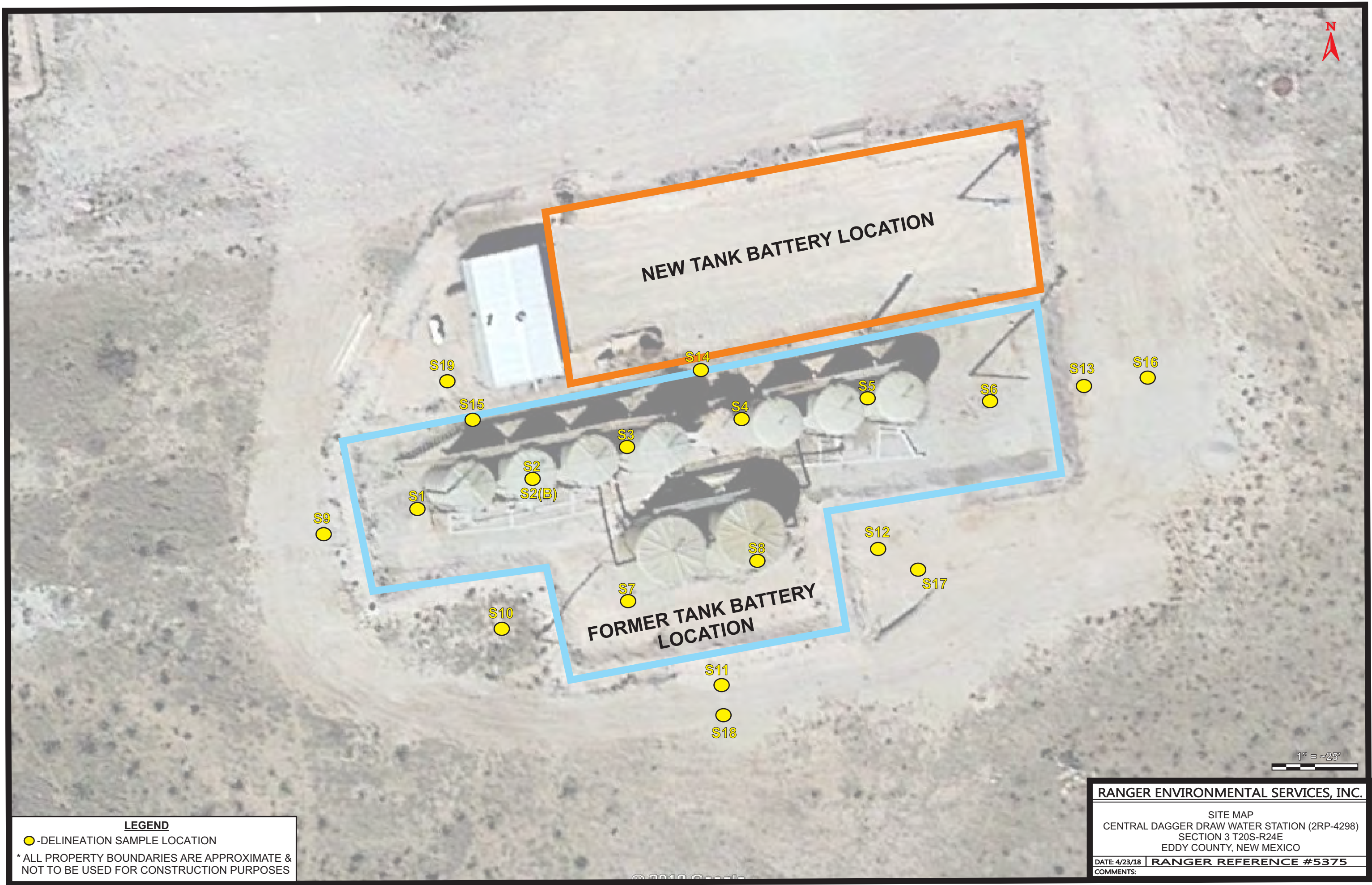
CUMULATIVE SOIL BTEX (EPA 8260), TPH (TX 1005) & CHLORIDE ANALYTICAL DATA
EOG ARTESIA
CENTRAL DAGGER DRAW WATER STATION

All values presented in parts per million (mg/Kg)

SAMPLE ID	DATE	DEPTH (FT)	BENZENE	TOLUENE	ETHYL- BENZENE	TOTAL XYLENES	TOTAL BTEX	TPH GRO C6-C10	TPH DRO C10-C28	TPH DRO EXT C28-C36	TPH TOTAL	CHLORIDE
S1-1'	10/11/2017	1'	1.67	6.80	9.96	17.9	36.3	157	711	132	1,000	5,680
S1-2'	10/11/2017	2'	0.136	0.276	0.45	1.31	2.18	55.5	8.63	170	234.13	5,670
S1-3'	10/11/2017	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	11.5	11.5	1,120
S1-4'	10/11/2017	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	12.1	<10.0	12.1	2,000
S1-6'	10/11/2017	6'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2,960
S1-8'	10/11/2017	8'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	3,080
S1-10'	10/11/2017	10'	<0.050	<0.050	0.183	0.486	<0.300	24.0	302	52.1	378.1	560
S1-11.5'	10/11/2017	11.5'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	272
S2-1'	10/11/2017	1'	0.209	<0.050	0.131	0.359	0.699	36.6	1,000	200	1,236.6	3,120
S2-2'	10/11/2017	2'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	32.2	15.1	47.3	3,120
S2-3'	10/11/2017	3'	2.33	14.0	31.9	56.6	105	1,030	4,100	646	5,776	4,000
S2-4'	10/11/2017	4'	<0.050	0.050	0.098	0.158	0.306	<10.0	10.2	<10.0	10.2	6,960
S2-6'	10/11/2017	6'	<0.050	0.568	0.944	1.83	3.35	22.1	275	74.8	371.9	3,360
S2-8'	10/11/2017	8'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2,000
S2-10'	10/11/2017	10'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1,170
S2-12'	10/11/2017	12'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	512
S2(B)-16'	2/21/2018	16'	Not Analyzed									256
S2(B)-20'	2/21/2018	20'	Not Analyzed									320
S3-1'	10/11/2017	1'	<0.050	3.57	<0.050	127	130	1,230	9,110	1,450	11,790	1,920
S3-2'	10/11/2017	2'	29.4	135	35.7	248	448	3,090	11,700	1,840	16,630	1,410
S3-3'	10/11/2017	3'	45.5	226	137	321	729	2,130	7,760	1,210	11,100	4,240
S3-4'	10/18/2017	4'	5.08	28.3	13.7	70.5	118	902	6,250	1,070	8,222	2,280
S3-5'	10/18/2017	5'	<0.050	0.781	1.65	3.60	6.02	55.9	550	102	707.9	400
S4-1'	10/18/2017	1'	0.069	<0.050	1.74	2.62	4.43	409	5,560	1,140	7,109	448
S4-2'	10/18/2017	2'	2.43	1.40	4.83	6.32	15.0	336	4,560	927	5,823	368
S4-3'	10/18/2017	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	246	111	357	384
S4-4'	10/18/2017	4'	<0.050	<0.050	<0.050	<0.150	<0.300	94.2	6,360	1,460	7,914.2	784
S4-6'	10/18/2017	6'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	2,400	901	3,301	608
S4-8'	10/18/2017	8'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	18.0	45.2	63.2	432
S4-10'	10/18/2017	10'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	384
S4-12'	10/18/2017	12'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	224
S4-13.5'	10/18/2017	13.5'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	112
S5-1'	10/18/2017	1'	<0.050	<0.050	<0.050	<0.150	<0.300	26.0	2,510	743	3,279	608
S5-2'	10/18/2017	2'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	14.4	28.6	43	624
S5-3'	10/18/2017	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	192
S5-4'	10/18/2017	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	224
S5-6'	10/18/2017	6'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	64
S5-8'	10/18/2017	8'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	48
S5-10'	10/18/2017	10'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	64
S5-12'	10/18/2017	12'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	160
S6-1'	10/18/2017	1'	<2.00	36.7	30.2	239	305	4,480	1,970	477	6,927	1,420
S6-2'	10/18/2017	2'	<2.00	11.0	18.6	186	216	3,500	1,850	405	5,755	1,920
S6-3'	10/18/2017	3'	<0.050	8.66	12.9	138	159	869	409	105	1,383	560
S6-4'	10/18/2017	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	34.3	24.6	58.9	208
S6-6'	10/18/2017	6'	<0.050	<0.050	<0.050	<0.150	<0.300	15.5	87.1	33.3	135.9	144
S6-8'	10/18/2017	8'	<0.050	<0.050	<0.050	0.284	<0.300	33.9	554	257	844.9	432
S6-10'	10/18/2017	10'	<0.100	<0.100	<0.100	8.70	8.70	330	1,310	370	2,010	144
S6-12'	10/18/2017	12'	<0.050	<0.050	<0.050	<0.150	<0.300	18.2	639	291	948.2	240
S6-14'	10/18/2017	14'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	20.0	224
S6-16'	10/18/2017	16'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	11.5	<10.0	11.5	512
S7-1'	10/18/2017	1'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1,280
S7-2'	10/18/2017	2'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	145	84	129	1,250
S7-3'	10/18/2017	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	38.1	19.3	57.4	3,080
S7-4'	10/18/2017	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	136	121	257	480
S7-6'	10/18/2017	6'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	25.5	21.9	47.4	3,280
S7-8'	10/18/2017	8'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	51.7	34.8	86.5	672
S7-10'	10/18/2017	10'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	320
S7-12'	10/18/2017	12'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	384
S7-14'	10/18/2017	14'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	480
S8-1'	10/18/2017	1'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1,060
S8-2'	10/18/2017	2'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1,520
S8-3'	10/18/2017	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2,360
S8-4'	10/18/2017	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	288
S8-5'	10/18/2017	5'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	244	136	380	256
S8-6'	10/18/2017	6'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	80

TPH = Total Petroleum Hydrocarbons
mg/Kg = Milligrams per Kilogram
J = Analyte detected below quantitation limit

CUMULATIVE SOIL BTEX (EPA 8260), TPH (TX 1005) & CHLORIDE ANALYTICAL DATA EOG ARTESIA CENTRAL DAGGER DRAW WATER STATION												
All values presented in parts per million (mg/Kg)												
SAMPLE ID	DATE	DEPTH (FT)	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	TOTAL BTEX	TPH GRO C6-C10	TPH DRO C10-C28	TPH DRO EXT C28-C36	TPH TOTAL	CHLORIDE
S9-1'	2/21/2018	1'					Not Analyzed					48.0
S9-2'	2/21/2018	2'					Not Analyzed					32.0
S9-3'	2/21/2018	3'					Not Analyzed					144
S9-4'	2/21/2018	4'					Not Analyzed					160
S10-1'	2/21/2018	1'					Not Analyzed					32.0
S10-2'	2/21/2018	2'					Not Analyzed					336
S10-3'	2/21/2018	3'					Not Analyzed					160
S10-4'	2/21/2018	4'					Not Analyzed					128
S11-1'	2/21/2018	1'					Not Analyzed					560
S11-2'	2/21/2018	2'					Not Analyzed					448
S11-3'	2/21/2018	3'					Not Analyzed					832
S11-4'	2/21/2018	4'					Not Analyzed					96.0
S12-1'	2/21/2018	1'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	624
S12-2'	2/21/2018	2'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	560
S12-3'	2/21/2018	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	480
S12-4'	2/21/2018	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	176
S13-1'	2/21/2018	1'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	25.9	<10.0	NA	624
S13-2'	2/21/2018	2'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	432
S13-3'	2/21/2018	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	944
S13-4'	2/21/2018	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	416
S14-1'	2/21/2018	1'					Not Analyzed					64.0
S14-2'	2/21/2018	2'					Not Analyzed					112
S14-3'	2/21/2018	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	96.0
S14-4'	2/21/2018	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	192
S15-1'	2/21/2018	1'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	475	177	NA	2,880
S15-2'	2/21/2018	2'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	387	140	NA	2,800
S15-3'	2/21/2018	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	539	182	NA	3,000
S15-4'	2/21/2018	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	211	85.7	NA	3,480
S16 - 1'	3/20/2018	1					Not Analyzed					64.0
S16 - 2'	3/20/2018	2					Not Analyzed					688
S16 - 3'	3/20/2018	3					Not Analyzed					448
S16 - 4'	3/20/2018	4					Not Analyzed					112
S17 - 1'	3/20/2018	1					Not Analyzed					32.0
S17 - 2'	3/20/2018	2					Not Analyzed					112
S17 - 3'	3/20/2018	3					Not Analyzed					288
S17 - 4'	3/20/2018	4					Not Analyzed					176
S18 - 1'	3/20/2018	1					Not Analyzed					80.0
S18 - 2'	3/20/2018	2					Not Analyzed					144
S18 - 3'	3/20/2018	3					Not Analyzed					80.0
S18 - 4'	3/20/2018	4					Not Analyzed					48.0
S19 - 1'	3/20/2018	1					Not Analyzed					<16
S19 - 2'	3/20/2018	2					Not Analyzed					48.0
S19 - 3'	3/20/2018	3					Not Analyzed					48.0
S19 - 4'	3/20/2018	4					Not Analyzed					32.0
Site Specific NMOCD Delineation Levels			10	---	---	---	50	---	---	---	5,000	600
Notes:												
1. Shaded Bold = indicates a COC exceeded site cleanup level												
2. Strikethrough indicates sample area has been excavated and/or remediated												
3. BTEX and TPH cleanup criteria are from the Railroad Commission of Texas <i>Field Guide for the Assessment of Soil and Groundwater Contaminated with Condensate from a Spill Incident</i> .												



LEGEND

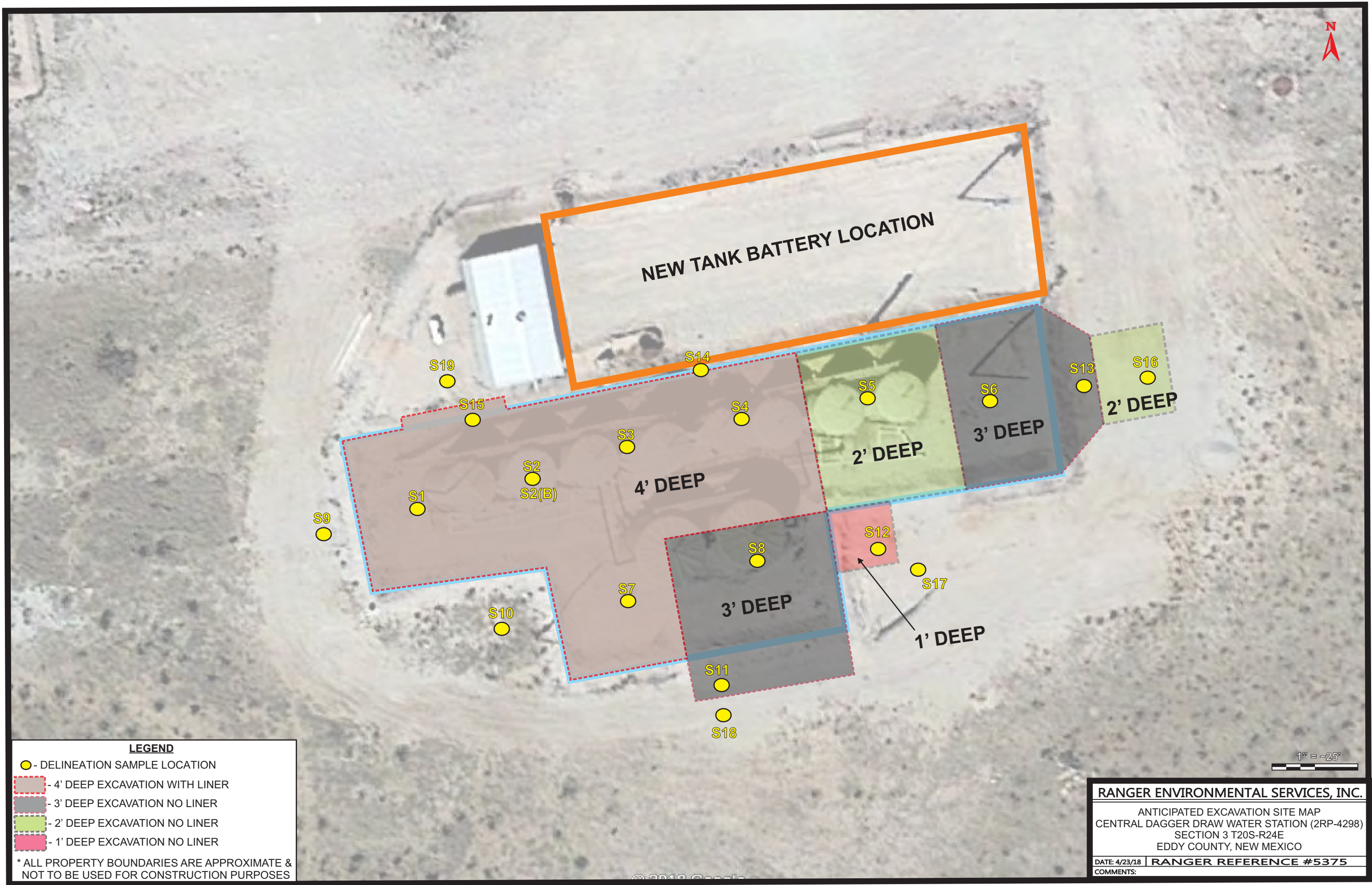
● -DELINEATION SAMPLE LOCATION

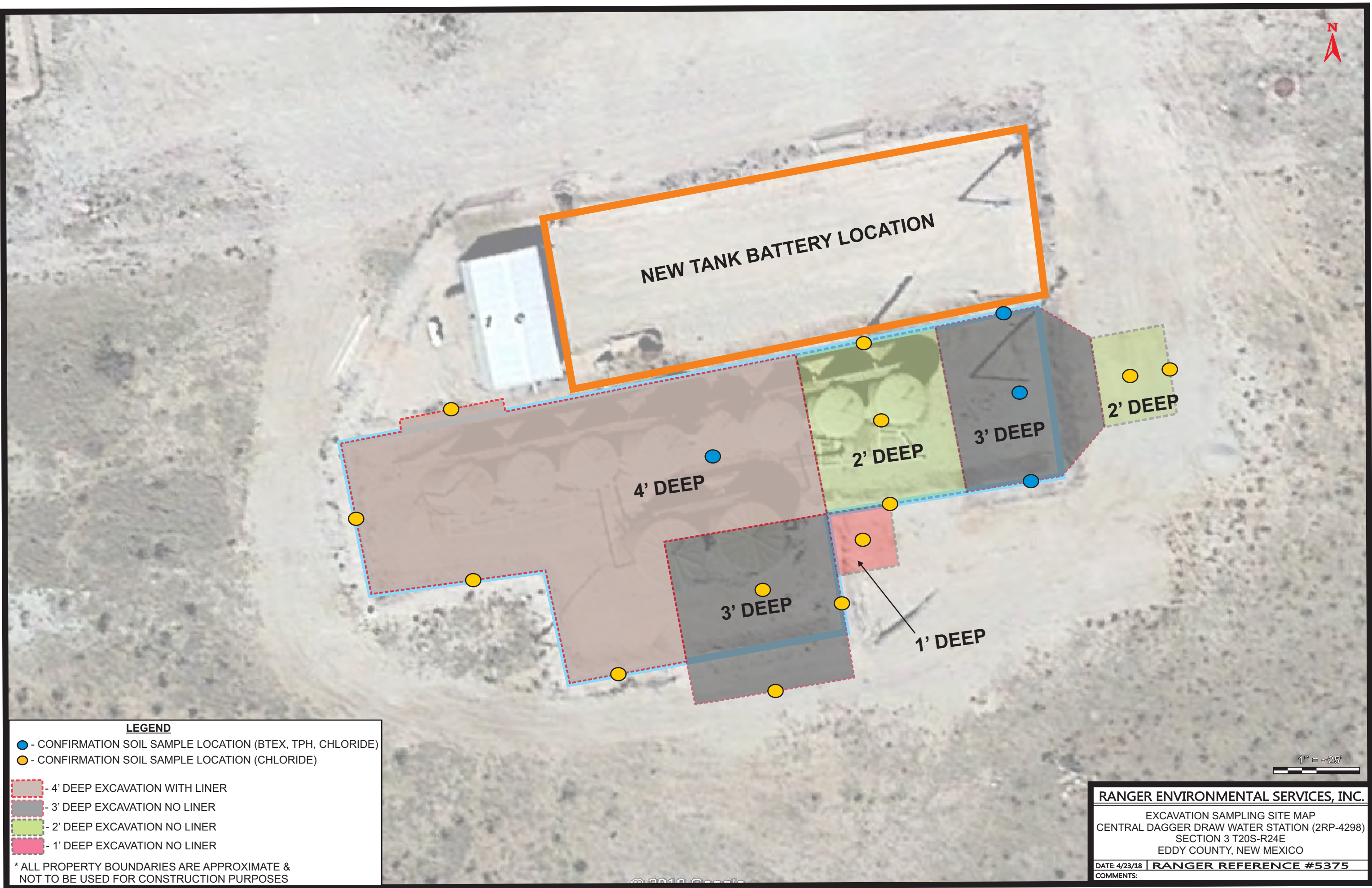
* ALL PROPERTY BOUNDARIES ARE APPROXIMATE &
NOT TO BE USED FOR CONSTRUCTION PURPOSES

RANGER ENVIRONMENTAL SERVICES, INC.

SITE MAP
CENTRAL DAGGER DRAW WATER STATION (2RP-4298)
SECTION 3 T20S-R24E
EDDY COUNTY, NEW MEXICO

DATE: 4/23/18 | **RANGER REFERENCE #5375**
COMMENTS:





LEGEND

- - CONFIRMATION SOIL SAMPLE LOCATION (BTX, TPH, CHLORIDE)
- - CONFIRMATION SOIL SAMPLE LOCATION (CHLORIDE)

- 4' DEEP EXCAVATION WITH LINER
- 3' DEEP EXCAVATION NO LINER
- 2' DEEP EXCAVATION NO LINER
- 1' DEEP EXCAVATION NO LINER

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

RANGER ENVIRONMENTAL SERVICES, INC.

EXCAVATION SAMPLING SITE MAP
CENTRAL DAGGER DRAW WATER STATION (2RP-4298)
SECTION 3 T20S-R24E
EDDY COUNTY, NEW MEXICO

DATE: 4/23/18 | **RANGER REFERENCE #5375**
COMMENTS:

APPENDIX B

LABORATORY REPORT(S)



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

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.

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: S1 - 1' (H702828-01)

BTX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	1.67	0.050	10/20/2017	ND	1.72	86.2	2.00	0.526	
Toluene*	6.80	0.050	10/20/2017	ND	1.73	86.5	2.00	0.748	
Ethylbenzene*	9.96	0.050	10/20/2017	ND	1.75	87.6	2.00	1.02	
Total Xylenes*	17.9	0.150	10/20/2017	ND	5.30	88.3	6.00	2.27	
Total BTX	36.3	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
Chloride	5680	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	157	10.0	10/19/2017	ND	224	112	200	8.96	
DRO >C10-C28	711	10.0	10/19/2017	ND	241	120	200	13.4	
EXT DRO >C28-C36	132	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
Benzene*	0.136	0.050	10/20/2017	ND	1.72	86.2	2.00	0.526	
Toluene*	0.276	0.050	10/20/2017	ND	1.73	86.5	2.00	0.748	
Ethylbenzene*	0.455	0.050	10/20/2017	ND	1.75	87.6	2.00	1.02	
Total Xylenes*	1.31	0.150	10/20/2017	ND	5.30	88.3	6.00	2.27	
Total BTEX	2.18	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
Chloride	5760	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	55.5	10.0	10/19/2017	ND	224	112	200	8.96	
DRO >C10-C28	863	10.0	10/19/2017	ND	241	120	200	13.4	
EXT DRO >C28-C36	170	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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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)

BTX 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
Chloride	1120	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	11.5	10.0	10/19/2017	ND					

Surrogate: 1-Chlorooctane 86.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 81.0 % 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:	10/18/2017	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
Chloride	2000	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	12.1	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

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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)

BTX 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 BTX	<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

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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)

BTX 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 BTX	<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
Chloride	3080	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

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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		
Ethylbenzene*	0.183	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24		
Total Xylenes*	0.486	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09		
Total BTEX	0.669	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	
Chloride	560	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	24.0	10.0	10/19/2017	ND	224	112	200	8.96	
DRO >C10-C28	302	10.0	10/19/2017	ND	241	120	200	13.4	
EXT DRO >C28-C36	52.1	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
Chloride	272	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

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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



ARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Chase Settle

Company: (505) 393-2326 EOG Resources Inc

Company Address: 105 South 4th Street

City/State/Zip: Artesia, NM 88210

Telephone No: 575-748-4171

Sampler Signature:

e-mail: Chase.Settle@eogresources.com

Fax No: 575-748-4131

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

PO #: 205-0750

Project Name: Central Dagger Draw Water Station

Project #:

Project Loc: Central Dagger Draw Water Station

(lab use only)

ORDER #: **H702828**

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO ₃	HCl	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	TPH: 8015B EXTENDED	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO ₄ , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chlorides	SAR	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
1	S1-1'			10/11/2017	8:30 AM		1	X								S	X														X
2	S1-2'			10/11/2017	8:32 AM		1	X								S	X														X
3	S1-3'			10/11/2017	8:38 AM		1	X								S	X														X
4	S1-4'			10/11/2017	8:41 AM		1	X								S	X														X
5	S1-6'			10/11/2017	8:49 AM		1	X								S	X														X
6	S1-8'			10/11/2017	10:40 AM		1	X								S	X														X
7	S1-10'			10/11/2017	10:50 AM		1	X								S	X														X
8	S1-11.5'			10/11/2017	11:11 AM		1	X								S	X														X

Special Instructions:
NEED TPH EXTENDED.

Relinquished by:
Date: 10/18/17
Time: 11:30 AM
Received by: **Haley Cusburn**
Date: 10/18/17
Time: 3:59 PM

Relinquished by:
Date:
Time:
Received by:

Relinquished by:
Date:
Time:
Received by:

Laboratory Comments:
Sample Containers Intact? ☒
VOCs Free of Headspace? ☒
Labels on container(s) ☒
Custody seals on container(s) ☒
Sample Hand Delivered by Sampler/Client Rep.? ☒
by Courier? ☒ UPS ☒ DHL ☒ FedEx ☒ Lone Star
Temperature Upon Receipt: 2.4°C / 2.65°C

Analyze For:
TCLP: ☐
TOTAL: ☐
Metals: As Ag Ba Cd Cr Pb Hg Se ☐
Volatiles ☐
Semivolatiles ☐
BTEX 8021B/5030 or BTEX 8260 ☐
RCI ☐
N.O.R.M. ☐
Chlorides ☐
SAR ☐
RUSH TAT (Pre-Schedule) 24, 48, 72 hrs ☐
Standard TAT ☐

#25 corrected to 2.5

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.

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)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.209	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*	0.131	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24	
Total Xylenes*	0.359	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09	
Total BTX	0.699	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
Chloride	3120	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	36.6	10.0	10/20/2017	ND	214	107	200	2.10	
DRO >C10-C28	1000	10.0	10/20/2017	ND	217	108	200	4.09	QM-07
EXT DRO >C28-C36	200	10.0	10/20/2017	ND					

Surrogate: 1-Chlorooctane 92.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 98.5 % 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:	10/18/2017	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)

BTX 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 BTX	<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	
Chloride	3120	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	
DRO >C10-C28	32.2	10.0	10/20/2017	ND	217	108	200	4.09	
EXT DRO >C28-C36	15.1	10.0	10/20/2017	ND					

Surrogate: 1-Chlorooctane 89.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 90.6 % 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:	10/18/2017	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
Benzene*	2.33	0.500	10/21/2017	ND	1.71	85.3	2.00	1.15	
Toluene*	14.0	0.500	10/21/2017	ND	1.70	84.8	2.00	0.528	
Ethylbenzene*	31.9	0.500	10/21/2017	ND	1.70	84.9	2.00	1.24	
Total Xylenes*	56.6	1.50	10/21/2017	ND	5.05	84.2	6.00	1.09	
Total BTEX	105	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	
Chloride	4000	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
GRO C6-C10	1030	50.0	10/20/2017	ND	214	107	200	2.10	
DRO >C10-C28	4100	50.0	10/20/2017	ND	217	108	200	4.09	
EXT DRO >C28-C36	646	50.0	10/20/2017	ND					

Surrogate: 1-Chlorooctane 165 % 28.3-164

Surrogate: 1-Chlorooctadecane 133 % 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:	10/18/2017	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	
Toluene*	0.050	0.050	10/21/2017	ND	1.70	84.8	2.00	0.528	
Ethylbenzene*	0.098	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24	
Total Xylenes*	0.158	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09	
Total BTEX	0.306	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	
Chloride	6960	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	
DRO >C10-C28	10.2	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

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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	
Toluene*	0.568	0.050	10/21/2017	ND	1.70	84.8	2.00	0.528	
Ethylbenzene*	0.944	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24	
Total Xylenes*	1.83	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09	
Total BTEX	3.35	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	
Chloride	3360	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
GRO C6-C10	22.1	10.0	10/20/2017	ND	214	107	200	2.10	
DRO >C10-C28	275	10.0	10/20/2017	ND	217	108	200	4.09	
EXT DRO >C28-C36	74.8	10.0	10/20/2017	ND					

Surrogate: 1-Chlorooctane 101 % 28.3-164

Surrogate: 1-Chlorooctadecane 109 % 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:	10/18/2017	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)

BTX 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 BTX	<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

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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 - 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
Chloride	1170	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

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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 - 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	
Chloride	512	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

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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



ARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Chase Settle

Company Address: 105 South 4th Street

City/State/Zip: Artesia, NM 88210

Telephone No: 575-748-4131

Sampler Signature: [Signature]

ORDER #: H702829

(lab use only)

Fax No: 575-748-4131

e-mail: Chase.Settle@eoqresources.com

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

Project Name: Central Dagger Draw Water Station

Project #:

Project Loc: Central Dagger Draw Water Station

PO #: 205-0750

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO ₃	HCl	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Matrix	TPH: 8015B EXTENDED	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO ₄ , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chlorides	SAR	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
1	S2-1'			10/11/2017	11:26 AM		1	X									S	X														X
2	S2-2'			10/11/2017	11:28 AM		1	X									S	X														X
3	S2-3'			10/11/2017	11:31 AM		1	X									S	X														X
4	S2-4'			10/11/2017	11:34 AM		1	X									S	X														X
5	S2-6'			10/11/2017	11:39 AM		1	X									S	X														X
6	S2-8'			10/11/2017	11:43 AM		1	X									S	X														X
7	S2-10'			10/11/2017	11:48 AM		1	X									S	X														X
8	S2-12'			10/11/2017	11:58 AM		1	X									S	X														X

Special Instructions: NEED TPH EXTENDED.

Relinquished by: [Signature]

Date: 10/18/17 Time: 11:30 AM

Received by: Hobbs

Date: 10/18/17 Time: 11:30 AM

Received by: Hobbs

Relinquished by:

Date: Time:

Received by: ELDT:

Laboratory Comments:

Sample Containers Intact? ☒ N
VOCs Free of Headspace? ☒ N
Labels on container(s) ☒ N
Custody seals on container(s) ☒ N
Custody seals on cooler(s) ☒ N
Sample Hand Delivered ☒ N
by Sampler/Client Rep. ? ☒ N
by Courier? ☒ N
UPS ☒ N
DHL ☒ N
FedEx ☒ N
Lone Star ☒ N

Temperature Upon Receipt: 24°C / 2.65°C



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

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.

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	
Toluene*	3.57	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	
Total Xylenes*	127	1.50	10/21/2017	ND	5.05	84.2	6.00	1.09	
Total BTEX	130	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
Chloride	1920	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	
GRO C6-C10	1230	50.0	10/20/2017	ND	214	107	200	2.10		
DRO >C10-C28	9110	50.0	10/20/2017	ND	217	108	200	4.09		
EXT DRO >C28-C36	1450	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
Benzene*	29.4	1.00	10/21/2017	ND	1.71	85.3	2.00	1.15	
Toluene*	135	1.00	10/21/2017	ND	1.70	84.8	2.00	0.528	
Ethylbenzene*	35.7	1.00	10/21/2017	ND	1.70	84.9	2.00	1.24	
Total Xylenes*	248	3.00	10/21/2017	ND	5.05	84.2	6.00	1.09	
Total BTEX	448	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	
Chloride	1410	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
GRO C6-C10	3090	50.0	10/20/2017	ND	214	107	200	2.10	
DRO >C10-C28	11700	50.0	10/20/2017	ND	217	108	200	4.09	
EXT DRO >C28-C36	1840	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
Benzene*	45.5	1.00	10/21/2017	ND	1.71	85.3	2.00	1.15	
Toluene*	226	1.00	10/21/2017	ND	1.70	84.8	2.00	0.528	
Ethylbenzene*	137	1.00	10/21/2017	ND	1.70	84.9	2.00	1.24	
Total Xylenes*	321	3.00	10/21/2017	ND	5.05	84.2	6.00	1.09	
Total BTEX	729	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	
Chloride	4240	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
GRO C6-C10	2130	50.0	10/20/2017	ND	214	107	200	2.10	
DRO >C10-C28	7760	50.0	10/20/2017	ND	217	108	200	4.09	
EXT DRO >C28-C36	1210	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



Celey D. Keene, Lab Director/Quality Manager



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

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.

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:	10/23/2017	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
Benzene*	5.08	0.500	10/26/2017	ND	1.90	95.2	2.00	2.07	
Toluene*	28.3	0.500	10/26/2017	ND	1.91	95.4	2.00	3.85	
Ethylbenzene*	13.7	0.500	10/26/2017	ND	1.88	94.1	2.00	2.80	
Total Xylenes*	70.5	1.50	10/26/2017	ND	5.57	92.9	6.00	2.07	
Total BTEX	118	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
Chloride	2280	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	
GRO C6-C10	902	100	10/25/2017	ND	165	82.4	200	0.162		
DRO >C10-C28	6250	100	10/25/2017	ND	178	88.8	200	3.09		
EXT DRO >C28-C36	1070	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	
Toluene*	0.781	0.050	10/26/2017	ND	1.91	95.4	2.00	3.85	
Ethylbenzene*	1.65	0.050	10/26/2017	ND	1.88	94.1	2.00	2.80	
Total Xylenes*	3.60	0.150	10/26/2017	ND	5.57	92.9	6.00	2.07	
Total BTEX	6.02	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
Chloride	400	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	55.9	10.0	10/25/2017	ND	165	82.4	200	0.162	
DRO >C10-C28	550	10.0	10/25/2017	ND	178	88.8	200	3.09	
EXT DRO >C28-C36	102	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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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
Benzene*	0.069	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*	1.74	0.050	10/26/2017	ND	1.88	94.1	2.00	2.80	
Total Xylenes*	2.62	0.150	10/26/2017	ND	5.57	92.9	6.00	2.07	
Total BTEX	4.43	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	
Chloride	448	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
GRO C6-C10	409	10.0	10/25/2017	ND	165	82.4	200	0.162	
DRO >C10-C28	5560	10.0	10/25/2017	ND	178	88.8	200	3.09	
EXT DRO >C28-C36	1140	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 140 % 28.3-164

Surrogate: 1-Chlorooctadecane 185 % 34.7-157

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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
Benzene*	2.43	0.050	10/26/2017	ND	1.90	95.2	2.00	2.07	
Toluene*	1.40	0.050	10/26/2017	ND	1.91	95.4	2.00	3.85	
Ethylbenzene*	4.83	0.050	10/26/2017	ND	1.88	94.1	2.00	2.80	
Total Xylenes*	6.32	0.150	10/26/2017	ND	5.57	92.9	6.00	2.07	
Total BTEX	15.0	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	
Chloride	368	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
GRO C6-C10	336	10.0	10/25/2017	ND	165	82.4	200	0.162	
DRO >C10-C28	4560	10.0	10/25/2017	ND	178	88.8	200	3.09	
EXT DRO >C28-C36	927	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 135 % 28.3-164

Surrogate: 1-Chlorooctadecane 175 % 34.7-157

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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
Chloride	384	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	
DRO >C10-C28	246	10.0	10/25/2017	ND	178	88.8	200	3.09	
EXT DRO >C28-C36	111	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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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
Chloride	784	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
GRO C6-C10	94.2	10.0	10/24/2017	ND	212	106	200	0.749	
DRO >C10-C28	6360	10.0	10/24/2017	ND	221	110	200	1.00	
EXT DRO >C28-C36	1460	10.0	10/24/2017	ND					

Surrogate: 1-Chlorooctane 106 % 28.3-164

Surrogate: 1-Chlorooctadecane 203 % 34.7-157

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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	
Chloride	608	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	2400	10.0	10/24/2017	ND	221	110	200	1.00	
EXT DRO >C28-C36	901	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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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
Chloride	432	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	18.0	10.0	10/24/2017	ND	221	110	200	1.00	
EXT DRO >C28-C36	45.2	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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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	
Chloride	384	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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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
Chloride	224	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

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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

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Celey D. Keene, Lab Director/Quality Manager



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

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.

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:	10/23/2017	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)

BTX 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 BTX	<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

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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
Chloride	608	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
GRO C6-C10	26.0	10.0	10/25/2017	ND	198	99.2	200	4.23	
DRO >C10-C28	2510	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	743	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 94.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 137 % 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: 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	
Chloride	624	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	14.4	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	28.6	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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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
Chloride	192	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

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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	
Chloride	224	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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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)

BTX 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 BTX	<0.300	0.300	10/27/2017	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	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

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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
Chloride	48.0	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

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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
Chloride	64.0	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

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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
Chloride	160	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

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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	
Toluene*	36.7	2.00	10/27/2017	ND	1.77	88.5	2.00	0.749	
Ethylbenzene*	30.2	2.00	10/27/2017	ND	1.74	86.9	2.00	1.30	
Total Xylenes*	239	6.00	10/27/2017	ND	5.18	86.4	6.00	0.648	
Total BTEX	305	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
Chloride	1420	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	4480	10.0	10/25/2017	ND	198	99.2	200	4.23	
DRO >C10-C28	1970	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	477	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 146 % 28.3-164

Surrogate: 1-Chlorooctadecane 113 % 34.7-157

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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

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Celey D. Keene, Lab Director/Quality Manager



ARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Chase Settle

Project Name:

Central Dagger Draw Water Station

Company: (505) 393-2326 EOG Resources Inc

Project #:

Company Address: 105 South 4th Street

Project Loc:

Central Dagger Draw Water Station

City/State/Zip: Artesia, NM 88210

PO #: 205-0750

Telephone No: 575-748-4171

Fax No: 575-748-4131

Report Format:

☒

Standard

☐ TRRP

☐ NPDES

Sampler Signature:

e-mail:

Chase Settle@eoqresources.com

(lab use only)

ORDER #: 47028946

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO ₃	HCl	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Matrix	TPH: 8015B EXTENDED	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO ₄ , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chlorides	SAR	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT	
1	S4-13.5'			10/18/2017	9:28 AM		1	X									S	X															X
2	S5-1'			10/18/2017	9:43 AM		1	X									S	X															X
3	S5-2'			10/18/2017	9:44 AM		1	X									S	X															X
4	S5-3'			10/18/2017	9:46 AM		1	X									S	X															X
5	S5-4'			10/18/2017	9:48 AM		1	X									S	X															X
6	S5-6'			10/18/2017	9:52 AM		1	X									S	X															X
7	S5-8'			10/18/2017	9:56 AM		1	X									S	X															X
8	S5-10'			10/18/2017	10:01 AM		1	X									S	X															X
9	S5-12'			10/18/2017	10:30 AM		1	X									S	X															X
10	S6-1'			10/18/2017	10:42 AM		1	X									S	X															X
Special Instructions: NEED TPH EXTENDED.																																	
Relinquished by: Date Time Received by: Date Time																																	
Relinquished by: Date Time Received by: Date Time																																	
Relinquished by: Date Time Received by: Date Time																																	

Laboratory Comments:
Sample Containers Intact? ☒
VOCs Free of Headspace? ☒
Labels on container(s) ☒
Custody seals on container(s) ☒
Custody seals on cooler(s) ☒
Sample Hand Delivered ☒
by Courier? ☒
UPS ☒ DHL ☒ FedEx ☒ Lone Star
Temperature Upon Receipt: 41.9 / 4.35 °C

#25 corrected to 25



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

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.

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:	10/23/2017	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)

BTX 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	
Toluene*	11.0	2.00	10/27/2017	ND	1.77	88.5	2.00	0.749	
Ethylbenzene*	18.6	2.00	10/27/2017	ND	1.74	86.9	2.00	1.30	
Total Xylenes*	186	6.00	10/27/2017	ND	5.18	86.4	6.00	0.648	
Total BTX	216	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
Chloride	1920	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	3500	10.0	10/25/2017	ND	198	99.2	200	4.23	
DRO >C10-C28	1850	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	405	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 124 % 28.3-164

Surrogate: 1-Chlorooctadecane 89.5 % 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: 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	
Toluene*	8.66	0.500	10/27/2017	ND	1.76	88.2	2.00	0.177	QM-07
Ethylbenzene*	12.9	0.500	10/27/2017	ND	1.73	86.5	2.00	0.312	QM-07
Total Xylenes*	138	1.50	10/27/2017	ND	5.15	85.8	6.00	0.757	QM-07, QR-03
Total BTEX	159	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	
Chloride	560	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	869	10.0	10/25/2017	ND	198	99.2	200	4.23	
DRO >C10-C28	409	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	105	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 106 % 28.3-164

Surrogate: 1-Chlorooctadecane 98.4 % 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: 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
Chloride	208	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	34.3	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	24.6	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 90.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 92.3 % 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: 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, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	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	15.5	10.0	10/25/2017	ND	198	99.2	200	4.23	
DRO >C10-C28	87.1	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	33.3	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 91.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 96.8 % 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: 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		
Total Xylenes*	0.284	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	
Chloride	432	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	33.9	10.0	10/25/2017	ND	198	99.2	200	4.23	
DRO >C10-C28	554	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	257	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	
Total Xylenes*	8.70	0.300	10/27/2017	ND	5.15	85.8	6.00	0.757	
Total BTEX	8.70	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
Chloride	144	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	330	10.0	10/25/2017	ND	198	99.2	200	4.23	
DRO >C10-C28	1310	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	370	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 103 % 28.3-164

Surrogate: 1-Chlorooctadecane 108 % 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: 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
Chloride	240	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	18.2	10.0	10/25/2017	ND	198	99.2	200	4.23	
DRO >C10-C28	639	10.0	10/25/2017	ND	216	108	200	6.25	
EXT DRO >C28-C36	291	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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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
Chloride	224	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	20.0	10.0	10/25/2017	ND					

Surrogate: 1-Chlorooctane 92.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 90.6 % 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: 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
Chloride	512	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	11.5	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

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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)

BTX 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 BTX	<0.300	0.300	10/27/2017	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1280	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

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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

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Celey D. Keene, Lab Director/Quality Manager



ARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Chase Settle

Company Address: 105 South 4th Street

City/State/Zip: Artesia, NM 88210

Telephone No: 575-748-4171

Sampler Signature: [Signature]

ORDER #: H702897

Project Name: Central Dagger Draw Water Station

Project #:

Project Loc: Central Dagger Draw Water Station

PO #: 205-0750

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

Fax No: 575-748-4131 e-mail: Chase.Settle@eoqresources.com

LAB # (lab use only)		FIELD CODE		Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Preservation & # of Containers							Matrix	Analyze For:																		
										Ice	HNO ₃	HCl	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	None	Other (Specify)	DW=Drinking Water SL=Sludge	GW=Groundwater S=Soil/Solid	NP=Non-Potable Specify Other	TPH: 8015B EXTENDED	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO ₄ , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chlorides	SAR	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT	
1	S6-2'					10/18/2017	10:44 AM		1	X									S			X														X
2	S6-3'					10/18/2017	10:46 AM		1	X									S			X													X	
3	S6-4'					10/18/2017	10:48 AM		1	X									S			X													X	
4	S6-6'					10/18/2017	10:51 AM		1	X									S			X													X	
5	S6-8'					10/18/2017	10:54 AM		1	X									S			X													X	
6	S6-10'					10/18/2017	11:01 AM		1	X									S			X													X	
7	S6-12'					10/18/2017	11:11 AM		1	X									S			X													X	
8	S6-14'					10/18/2017	11:20 AM		1	X									S			X													X	
9	S6-16'					10/18/2017	11:26 AM		1	X									S			X													X	
10	S7-1'					10/18/2017	11:51 AM		1	X									S			X													X	
Special Instructions: NEED TPH EXTENDED.																																				
Relinquished by: [Signature] Date: 10/23/17 Time: Received by: Haley Carbow Date: 10/23/17 Time: 2:12																																				
Relinquished by: Date: Time: Received by: ELOT: Date: Time:																																				
Temperature Upon Receipt: 41.1/43.5 °C																																				



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

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.

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:	10/23/2017	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	
Chloride	1250	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	
DRO >C10-C28	145	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	84.0	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 74.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 88.1 % 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: 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	
Chloride	3080	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	38.1	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	19.3	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 76.9 % 28.3-164

Surrogate: 1-Chlorooctadecane 87.4 % 34.7-157

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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)

BTX 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 BTX	<0.300	0.300	10/27/2017	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	480	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	136	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	121	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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ARTESIA NM, 88210
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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
Chloride	3280	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	25.5	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	21.9	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 81.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 90.5 % 34.7-157

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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)

BTX 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 BTX	<0.300	0.300	10/27/2017	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	672	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	51.7	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	34.8	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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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
Chloride	320	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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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	
Chloride	384	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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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	
Chloride	480	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

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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	
Chloride	1060	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

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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
Chloride	1520	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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



ARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Chase Settle

Project Name:

Central Dagger Draw Water Station

Company (505) 393-2326 EOG Resources Inc

Project #:

Company Address: 105 South 4th Street

Project Loc:

Central Dagger Draw Water Station

City/State/Zip: Artesia, NM 88210

PO #: 205-0750

Telephone No: 575-748-4171

Fax No: 575-748-4131

Report Format:

☒ Standard

☐ TRRP

☐ NPDES

Sampler Signature:

e-mail:

Chase Settle@eoresources.com

(lab use only)

ORDER #: H702898.

LAB # (lab use only)		FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO ₃	HCl	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	TPH: 8015B EXTENDED	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chlorides	SAR	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
1	S7-2'								10/18/2017	11:52 AM		1	X								S	X								X		
2	S7-3'			10/18/2017	11:53 AM			1	X							S	X								X				X			X
3	S7-4'			10/18/2017	11:55 AM			1	X							S	X								X				X			X
4	S7-6'			10/18/2017	11:59 AM			1	X							S	X								X				X			X
5	S7-8'			10/18/2017	12:04 PM			1	X							S	X								X				X			X
6	S7-10'			10/18/2017	12:08 PM			1	X							S	X								X				X			X
7	S7-12'			10/18/2017	12:13 PM			1	X							S	X								X				X			X
8	S7-14'			10/18/2017	12:18 PM			1	X							S	X								X				X			X
9	S8-1'			10/18/2017	12:30 PM			1	X							S	X								X				X			X
10	S8-2'			10/18/2017	12:32 PM			1	X							S	X								X				X			X

Special Instructions: NEED TPH EXTENDED.

Relinquished by:	Date	Time	Received by:	Date	Time	Laboratory Comments:
<i>[Signature]</i>	10/23/17		Harry Curdson	10/23/17	2:12	Sample Containers Intact? <input checked="" type="checkbox"/> VOCs Free of Headspace? <input checked="" type="checkbox"/> Labels on containers(s) <input checked="" type="checkbox"/> Custody seals on container(s) <input checked="" type="checkbox"/> Sample Hand Delivered by Sampler/Client Rep. ? <input checked="" type="checkbox"/> by Courier? <input checked="" type="checkbox"/> UPS <input checked="" type="checkbox"/> DHL <input checked="" type="checkbox"/> FedEx <input checked="" type="checkbox"/> Lone Star
Relinquished by:	Date	Time	Received by:	Date	Time	Temperature Upon Receipt: 41.1/4.35 °C

#30 corrected + .25"



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

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.

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:	10/23/2017	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	
Chloride	2360	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
Chloride	288	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
Chloride	256	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	244	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	136	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 76.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 99.6 % 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: 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
Chloride	80.0	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

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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

February 26, 2018

MAX COOK

RANGER ENVIRONMENTAL SERVICES, INC.

PO BOX 201179

AUSTIN, TX 78729

RE: CENTRAL DAGGER DRAW WATER STATION

Enclosed are the results of analyses for samples received by the laboratory on 02/23/18 8:44.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab_accred_certif.html.

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

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

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

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

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

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

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S9 - 1'	H800533-01	Soil	21-Feb-18 07:37	23-Feb-18 08:44
S9 - 2'	H800533-02	Soil	21-Feb-18 07:42	23-Feb-18 08:44
S9 - 3'	H800533-03	Soil	21-Feb-18 07:45	23-Feb-18 08:44
S9 - 4'	H800533-04	Soil	21-Feb-18 07:49	23-Feb-18 08:44
S10 - 1'	H800533-05	Soil	21-Feb-18 07:56	23-Feb-18 08:44
S10 - 2'	H800533-06	Soil	21-Feb-18 08:00	23-Feb-18 08:44
S10 - 3'	H800533-07	Soil	21-Feb-18 08:04	23-Feb-18 08:44
S10 - 4'	H800533-08	Soil	21-Feb-18 08:07	23-Feb-18 08:44
S11 - 1'	H800533-09	Soil	21-Feb-18 08:17	23-Feb-18 08:44
S11 - 2'	H800533-10	Soil	21-Feb-18 08:21	23-Feb-18 08:44
S11 - 3'	H800533-11	Soil	21-Feb-18 08:24	23-Feb-18 08:44
S11 - 4'	H800533-12	Soil	21-Feb-18 08:27	23-Feb-18 08:44
S12 - 1'	H800533-13	Soil	21-Feb-18 08:40	23-Feb-18 08:44
S12 - 2'	H800533-14	Soil	21-Feb-18 08:44	23-Feb-18 08:44
S12 - 3'	H800533-15	Soil	21-Feb-18 08:47	23-Feb-18 08:44
S12 - 4'	H800533-16	Soil	21-Feb-18 08:51	23-Feb-18 08:44
S13 - 1'	H800533-17	Soil	21-Feb-18 09:03	23-Feb-18 08:44
S13 - 2'	H800533-18	Soil	21-Feb-18 09:06	23-Feb-18 08:44
S13 - 3'	H800533-19	Soil	21-Feb-18 09:10	23-Feb-18 08:44
S13 - 4'	H800533-20	Soil	21-Feb-18 09:13	23-Feb-18 08:44
S14 - 1'	H800533-21	Soil	21-Feb-18 09:27	23-Feb-18 08:44
S14 - 2'	H800533-22	Soil	21-Feb-18 09:30	23-Feb-18 08:44
S14 - 3'	H800533-23	Soil	21-Feb-18 09:34	23-Feb-18 08:44
S14 - 4'	H800533-24	Soil	21-Feb-18 09:38	23-Feb-18 08:44
S15 - 1'	H800533-25	Soil	21-Feb-18 09:48	23-Feb-18 08:44
S15 - 2'	H800533-26	Soil	21-Feb-18 09:52	23-Feb-18 08:44
S15 - 3'	H800533-27	Soil	21-Feb-18 09:55	23-Feb-18 08:44

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S15 - 4'	H800533-28	Soil	22-Feb-18 09:59	23-Feb-18 08:44
S2 (B) - 16'	H800533-29	Soil	22-Feb-18 12:59	23-Feb-18 08:44
S2 (B) - 20'	H800533-30	Soil	22-Feb-18 13:10	23-Feb-18 08:44

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S9 - 1'****H800533-01 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	48.0		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S9 - 2'****H800533-02 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	32.0		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S9 - 3'****H800533-03 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	144		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S9 - 4'****H800533-04 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	160		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S10 - 1'****H800533-05 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	32.0		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S10 - 2'****H800533-06 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	336		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S10 - 3'****H800533-07 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	160		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S10 - 4'****H800533-08 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	128		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S11 - 1'****H800533-09 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	560		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S11 - 2'****H800533-10 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	448		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S11 - 3'****H800533-11 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	832		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S11 - 4'****H800533-12 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	96.0		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S12 - 1' H800533-13 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	624		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			120 %		72-148	8022303	MS	23-Feb-18	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
Surrogate: 1-Chlorooctane			86.7 %		41-142	8022304	MS	23-Feb-18	8015B	
Surrogate: 1-Chlorooctadecane			92.5 %		37.6-147	8022304	MS	23-Feb-18	8015B	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S12 - 2' H800533-14 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	560		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 122 % 72-148 8022303 MS 23-Feb-18 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	

Surrogate: 1-Chlorooctane 77.0 % 41-142 8022304 MS 23-Feb-18 8015B

Surrogate: 1-Chlorooctadecane 80.5 % 37.6-147 8022304 MS 23-Feb-18 8015B

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S12 - 3' H800533-15 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	480		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 118 % 72-148 8022303 MS 23-Feb-18 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	

Surrogate: 1-Chlorooctane 83.9 % 41-142 8022304 MS 23-Feb-18 8015B

Surrogate: 1-Chlorooctadecane 88.7 % 37.6-147 8022304 MS 23-Feb-18 8015B

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S12 - 4'
H800533-16 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	176		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 116 % 72-148 8022303 MS 23-Feb-18 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	

Surrogate: 1-Chlorooctane 86.2 % 41-142 8022304 MS 23-Feb-18 8015B

Surrogate: 1-Chlorooctadecane 93.4 % 37.6-147 8022304 MS 23-Feb-18 8015B

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S13 - 1'

H800533-17 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	624		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 113 % 72-148 8022303 MS 23-Feb-18 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
DRO >C10-C28*	25.9		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	

Surrogate: 1-Chlorooctane 71.2 % 41-142 8022304 MS 23-Feb-18 8015B

Surrogate: 1-Chlorooctadecane 78.0 % 37.6-147 8022304 MS 23-Feb-18 8015B

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S13 - 2' H800533-18 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	432		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			118 %		72-148	8022303	MS	23-Feb-18	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
Surrogate: 1-Chlorooctane			83.0 %		41-142	8022304	MS	23-Feb-18	8015B	
Surrogate: 1-Chlorooctadecane			90.6 %		37.6-147	8022304	MS	23-Feb-18	8015B	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S13 - 3'

H800533-19 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	944		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			116 %		72-148	8022303	MS	23-Feb-18	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
Surrogate: 1-Chlorooctane			82.8 %		41-142	8022304	MS	23-Feb-18	8015B	
Surrogate: 1-Chlorooctadecane			88.9 %		37.6-147	8022304	MS	23-Feb-18	8015B	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S13 - 4' H800533-20 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	416		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 118 % 72-148 8022303 MS 23-Feb-18 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	

Surrogate: 1-Chlorooctane 83.4 % 41-142 8022304 MS 23-Feb-18 8015B

Surrogate: 1-Chlorooctadecane 90.9 % 37.6-147 8022304 MS 23-Feb-18 8015B

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S14 - 1'****H800533-21 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	64.0		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S14 - 2'****H800533-22 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	112		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S14 - 3'
H800533-23 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	96.0		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			117 %		72-148	8022303	MS	23-Feb-18	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
Surrogate: 1-Chlorooctane			84.0 %		41-142	8022304	MS	23-Feb-18	8015B	
Surrogate: 1-Chlorooctadecane			91.0 %		37.6-147	8022304	MS	23-Feb-18	8015B	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S14 - 4'

H800533-24 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	192		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			113 %		72-148	8022303	MS	23-Feb-18	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
Surrogate: 1-Chlorooctane			76.0 %		41-142	8022304	MS	23-Feb-18	8015B	
Surrogate: 1-Chlorooctadecane			81.2 %		37.6-147	8022304	MS	23-Feb-18	8015B	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S15 - 1'
H800533-25 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	2880		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B
Toluene*	<0.050	0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B
Ethylbenzene*	<0.050	0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B
Total Xylenes*	<0.150	0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B
Total BTEX	<0.300	0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B

Surrogate: 4-Bromofluorobenzene (PID)	115 %	72-148	8022303	MS	23-Feb-18	8021B
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B
DRO >C10-C28*	475	10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B
EXT DRO >C28-C36	177	10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B

Surrogate: 1-Chlorooctane	80.8 %	41-142	8022304	MS	23-Feb-18	8015B
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Surrogate: 1-Chlorooctadecane	100 %	37.6-147	8022304	MS	23-Feb-18	8015B
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Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S15 - 2' H800533-26 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	2800		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 120 % 72-148 8022303 MS 23-Feb-18 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
DRO >C10-C28*	387		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
EXT DRO >C28-C36	140		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	

Surrogate: 1-Chlorooctane 82.4 % 41-142 8022304 MS 23-Feb-18 8015B

Surrogate: 1-Chlorooctadecane 101 % 37.6-147 8022304 MS 23-Feb-18 8015B

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S15 - 3'

H800533-27 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	3000		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B
Toluene*	<0.050	0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B
Ethylbenzene*	<0.050	0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B
Total Xylenes*	<0.150	0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B
Total BTEX	<0.300	0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B

Surrogate: 4-Bromofluorobenzene (PID)	119 %	72-148	8022303	MS	23-Feb-18	8021B
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B
DRO >C10-C28*	539	10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B
EXT DRO >C28-C36	182	10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B

Surrogate: 1-Chlorooctane	83.0 %	41-142	8022304	MS	23-Feb-18	8015B
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Surrogate: 1-Chlorooctadecane	104 %	37.6-147	8022304	MS	23-Feb-18	8015B
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

S15 - 4' H800533-28 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	3480		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8022303	MS	23-Feb-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			114 %		72-148	8022303	MS	23-Feb-18	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
DRO >C10-C28*	211		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
EXT DRO >C28-C36	85.7		10.0	mg/kg	1	8022304	MS	23-Feb-18	8015B	
Surrogate: 1-Chlorooctane			85.3 %		41-142	8022304	MS	23-Feb-18	8015B	
Surrogate: 1-Chlorooctadecane			99.9 %		37.6-147	8022304	MS	23-Feb-18	8015B	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S2 (B) - 16'**
H800533-29 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	256		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527Reported:
26-Feb-18 13:00**S2 (B) - 20'****H800533-30 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	320		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
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Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch 8022301 - 1:4 DI Water

Blank (8022301-BLK1)

Prepared & Analyzed: 23-Feb-18

Chloride ND 16.0 mg/kg

LCS (8022301-BS1)

Prepared & Analyzed: 23-Feb-18

Chloride 416 16.0 mg/kg 400 104 80-120

LCS Dup (8022301-BSD1)

Prepared & Analyzed: 23-Feb-18

Chloride 416 16.0 mg/kg 400 104 80-120 0.00 20

Batch 8022314 - 1:4 DI Water

Blank (8022314-BLK1)

Prepared & Analyzed: 23-Feb-18

Chloride ND 16.0 mg/kg

LCS (8022314-BS1)

Prepared & Analyzed: 23-Feb-18

Chloride 432 16.0 mg/kg 400 108 80-120

LCS Dup (8022314-BSD1)

Prepared & Analyzed: 23-Feb-18

Chloride 416 16.0 mg/kg 400 104 80-120 3.77 20

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 8022303 - Volatiles

Blank (8022303-BLK1)

Prepared & Analyzed: 23-Feb-18

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.113		mg/kg	0.100		113	72-148			

LCS (8022303-BS1)

Prepared & Analyzed: 23-Feb-18

Benzene	1.80	0.050	mg/kg	2.00		90.1	79.5-124			
Toluene	1.79	0.050	mg/kg	2.00		89.6	75.5-127			
Ethylbenzene	1.80	0.050	mg/kg	2.00		90.0	77.7-125			
Total Xylenes	5.23	0.150	mg/kg	6.00		87.2	70.9-124			
Surrogate: 4-Bromofluorobenzene (PID)	0.110		mg/kg	0.100		110	72-148			

LCS Dup (8022303-BSD1)

Prepared & Analyzed: 23-Feb-18

Benzene	1.95	0.050	mg/kg	2.00		97.7	79.5-124	8.17	6.5	QR-02
Toluene	1.97	0.050	mg/kg	2.00		98.7	75.5-127	9.68	7.02	QR-02
Ethylbenzene	1.99	0.050	mg/kg	2.00		99.7	77.7-125	10.3	7.83	QR-02
Total Xylenes	5.78	0.150	mg/kg	6.00		96.3	70.9-124	9.93	7.78	QR-02
Surrogate: 4-Bromofluorobenzene (PID)	0.114		mg/kg	0.100		114	72-148			

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
PO BOX 201179
AUSTIN TX, 78729

Project: CENTRAL DAGGER DRAW WATER !
Project Number: 5375
Project Manager: MAX COOK
Fax To: (512) 335-0527

Reported:
26-Feb-18 13:00

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 8022304 - General Prep - Organics

Blank (8022304-BLK1)

Prepared & Analyzed: 23-Feb-18

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	43.2		mg/kg	50.0		86.5	41-142			
Surrogate: 1-Chlorooctadecane	45.5		mg/kg	50.0		91.0	37.6-147			

LCS (8022304-BS1)

Prepared & Analyzed: 23-Feb-18

GRO C6-C10	170	10.0	mg/kg	200		85.0	76.5-133			
DRO >C10-C28	167	10.0	mg/kg	200		83.5	72.9-138			
Total TPH C6-C28	337	10.0	mg/kg	400		84.3	78-132			
Surrogate: 1-Chlorooctane	37.1		mg/kg	50.0		74.2	41-142			
Surrogate: 1-Chlorooctadecane	39.6		mg/kg	50.0		79.2	37.6-147			

LCS Dup (8022304-BSD1)

Prepared & Analyzed: 23-Feb-18

GRO C6-C10	195	10.0	mg/kg	200		97.6	76.5-133	13.7	20.6	
DRO >C10-C28	193	10.0	mg/kg	200		96.6	72.9-138	14.5	20.6	
Total TPH C6-C28	388	10.0	mg/kg	400		97.1	78-132	14.1	18	
Surrogate: 1-Chlorooctane	46.7		mg/kg	50.0		93.3	41-142			
Surrogate: 1-Chlorooctadecane	48.7		mg/kg	50.0		97.5	37.6-147			

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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.
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



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Ranger Environmental Services

Project Manager: Max Cook

Address: PO Box 201179

City: Austin State: TX Zip: 78729

Phone #: 512-497-1556 Fax #: 512-335-0527

Project #: 5375 Project Owner:

Project Name: Central Dagger Draw Water Station

Project Location: Central Dagger Draw Water Station

Sample Name: Max Cook

FOR LAB USE ONLY

Lab I.D. Sample I.D.

H800533

		(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.	SAMPLING	DATE	TIME	ANALYSIS REQUEST									
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :					TPH: 8015 EXT	BTEX 8021B/5030 or BTEX 8260	Chloride							
1	S9-1'	G	1	X								2/21/2018	0737			X							
2	S9-2'	G	1	X								2/21/2018	0742			X							
3	S9-3'	G	1	X								2/21/2018	0745			X							
4	S9-4'	G	1	X								2/21/2018	0749			X							
5	S10-1'	G	1	X								2/21/2018	0756			X							
6	S10-2'	G	1	X								2/21/2018	0800			X							
7	S10-3'	G	1	X								2/21/2018	0804			X							
8	S10-4'	G	1	X								2/21/2018	0807			X							
9	S11-1'	G	1	X								2/21/2018	0817			X							
10	S11-2'	G	1	X								2/21/2018	0821			X							

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Relinquished By:

Relinquished By:

Date: 4/23/18
Time: 0844

Received By: *[Signature]*

Date:

Time:

Received By:

Delivered By: (Circle One)

Sampler - UPS - Bus - Other: *3.46*

FORM-006 R.2.0

Sample Condition

Cool ☒ Intact ☒
Yes ☒ No ☒

CHECKED BY:

(Initials) *TO: HRS*

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

REMARKS: Please hold SZ(B) - 25'



Company Name: Ranger Environmental Services

ANALYSIS REQUEST

+ Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476



Ranger Environmental Services

Page 40 of 41



(575) 393-2326 FAX (575) 393-2476

BILL TO

ANALYSIS REQUEST

[illegible]



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

March 28, 2018

MAX COOK

RANGER ENVIRONMENTAL SERVICES, INC.

PO BOX 201179

AUSTIN, TX 78729

RE: CENTRAL DAGGER DRAW WATER STATION

Enclosed are the results of analyses for samples received by the laboratory on 03/22/18 8:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is 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, flowing style.

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

RANGER ENVIRONMENTAL SERVICES, INC.
MAX COOK
PO BOX 201179
AUSTIN TX, 78729
Fax To: (512) 335-0527

Received:	03/22/2018	Sampling Date:	03/20/2018
Reported:	03/28/2018	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

Sample ID: S16 - 1' (H800819-01)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	03/26/2018	ND	448	112	400	3.64	

Sample ID: S16 - 2' (H800819-02)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	688	16.0	03/26/2018	ND	448	112	400	3.64	

Sample ID: S16 - 3' (H800819-03)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	03/26/2018	ND	448	112	400	3.64	

Sample ID: S16 - 4' (H800819-04)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	03/26/2018	ND	448	112	400	3.64	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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Received:	03/22/2018	Sampling Date:	03/20/2018
Reported:	03/28/2018	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

Sample ID: S17 - 1' (H800819-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	03/26/2018	ND	448	112	400	3.64		

Sample ID: S17 - 2' (H800819-06)

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	03/26/2018	ND	448	112	400	3.64	

Sample ID: S17 - 3' (H800819-07)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	03/26/2018	ND	448	112	400	3.64	

Sample ID: S17 - 4' (H800819-08)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	03/26/2018	ND	448	112	400	3.64	

Sample ID: S18 - 1' (H800819-09)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	03/26/2018	ND	448	112	400	3.64		

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Reported:	03/28/2018	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

Sample ID: S18 - 2' (H800819-10)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	03/26/2018	ND	448	112	400	3.64		

Sample ID: S18 - 3' (H800819-11)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	03/26/2018	ND	448	112	400	3.64	

Sample ID: S18 - 4' (H800819-12)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	03/26/2018	ND	448	112	400	3.64	

Sample ID: S19 - 1' (H800819-13)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	03/26/2018	ND	448	112	400	3.64		

Sample ID: S19 - 2' (H800819-14)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	03/26/2018	ND	448	112	400	3.64		

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Reported:	03/28/2018	Sampling Type:	Soil
Project Name:	CENTRAL DAGGER DRAW WATER STATI	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	CENTRAL DAGGER DRAW WATER STATI		

Sample ID: S19 - 3' (H800819-15)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	03/26/2018	ND	448	112	400	3.64		

Sample ID: S19 - 4' (H800819-16)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	03/26/2018	ND	448	112	400	3.64	

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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.
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



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 9 of 10



(575) 393-2326 FAX (575) 393-2476
Ranger Environmental Services, Inc.

Page 10 of 10

APPENDIX C

INITIAL C-141
(2RP-4298)

SITE CHARACTERIZATION WORK PLAN

NMOCD DISTRICT 2 APPROVAL

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

ARTESIA DISTRICT

Form C-141
Revised August 8, 2011

JUL 21 2017 Energy Minerals and Natural Resources

JUL 21 2017

Oil Conservation Division

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

1220 South St. Francis Dr.

RECEIVED

Santa Fe, NM 87505

RECEIVED

FAB1720532799

Release Notification and Corrective Action

NAB1720532956

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company EOG Y Resources, Inc.	Contact Chase Settle
Address 104 S. 4 th 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
--------------------------	--------------------------	----------------

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.*

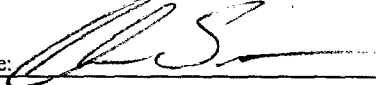
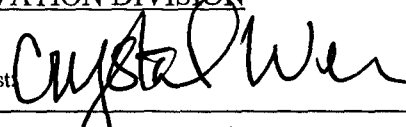
Describe Cause of Problem and Remedial Action Taken.*

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: 	OIL CONSERVATION DIVISION	
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: see attached	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; C₆ thru C₃₆), 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; C₆ thru C₃₆), 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

Weaver, Crystal, EMNRD

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



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:

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

Site RRALS

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

Chloride Delineation Goals

Chloride: 600 mg/Kg

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
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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.



Patrick K. Finn
Project Geologist



Max Cook
Project Manager

MC/PKF

Attachments



max cook <maxcook4@gmail.com>

Central Dagger Draw Water Station :: 2RP-4298 Work Plan

Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>

Thu, Apr 12, 2018 at 3:53 PM

To: max cook <max@rangerenv.com>, "Weaver, Crystal, EMNRD" <Crystal.Weaver@state.nm.us>

Cc: Chase Settle <Chase_Settle@eogresources.com>

RE: EOG Y * Central Dagger Draw Water Station * 2RP-4298

The proposal for delineation/remediation of the above referenced release is approved. Delineation goal for chloride impact is 600 mg/kg. The proposed 10' additional investigation is not required. Since this approval is so late, please advise if the proposal is no longer valid, or has commenced/been completed.

Thank you,

Mike Bratcher

NMOCD District 2

[811 South First Street](#)[Artesia, NM 88210](#)

575-748-1283 Ext 108

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

From: maxcook4@gmail.com <maxcook4@gmail.com> **On Behalf Of** max cook**Sent:** Wednesday, February 14, 2018 1:04 PM**To:** Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>**Cc:** Chase Settle <Chase_Settle@eogresources.com>**Subject:** Central Dagger Draw Water Station :: 2RP-4298 Work Plan

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