

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.

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'	Ō
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

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.

Central Dagger Draw Water Station Remediation Work Plan

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

Sincerely, *RANGER ENVIRONMENTAL SERVICES, INC.*

Nomes R. Wordhu

James R. Woodburn Project Geologist

- 6-0

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

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	CHLORI
S1-1'	10/11/2017	1'	1.67	6.80	9.96	17.9	36.3	157	711	132	1,000	<mark>5,680</mark>
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' S2(B)-20'	2/21/2018 2/21/2018	16' 20'					Not Analyzed Not Analyzed					256 320
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' S3-3'	10/11/2017	2' 3'	29.4 45.5	135 226	35.7 137	248 321	448 729	3,090 2,130	11,700 7,760	1,840 1,210	16,630 11,100	1,410
S3-3' S3-4'	10/11/2017	3' 4'	45.5 5.08	226	137	321 70.5	118	2,130	6,250	1,210	11,100 8,222	2,280
S3-5'	10/18/2017	5'	<0.050	0.781	1.65	3.60	6.02	55.9	550	1,070	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
S4-1 S4-2'	10/18/2017	2'	2.43	1.40	4.83	6.32	4.43	336	4,560	927	5,823	368
S4-2 S4-3'	10/18/2017	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	4,560 246	927	357	384
S4-3 S4-4'	10/18/2017	3	<0.050	<0.050	<0.050	<0.150	<0.300	94.2	6,360			384 784
S4-4 S4-6'	10/18/2017	6'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	2,400	1,460 901	7,914.2 3,301	608
S4-6 S4-8'	10/18/2017	8'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	2,400	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	03.2	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	1,42
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' S6-16'	10/18/2017	14' 16'	<0.050 <0.050	<0.050 <0.050	<0.050 <0.050	<0.150 <0.150	<0.300 <0.300	<10.0 <10.0	<10.0 11.5	20.0 <10.0	20.0 11.5	224 512
	10/10/2017		~0.000		~0.000		~0.000	~10.0		\$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	1,28
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' o'	<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 10/18/2017	8'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	51.7 <10.0	34.8	86.5	672 320
S7-10' S7-12'	10/18/2017	10' 12'	<0.050 <0.050	<0.050 <0.050	<0.050 <0.050	<0.150 <0.150	<0.300 <0.300	<10.0 <10.0	<10.0	<10.0 <10.0	0	320
S7-12 S7-14'	10/18/2017	12 ⁻ 14'	<0.050	<0.050	<0.050	<0.150 <0.150	<0.300	<10.0	<10.0	<10.0	0	384 480
00.4	40/40/001-											
S8-1'	10/18/2017	1'	< 0.050	< 0.050	< 0.050	<0.150	< 0.300	<10.0	<10.0	<10.0	0	1,06
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
	10/18/2017	3'	< 0.050	< 0.050	< 0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2,360
S8-3'											-	
S8-3' S8-4'	10/18/2017	4'	<0.050	<0.050	< 0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	
S8-3'				<0.050 <0.050 <0.050	<0.050 <0.050 <0.050	<0.150 <0.150 <0.150	<0.300 <0.300 <0.300	<10.0 <10.0 <10.0	<10.0 244 <10.0	<10.0 136 <10.0	0 380 <10.0	288 256 80

 $\begin{array}{l} TPH = Total \ Petroleum \ Hydrocarbons \\ mg/Kg = Milligrams \ per \ Kilogram \\ J = Analyte \ detected \ below \ quantitation \ limit \end{array}$

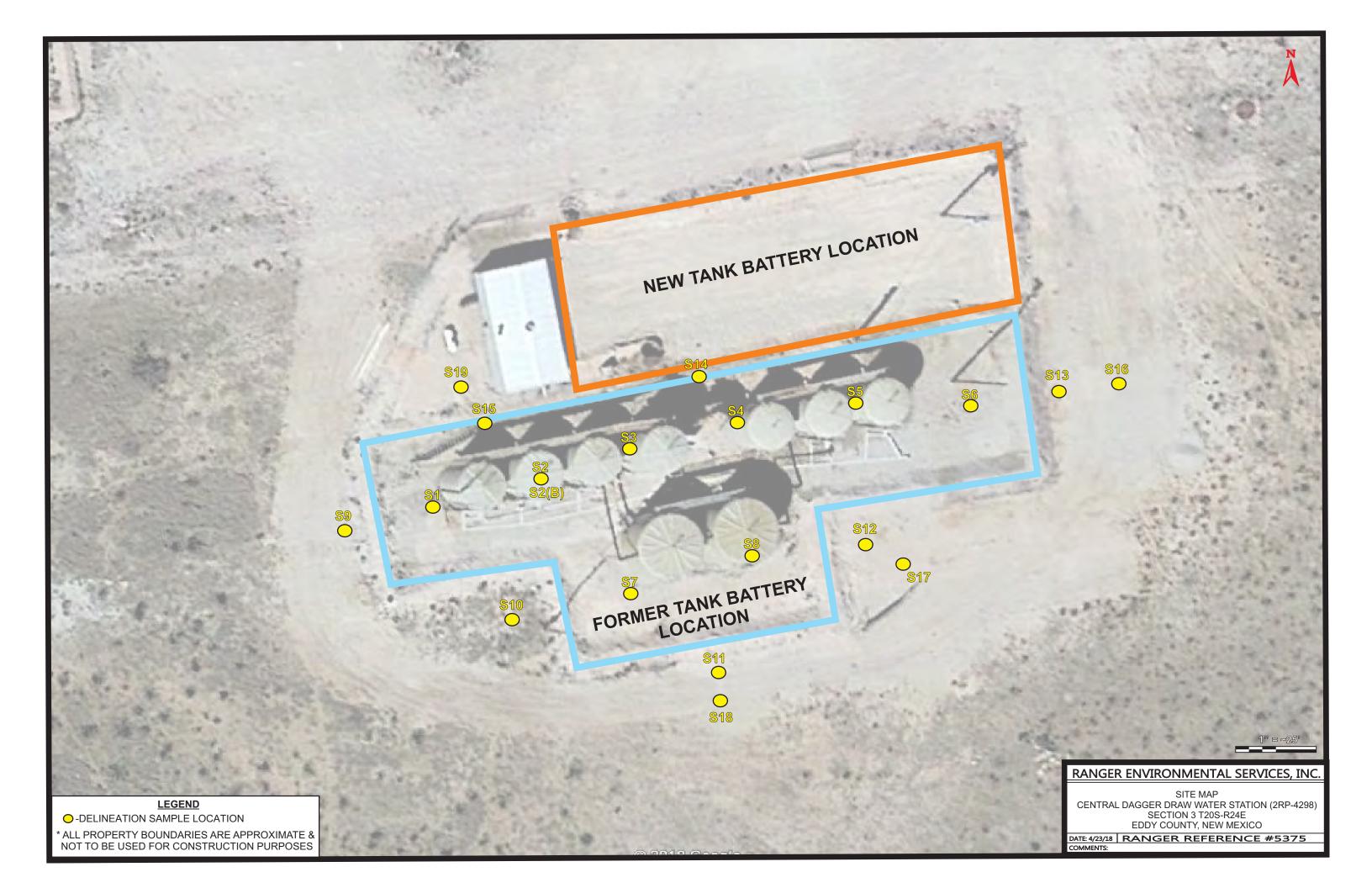
EOG ARTESIA CENTRAL DAGGER DRAW WATER STATION												
All values presented in parts per million (mg/Kg)												
SAMPLE ID	DATE	DEPTH (FT)	BENZENE	TOLUENE	ETHYL- BENZENE	TOTAL XYLENES	TOTAL BTEX	TPH GRO C6-C10	TPH DRO C10-C28	TPH DRO EXT C28-C36	TPH TOTAL	CHL
S9-1'	2/21/2018	1'					Not Analyzed			010 000		4
S9-2'	2/21/2018	2'					Not Analyzed					3
S9-3'	2/21/2018	3'					Not Analyzed					1
S9-4'	2/21/2018	4'					Not Analyzed					1
S10-1'	2/21/2018	1'					Not Analyzed					3
S10-2'	2/21/2018	2'					Not Analyzed					3
S10-3'	2/21/2018	3'					Not Analyzed					1
S10-4'	2/21/2018	4'					Not Analyzed					1
S11-1'	2/21/2018	1'					Not Analyzed					5
S11-2'	2/21/2018	2'	1				Not Analyzed					4
S11-3'	2/21/2018	3'	1				Not Analyzed					8
S11-4'	2/21/2018	4'					Not Analyzed					9
S12-1'	2/21/2018	1'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	6
S12-1 S12-2'	2/21/2018	2'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	5
S12-2	2/21/2018	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	4
S12-4'	2/21/2018	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	1
040.41	0/04/0040	41	0.050	0.050	0.050	0.450	0.000	40.0	05.0	10.0		
S13-1'	2/21/2018	1' 2'	<0.050	<0.050 <0.050	< 0.050	<0.150	<0.300	<10.0	25.9	<10.0	NA	6
S13-2' S13-3'	2/21/2018 2/21/2018	3'	<0.050 <0.050	<0.050	<0.050 <0.050	<0.150 <0.150	<0.300 <0.300	<10.0 <10.0	<10.0 <10.0	<10.0 <10.0	NA NA	4
S13-4'	2/21/2018	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	4
S14-1' S14-2'	2/21/2018 2/21/2018	1' 2'					Not Analyzed					6
S14-2	2/21/2018	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	9
S14-4'	2/21/2018	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	NA	1
												-1
S15-1'	2/21/2018	1'	<0.050	< 0.050	< 0.050	<0.150	<0.300	<10.0	475	177	NA	2,
S15-2'	2/21/2018	2'	<0.050	< 0.050	< 0.050	<0.150	<0.300	<10.0	387	140	NA	2,
S15-3' S15-4'	2/21/2018 2/21/2018	3' 4'	<0.050 <0.050	<0.050 <0.050	<0.050 <0.050	<0.150 <0.150	<0.300 <0.300	<10.0 <10.0	539 211	182 85.7	NA NA	3, 3,
313-4	2/21/2010	+	<0.030	<0.050	<0.050	<0.150	<0.300	×10.0	211	05.7	INA	,
S16 - 1'	3/20/2018	1					Not Analyzed					6
S16 - 2'	3/20/2018	2					Not Analyzed					6
S16 - 3'	3/20/2018	3					Not Analyzed					4
S16 - 4'	3/20/2018	4					Not Analyzed					1
S17 - 1'	3/20/2018	1	1	1	I	I	Not Analyzed		1			3
S17 - 2'	3/20/2018	2					Not Analyzed					1
S17 - 3'	3/20/2018	3					Not Analyzed					2
S17 - 4'	3/20/2018	4					Not Analyzed					1
S18 - 1'	3/20/2018	1					Not Analyzed		L			8
S18 - 2'	3/20/2018	2	1				Not Analyzed					1
S18 - 3'	3/20/2018	3	1				Not Analyzed					8
S18 - 4'	3/20/2018	4		1	I	I	Not Analyzed					4
S10 1	2/20/2040	4					Not Apply 7		L			_
S19 - 1' S19 - 2'	3/20/2018 3/20/2018	1					Not Analyzed					4
S19 - 2 S19 - 3'	3/20/2018	3	1				Not Analyzed					4
S19 - 4'	3/20/2018	4	1				Not Analyzed					3
	2 3 0 . 0			1					1			

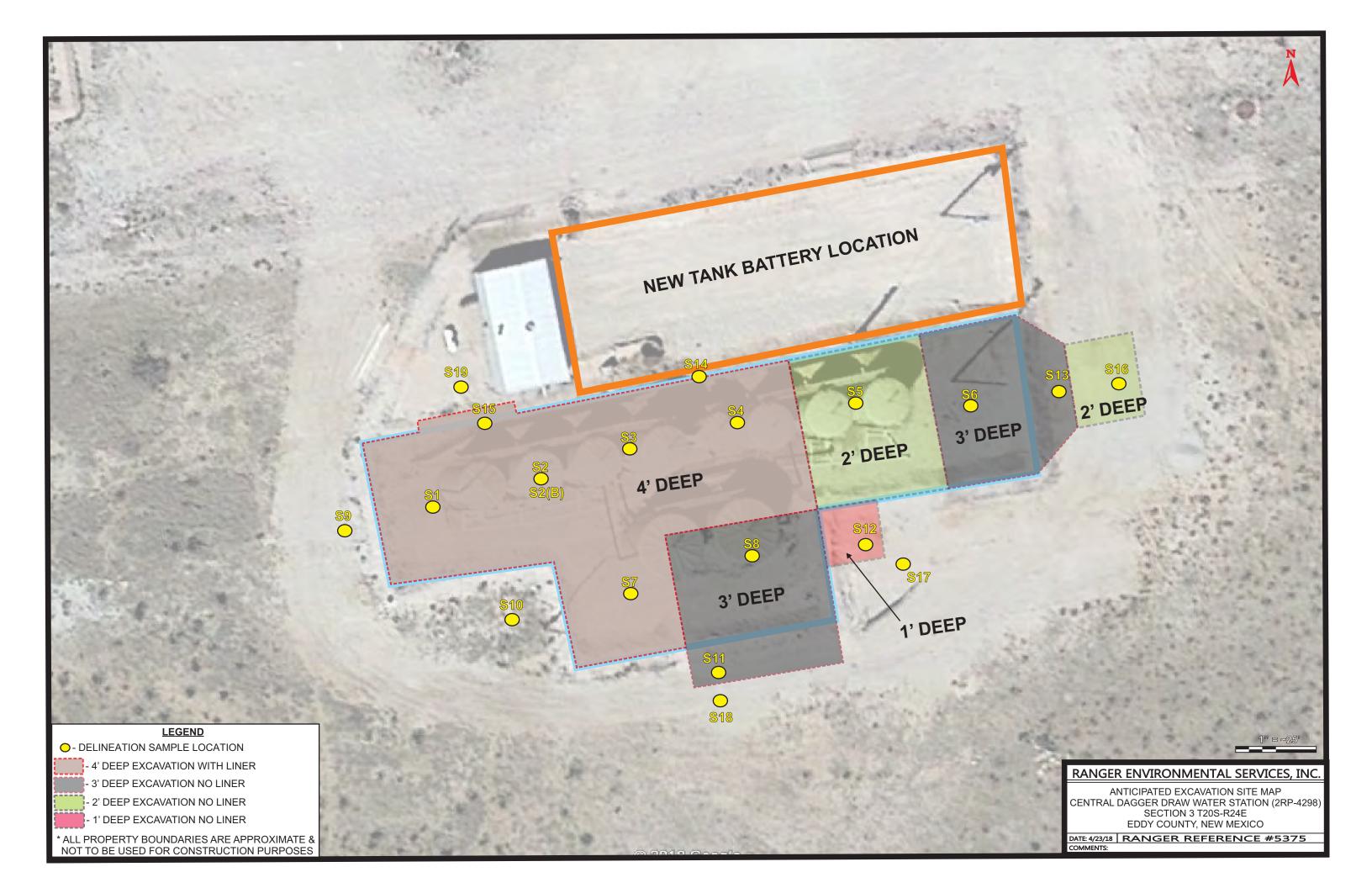
Notes:

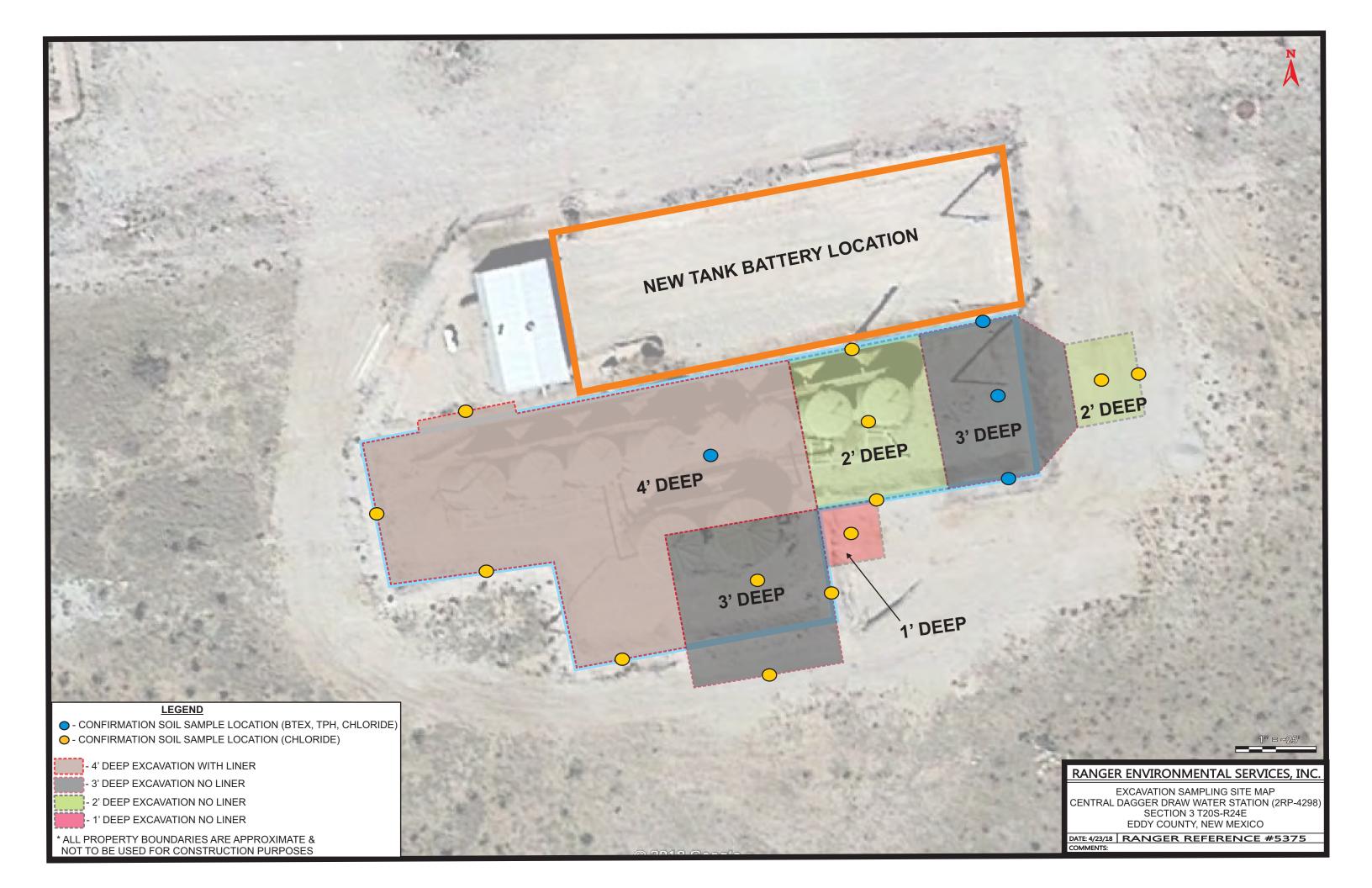
1. Shaded Bold = indicates a COC exceeded site cleanup level

2. Strikethrough indicates sample area has been excavated and/or remediated

3. BTEX and TPH cleanup criteria are from the Railroad Commission of Texas Field Guide for the Assessment of Soil and Groundwater Contaminated with Condensate from a Spill Incident.







APPENDIX B

LABORATORY REPORT(S)



October 24, 2017

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

RE: CENTRAL DAGGER DRAW WATER STATION

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

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg	/kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
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 BTEX	36.3	0.300	10/20/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	150	% 72-148	2						
Chloride, SM4500Cl-B	mg	/kg	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	96.5	% 34.7-15	7						

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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 9	% 72-148	2						
Chloride, SM4500Cl-B	mg/	′kg	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	97.0	% 34.7-15	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg,	′kg	Analyze	d 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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	81.0	% 34.7-15	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	Analyze	d 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		4						
Surrogate: 1-Chlorooctadecane	79.2	% 34.7-15	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/20/2017	ND	1.71	85.3	2.00	1.15	
Toluene*	<0.050	0.050	10/20/2017	ND	1.70	84.8	2.00	0.528	
Ethylbenzene*	<0.050	0.050	10/20/2017	ND	1.70	84.9	2.00	1.24	
Total Xylenes*	<0.150	0.150	10/20/2017	ND	5.05	84.2	6.00	1.09	
Total BTEX	<0.300	0.300	10/20/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	99.7	% 72-148							
Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: AC					
Analyte	Result Reporting Limit		Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2960	16.0	10/23/2017 ND			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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane 81.2 % 34.7-1			7						

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Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/20/2017	ND	1.71	85.3	2.00	1.15	
Toluene*	<0.050	0.050	10/20/2017	ND	1.70	84.8	2.00	0.528	
Ethylbenzene*	<0.050	0.050	10/20/2017	ND	1.70	84.9	2.00	1.24	
Total Xylenes*	<0.150	0.150	10/20/2017	ND	5.05	84.2	6.00	1.09	
Total BTEX	<0.300	0.300	10/20/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	100	% 72-148							
Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: AC					
Analyte	Result Reporting Limit		Analyzed	ed Method Blank		% Recovery	True Value QC	RPD	Qualifier
Chloride	3080	16.0	16.0 10/23/2017		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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane 90.7 % 34.7-157			7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	2						
Chloride, SM4500Cl-B	mg	/kg	Analyze	d 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	Analyze	d 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		4						
Surrogate: 1-Chlorooctadecane 98		% 34.7-15	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	16.0 10/23/2017 ND			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	
XT DRO >C28-C36 <10.0 10.0		10.0	10/19/2017	ND					
Surrogate: 1-Chlorooctane	89.0	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane 86.5 % 34.7-157			7						

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Celez D. Keine

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. Keine

Celey D. Keene, Lab Director/Quality Manager

Relinqu	Relinquished by Relinquished by	Specia	Τ	0	Q -	1	6	3	F.	م	0		_AB # (lab use only)	ORDER	(lab use only)							K
Relinquished by:	Relinquished by:	Special Instructions:		S1-11.5	1							S1-1'		ORDER #: H702828	(Vind	Sampler Signature:	Telephone No:	City/State/Zip:	Company Address:	Comp: (505) 393-23	Project Manager:	ARDINAL L 101 East Ma
Date	Date 10/18/17 Date	NEED TPH EXTENDED											FIELD CODE	86		re: Also	575-748-4171	Artesia, NM 88210	s: 105 South 4th Street	Compt (505) 393-232E EOG Resources Inc	Chase Settle	ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240
+	V	KTEND	-	+		-	-	-				-	Beginning Depth	1								
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Received by ELOT:	Received by: Received by:			101112011	10/11/2017	10/11/2017	10/11/2017	10/11/2017	10/11/2017	10/11/2017	10/11/2017	10/11/2017	Date Sampled									(505) 393-2326 FAX (505) 393-2476
LOT:	y Cr				11:11 AM	10:50 AM	10:40 AM	8:49 AM	8:41 AM	8:38 AM	8:32 AM	8:30 AM	Time Sampled			e-mail:	Fax No:					AX (505) 393-2
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Date	Date				s	s	s	s	s	s	s	S	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Matrix		Settle@eogresources.com	Report Format:		P		Pro	
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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/ga/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
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 BTEX	0.699	0.300	10/21/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	107 9	% 72-148	}						
Chloride, SM4500Cl-B	mg/	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Chloride	3120	16.0	10/23/2017	ND	432	108	400	0.00	
TPH 8015M	mg/	/kg	Analyze	Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	98.5	% 34.7-15	7						

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg	kg	Analyze	d 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	3120	16.0	10/23/2017	ND	432	108	400	0.00	
TPH 8015M	mg,	'kg	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	90.6	% 34.7-15	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	133	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	2						
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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	94.5	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	109	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/21/2017	ND	1.71	85.3	2.00	1.15	
Toluene*	<0.050	0.050	10/21/2017	ND	1.70	84.8	2.00	0.528	
Ethylbenzene*	<0.050	0.050	10/21/2017	ND	1.70	84.9	2.00	1.24	
Total Xylenes*	<0.150	0.150	10/21/2017	ND	5.05	84.2	6.00	1.09	
Total BTEX	<0.300	0.300	10/21/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	100 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	2000	16.0	10/23/2017	ND	432	108	400	3.64	
TPH 8015M	mg/	kg	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	92.5	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	94.5	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	85.9	% 34.7-15	7						

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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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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager

	Relinquished by:	Ballinomia	Relinquisbed by	opecial	2		8	2	6	5			2	- 1	LAB # (lab use only)	07007 #.	(lab use only)							6
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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/ga/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



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	Analyze	d By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie	
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 9	% 72-148	}							
Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: AC						
Analyte	Result	Reporting Limit	Analyzed M	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie	
Chloride	1920	16.0	16.0 10/23/2017		432	108	400	3.64		
TPH 8015M	mg/	/kg	Analyze	d By: MS					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie	
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 9	% 28.3-16	4							
Surrogate: 1-Chlorooctadecane	199 9	% 34.7-15	-							

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	2						
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	Analyze	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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	247	% 34.7-15	7						

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	2						
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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	167	% 34.7-15	7						

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Celez D. Keine

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager

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		NEEI									830		iture:	575-748-4171	Artesia, NM 88210	ress: 105 South 4th Street	Comp; (505) 393-232EEOG Resources Inc	101 East Marland, Hobbs, NM 88240 Manager: Chase Settle	ARDINAL LABORA I URIES
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October 30, 2017

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

RE: CENTRAL DAGGER DRAW WATER STATION

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

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



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	Analyze	d 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	Qualifie
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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	166	% 34.7-15	7						

Cardinal Laboratories

*=Accredited Analyte

Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	2						
Chloride, SM4500Cl-B	mg	/kg	Analyze	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	Analyze	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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	101	% 34.7-15	7						

Cardinal Laboratories

*=Accredited Analyte

Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg/	'kg	Analyze	d 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 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	448	16.0	10/26/2017	ND	432	108	400	0.00	
TPH 8015M	mg/	'kg	Analyze	nalyzed 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 9	28.3-16	4						
Surrogate: 1-Chlorooctadecane	185 9	% 34.7-15	7						

Cardinal Laboratories

*=Accredited Analyte

Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg	/kg	Analyze	d 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	Analyze	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	Analyze	ed 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	175	% 34.7-15	7						

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg/	kg	Analyze	d 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 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	384	16.0	10/26/2017	ND	432	108	400	0.00	
TPH 8015M	mg/	kg	Analyze	d 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	28.3-16-	4						
Surrogate: 1-Chlorooctadecane	94.9	34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg	/kg	Analyze	d 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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	203	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg/	'kg	Analyze	d 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 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	608	16.0	10/26/2017	ND	432	108	400	0.00	
TPH 8015M	mg/	'kg	Analyze	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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	153 9	34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg/	kg	Analyze	d 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 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	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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	87.6	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg,	/kg	Analyze	d 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 9	% 72-148	,						
Chloride, SM4500Cl-B	mg,	/kg	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	90.8	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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 - 12' (H702895-10)

BTEX 8021B	mg	/kg	Analyze	d 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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	76.8	% 34.7-15	7						

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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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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager

reminduished by:	Relinquished by:		Relinquisted by	Special Instructions:	(D S4-12'	9 S4-10'	8 S4-8'	7 \$4-6"	9 S4-4'		4 S4-2'	1.1		-	LAB # (lab use only)		OBDED # UPADQGA	(lab use only)	Sampler Signature:		oliyiolateizip: Artes		Company Address: 105 9	Compt (505) 393-2326 EOG Resources Inc	Project Manager: Chas	ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240
Date	Date	10/23/17		NEED TPH EXTENDED											m			(S. S.	575-748-4171	Artesia, NM 88210		105 South 4th Street	Resources Inc	Chase Settle	ATORIES lobbs, NM 88240
Th	Ţ	=	4	NDE									T	1	Beginning Depth											
Time	Time	lime												1	Ending Depth	1										
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7		IX CIT		AT N7:6	MA 71:6	D.4D AN	0.05 AM	8-59 AM	8:51 AM	8:49 AM	8:47 AM	8:43 AM	8:35 AM	8:22 AM	Time Sampled			'	e-mail:	- Fax No:						(505) 393-2326 FAX (505) 393-2476
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by	Custody seals on cooler(s) Sample Hand Delivered by Sampler/Client Rep. 7	Labels on container(s) Custody seals on container	Laboratory Comments: Sample Containers Intact?		1	+	+	+	+	+	-	+	+	-	Cations (Ca, Mg, Na, K)	-				1	PO #: 2	00:	#		ne.	AA
Couni	stody seals on cooler(s nple Hand Delivered by Sampler/Client Rep.	on c	e Co				1	+		+		+	+	-	SAR / ESP / CEC	TOTAL:	TCLP:			× Standard	205-0750				_	DA
ers	als o nd D ler/C	onta als o	Con											N	letals: As Ag Ba Cd Cr Pb Hg S	_		2		tand	750	Central		001	Ph	NA
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	(3)	Labels on container(s) Custody seals on container(s)	5	×	×	×	×	×	×	×	< ×	< >	< >	-	TEX 8021B/5030 or BTEX 826	0		For				Dagger		gel		CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST
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October 30, 2017

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

RE: CENTRAL DAGGER DRAW WATER STATION

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

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210	
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648	
Total BTEX	<0.300	0.300	10/27/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	108 9	% 72-148							
Chloride, SM4500Cl-B	mg/	′kg	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	85.8	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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		Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	137	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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 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	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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	91.2	% 34.7-15	7						

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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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	86.8	% 34.7-15	7						

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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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	92.6	% 34.7-15	7						

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

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

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

BTEX 8021B	mg	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.77	88.6	2.00	0.210	
Toluene*	<0.050	0.050	10/27/2017	ND	1.77	88.5	2.00	0.749	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.74	86.9	2.00	1.30	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.18	86.4	6.00	0.648	
Total BTEX	<0.300	0.300	10/27/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	102	% 72-148	,						
Chloride, SM4500Cl-B	mg,	′kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	10/26/2017	ND	416	104	400	3.77	
TPH 8015M	mg,	′kg	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	88.6	% 34.7-15	7						

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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	Analyze	d 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, SM4500CI-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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	92.7	% 34.7-15	7						

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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	Analyze	d 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, 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	86.5	% 34.7-15	7						

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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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	92.6	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	2						
Chloride, SM4500Cl-B	loride, 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	113	% 34.7-15	7						

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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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linqui	Relinquished by:	Relinquished	Special	10	9	8	7	-	S	4	w	2	-	LAB # (lab use only)	ORDEF	(lab use only)								K
Relinquished by:	shed by:	shed by	Special Instructions:	S6-1'	S5-12'	S5-10'	S5-8'			S5-3'		_	S4-13.5'	FIELD	ORDER #: 4702896	only) '	Complete Continuer	Sampler Signature:	<u>,</u>	City/State/Zip: Ar	Company Address: 10	Compt (505) 393-232t EOG Resources Inc	Project Manager: Ch	ARDINAL LABORATORIES 101 East Marland, Hobbs, NM
Date	Date	Date 10/25/17	NEED TPH EXTENDED											FIELD CODE			0	1000	575-748-4171	Artesia, NM 88210	105 South 4th Street	OG Resources Inc	Chase Settle	ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240
			END											Beginning Depth										
Time	Time	Time	ED.	-	-									Ending Depth	1									
Received by ELOT:	Received by:	Received by:		10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017	Date Sampled										(505) 393-2326
LOT:		11 (11)		10:42 AM	10:30 AM	10:01 AM	9:56 AM	9:52 AM	9:48 AM	9:46 AM	9:44 AM	9:43 AM	9:28 AM	Time Sampled				e-mail:	Fax No:					(505) 393-2326 FAX (505) 393-2476
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														NaOH										
														Na ₂ S ₂ O ₃	of Containers			g						
		10								-	-	-	-	None	ners			esc						
Date	Date	Date 23			+	-	-	+		+	+	+	+	Other (Specify) DW=Drinking Water SL=Sludge	Н			Ľ,	1	1	1	1	1	
Ø	G	e 3/17		s	S	s	S	s	s	s	s	S	s	GW = Groundwater S=Soil/Solid	Matrix			eogresources.com	Report Format:				Pr	
-	-	es I					-	-	-			×	×	NP=Non-Potable Specify Other TPH: 8015B EXTENDED	-		Т	öm	rt Fo		Project Loc:	P	Project Name:	
Time	Time	: In		×	×	×	×	×	×	×	×	r	f	TPH: TX 1005 TX 1006	3		E		rma	P	ect L	Project #:	tNa	
-	S	005	< 00 0	-	+	+	+	+	-		+	+	+	Cations (Ca, Mg, Na, K)					11	PO #:	.oc:	*	me:	
emp	Sample Hand Delivered by Sampler/Client Re by Courier? UPS	Labels on container(s) Custody seals on container Custody seals on cooler(s)	Sample Containers Intact? VOCs Free of Headspace?	aboratory Comments:	+		+	+	+			+	+	Anions (CI, SO4, Alkalinity)		10	-		×	205				
erati	hple Hand Delivered by Sampler/Client Rep. by Courier? UPS	dy sidy si	le Co Free	afor	+		+	+				1		SAR / ESP / CEC		TOTAL:	TCI D		× Standard	205-0750	Ce		Ce	
urel	npler	eals eals	ontai e of		1	1		1						Metals: As Ag Ba Cd Cr Pb H	g Se		3		ndari	0	ntra		ntra	
Jpor	Deliv /Clie	on c	Iners	Ĭ.										Volatiles		\square	Analyze For:		đ		D		D	
1 Re	UP UP	contacontac	s Inta	ant										Semivolatiles	_		- 5				<u>66</u>		D	
ceip	s ep. 7	Labels on container(s) Custody seals on container(s) Custody seals on cooler(s)	Sample Containers Intact? VOCs Free of Headspace?	? ×	×	×	×	×	×	×	×	×	×	BTEX 8021B/5030 or BTEX 8	3260		- 3		Ц		er D		er D	
Temperature Upon Receipt: 4.1	DHL	(S)	121	L							-	-	-	RCI		_	-		TRRP		Central Dagger Draw Water Station		Central Dagger Draw Water Station	
-								-					-	N.O.R.M.	_	-	-		0		No		Wa	
PE	FedEx	m	200	×	×	×	×	×	×	×	×	×	×	SAR			-				ater		ater	
	XRK	BB	00		-	-	-	-	-	-	-	+	-	SAR			-		N.		Sta		Sta	
20	-																							
4.35°C	N Lone Star	zzz			+	+	+	+	+	+	+	+	+	RUSH TAT (Pre-Schedule) 24	4, 48, 7	72 hrs	-	1	NPDES		ion		tion	

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October 30, 2017

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

RE: CENTRAL DAGGER DRAW WATER STATION

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

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg	/kg	Analyze	d 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 BTEX	216	12.0	10/27/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	105	% 72-148	2						
Chloride, SM4500Cl-B	/kg	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	89.5	% 34.7-15	7						

Cardinal Laboratories

*=Accredited Analyte

Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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, SM4500CI-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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	98.4	% 34.7-15	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	92.3	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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 % 28.3-16		4						
Surrogate: 1-Chlorooctadecane	96.8	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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 9	% 72-148	2						
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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	106	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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 9	% 72-148	2						
Chloride, SM4500Cl-B	mg/	/kg	Analyze	d 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	Analyze	d 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 9	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	108 9	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	2						
Chloride, SM4500Cl-B	mg	/kg	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	98.8	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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 9	% 72-148							
Chloride, SM4500Cl-B	mg/	'kg	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	90.6	% 34.7-15	7						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	89.8	% 34.7-15	7						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg,	/kg	Analyze	d 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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	74.3	% 34.7-15	7						

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Celez D. Keine

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

	Relinauished by:	Relinquished by:	Relinquished by		Instructions:	-		8 S6-14'	7 S6-12'	Le S6-10'	S 8-8'	H S6-6'	3 S6-4"		-	LAB # (lab use only)		ORDER # HTO GRAT	(lab use only)	Complet orginature.	Sempler Simpler		City/State/Zip: Artesia, NM 88210	Company Address: 105 South 4th Street	Compt (505) 393-232E EOG Resources Inc	Project Manager: Chase Settle	ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240
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October 30, 2017

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

RE: CENTRAL DAGGER DRAW WATER STATION

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

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



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	Analyze	d 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	2						
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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	88.1	% 34.7-15	7						

Cardinal Laboratories

*=Accredited Analyte

Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	87.4	% 34.7-15	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTEX	<0.300	0.300	10/27/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	97.1	% 72-148	2						
Chloride, SM4500Cl-B	mg	/kg	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	94.5	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg	/kg	Analyze	d 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	2						
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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	90.5	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg/	/kg	Analyze	d 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	672	16.0	10/26/2017	ND	432	108	400	0.00	
TPH 8015M	mg/	/kg	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	84.8	% 34.7-15	7						

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

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

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

BTEX 8021B	mg,	/kg	Analyze	d 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	Analyze	d By: AC					
Analyte	Result Reporting Limit		Analyzed	Analyzed Method Blank		% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	16.0 10/26/2017		432	108	400	0.00	
TPH 8015M	mg	/kg	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	85.2	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg,	/kg	Analyze	d 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	Analyze	d By: AC					
Analyte	Result Reporting Limit		Analyzed Method Blank		BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	16.0 10/26/2017		432	108	400	0.00	
TPH 8015M	mg	/kg	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	83.1	% 34.7-15	7						

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*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg,	/kg	Analyze	d 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	Analyze	d 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	Analyze	d 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	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	85.0	% 34.7-15	7						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg/	/kg	Analyze	d 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	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1060	16.0	10/26/2017	2017 ND		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	urrogate: 1-Chlorooctane 86.5 % 28.3-16-								
Surrogate: 1-Chlorooctadecane	86.5	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



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

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

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

BTEX 8021B	mg/	kg	Analyze	d 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	Analyze	d By: AC					
Analyte	Result Reporting Limit		Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1520	16.0	16.0 10/26/2017		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	28.3-16-	4						
Surrogate: 1-Chlorooctadecane	81.8	34.7-15	7						

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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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Celecz D. Keine

Celey D. Keene, Lab Director/Quality Manager

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October 30, 2017

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

RE: CENTRAL DAGGER DRAW WATER STATION

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

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



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	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
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	2						
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	/26/2017 ND		108	400	0.00	
TPH 8015M	mg/kg		Analyze	d 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	rrogate: 1-Chlorooctane 71.1 % 28.3-16								
Surrogate: 1-Chlorooctadecane	75.8	% 34.7-15	7						

Cardinal Laboratories

*=Accredited Analyte

Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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		Analyze	d 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	Analyze	d 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	% 28.3-16-	4							
Surrogate: 1-Chlorooctadecane	76.5	% 34.7-15	7							

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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		Analyze	d By: AC					
Analyte	Result Reporting Li		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 % 28.3-16-			4						
Surrogate: 1-Chlorooctadecane	99.6	% 34.7-15	7						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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	Analyze	d 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		Analyze	d 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 % 28.3-16-			4						
Surrogate: 1-Chlorooctadecane	82.8	% 34.7-15	7						

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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 SM4500CI-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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Relinquished by:	Relinquished by	Relinquished by	opecial	Snocial					H	w	2		LAB # (lab use only)	ORDER #:	(lab use only)							6
shed by:	shed by:	thed by		Instructions:					S8-6'	S8-5'	S8-4'	S8-3'		T	-	Sampler Signature:	Telephone No:	City/State/Zip:	Company Address:	Comp: (505) 393-	Project Manager:	ARDINAL 101 East N
Date	Date	Date		NEED TOH EXTENDED									FIELD CODE	LLQP.01	200	ure:	575-748-4171	Artesia, NM 88210	ss: 105 South 4th Street	Compt (505) 393-232t EOG Resources Inc	r: Chase Settle	ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240
		2		TEND				+					Beginning Depth									
Time	Time	Time	ļ	5									Ending Depth	1								
Received by ELOT:	Received by:	Halu							10/18/2017	10/18/2017	10/18/2017	10/18/2017	Date Sampled									(505) 393-2326 FAX (505) 393-2476
OT:	C	(Lun							12:55 PM	12:39 PM	12:36 PM	12:34 PM	Time Sampled			e-mail:	Fax No:					FAX (505) 393
		Dar			1.1								Field Filtered			10	lon					-2476
		C		-	-			+	1 X	1 ×	1 X	1 X	Total #. of Containers	h		Chase	575-748-4131					
		-			+			+	ĥ	Ê	Ê	Ê	HNO ₃	Pres			48-4					
								+					HCI	ervati		Settle	131					
													H ₂ SO ₄	vation &								
													NaOH	f of C		0e						
	-			-	-			-				-	Na ₂ S ₂ O ₃	# of Containers		ogr						
-		10/2		-	-		-	+	-	-	-	-	None Other (Specify)	ers		eso						
Date	Date	Date			+				-			-	DW=Drinking Water SL=Sludge			uro	'	1	1	1	'	
_		5							S	S	S	S	GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Matrix		@eogresources.com	Report Format:				Pr	
T	T	Z: M			-			+	×	×	×	×	TPH: 8015B EXTENDED	4		- B	rt Fo		Proje	P	ojec	
Time	Time	Time		-									TPH: TX 1005 TX 1006				rma	PC	Project Loc:	Project #:	Project Name:	
Ter	Sa	Cu	Sal	Lat									Cations (Ca, Mg, Na, K)				11	PO #:	OC:	#	ne:	
Temperature Upon Receipt: 4	by Sampler/Client Rep by Courier? UPS	Labels on container(s) Custody seals on container(s) Custody seals on cooler(s)	Sample Containers Intact? VOCs Free of Headspace?	Laboratory Comments:									Anions (CI, SO4, Alkalinity)		TOTAL:		×	205				
ratur	hple Hand Delivered by Sampler/Client Rep. ? by Courier? UPS	y sea	Cor	tory									SAR / ESP / CEC	_	TCLP:		X Standard	205-0750	Cer		Cer	
eUr	nd D pler/(als o	ntain of H	Con									Metals: As Ag Ba Cd Cr Pb Hg	Se	-	Ana	daro	0	Central		Central	
on H	lient	n co	eads	nme								-	Volatiles	-	-	Analyze			Da		Da	
Rece	UPS UPS	(s) ntair oler(pao	nts:				-		-	-	-	Semivolatiles	080	-	For			Dagger		gge	
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°	N N Lone Star	zzz	zz	Г									RUSH TAT (Pre-Schedule) 24,	48, 72	hrs		DES		on		on	
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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 accreditated 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. Keine

Celey D. Keene Lab Director/Quality Manager



RANGER ENVIRONMENTAL SERVICES, INC. PO BOX 201179	Project: Project Number:	CENTRAL DAGGER DRAW WATER ! 5375	Reported: 26-Feb-18 13:00
AUSTIN TX, 78729	Project Manager:	MAX COOK	
	Fax To:	(512) 335-0527	

Sample ID	Laboratory ID		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

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Celey D. Keene, Lab Director/Quality Manager



RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729	_ SERVICES, INC.	Project Number: Project Manager:		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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PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence ar any other cause whitstoewer shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether su claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reprodued except in full with written approval of Cardinal Laboratories.

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729		Project Nur Project Man		Reported: 26-Feb-18 13:00						
				S9 - 1' 533-01 (Se	oil)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Laborat	ories					
Inorganic Compounds Chloride	48.0		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	

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RANGER ENVIRONMENTAL 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		
S9 - 2' H800533-02 (Soil)										
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	32.0		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	

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RANGER ENVIRONMENTAL 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			
S9 - 3' H800533-03 (Soil)											
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes	
Cardinal Laboratories											
Inorganic Compounds											
Chloride	144		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B		

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RANGER ENVIRONMENTAL 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			
89 - 4' H800533-04 (Soil)											
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes	
Cardinal Laboratories											
Inorganic Compounds											
Chloride	160		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B		

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RANGER ENVIRONMENTAL 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			
S10 - 1' H800533-05 (Soil)											
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes	
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



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		
S10 - 2' H800533-06 (Soil)											
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes	
Cardinal Laboratories											
Inorganic Compounds											
Chloride	336		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B		

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RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729	SERVICES, INC.		Project Num Project Mana	ber: 53 ger: M/			V WATER !	2	Reported: 26-Feb-18 13	:00
				10 - 3' 533-07 (\$	Soil)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Labor:	atories					
Inorganic Compounds										
Chloride	160		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	

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RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729	SERVICES, INC.		Project Numb Project Manag	er: 53 er: M			V WATER !	2	Reported: 26-Feb-18 13	:00
			S1 H8005	0 - 4' 3-08 (
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardinal	Labor	atories					
Inorganic Compounds										
Chloride	128		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	

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RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729	SERVICES, INC.		Project Nun Project Mana	nber: 537 ager: MA			V WATER !	2	Reported: 26-Feb-18 13:	00
			~	511 - 1' 533-09 (S	oil)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	al Labora	tories					
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



RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729	SERVICES, INC.		Project Num Project Mana	nber: 53 ager: MA			V WATER !	2	Reported: 26-Feb-18 13:	00
				511 - 2' 533-10 (S	soil)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	ıl Labora	ntories					
Inorganic Compounds										
Chloride	448		16.0	mg/kg	4	8022301	AC	23-Feb-18	4500-Cl-B	

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RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729	SERVICES, INC.		Project Num Project Mana	nber: 53 ager: MA			V WATER !	2	Reported: 26-Feb-18 13:	00
				511 - 3' 533-11 (S	soil)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	ıl Labora	tories					
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



RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729	SERVICES, INC.		Project Num Project Manag	per: 53 ger: MA			V WATER !	2	Reported: 26-Feb-18 13	:00
				11 - 4' 33-12 (S	Soil)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardinal	Labora	atories					
Inorganic Compounds										
Chloride	96.0		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	

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RANGER ENVIRONMENTA PO BOX 201179 AUSTIN TX, 78729	L SERVICES, INC.		Project Num Project Mana	iber: 537 iger: MA)			WATER !	2	Reported: 26-Feb-18 13:	00
			~	512 - 1'	, in					
			H8003	533-13 (So)11)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	624		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
Volatile Organic Compound	s by EPA Method 8	021								
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 (P.	ID)		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



RANGER ENVIRONMENTA PO BOX 201179 AUSTIN TX, 78729	AL SERVICES, INC.		Project Num Project Mana	iber: 537 Iger: MA)			WATER !	2	Reported: 26-Feb-18 13:	00
			~	533-14 (So	. ;1)					
			1000.	555-14 (50) [])					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	560		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
Volatile Organic Compound	ls by EPA Method 8	021								
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 (P	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



RANGER ENVIRONMENTA PO BOX 201179 AUSTIN TX, 78729	AL SERVICES, INC.		Project Num Project Mana	ber: 537 ger: MA)			WATER !	2	Reported: 26-Feb-18 13:	00
			~	12 - 3' 533-15 (So	. :I)					
			Пооо.	555-15 (50) [])					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	480		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
Volatile Organic Compound	s by EPA Method 8	021								
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 (P	ID)		118 %	72-	148	8022303	MS	23-Feb-18	8021B	
<u>Petroleum Hydrocarbons by</u>	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	

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Celey D. Keene, Lab Director/Quality Manager



RANGER ENVIRONMENTA PO BOX 201179 AUSTIN TX, 78729	AL SERVICES, INC.		Project: CENTRAL DAGGER DRAW WATER Project Number: 5375 Project Manager: MAX COOK Fax To: (512) 335-0527						Reported: 26-Feb-18 13:00		
			~	12 - 4'	•1\						
			H8003	533-16 (So))))						
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes	
			Cardina	l Laborat	ories						
Inorganic Compounds											
Chloride	176		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B		
Volatile Organic Compound	s by EPA Method 8	021									
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 (P.	ID)		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



RANGER ENVIRONMENTA PO BOX 201179 AUSTIN TX, 78729						Project: CENTRAL DAGGER DRAW WATER Project Number: 5375 Project Manager: MAX COOK Fax To: (512) 335-0527					
			~	13 - 1'	•1\						
			H800:	533-17 (So))))						
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes	
			Cardina	l Laborat	ories						
Inorganic Compounds											
Chloride	624		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B		
Volatile Organic Compounds	s by EPA Method 8	021									
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 (Pl	D)		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



RANGER ENVIRONMENTA PO BOX 201179 AUSTIN TX, 78729	AL SERVICES, INC.		Project Num Project Mana	iber: 537 Iger: MA)			WATER !	2	Reported: 26-Feb-18 13:	00
			~	533-18 (So	,i)					
			11000.	555-18 (50) II)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	432		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
Volatile Organic Compound	s by EPA Method 8	021								
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 (P.	ID)		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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RANGER ENVIRONMENTA PO BOX 201179 AUSTIN TX, 78729					ITRAL DAG 5 (COOK 2) 335-052		WATER !	Reported: 26-Feb-18 13:00		
			~	533-19 (So	sil)					
			11000.	555-17 (50	,m)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	944		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
Volatile Organic Compound	s by EPA Method 8	021								
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 (P	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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RANGER ENVIRONMENTA PO BOX 201179 AUSTIN TX, 78729					ITRAL DAG 5 (COOK 2) 335-052		/ WATER !	Reported: 26-Feb-18 13:00		
			~	513 - 4' 533-20 (So	,i)					
			11000.	333-20 (30)II)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	416		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
Volatile Organic Compounds	s by EPA Method 8	021								
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 (Pl	(D)		118 %	72-	148	8022303	MS	23-Feb-18	8021B	
<u>Petroleum Hydrocarbons by</u>	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



RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729	SERVICES, INC.		Project Num Project Mana	ber: 537 ager: MAX			/ WATER !	2	Reported: 26-Feb-18 13:	00
			~	514 - 1' 533-21 (Se	oil)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Labora	tories					
Inorganic Compounds										
Chloride	64.0		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	

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RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729	SERVICES, INC.		Project Num Project Mana	ber: 537 ager: MA			/ WATER {	2	Reported: 26-Feb-18 13:	00
			~	514 - 2' 533-22 (S	oil)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	ıl Labora	tories					
Inorganic Compounds										
Chloride	112		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	

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RANGER ENVIRONMENT/ PO BOX 201179 AUSTIN TX, 78729					ITRAL DAG 5 (COOK 2) 335-052	WATER !	Reported: 26-Feb-18 13:00			
				14 - 3'	.1)					
			H800:	533-23 (So))					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	96.0		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
Volatile Organic Compound	ls by EPA Method 8	021								
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 (F	PID)		117 %	72	148	8022303	MS	23-Feb-18	8021B	
Petroleum Hydrocarbons by	y 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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RANGER ENVIRONMENTA PO BOX 201179 AUSTIN TX, 78729					TRAL DAG 5 (COOK 2) 335-052	ger draw 7	/ WATER !	Reported: 26-Feb-18 13:00		
			~	533-24 (So	,iI)					
			1000	500 24 (50	,iii)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	192		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
Volatile Organic Compound	s by EPA Method 8	021								
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 (P	ID)		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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RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729					TRAL DAG 5 (COOK 2) 335-052	ger draw 7	WATER !	Reported: 26-Feb-18 13:00		
				15 - 1'	.1)					
			H800:	533-25 (So))					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	2880		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
Volatile Organic Compounds	by EPA Method	3021								
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 (PII	D)		115 %	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*	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	
Surrogate: 1-Chlorooctadecane			100 %	37.6	-147	8022304	MS	23-Feb-18	8015B	

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Celey D. Keene, Lab Director/Quality Manager



RANGER ENVIRONMENTA PO BOX 201179 AUSTIN TX, 78729					ITRAL DAG 5 (COOK 2) 335-052		/ WATER !	Reported: 26-Feb-18 13:00		
				15 - 2'						
			H800:	533-26 (So	oil)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	2800		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
Volatile Organic Compound	s by EPA Method 8	021								
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 (PL	(D)		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



RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729	SERVICES, INC.		Project Num Project Mana	ber: 537 ger: MAX	5	ger draw 7	WATER !	Reported: 26-Feb-18 13:00		
			~	15 - 3'	•1					
			H8003	533-27 (So))					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	3000		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
Volatile Organic Compounds	by EPA Method 8	3021								
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 (PIL))		119 %	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*	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	
Surrogate: 1-Chlorooctadecane			104 %	37.6	-147	8022304	MS	23-Feb-18	8015B	

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Celey D. Keene, Lab Director/Quality Manager



RANGER ENVIRONMENTA PO BOX 201179 AUSTIN TX, 78729	L SERVICES, INC.		Project Num Project Mana		Reported: 26-Feb-18 13:00					
			S	15 - 4'						
			H8005	533-28 (So	oil)					
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds Chloride	3480		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	
Volatile Organic Compound)21	10.0	00						
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 (PL	ID)		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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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729	SERVICES, INC.		Project Nun Project Mana	nber: 53 ager: MA			/ WATER !	2	Reported: 26-Feb-18 13:	00
				(B) - 16 533-29 (S						
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	al Labora	tories					
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



RANGER ENVIRONMENTAL PO BOX 201179 AUSTIN TX, 78729	SERVICES, INC.		Project Nun Project Mana	nber: 537 ager: MA			/ WATER !	2	Reported: 26-Feb-18 13:	00
				(B) - 20 533-30 (S						
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Labora	tories					
Inorganic Compounds										
Chloride	320		16.0	mg/kg	4	8022314	AC	23-Feb-18	4500-Cl-B	

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Celey D. Keene, Lab Director/Quality Manager



	RANGER ENVIRONMENTAL SERVICES, INC. PO BOX 201179	Project: Project Number:	CENTRAL DAGGER DRAW WATER ! 5375	Reported: 26-Feb-18 13:00
I	AUSTIN TX, 78729	Project Manager:	MAX COOK	
		Fax To:	(512) 335-0527	

Inorganic Compounds - Quality Control

Cardinal Laboratories

	Reporting		Spike	Source		%REC		RPD	
Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
			Prepared &	Analyzed:	23-Feb-18				
ND	16.0	mg/kg							
			Prepared &	Analyzed:	23-Feb-18				
416	16.0	mg/kg	400		104	80-120			
			Prepared &	Analyzed:	23-Feb-18				
416	16.0	mg/kg	400		104	80-120	0.00	20	
			Prepared &	Analyzed:	23-Feb-18				
ND	16.0	mg/kg							
			Prepared &	Analyzed:	23-Feb-18				
432	16.0	mg/kg	400		108	80-120			
			Prepared &	Analyzed:	23-Feb-18				
416	16.0	mg/kg	400		104	80-120	3.77	20	
	ND 416 416 ND 432	Result Limit ND 16.0 416 16.0 416 16.0 416 16.0 416 16.0 416 16.0 416 16.0 16.0 16.0	Result Limit Units ND 16.0 mg/kg 416 16.0 mg/kg 16.0 mg/kg 16.0	ResultLimitUnitsLevelPrepared &ND16.0mg/kg41616.0mg/kg41616.0mg/kg41616.0mg/kg41616.0mg/kg41616.0mg/kg41616.0mg/kg41616.0mg/kg41616.0mg/kg41616.0mg/kg41616.0mg/kg43216.0mg/kg43216.0mg/kg432400Prepared &	Result Limit Units Level Result Prepared & Analyzed: ND 16.0 mg/kg MD 16.0 mg/kg 400 416 16.0 mg/kg 400 416 16.0 mg/kg 400 Prepared & Analyzed: Prepared & Analyzed: 416 16.0 mg/kg 400 Prepared & Analyzed: 416 16.0 mg/kg Prepared & Analyzed: ND 16.0 mg/kg Prepared & Analyzed: 432 16.0 mg/kg Prepared & Analyzed:	Result Limit Units Level Result %REC Prepared & Analyzed: 23-Feb-18 ND 16.0 mg/kg Prepared & Analyzed: 23-Feb-18 MD 16.0 mg/kg 400 104 Prepared & Analyzed: 23-Feb-18 Prepared & Analyzed: 23-Feb-18 104 416 16.0 mg/kg 400 104 Prepared & Analyzed: 23-Feb-18 MD 16.0 mg/kg 400 104 Prepared & Analyzed: 23-Feb-18 MD 16.0 mg/kg 400 104 Prepared & Analyzed: 23-Feb-18 MD 16.0 mg/kg 400 108 Prepared & Analyzed: 23-Feb-18 432 16.0 mg/kg 400 108 Prepared & Analyzed: 23-Feb-18	Result Limit Units Level Result %REC Limits Prepared & Analyzed: 23-Feb-18 Prepared & Analyzed: 23-Feb-18 Prepared & Analyzed: 23-Feb-18 80-120 MD 16.0 mg/kg 400 104 80-120 Prepared & Analyzed: 23-Feb-18 Prepared & Analyzed: 23-Feb-18 80-120 416 16.0 mg/kg 400 104 80-120 Prepared & Analyzed: 23-Feb-18 Prepared & Analyzed: 23-Feb-18 80-120 MD 16.0 mg/kg 400 104 80-120 Prepared & Analyzed: 23-Feb-18 Prepared & Analyzed: 23-Feb-18 90 104 80-120 MD 16.0 mg/kg Prepared & Analyzed: 23-Feb-18 90 108 80-120 MD 16.0 mg/kg 400 108 80-120 Prepared & Analyzed: 23-Feb-18 90 108 80-120	Result Limit Units Level Result %REC Limits RPD Prepared & Analyzed: 23-Feb-18 ND 16.0 mg/kg Prepared & Analyzed: 23-Feb-18 Velocitie Velociti	Result Limit Units Level Result %REC Limits RPD Limit Prepared & Analyzed: 23-Feb-18 ND 16.0 mg/kg Prepared & Analyzed: 23-Feb-18

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

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



RANGER ENVIRONMENTAL SERVICES, INC.	Project:	CENTRAL DAGGER DRAW WATER !	Reported:
PO BOX 201179	Project Number:	5375	26-Feb-18 13:00
AUSTIN TX, 78729	Project Manager: Fax To:	MAX COOK (512) 335-0527	

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
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. Keine

Celey D. Keene, Lab Director/Quality Manager



1	, BOX 2011/ 5	ect Number:		Reported: 26-Feb-18 13:00
AU:	ISTIN TX, 78729 Proje	5	MAX COOK (512) 335-0527	
		10.	(312) 333-0327	

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
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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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 SM4500CI-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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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager

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	Project Manager:	Max Cook								P.O.	;#																							
	Address:	PO Box 201179								ရှိ	gu	Company:		EOG Resources,	urces	, Inc.												•			•			
	City:	Austin	State: TX	Zip:	787	78729				Attn:	1			Chase Settle	ē			1																
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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240

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Company Name:	Ranger Environmental Services	Services					5	: -	DIL						_ ,		1;						-	
Project Manager:	Max Cook						P.O.	#												,				 _
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Project Location:	Central Dagger Draw Water Station	Vater Station					Ph	Phone #:		575-748-1471		801	5030	hlori										
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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

15751 2	101 East Ma
1 302-3336 F	Marland,
-AX (575)	Hobbs, N
FAX (575) 393-2476	NM 88240

Delivered By: (Circle One) Sampler - UPS - Bus - Other: FORM-006 R 2.0	Relinquished By:	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	affiliates or successors arising Relinquished By:	PLEASE NOTE: Liability and analyses. All claims including service. In no event shall Can					s 15		Lab I.D.	FOR LAB USE ONLY	Sampler Name:	Project Location:	Project Name:	Project #:	Phone #:	City:	Address:	Project Manager:	Company Name:	
			out of or related to the performa	Damages, Cardinal's liability and those for negligence and any of tinal be liable for incidental or co					S2(B) - 25'		Sample I.D.		Max Cook	Central Dagger Draw Water Station	Central Dagger Draw Water Station	5375	512-497-1556	Austin	PO Box 201179	Max Cook	Ranger Environmental Services	(575) 393-2326 FAX (575) 393-2476
3.4°	Date: Time:	Time: 0844	affiliates or successors arising out of or related to the performance or services intervening of services $\beta_{0,2}/\beta_{1,2}$ Reinquished By:	client's exclusive remedy for any rer cause whatsoever shall be de nsequental damages, including v										raw Water Station	aw Water Station	Project Owner:	Fax #: 5	State: TX Z			Intal Services	AX (575) 393-247
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ittion CHECKED BY: t (Initials) Yes 70, 227		2 Selfabore	Received By:	PLEASE NOTE: Lability and Damages, Cardina's liability and client's exclusive remedy for any claim asing whether based in contract or for 5, stall be dimined to the environmentum your working and analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waved unless made in withing and received by Cardinal within 30 days after completion of the applicable analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waved unless made in withing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including within 40 days the incidental or consequental damages, including within 40 days the state damages or other wave the state damages of the shore structure of the above strated reasons or otherwise.					01 0712717 V	<	DTHER : ACID/BASE: CE / COOL DTHER :	PRESERV. SAMPLING	Fax #:	Phone #: 575-748-1471	State: NM Zip:	City: Artesia	Address: 104 S 4th Street	Attn: Chase Settle	Company: EOG Res	P.O. #:	BILL TO	
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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/ga/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



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, SM4500Cl-B	mg	/kg	Analyze	d 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, SM4500Cl-B	mg	/kg	Analyze	d 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, SM4500Cl-B	mg	/kg	Analyze	d 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, SM4500Cl-B	mg,	/kg	Analyze	d 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

Celez D. Keene

Celey D. Keene, Lab Director/Quality Manager



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: S17 - 1' (H800819-05)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d 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	Analyze	d 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	

Cardinal Laboratories

*=Accredited Analyte

Celez D. Keene

Celey D. Keene, Lab Director/Quality Manager



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: S18 - 2' (H800819-10)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d 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	, SM4500Cl-B mg/kg								
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	Analyze	d 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	

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keene

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: S19 - 3' (H800819-15)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d 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	Analyze	d 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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PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the sample identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celeg D. Keine

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. Keine

Celey D. Keene, Lab Director/Quality Manager

Page 6 of 10

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Company Name:	Ranger Environmental Services, Inc.	Services, Inc.								1 - E				-	_	┦ѯ		ANALTSIS		_ 2		- 10	_			_		
Project Manager:	Max Cook							, C. #	1																			
Address:	PO Box 201179							Company:	npai	Ň	EOG Y Resources	urces					_											
City: Austin		State: TX Z	Zip: 78720	3720				Attn		has	Attn: Chase Settle			-										_				
Phone #: 512-497-1556		Fax #: 5	512-335-0527	5-05	27			Add	lres	S:	Address: 104 S. 4th Street																-	
Project #: 5375	P	Project Owner:						city:	1	Artesia	a																	
ame:	Central Dagger Draw Water Station	er Station						State: NM	ie: 7	Ž	Zip: 88210				<u></u>													
Project Location:	Central Dagger Draw Water Station	Vater Station						Pho	Phone #:	17 101	575-748-1471			8260						_								
Sampler Name:	Max Cook							Fax #:	#		1			EX														
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Lab I.D.	Sample I.D.	•	(G)RAB OR (C)OMP. # CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	SLUDGE	OTHER :	ACID/BASE:			TIME	TPH: 8015 EXT	BTEX 8021B/5030 o	Chloride							1			1			
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Labora	atories												
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Company Name: Ranger Environme	Ranger Environmental Services, Inc.		BILLTO	0			Ą	ANALYSIS		REQUEST			
		0.1	P.O. #:										
Address: PO Box 201179		0	Company: EOG Y I	EOG Y Resources	·								
City: Austin	State: TX Zip: 78720		Attn: Chase Settle								·		
Phone #: 512-497-1556	Fax #: 512-335-0527		Address: 104 S. 4th Street	treet									
Project #: 5375	Project Owner:	0	City: Artesia										
Project Name: Central Dagger Draw Water Station	Water Station	Q	: NM Zip:	88210									
Project Location: Central Dagger Draw Water Station	raw Water Station	70	Phone #: 575-748-1471	71	260								
Sampler Name: Max Cook			Fax #:		EX 8								
FOR LAB USE ONLY		MATRIX	PRESERV. SAM	SAMPLING	BT								
Lab I.D. Sample I.D.	(G)RAB OR (C)OMP. # CONTAINERS	GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER :		E	TPH: 8015 EXT BTEX 8021B/5030 or	Chloride		· · · · · · · · · · · · · · · · · · ·					
// S18-3'		×	×	18 0906		×							
12 \$18-4'	G 1	×	X 3/20/18	18 0910		×		-					
13 S19-1'	G 1	×	X 3/20/18	18 0941		×							
14 S19-2'	G 1	×	X 3/20/18	18 0944	<u> </u>	×					<u> </u>	<u> </u>	
ا <u>ل</u> \$19-3	G 1	×	X 3/20/18	18 0947	 	×	<u> </u>				<u> </u>		
16 \$19-4'	G 1	×	X 3/20/18	18 0951		×							
17 S20-1'	G 1	×	X 3/20/18	18 0806		×						<u> </u>	
18 \$20-2'	G 1	×	X 3/20/18	18 0810		×							
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Address:	PO Box 201179								S	Ĕ.	Company:	Ξ.	EOG Y Resources	urces														
City: Austin	State: TX	Zip:	78720	20					At	Attn:		has	Chase Settle										_					
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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Mariand, Hobbs, NM 88240

(575) 393-2326 FAX (575) 393-2476	476					
Company Name: Ranger Environmental Services, Inc.		BILL TO			ANALYSIS REQUEST	
		P.O. #:				
Address: PO Box 201179		Company: EOG Y Resources	Irces			
City: Austin State: TX	Zip: 78720	Attn: Chase Settle				
Phone #: 512-497-1556 Fax #:	512-335-0527	Address: 104 S. 4th Street				
Project #: 5375 Project Owner:		City: Artesia				
Project Name: Central Dagger Draw Water Station		State: NM Zip: 88210				
Project Location: Central Dagger Draw Water Station		Phone #: 575-748-1471		260		
		Fax #:		EX 8		
	MATRIX	PRESERV. SAMPLING	G	BTE		
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APPENDIX C

INITIAL C-141 (2RP-4298)

SITE CHARACTERIZATION WORK PLAN

NMOCD DISTRICT 2 APPROVAL

ID / N Prench Lir Honds N/I 88/40	ate of New Mexico	ARTESIA DISTRICT Form C-141				
District II 811 S. First St., Artesia, NM 88210 JUL 2 1 2017 Energy M	inerals and Natural Resource	^{CS} JUL 2 1 20 . Revised August 8, 2011				
District III 1000 Rio Brazos Road, Aztec, NM 87410 Oil C	Conservation Division	Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.				
District IV RECEIVED 1220) South St. Francis Dr. anta Fe, NM 87505	RECEIVED				
	cation and Correctiv	e Action				
NABI720532956	OPERATOR	🛛 Initial Report 🔲 Final Repor				
Name of Company EOG Y Resources, Inc. 25575	Contact Chase Settle					
Address	Telephone No.					
104 S. 4th Street Facility Name	575-748-1471 Facility Type					
Central Dagger Draw Water Station	Water Transfer Station					
Surface Owner Mineral O	Dwner	API No.				
Federal Federal		N/A				
	ATION OF RELEASE					
Unit LetterSectionTownshipRangeFeet from theI320S24E2080	North/South Line Feet from South 660	the East/West Line County East Eddy				
Latitude <u>32</u> .	<u>60096 Longitude -104.569</u>	09				
Type of Release NAT	Volume of Release	Volume Recovered				
Produced Water	18 B/PW	15 B/PW				
Source of Release Valve failure on booster pump	Date and Hour of Occu 7/10/2017; 2:30 PM	Trence Date and Hour of Discovery 7/11/2017; 1:20 PM				
Was Immediate Notice Given?	If YES, To Whom?					
☐ Yes ⊠ No ☐ Not R By Whom?	Date and Hour					
N/A	N/A					
Was a Watercourse Reached?	If YES, Volume Impac	ting 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 bern standing fluid. Excavated soils will be hauled to a NMOCD appr						
for TPH & BTEX (chlorides for documentation). If initial analyt will be submitted to the OCD requesting closure. Depth to Grou						
Wellhead Protection Area: No, Distance to Surface Water Bo	dy: >1000', SITE RANKING IS	ZERO (0).				
I hereby certify that the information given above is true and comp regulations all operators are required to report and/or file certain	plete to the best of my knowledge release notifications and perform of the second second second second second second second second second second s	and understand that pursuant to NMOCD rules and corrective actions for releases which may endanger				
public health or the environment. The acceptance of a C-141 rep should their operations have failed to adequately investigate and	ort by the NMOCD marked as "Fi	nal Report" does not relieve the operator of liability				
or the environment. In addition, NMOCD acceptance of a C-141						
federal, state, or local laws and/or regulations.	OIL C	ONSERVATION DIVISION				
Signature:		$\alpha_{1} (\beta_{1}) (1, 1)$				
Printed Name: Chase Settle	Approved by Environmer	ntal Specialist WBR WM				
Title: Rep Safety & Environmental II	Approval Date: 7 24	17 Expiration ate: NIA				
E-mail Address: chase settle@eogresources.com	Conditions of Approval:	Attached X				
Date: July 20, 2017 Phone: 575-748-4171		Attached X				
	r to the New Mexico Oil	2RP- 429				
updated fo	on Division Website for rm(s) at:	LNT- 12)				
	v.emnrd.state.nm.us/					

OCD/ forms.html

Thank you

NM UIL CONSERVATION

NM OIL CONSERVATION ARTESIA DISTRICT

Malin 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 3RP-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 <u>division-approved corrective action</u> 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: Sent:	Darlene Chavarria <darlene_chavarria@eogresources.com> Friday, July 21, 2017 2:05 PM</darlene_chavarria@eogresources.com>
То:	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.

Seog resources

Darlene Chavarría 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.

0

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

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

Total Ranking Score:

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.*

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

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

Soil Delineation Work Plan

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

BTEX/TPH Horizontal Delineation

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

BTEX/TPH Vertical Delineation

None

Chloride Horizontal Delineation

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

Chloride Vertical Delineation

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

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

Soil Remediation Work Plan

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

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

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

Central Dagger Draw Water Station Site Characterization Work Plan

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

Sincerely, RANGER ENVIRONMENTAL SERVICES, INC.

Patrick K. Finn Project Geologist

CC /

Max Cook Project Manager

MC/PKF

Attachments



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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