



April 8, 2019

Mr. Robert J. Hamlet  
New Mexico Oil Conservation Division - District 2  
811 South First Street  
Artesia, NM 88210

Re: Closure Report  
North Dagger Draw Water Station  
2RP-3651 & 2RP-4649  
Section 20, T19S-R25E  
Eddy County, New Mexico

Dear Mr. Hamlet:

On behalf of EOG Resources, Inc. (EOG Y), Ranger Environmental Services, Inc. (Ranger) has prepared this Closure Report to document soil remediation and cleanup confirmation soil sampling activities conducted at the North Dagger Draw Water Station ("subject site"). The work was conducted in general accordance with 19.15.29.12 NMAC Remediation and Closure criteria as well as Ranger's April 23, 2018 Remediation Work Plan.

## **SITE LOCATION**

The North Dagger Draw Water Station is located in Eddy County, New Mexico. The facility is situated south of Rocking R Red Road in Section 20, T19S-R25E at GPS coordinates 32.6407, -104.51335. A topographic vicinity map is attached which illustrates the location of the subject site.

## **BACKGROUND**

On April 15, 2016, the previous operator of the subject site Yates Petroleum Corporation (Yates), submitted to the New Mexico Oil Conservation Division District 2 office (NMOCD) a Form C-141 for the release of 100 barrels (bbls) of crude oil with 94 bbls recovered. The release occurred within an unlined/bermed battery. The cause of the release was from a valve found open on the bottom of an equalizing tank. It is suspected that an unknown party not associated with Yates, opened the valve on the bottom of the equalizing tank. The valve was shut and vacuum trucks were called to recover the released crude oil. NMOCD approved the initial Form C-141 on April 19, 2016 and issued remediation permit 2RP-3651. A copy of the approved initial Form C-141 is included in this report in Appendix A.

The release response activities appeared to have also unearthed historical issues at the site in addition to the 2RP-3651 release. Due to site constraint and safety issues, Yates and NMOCD agreed to leave the RP open until such time that the site storage tanks could be moved so that access to the affected area could be obtained for assessment and remediation purposes. The

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facility storage tanks were 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.

Delineation sampling activities were conducted at the subject site on October 9, 2017. During the delineation sample collection activities, a separate area west of the tank battery was discovered to have environmental impacts not associated with the release from the equalizing tank. It was subsequently discovered that this area was impacted by a produced water release of an unknown volume from an out-of-service pipeline.

A Site Characterization Work Plan (dated February 13, 2018) was submitted to the NMOCD office. Subsequent to the submission of the Site Characterization Work Plan, Ranger personnel met with NMOCD District 2 representatives and was informed that it would be more than 60 days before they would review the Work Plan. They further indicated that 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. Therefore, Ranger personnel conducted supplemental delineation soil sampling activities on February 21, 2018 and March 20, 2018.

As was previously noted, a separate area west of the tank battery was discovered during October 2017 sampling activities. To properly document this release, On March 2, 2018, Ranger submitted to the NMOCD a Form C-141 for the release of an unknown volume of produced water from an out-of-service pipeline. NMOCD representatives approved the Site Characterization Work Plan in April 2018 and issued an Initial Form C-141 (2RP-4649) for the release west of the tank battery.

Subsequent to work associated with site characterization, a Remediation Work Plan (dated April 23, 2018) was prepared and submitted to the NMOCD to address the two releases (RP-3561 & RP-4649) at the subject site. The Remediation Work Plan was approved on October 2, 2018 under the conditions that the remedial action at the subject site be in compliance with 19.15.29 NMAC rules. As the proposed Remediation Work Plan (dated April 23, 2018) was finalized utilizing the old rules, the remedial work completed at the subject site was completed in compliance with 19.15.29 NMAC rules and not the Remediation Work Plan. However, remediation completed at the subject site was based on the results of the historical assessments.

## **SOIL REMEDIATION ACTIVITIES**

The soil excavation, remediation, and cleanup confirmation soil sampling activities were conducted between October 30, 2018 and February 13, 2019. The soil excavation activities were conducted by BDS Enterprises (BDS) under the oversight of Ranger field personnel.

### **Soil Excavation and Confirmation Soil Sampling :: 2RP- 3651**

On October 30, 2018, soil excavation activities were initiated at the subject site in the area associated with the 2RP-3651 release (main excavation). Within the main excavation, soils were excavated to approximate depths of 2.5 feet and 4 feet below ground surface (bgs); however, select soils were additionally excavated to an approximate depth of 10 feet bgs within the main excavation in order to attain the 19.15.29.12 NMAC Table 1 (>100 feet) Closure Criteria for

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BTEX and TPH in soil.

Upon completion of this initial phase of excavation in this area, Ranger collected 15 cleanup confirmation soil samples (CS-1 through CS-15) on January 9, 2019 for laboratory analysis. The soil samples were five-part composite samples that were collected from various locations along the main excavation sidewalls as well as at the base of the excavation. The sample locations were chosen for delineation purposes based on 19.15.29 NMAC rules as well as the results of the historical assessments. Utilizing the results of the initial assessment and delineation activities at the subject site, the samples were analyzed for one or more of the following constituents; TPH using Method 8015; BTEX using Method 8021; and/or chloride using Method SM4500CI-B.

Upon review of the January 9, 2019 soil sample analytical results, horizontal delineation samples (CS-3 and CS-5) collected from the main excavation sidewalls were documented to have chloride concentrations that exceeded the applicable 600 mg/Kg chloride concentration limit for reclamation. Additionally, vertical delineation samples (CS-7 and CS-9) collected from the main excavation at a depth of 2.5 feet bgs were also documented to have chloride concentrations that exceeded the applicable 600 mg/Kg chloride concentration limit for reclamation. However, all the vertical delineation soil samples (collected at a depth of 4 feet bgs or greater) were documented to have BTEX, TPH and/or chloride concentrations in attainment of the 19.15.29.12 NMAC Table 1 (>100 feet) limits.

Further excavation activities were conducted on February 12 and 13, 2019 to address the areas within the main excavation that exceeded the 600 mg/Kg chloride concentration limit for reclamation. The soil removal activities included the lateral excavation of select main excavation sidewalls (associated with CS-3 and CS-5) and the vertical excavation of the area within the main excavation that was initially excavated to 2.5 feet bgs (associated with CS-7 and CS-9). Upon completion of the additional soil removal activities on February 13, 2019, Ranger collected 4 cleanup confirmation soil samples (CS-3A, CS-5A, CS-7A, CS-9A) for laboratory analysis to confirm the areas had attained the target cleanup goal for chloride.

Upon review of the February 13, 2019 soil sample analytical results, all samples were documented to be below the 600 mg/Kg chloride concentration limit for reclamation.

#### **Soil Excavation and Confirmation Soil Sampling :: 2RP- 4649**

On October 30, 2018, soil excavation activities were initiated at the subject site in the area associated with the 2RP-4649 release (western excavation). Within the western excavation, all soils were excavated to an approximate depth of 4 feet.

Upon completion of this initial phase of excavation in this area, Ranger collected 5 cleanup confirmation soil samples (CS-16 through CS-20) on January 9, 2019 for laboratory analysis. The soil samples were five-part composite samples that were collected from all four sidewalls along the western excavation as well as the base of the excavation. The sample locations were chosen based on 19.15.29 NMAC rules as well as the results of the historical assessments. Utilizing the results of the initial assessment and delineation activities at the subject site, the samples were analyzed for chloride using Method SM4500CI-B.

Upon review of the January 9, 2019 soil sample analytical results, horizontal delineation samples (CS-17 and CS-19) collected from the western excavation sidewalls were documented

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to have chloride concentrations that exceeded the applicable 600 mg/Kg chloride concentration limit for reclamation.

Further excavation activities were conducted on February 12 and 13, 2019 to address the areas within the western excavation that exceeded the 600 mg/Kg chloride concentration limit for reclamation. The soil removal activities included the lateral excavation of select western excavation sidewalls (associated with CS-17 and CS-19). Upon completion of the additional soil removal activities on February 13, 2019, Ranger collected 2 cleanup confirmation soil samples (CS-17A and CS-19A) for laboratory analysis to confirm the areas had attained the target cleanup goal for chloride.

Upon review of the February 13, 2019 soil sample analytical results, all samples were documented to be below the 600 mg/Kg chloride concentration limit for reclamation

### **Soil Sampling Methodologies and QA/QC Procedures**

The confirmation soil samples collected on January 9, 2019 and February 13, 2019 were five-part composite soil samples collected from the excavated areas base and sidewalls in compliance with 19.15.29 NMAC rules. Before conducting the cleanup confirmation soil sampling activities, Ranger provided adequate notice to NMOCD. Copies of the notification-related correspondence are included in Appendix B.

During the soil excavation process, Ranger utilized an organic vapor monitor (OVM), field chloride titration kits and visual observations to identify areas of stained soils, elevated OVM readings and elevated field chloride readings which required additional excavation. Ranger personnel wore new nitrile gloves during the collection of each soil sample. Each soil sample collected for analysis was immediately placed in a Teflon-capped laboratory-supplied container, sealed in multiple Ziploc® bags, and stored in a sample shuttle containing ice until delivery to the analytical laboratory. A temperature blank sample was included in each sample shuttle for quality control purposes. Upon completion of the sampling activities, each sample shuttle was sealed with a custody seal, and the soil samples were managed under strict chain-of-custody procedures until delivery to Cardinal Laboratories in Hobbs, New Mexico. Tables summarizing the cumulative site soil analytical results are attached.

The attached comprehensive Site Map illustrates the approximate final excavation boundaries, the locations of the pre-excavation assessment/delineation soil sample locations, and the excavation-related cleanup confirmation soil sample locations. Photographs documenting the remediation process are included in Appendix C. Copies of the laboratory analytical reports and chain-of-custody documentation for the excavation-related soil cleanup confirmation samples are included in Appendix D. The laboratory reports and chain-of-custody documentation for the initial assessment/delineation soil samples were provided in Ranger's February 13, 2018 Site Characterization Work Plan and April 23, 2018 Remediation Work Plan.

### **EXCAVATED SOIL MANAGEMENT**

In order to address the excavated material, minimize waste, and comply with 19.15.29 NMAC rules, multiple methods were utilized to manage the excavated soils.

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### **Soil Disposal**

All excavated soils generated from the western excavation as well as select portions of the soils generated from the main excavation with significantly elevated chloride concentrations documented during the site assessment and delineation phase were reportedly disposed of. Additionally, all soils excavated during the February 2019 site activities were reportedly taken off-site for disposal. It was reported to Ranger that all soils removed from the site for disposal were taken to the Lea Land, Inc. landfill in Carlsbad, New Mexico.

### **Excavated Soil Bioremediation**

To address TPH and BTEX impacts in soils above the 19.15.29.12 NMAC Table 1 (>100 feet) section, soils in the following intervals were excavated and segregated for soil bioremediation activities: 0-1 foot below ground surface (bgs) around S-1; 0-10 feet bgs around S-2; 3-4 feet bgs around S-5, and 3-10 feet bgs around S-6. The soil bioremediation activities were conducted within a treatment cell on a vacant well pad located south of the subject site. The treatment cell was comprised of an earthen berm lined with visqueen plastic. The TPH and BTEX impacted excavated soil material was transported to and placed within the treatment cell. Once all TPH and BTEX impacted soils were within the treatment cell, a mixture of freshwater and the bioremediation product *Liquid Remediate*™ was applied. *Liquid Remediate*™ is an active mixture of hydrocarbon-oxidizing, naturally occurring, single-celled micro-organisms that assist in remediating soils impacted by oil and gas operations. The application process included the mixing of the *Liquid Remediate*™ and freshwater to the manufacturers specifications, spraying the mixture via a water truck onto the impacted soil, and physically tilling the liquid mixture into the soil. A copy of the *Liquid Remediate*™ safety data sheet is included as Appendix E.

To confirm treatment of the material met 19.15.29.12 NMAC Table 1 (>100 feet) TPH and BTEX concentrations, Ranger personnel collected 10 five-part composite soil samples from treated material on January 9, 2019. The purpose of the sampling was to determine if the soil was suitable for use as backfill within the main excavation in areas below 4 feet bgs. The treatment cell samples were analyzed for TPH, BTEX, and chloride using the aforementioned laboratory methods.

The analytical results documented that the soils were below the applicable BTEX and TPH closure criteria as presented in 19.15.29.12 NMAC Table 1 (>100 feet). Additionally, as the soils were intended to be used for the backfilling of the excavation areas below 4 feet bgs, the soil chloride analytical results were compared to and documented to be below the 20,000 mg/kg chloride concentration presented in 19.15.29.12 NMAC Table 1 (>100 feet).

### **BACKFILLING & RESEEDING**

Following the completion of the excavation activities, confirmation soil sampling, and soil bioremediation activities, the main and western excavations were backfilled. The bioremediated soils were utilized to backfill the portion of the main excavation area that exceeded 4 feet bgs. A 20-millimeter plastic liner was installed within both the western excavation as well as the areas of the main excavation that were excavated to 4 feet bgs. Subsequent to the installation of the liner, fill material was utilized to backfill the main and western excavations to



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approximately one foot bgs. Topsoil was utilized to backfill the remaining portions of the excavation from one foot bgs to surface. The remaining bio-remediated soil not utilized as backfill was removed from the site for disposal at the Lea Land, Inc. landfill in Carlsbad, New Mexico.

The subject site areas that were excavated will be reseeded per the guidance of the private landowner during the first favorable growing season. Ranger estimates the reseeding activities to occur during the first week of July 2019.

## ANALYTICAL RESULTS

Ranger compared the soil TPH and BTEX laboratory analytical results to the criteria outlined in the 19.15.29.12 NMAC Table 1 (>100 feet) section. Dependent on the depth and location of the soil sample, the chloride laboratory analytical results were compared to either the 19.15.29.12 NMAC Table 1 (>100 feet) limit or the 19.15.29.13 NMAC Restoration, Reclamation and Re-Vegetation requirements. All samples collected above a depth of 4 feet bgs as well as samples collected along excavation sidewalls for horizontal delineation purposes were compared to the 19.15.29.13 NMAC Restoration, Reclamation and Re-Vegetation requirements limit of 600 mg/Kg for chloride. All samples collected from the excavation base at a depth of four feet or greater and areas excavated beyond four feet in depth were compared to the 19.15.29.12 NMAC Table 1 (>100 feet) limit of 20,000 mg/Kg for chloride. A summary of the referenced regulatory levels is detailed below.

REGULATORY STANDARD	CHLORIDE	TPH (GRO+DRO +MRO)	TPH (GRO+DRO)	BTEX	BENZENE
19.15.29.12 NMAC Table 1 Closure Criteria for Soils Impacted by a Release (GW > 100')	20,000	2,500	1,000	50	10
19.15.29.13 NMAC Restoration, Reclamation and Re-Vegetation (Soils 0'-4')	600	---	---	---	---

*All Values Presented In Parts Per Million (mg/Kg)*

All soil analytical results are presented in the attached cumulative soil analytical tables. The approximate locations of the soil samples collected within the excavated areas are illustrated on the attached Site Map. Within the analytical table, all soil sample locations which were removed and disposed as part of the soil excavation and disposal activities are indicated by the use of a "strikethrough" across these sample results. Those results which do not contain a "strikethrough" are representative of soils remaining in place following the completion of the site excavation activities.

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The analytical test results confirmed appropriate remediation of the affected area. All soils remaining on-site were documented to be in attainment of the constituent concentrations detailed in the 19.15.29.12 NMAC Table 1 (>100 feet) Closure Criteria. In addition, all soils within the upper four feet at the site were documented to have concentrations below the 600 mg/Kg Restoration, Reclamation and Re-Vegetation requirements.

## CONCLUSIONS AND RECOMMENDATIONS

Based on the confirmation sampling and laboratory analytical results, Ranger concludes that the affected area has been adequately addressed pursuant to regulatory requirements and guidelines, and as such respectfully requests site closure. In addition, with the installation of the liner EOG Y has gone above and beyond the NMAC remediation requirements. As Ranger is of the opinion that all remediation activities at the subject site are complete, a copy of the Form C-141 closure certification is included in Appendix A.

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.**



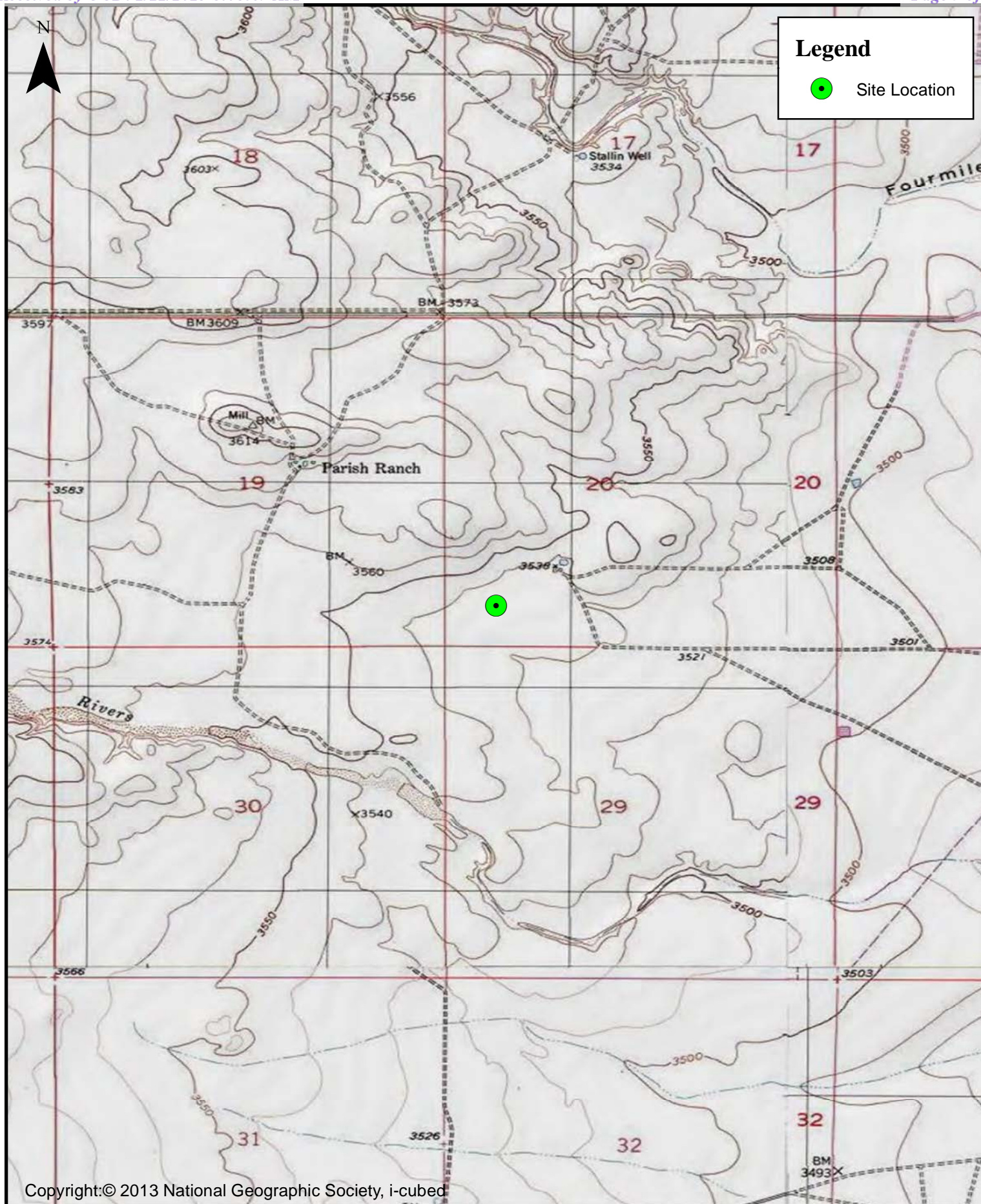
Max Cook  
Project Manager

MC/WK

Attachments

## FIGURES



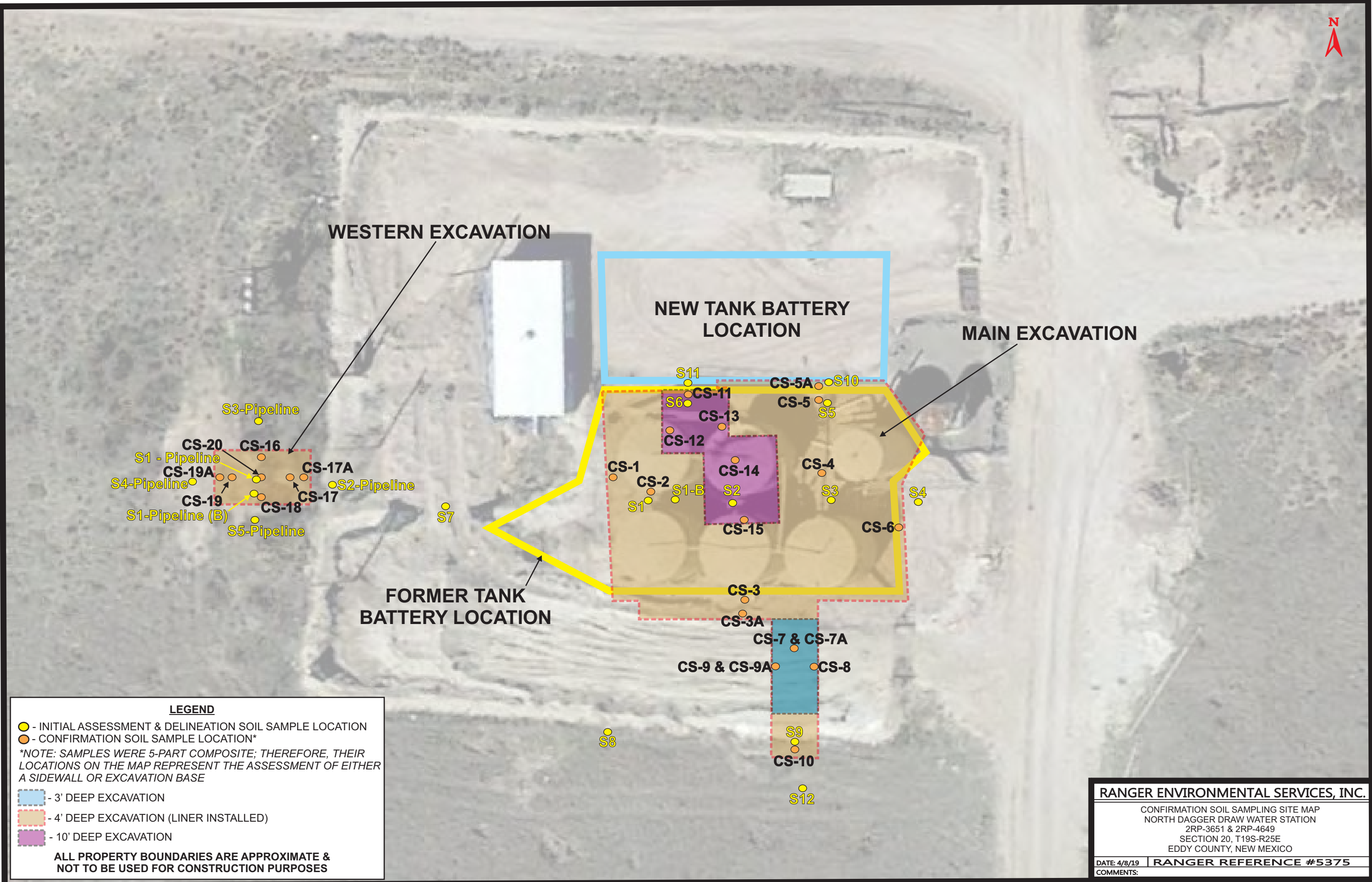


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0 600 1,200 2,400 3,600 4,800 Feet

**TOPOGRAPHIC MAP**  
**NORTH DAGGER DRAW WATER STATION**  
**EOG RESOURCES, INC.**



## TABLES



CONFIRMATION SOIL SAMPLE CUMULATIVE BTEX (EPA 8021B), TPH (EPA 8015B) & CHLORIDE (4500-CI-B) ANALYTICAL DATA													
EOG ARTESIA													
NORTH 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 MRO EXT C28-C36	TPH (GRO+DRO)	TPH TOTAL (GRO+DRO +MRO)	CHLORIDE
INITIAL COMPOSITE CONFIRMATION SOIL SAMPLES													
CS-1	1/9/2019	4'	Not Analyzed										416
CS-2	1/9/2019	4'	Not Analyzed										1,500
CS-3	1/9/2019	4'	Not Analyzed										1,010
CS-4	1/9/2019	4'	Not Analyzed										720
CS-5	1/9/2019	4'	Not Analyzed										2,240
CS-6	1/9/2019	4'	Not Analyzed										544
CS-7	1/9/2019	2.5'	Not Analyzed										640
CS-8	1/9/2019	2.5'	Not Analyzed										320
CS-9	1/9/2019	2.5'	Not Analyzed										704
CS-10	1/9/2019	4'	Not Analyzed										256
CS-11	1/9/2019	10'	<0.050	<0.050	0.137	0.211	0.347	<10.0	268	54.2	268	322.2	7,920
CS-12	1/9/2019	10'	<0.050	<0.050	0.091	<0.150	<0.300	<10.0	241	37.3	241	278.3	1,380
CS-13	1/9/2019	10'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	244	29.4	244	273.4	2,200
CS-14	1/9/2019	10'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	117	13.8	117	130.8	784
CS-15	1/9/2019	10'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	280	52.9	280	332.9	528
CS-16	1/9/2019	4'	Not Analyzed										224
CS-17	1/9/2019	4'	Not Analyzed										7,060
CS-18	1/9/2019	4'	Not Analyzed										176
CS-19	1/9/2019	4'	Not Analyzed										1,380
CS-20	1/9/2019	4'	Not Analyzed										304
EXCAVATION COMPOSITE CONFIRMATION SOIL SAMPLES - COLLECTED UPON COMPLETION OF ADDITIONAL SOIL REMOVAL													
CS-3A	2/13/2019	4'	Not Analyzed										112
CS-5A	2/13/2019	4'	Not Analyzed										64.0
CS-7A	2/13/2019	3'	Not Analyzed										128
CS-9A	2/13/2019	3'	Not Analyzed										128
CS-17A	2/13/2019	4'	Not Analyzed										256
CS-19A	2/13/2019	4	Not Analyzed										240
19.15.29.12 NMAC Table 1 Closure Criteria for Soils Impacted by a Release (GW >100')			10	---	---	---	50	---	---	---	1,000	2,500	20,000
19.15.29.13 NMAC Reclamation Criteria (0'-4' Soils Only)			600										
Notes:													
1. Shaded Bold = indicates a COC exceeded site cleanup level													
2. Strikethrough indicates sample area has been excavated and/or remediated													

**BIOREMEDIATION CONFIRMATION SOIL BTEX (EPA 8021B), TPH (EPA 8015B) & CHLORIDE (4500-Cl-B) ANALYTICAL DATA**  
**EOG ARTESIA**  
**NORTH 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 MRO EXT C28-C36	TPH (GRO+DRO)	TPH TOTAL (GRO+DRO +MRO)	CHLORIDE
<b>TREATMENT CELL COMPOSITE SOIL SAMPLES - COLLECTION UPON COMPLETION OF THE BIOREMEDIAL PROCESS</b>													
TC-1	1/9/2019	---	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	196	26.6	196	222.6	<b>640</b>
TC-2	1/9/2019	---	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	160	21.6	160	181.6	<b>880</b>
TC-3	1/9/2019	---	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	278	51.3	278	329.3	<b>768</b>
TC-4	1/9/2019	---	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	253	40.2	253	293.2	<b>800</b>
TC-5	1/9/2019	---	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	349	69.4	349	418.4	<b>688</b>
TC-6	1/9/2019	---	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	340	61.3	340	401.3	<b>640</b>
TC-7	1/9/2019	---	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	453	97.8	453	550.8	<b>784</b>
TC-8	1/9/2019	---	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	129	45.6	129	144.6	<b>640</b>
TC-9	1/9/2019	---	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	77.1	12.5	77.1	89.6	554
TC-10	1/9/2019	---	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	189	26.7	189	215.7	<b>1,300</b>
<b>19.15.29.12 NMAC Table 1 Closure Criteria for Soils Impacted by a Release (GW &gt;100')</b>			<b>10</b>	---	---	---	<b>50</b>	---	---	---	<b>1,000</b>	<b>2,500</b>	<b>20,000</b>
<b>19.15.29.13 NMAC Reclamation Criteria (0'-4' Soils Only)</b>													<b>600</b>
<b>Notes:</b>													
<b>1. Shaded Bold = indicates a COC exceeded site cleanup level</b>													

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

INITIAL ASSESSMENT AND DELINEATION CUMULATIVE SOIL BTEX (EPA 8021B), TPH (EPA 8015B) & CHLORIDE (4500-Cl-B) ANALYTICAL DATA													
EOG ARTESIA													
NORTH 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 MRO EXT C28-C36	TPH (GRO+DRO)	TPH TOTAL (GRO+DRO +MRO)	CHLORIDE
Pipeline Area West of Former Tank Battery													
S1-1' N. Pipe	10/9/2017	1'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	4,560
S1-2' N. Pipe	10/9/2017	2'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	3,880
S1-3' N. Pipe	10/9/2017	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	2,440
S1-4' N. Pipe	10/9/2017	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	3,760
S1-6' N. Pipe	10/9/2017	6'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	4,640
S1-8' N. Pipe	10/9/2017	8'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	2,240
S1-10' N. Pipe	10/9/2017	10'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	2,640
S1-12' N. Pipe	10/9/2017	12'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	1,300
S1-14' N. Pipe	10/9/2017	14'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	1,260
S1-16' N. Pipe	10/9/2017	16'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	880
S1-17' N. Pipe	10/9/2017	17'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	800
S1-Pipeline (B) 20'	2/22/2018	20'	Not Analyzed										560
S1-Pipeline (B) 25'	2/22/2018	25'	Not Analyzed										400
S1-Pipeline (B) 30'	2/22/2018	30'	Not Analyzed										64
S2-Pipeline 1'	2/21/2018	1'	Not Analyzed										80
S2-Pipeline 2'	2/21/2018	2'	Not Analyzed										256
S2-Pipeline 3'	2/21/2018	3'	Not Analyzed										288
S2-Pipeline 4'	2/21/2018	4'	Not Analyzed										208
S3-Pipeline 1'	2/21/2018	1'	Not Analyzed										32
S3-Pipeline 2'	2/21/2018	2'	Not Analyzed										32
S3-Pipeline 3'	2/21/2018	3'	Not Analyzed										80
S3-Pipeline 4'	2/21/2018	4'	Not Analyzed										112
S4-Pipeline 1'	2/21/2018	1'	Not Analyzed										32
S4-Pipeline 2'	2/21/2018	2'	Not Analyzed										352
S4-Pipeline 3'	2/21/2018	3'	Not Analyzed										144
S4-Pipeline 4'	2/21/2018	4'	Not Analyzed										<16.0
S5-Pipeline 1'	2/21/2018	1'	Not Analyzed										16
S5-Pipeline 2'	2/21/2018	2'	Not Analyzed										<16.0
S5-Pipeline 3'	2/21/2018	3'	Not Analyzed										<16.0
S5-Pipeline 4'	2/21/2018	4'	Not Analyzed										16
2RP-3651													
S1-1'	10/9/2017	1'	1.76	7.27	65.8	74	149	1,280	3,390	481	4,670	5,154	48
S1-2'	10/9/2017	2'	0.093	0.224	5.43	7.23	13	75.2	497	60.1	572.2	632.3	224
S1-3'	10/9/2017	3'	<0.050	<0.050	0.496	0.506	1	<10.0	18.5	<10.0	18.5	18.5	224
S1-4'	10/9/2017	4'	<0.050	<0.050	0.172	<0.150	0.305	<10.0	<10.0	<10.0	0	0	1,310
S1-6'	10/9/2017	6'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	2,500
S1-8'	10/9/2017	8'	0.099	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	944
S1-10'	10/9/2017	10'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	2,360
S1-12'	10/9/2017	12'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	2,760
S1-14'	10/9/2017	14'	0.122	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	5,760
S1-16'	10/9/2017	16'	0.111	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	3,560
S1-18'	10/9/2017	18'	0.100	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	1,140
S1B-20'	2/22/2018	20'	Not Analyzed										320
S1B-25'	2/22/2018	25'	Not Analyzed										256
S1B-30'	2/22/2018	30'	Not Analyzed										112
S2-1'	10/9/2017	1'	6.75	57.5	51.6	70.6	187	868	3,710	621	4,578	5,199	144
S2-2'	10/9/2017	2'	11.4	55.5	57.1	86.2	210	1,110	3,120	481	4,230	4,711	144
S2-3'	10/9/2017	3'	2.67	0.834	21.8	20.6	45.8	189	2,250	422	2,439	2,861	256
S2-4'	10/9/2017	4'	1.33	7.62	15.3	20.5	44.8	142	491	84.9	633	717.9	144
S2-6'	10/9/2017	6'	5.21	26.1	79.8	101	212	1,330	4,070	592	5,400	5,992	160
S2-8'	10/9/2017	8'	5.65	19.4	74.8	97.5	192	1,710	4,910	614	6,620	7,234	192
S2-10'	10/9/2017	10'	0.170	1.13	16.6	21.2	39.1	285	1,620	219	1,905	2,124	240
S2-12'	10/9/2017	12'	<0.050	<0.050	0.062	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	768
S2-14'	10/9/2017	14'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	1,470
S2-16'	10/9/2017	16'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	112
S2-18'	10/9/2017	18'	<0.050	<0.050	0.067	<0.150	<0.300	<10.0	69.5	<10.0	0	0	48
S3-1'	10/9/2017	1'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	608
S3-2'	10/9/2017	2'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	5,040
S3-3'	10/9/2017	3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	1,670
S3-4'	10/9/2017	4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	576
S3-6'	10/9/2017	6'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	4,240
S3-8'	10/9/2017	8'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	5,600
S3-10'	10/9/2017	10'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	7,300

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

INITIAL ASSESSMENT AND DELINEATION CUMULATIVE SOIL BTEX (EPA 8021B), TPH (EPA 8015B) & CHLORIDE (4500-Cl-B) ANALYTICAL DATA													
EOG ARTESIA													
NORTH 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 MRO EXT C28-C36	TPH (GRO+DRO)	TPH TOTAL (GRO+DRO +MRO)	CHLORIDE
S3-12'	10/9/2017	12'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	5,000
S3-13'	10/9/2017	13'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	0	4,400
S4-1'	2/21/2018	1'	Not Analyzed										480
S4-2'	2/21/2018	2'	Not Analyzed										368
S4-3'	2/21/2018	3'	Not Analyzed										400
S4-4'	2/21/2018	4'	Not Analyzed										400
S5-1'	2/21/2018	1'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	18.3	22.4	18.3	40.7	<b>1,600</b>
S5-2'	2/21/2018	2'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	<b>2,600</b>
S5-3'	2/21/2018	3'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	<b>3,280</b>
S5-4'	2/21/2018	4'	<1.0	4.89	13.2	29.1	47.1	510	2530	357	<b>3,040</b>	<b>3,397</b>	<b>3,400</b>
S5-6'	2/21/2018	6'	<0.050	0.142	0.75	1.52	2.68	30.7	196	24.2	226.7	250.9	Not Analyzed
S5-8'	2/21/2018	8'	1.69	10.4	14.5	23.3	49.9	150	196	<10.0	346	346	Not Analyzed
S6-1'	2/21/2018	1'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	135	<10.0	135	135	224
S6-2'	2/21/2018	2'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	63.2	<10.0	63	63	224
S6-3'	2/21/2018	3'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	464
S6-4'	2/21/2018	4'	<0.050	18.4	21.2	42.2	<b>81.8</b>	586	1360	90	<b>1,946</b>	<b>2,036</b>	32
S6-6'	2/21/2018	6'	<0.050	6.48	19.3	29.6	<b>55.4</b>	489	2160	189	<b>2,649</b>	<b>2,838</b>	Not Analyzed
S6-8'	2/21/2018	8'	0.577	13.7	37.1	53.5	<b>105</b>	1060	2480	254	<b>3,540</b>	<b>3,794</b>	Not Analyzed
S7-1'	2/21/2018	1'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	272
S7-2'	2/21/2018	2'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	176
S7-3'	2/21/2018	3'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	128
S7-4'	2/21/2018	4'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	48
S8-1'	2/21/2018	1'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	48
S8-2'	2/21/2018	2'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	48
S8-3'	2/21/2018	3'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	80
S8-4'	2/21/2018	4'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	96
S9-1'	2/21/2018	1'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	32
S9-2'	2/21/2018	2'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	160
S9-3'	2/21/2018	3'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	<b>880</b>
S9-4'	2/21/2018	4'	<0.050	<0.050	<0.050	<0.050	<0.300	<10.0	<10.0	<10.0	0	0	<b>1,060</b>
S10 -1'	3/20/2018	1'	Not Analyzed										<b>1,180</b>
S10 -2'	3/20/2018	2'	Not Analyzed										<b>1,250</b>
S10 -3'	3/20/2018	3'	Not Analyzed										<b>800</b>
S10 -4'	3/20/2018	4'	Not Analyzed										<b>624</b>
S11 -1'	3/20/2018	1'	<0.050	<0.050	<0.050	<0.150	<0.300	Not Analyzed					
S11 -2'	3/20/2018	2'	<0.050	<0.050	<0.050	<0.150	<0.300	Not Analyzed					
S11 -3'	3/20/2018	3'	<0.050	<0.050	<0.050	<0.150	<0.300	Not Analyzed					
S11 -4'	3/20/2018	4'	<0.050	<0.050	<0.050	<0.150	<0.300	Not Analyzed					
S11 -6'	3/20/2018	6'	<0.050	<0.050	<0.050	<0.150	<0.300	Not Analyzed					
S11 -8'	3/20/2018	8'	<0.050	<0.050	<0.050	<0.150	<0.300	Not Analyzed					
S12 -1'	3/20/2018	1'	Not Analyzed										16
S12 -2'	3/20/2018	2'	Not Analyzed										16
S12 -3'	3/20/2018	3'	Not Analyzed										32
S12 -4'	3/20/2018	4'	Not Analyzed										112
19.15.29.12 NMAC Table 1 Closure Criteria for Soils Impacted by a Release (GW >100')			10	---	---	---	50	---	---	---	1,000	2,500	20,000
19.15.29.13 NMAC Reclamation Criteria (0'-4' Soils Only)													600
Notes:													
1. Shaded Bold = indicates a COC exceeded site cleanup level													
2. Strikethrough indicates sample area has been excavated and/or remediated													

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



## APPENDIX A

### FORM C-141 CLOSURE CERTIFICATION AND INITIAL FORM C-141 (2RP-3561 & 2RP-4649)

Incident ID	
District RP	
Facility ID	
Application ID	


## Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

**Closure Report Attachment Checklist:** *Each of the following items must be included in the closure report.*

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Chase Settle Title: Rep Safety & Environmental II  
Signature:  Date: 04-08-2019  
email: Chase\_Settle@eogresources.com Telephone: 575-748-1471

### OCD Only

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by:  Date: 2/22/2023  
Printed Name: Brittany Hall Title: Environmental Specialist

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

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

APR 15 2016

Form C-141  
Revised August 8, 2011

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

# **FMW 1325435121 Release Notification and Corrective Action**

AB1611040253

## **OPERATOR**

☒ Initial Report ☐ Final Report

Name of Company Yates Petroleum Corporation	Contact Amber Griffin
Address 104 S. 4 <sup>th</sup> Street	Telephone No. 575-748-1471
Facility Name North Dagger Draw Water Station	Facility Type Water Transfer Station

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

Unit Letter K	Section 20	Township 19S	Range 25E	Feet from the -	North/South Line -	Feet from the -	East/West Line -	County Eddy
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Latitude 32.64091 Longitude 104.51321

## **NATURE OF RELEASE**

Type of Release Crude Oil	Volume of Release 100 B/O	Volume Recovered 94 B/O
Source of Release Tank	Date and Hour of Occurrence 4/7/2016; AM	Date and Hour of Discovery 4/7/2016; AM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? NMOCD - Mike Bratcher, Heather Patterson, NMSLO - Ion Dolly, Amber Groves, Mathew Hagman, Mark Naranjo, Dana Vackar Strang	
By Whom? Robert Asher/Yates Petroleum Corporation	Date and Hour 4/8/2016; 8:00 AM (Email)	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

It is suspected that an unknown party, not associated with Yates Petroleum, opened a valve on the bottom of an equalizing tank. The valve was shut and vacuum trucks were called to recover released crude oil.

Describe Area Affected and Cleanup Action Taken.\*

The affected area was within an unlined/borned battery. The visually impacted soils were scraped with shovel crews and placed on plastic at the location. Vertical and horizontal delineation samples will be taken, and analysis ran for TPH & BTEX. If initial analytical results for TPH & BTEX are under RRAL's (site ranking is 0) a Final Report, C-141 will be submitted to the OCD requesting closure. If the analytical results are above the RRAL's a work plan will be submitted to the OCD. Depth to Ground Water: >100' (approximately 150', Section 20, T19S-R25E, per Trend Map), Wellhead Protection Area: No, Distance to Surface Water Body: >1000', SITE RANKING IS 0.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

## **OIL CONSERVATION DIVISION**

Signature: <i>Amber Griffin</i>	Signed By: <i>Mike Bratcher</i>	
Printed Name: Amber Griffin	Approved by Environmental Specialist:	
Title: Environmental Representative	Approval Date: 4/19/16	Expiration Date: N/A
E-mail Address: agriffin@yatespetroleum.com	Conditions of Approval:	
Date: April 14, 2016 Phone: 575-748-4111	Remediation per O.C.D. Rules & Guidelines SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 5/20/16	

\* Attach Additional Sheets If Necessary

2RP-3651

**Bratcher, Mike, EMNRD**

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**From:** Amber Griffin <AGriffin@yatespetroleum.com>  
**Sent:** Friday, April 15, 2016 9:42 AM  
**To:** Patterson, Heather, EMNRD; Bratcher, Mike, EMNRD  
**Cc:** Bob Asher; Chase Settle; Katie Parker; Veronica Alvarado  
**Subject:** North Dagger Draw Water Transfer  
**Attachments:** NorthDaggerDrawWaterTransfer\_C141\_040716 Initial.pdf

Heather/Mike,

Please find attached an Initial C-141 for the release that occurred on April 7, 2016 at the North Dagger Draw Water Transfer. Will you please let me know the RP number assigned for this release?

Thank you,

**Amber Griffin**

Environmental Representative  
Yates Petroleum Corporation  
Office: (575) 748-4111  
Cell: (575) 513-8799

**Patterson, Heather, EMNRD**

---

**From:** Bob Asher <BobA@yatespetroleum.com>  
**Sent:** Friday, April 08, 2016 8:00 AM  
**To:** Bratcher, Mike, EMNRD; Patterson, Heather, EMNRD; NMSLO (Carlsbad/Ion Dolly); NMSLO (Hobbs/Amber Grroves); NMSLO (Hobbs/Mathew Hagman); Naranjo, Mark M.; NMSLO (Santa Fe/Dana Vackar Strang)  
**Cc:** IncidentReportingNM; Amber Griffin; Chase Settle; Katie Parker; Veronica Alvarado  
**Subject:** Release Notification (North Dagger Draw Water Station)

**Yates Petroleum Corporation is reporting a release at the following location (4/7/2016, 12:04 PM).**

North Dagger Draw Water Station  
Section 20, T19S-R25E  
Eddy County, New Mexico

**Released: 100 B/O; Recovered: 94 B/O**

Cause of the release was from a valve found open on the bottom of an equalizing tank. Vacuum truck(s) were called and a crew has started excavating impacted soils. A Form C-141 with complete information will be submitted.

Thank you.

**Robert Asher**  
**NM Environmental Regulatory Supervisor**  
**Health & Environmental Department**  
**Yates Petroleum Corporation**  
105 S. 4<sup>th</sup> Street  
Artesia, NM 88210  
575-748-4217 (Office)  
575-365-4021 (Cell)  
**Yates Safety Begins With YOUR Safety**

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**Bratcher, Mike, EMNRD**

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**From:** Chase Settle <CSettle@yatespetroleum.com>  
**Sent:** Tuesday, June 07, 2016 1:38 PM  
**To:** Bratcher, Mike, EMNRD  
**Cc:** Katie Parker; Bob Asher; Amber Griffin  
**Subject:** North Dagger Draw Water Station  
**Attachments:** Rpt\_1605565\_Final\_v1.pdf; North Dagger Draw Water Station Sample Sketch.pdf

**North Dagger Draw Water Station**

Section 20, T19S-R25E  
Eddy County, New Mexico

Mr. Bratcher,

The release that occurred at the North Dagger Draw Water Station on April 7, 2016, has unearthed historical issues to combine with current impactation at this location as evidenced by the sample results attached with this email considering how hard and compact with ground was, as well as approximately one foot of impacted soil removed prior to sampling. The release consisted of 100 B/O with 94 B/O recovered within the tank battery berm. The release affected the areas immediately around and between the tanks. The tanks referred to in the impacted area are 1000 bbl tanks constructed of fiberglass. This tight area between the tanks, as well as the underground transfer lines and electrical lines, have rendered sampling using heavy equipment to be impossible due to safety reasons. These same hazards and safety issues also limit the quantity of soil that may be excavated at this location. Unfortunately it is impracticable to shut down this transfer station and remove the tanks because it would cause more releases at the conjoined Salt Water Disposals in this system, as well as placing tremendous pressure on the transfer lines incorporated with the North Dagger Draw Water Station, which could possibly cause more releases in pasture circumstances rather than bermed locations.

With the number of underground transfer and equalizing lines, it would also be impracticable to install a liner at this battery. A liner would not allow any releases that could occur from these lines to be identified quickly enough to perform proper emergency clean up actions, leading to further contamination with a much greater detrimental impact.

Yates Petroleum Corporation proposes to perform mitigation activities while leaving the RP open until the time of abandonment, when full delineation and remediation can be accomplished safely. YPC will excavate as much soil as safely possible, up to one additional foot so as not to impede the balance of the tanks and cause a catastrophe, within the release area between/around the tanks. This soil will be placed on plastic with a berm constructed to prevent any runoff due to rain events. Once stockpiled on plastic, YPC will remediate this soil using a 3% MicroBlaze solution and 13-13-13 fertilizer, alternating monthly between the 2 treatments, until the soil has tested below RRALs for TPH and BTEX with a site ranking zero (0). YPC also proposes to treat the impacted area between/around the tanks that is exposed by the excavation with a 3% MicroBlaze solution and 13-13-13 fertilizer, alternating monthly between the 2 treatments. This treatment will continue until the excavated soils have been fully remediated below RRALs, at which point the excavation will be backfilled with the remediated soils.

Thank you,

*Chase Settle, M.S.*

Environmental Representative  
Yates Petroleum Corporation

105 S. 4<sup>th</sup> Street  
Artesia, NM 88210  
575-748-4171 (Office)  
575-703-6537 (Cell)

---

**This message may contain confidential information and is intended for the named recipient only. If you are not the intended recipient you are notified that disclosing, copying, distributing or taking any action in reliance on the contents of this information is strictly prohibited. E-mail transmission cannot be guaranteed to be secure or error-free as information could be intercepted, corrupted, lost, destroyed, arrive late or incomplete, or contain viruses. The sender therefore does not accept liability for any errors or omissions in the contents of this message, which arise as a result of e-mail transmission. If verification is required please request a hard-copy version.**

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**Bratcher, Mike, EMNRD**

---

**From:** Bratcher, Mike, EMNRD  
**Sent:** Wednesday, June 08, 2016 7:21 AM  
**To:** 'Chase Settle'  
**Cc:** Katie Parker; Bob Asher; Amber Griffin; Patterson, Heather, EMNRD  
**Subject:** RE: North Dagger Draw Water Station

RE: Yates Pet \* North Dagger Draw Station \* **2RP-3651** \* DOR: 4/7/16

Chase,

Your proposal for remedial actions at the above referenced site is approved. Please submit a report outlining work performed, once completed. Yates and OCD understands the incident will be deferred until such time as access to the impacted area is more practicable.

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.

If you have any questions or concerns, and for notification, please contact me.

Mike Bratcher  
NMOCD District 2  
811 S. First Street  
Artesia, NM 88210  
O: 575-748-1283 X108  
C: 575-626-0857  
F: 575-748-9720

---

**From:** Chase Settle [mailto:CSettle@yatespetroleum.com]  
**Sent:** Tuesday, June 07, 2016 1:38 PM  
**To:** Bratcher, Mike, EMNRD  
**Cc:** Katie Parker; Bob Asher; Amber Griffin  
**Subject:** North Dagger Draw Water Station

**North Dagger Draw Water Station**  
Section 20, T19S-R25E  
Eddy County, New Mexico

Mr. Bratcher,

The release that occurred at the North Dagger Draw Water Station on April 7, 2016, has unearthed historical issues to combine with current impactation at this location as evidenced by the sample results attached with this email considering how hard and compact with ground was, as well as approximately one foot of impacted soil removed prior to

sampling. The release consisted of 100 B/O with 94 B/O recovered within the tank battery berm. The release affected the areas immediately around and between the tanks. The tanks referred to in the impacted area are 1000 bbl tanks constructed of fiberglass. This tight area between the tanks, as well as the underground transfer lines and electrical lines, have rendered sampling using heavy equipment to be impossible due to safety reasons. These same hazards and safety issues also limit the quantity of soil that may be excavated at this location. Unfortunately it is impracticable to shut down this transfer station and remove the tanks because it would cause more releases at the conjoined Salt Water Disposals in this system, as well as placing tremendous pressure on the transfer lines incorporated with the North Dagger Draw Water Station, which could possibly cause more releases in pasture circumstances rather than bermed locations.

With the number of underground transfer and equalizing lines, it would also be impracticable to install a liner at this battery. A liner would not allow any releases that could occur from these lines to be identified quickly enough to perform proper emergency clean up actions, leading to further contamination with a much greater detrimental impact.

Yates Petroleum Corporation proposes to perform mitigation activities while leaving the RP open until the time of abandonment, when full delineation and remediation can be accomplished safely. YPC will excavate as much soil as safely possible, up to one additional foot so as not to impede the balance of the tanks and cause a catastrophe, within the release area between/around the tanks. This soil will be placed on plastic with a berm constructed to prevent any runoff due to rain events. Once stockpiled on plastic, YPC will remediate this soil using a 3% MicroBlaze solution and 13-13-13 fertilizer, alternating monthly between the 2 treatments, until the soil has tested below RRALs for TPH and BTEX with a site ranking zero (0). YPC also proposes to treat the impacted area between/around the tanks that is exposed by the excavation with a 3% MicroBlaze solution and 13-13-13 fertilizer, alternating monthly between the 2 treatments. This treatment will continue until the excavated soils have been fully remediated below RRALs, at which point the excavation will be backfilled with the remediated soils.

Thank you,

*Chase Settle, M.S.*

Environmental Representative

Yates Petroleum Corporation

105 S. 4<sup>th</sup> Street

Artesia, NM 88210

575-748-4171 (Office)

575-703-6537 (Cell)

---

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District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

NM OIL CONSERVATION  
ARTESIA DISTRICT

MAR 02 2018

Form C-141  
Revised April 3, 2017

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

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

RECEIVED

FAB1806553433

### Release Notification and Corrective Action

NAB1806553457

#### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company EOG Y Resources, Inc.	25575	Contact Chase Settle
Address 104 South 4th Street, Artesia, NM 88210		Telephone No. 575-748-4171
Facility Name North Dagger Draw Water System		Facility Type Water Transfer Station

Surface Owner Fee	Mineral Owner N/A	API No. N/A
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#### LOCATION OF RELEASE

Unit Letter K	Section 20	Township 19S	Range 25E	Feet from the -	North/South Line -	Feet from the -	East/West Line -	County Eddy
------------------	---------------	-----------------	--------------	--------------------	-----------------------	--------------------	---------------------	----------------

Latitude 32.640793 Longitude -104.513827

#### NATURE OF RELEASE

Type of Release Produced Water	Volume of Release Unknown	Volume Recovered None
Source of Release Pipeline	Date and Hour of Occurrence Unknown	Date and Hour of Discovery October 9, 2017
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? N/A	
By Whom? N/A	Date and Hour N/A	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.\*  
N/A

Describe Cause of Problem and Remedial Action Taken.\*  
The cause of the release appears to be from a pipeline that is now out of service.

Describe Area Affected and Cleanup Action Taken.\*  
During scheduled delineation activities associated with 2RP-3651, EOG Y representatives observed impacted soils west of the tank battery near an out of service pipeline. EOG Y collected horizontal and vertical delineation samples on 10/9/17 that were analyzed for BTEX, TPH, and chloride. Based on the results, additional horizontal and vertical delineation for chloride was necessary; however, BTEX and TPH were ruled out as chemicals of concern. A third party consultant collected vertical and horizontal delineation samples on 2/21/18 and 2/22/18. Once the impacted soil is fully delineated, soils in the depth interval of 0'-4' which contain chlorides in excess of 600 mg/Kg will be properly addressed. **Depth to Ground Water: >100' (approximately 150', Section 20,T19S-R25E, per Trend Map), Wellhead Protection Area: No, Distance to Surface Water Body:>1000', SITE RANKING IS 0.**

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOC rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOC marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOC acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: <u>Chase Settle</u>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Chase Settle	Approved by Environmental Specialist: <u>[Signature]</u>	
Title: Safety & Environmental Rep II	Approval Date: <u>3/10/18</u>	Expiration Date: <u>N/A</u>
E-mail Address: <u>Chase.Settle@eogresources.com</u>	Conditions of Approval: <u>See attached</u>	Attached: <u>2RP-4649</u>
Date: 3/2/2018 Phone: 575-748-4171		

\* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 3/2/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number ARP-4649 has been assigned. **Please refer to this case number in all future correspondence.**

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 2 office in ARTESIA on or before 4/2/2018.** If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.

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

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

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

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

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

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

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

**Jim Griswold**

OCD Environmental Bureau Chief

1220 South St. Francis Drive

Santa Fe, New Mexico 87505

505-476-3465

jim.griswold@state.nm.us

**Bratcher, Mike, EMNRD**

---

**From:** maxcook4@gmail.com on behalf of max cook <max@rangerenv.com>  
**Sent:** Friday, March 2, 2018 11:29 AM  
**To:** Bratcher, Mike, EMNRD; Weaver, Crystal, EMNRD  
**Cc:** Chase Settle  
**Subject:** North Dagger Draw Water System  
**Attachments:** North Dagger (Pipeline) - C141 Initial Signed.pdf

Mike & Crystal,

EOG Resources has engaged my company (Ranger Environmental Services) to assist with the remediation of some of their open RP sites. Please find attached to this email an initial C141 for a pipeline release of an unknown amount of fluids. This release is adjacent to the North Dagger Draw Water System. Please let me know if you have any questions. Ranger is currently in the process of completing vertical and horizontal delineation activities.

--

Max Cook, CAPM  
Senior Program Manager  
Ranger Environmental Services, Inc.  
P.O. Box 201179  
Austin, TX 78720  
[www.rangerenv.com](http://www.rangerenv.com)

512.335.1785 ext. 28 (o)  
512.497.1556 (c)

# APPENDIX B

## CORRESPONDENCE





max cook &lt;maxcook4@gmail.com&gt;

---

**North Dagger Draw Water Station :: 2RP-3651 Work Plan**

---

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

Wed, Apr 4, 2018 at 9:41 AM

To: max cook &lt;max@rangerenv.com&gt;, "Weaver, Crystal, EMNRD" &lt;Crystal.Weaver@state.nm.us&gt;

Cc: Chase Settle &lt;Chase\_Settle@eogresources.com&gt;

RE: EOG Y \* North Dagger Draw Station \* 2RP-3651 \* DOR: 4/7/16

All,

Sorry for the delayed response. We are attempting to review projects in the order received, and this one was next. It is now OCD's understanding that the C-141 submitted for the adjacent pipeline release has been assigned 2RP-4649 and the delineation proposal is included in this submittal. Sorry for the confusion on that one. District 2 will focus on remediation/delineation proposals only, until such time as we are more current in reviews.

This proposal is approved. Please note that currently, delineation goal for chloride impact is 600 mg/kg. The ten foot buffer after reaching 600 mg/kg will not be required. OCD does request a proposal for the elevated hydrocarbon impact noted in the 10/9/17 sampling event be submitted with the next round of delineation results. If I missed it in this submittal, please advise.

If you have any questions or concerns, please contact me.

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:** Tuesday, February 13, 2018 3:12 PM**To:** Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>**Cc:** Chase Settle <Chase\_Settle@eogresources.com>**Subject:** North Dagger Draw Water Station :: 2RP-3651 Work Plan



max cook &lt;maxcook4@gmail.com&gt;

---

**NM OCD District 2 :: Remediation Work Plan Delinquency**

---

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

Tue, Oct 2, 2018 at 3:44 PM

To: max cook &lt;max@rangerenv.com&gt;, Chase Settle &lt;Chase\_Settle@eogresources.com&gt;, Katie Jamison &lt;Katie\_Jamison@eogresources.com&gt;

Cc: "Griswold, Jim, EMNRD" &lt;Jim.Griswold@state.nm.us&gt;, "Billings, Bradford, EMNRD" &lt;Bradford.Billings@state.nm.us&gt;

APPROVED

Mike Bratcher

NMOCD District 2

811 South First Street

Artesia, NM 88210

575-748-1283 Ext 108

---

**From:** Billings, Bradford, EMNRD**Sent:** Tuesday, October 2, 2018 2:26 PM**To:** Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>**Subject:** FW: [EXT] NM OCD District 2 :: Remediation Work Plan Delinquency

Hey Bos,

Discussed this with Jim a bit and you/Jim/me can discuss it. We have no intention of going around sequence. Just wanted to let you know. Jim is aware of this email from them and is in agreement to send it to you.

Brad

[Quoted text hidden]

**5375 - EOG Y - North Dagger Draw Remediation Workplan.pdf**  
3393K



max cook <maxcook4@gmail.com>

---

## NM OCD District 2 :: Remediation Work Plan Delinquency

---

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

Tue, Oct 2, 2018 at 5:51 PM

To: max cook <max@rangerenv.com>, Chase Settle <Chase\_Settle@eogresources.com>, Katie Jamison <Katie\_Jamison@eogresources.com>

Cc: "Griswold, Jim, EMNRD" <Jim.Griswold@state.nm.us>, "Billings, Bradford, EMNRD" <Bradford.Billings@state.nm.us>

As a condition of approval for this Remediation Work Plan Delinquency, all remedial action performed must be in compliance with 19.15.29 NMAC, as effective August 14, 2018.

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.

[Quoted text hidden]



Will Kierdorf &lt;will@rangerenv.com&gt;

---

## Notification for Confirmation Sampling

---

**max cook** <max@rangerenv.com>

Fri, Jan 4, 2019 at 2:24 PM

To: Robert.Hamlet@state.nm.us, "Bratcher, Mike, EMNRD" &lt;mike.bratcher@state.nm.us&gt;

Cc: Chase Settle &lt;Chase\_Settle@eogresources.com&gt;, Bob Asher &lt;Bob\_Asher@eogresources.com&gt;, Katie Jamison &lt;Katie\_Jamison@eogresources.com&gt;, Will Kierdorf &lt;will@rangerenv.com&gt;

Mr. Hamlet,

EOG Resources has engaged Ranger Environmental Services, Inc. (Ranger) to assist them with assessing and remediating some open RP's.

Please let this email serve as notification (19.15.29.12 D(1)(a)) that Ranger plans to collect confirmation soil samples at the RP's listed below on Wednesday, January 9, 2019. We will begin collecting confirmation samples at the North Dagger Draw location at 730am on the above listed date and then move to the Central Dagger Draw location. Site remediation at both locations has been completed based on either approved Remediation Work Plans and/or 19.15.29 NMAC rules.

**2RP-4298** - Central Dagger Draw**2RP3651 & 2RP-4649** - North Dagger Draw

Ranger field personnel collecting the samples will be Will Kierdorf and his contact number is 512-289-3272.

If you have any questions, please do not hesitate to contact me.  
Thanks!

--

Max Cook, CAPM  
Senior Program Manager  
Ranger Environmental Services, Inc.  
P.O. Box 201179  
Austin, TX 78720  
[www.rangerenv.com](http://www.rangerenv.com)

512.335.1785 ext. 28 (o)

512.497.1556 (c)



Will Kierdorf &lt;will@rangerenv.com&gt;

---

## Notification for Confirmation Sampling

---

Will Kierdorf &lt;will@rangerenv.com&gt;

Fri, Feb 8, 2019 at 11:18 AM

To: Robert.Hamlet@state.nm.us

Cc: Max Cook &lt;max@rangerenv.com&gt;, Chase\_Settle@eogresources.com, Bob\_Asher@eogresources.com, Katie\_Jamison@eogresources.com

Mr. Hamlet,

EOG Resources has engaged Ranger Environmental Services, Inc. (Ranger) to assist them with assessing and remediating some open RP's.

Please let this email serve as notification (19.15.29.12 D(1)(a)) that Ranger plans to collect confirmation soil samples at the RP's listed below on Tuesday, February 12, 2019 and Thursday, February 14, 2019. Additional Site remediation at both locations will be completed based on either approved Remediation Work Plans and/or 19.15.29 NMAC rules and upon completion sampling will be conducted. We anticipate conducting sampling at the North Dagger Draw location at approximately 3 pm on Tuesday, February 12, 2019 and at the Central Dagger Draw location at approximately 3 pm on Thursday, February 14, 2019.

**2RP-4298** - Central Dagger Draw**2RP3651 & 2RP-4649** - North Dagger Draw

Ranger field personnel collecting the samples will be Andrew Lester and his contact number is 512-839-3188.

If you have any questions, please do not hesitate to contact me.

Thank you,

--

**Will Kierdorf**  
**Project Manager**  
**Ranger Environmental Services, Inc.**  
**P.O. Box 201179**  
**Austin, TX 78720**  
**Phone: 512-335-1785**  
**Fax: 512-335-0527**

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# APPENDIX C

## PHOTOGRAPHIC DOCUMENTATION





Photograph documenting initiation of site excavation activities in November 2018. View toward the northwest.



A view of the main excavation area during the initial January 9, 2019 sampling event. View toward the northeast.





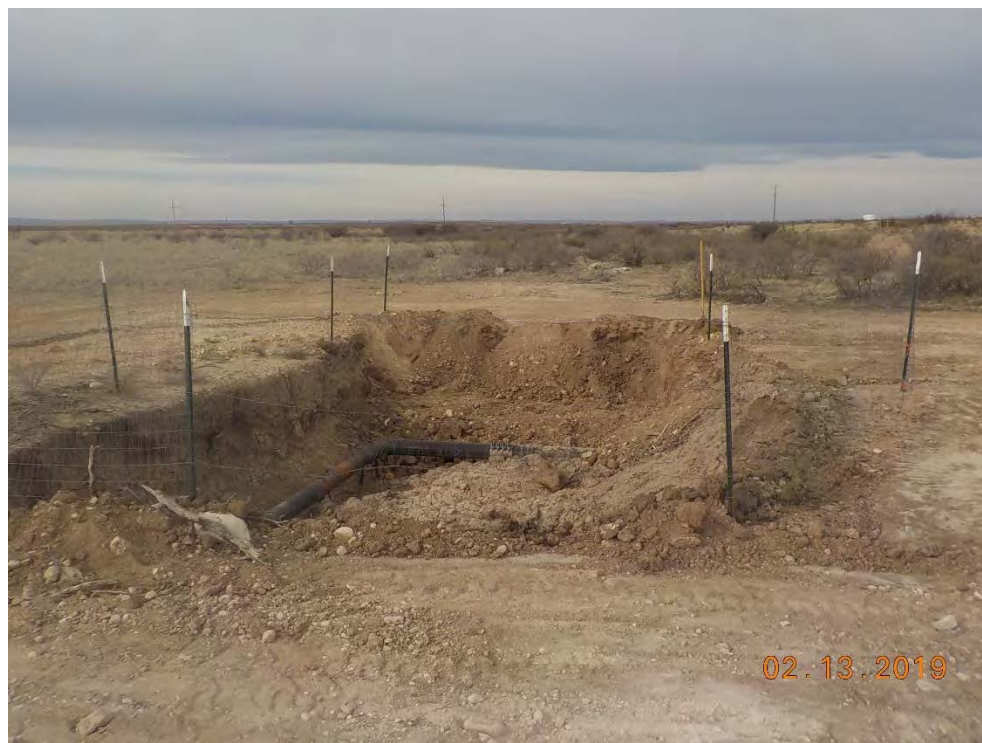
A view of the western excavation area during the initial January 9, 2019 sampling event. View toward the west.



View of the Liquid Remediate™ application process on November 11, 2018.



A view of the final main excavation area prior to backfilling. The view is towards the southwest.



A view of the final western excavation area prior to backfilling. The view is towards the west.

## APPENDIX D

# LABORATORY REPORTS AND CHAIN- OF-CUSTODY DOCUMENTATION





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

February 18, 2019

CHASE SETTLE

EOG Y RESOURCES, INC

105 SOUTH 4TH STREET

ARTESIA, NM 88210

RE: NORTH DAGGER DRAW STATION

Enclosed are the results of analyses for samples received by the laboratory on 02/13/19 11:30.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	02/13/2019	Sampling Date:	02/13/2019
Reported:	02/18/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Jodi Henson
Project Location:	ARTESIA NM		

**Sample ID: CS - 3 A (H900582-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	02/16/2019	ND	448	112	400	3.64	

**Sample ID: CS - 5 A (H900582-02)**

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	02/16/2019	ND	448	112	400	3.64	

**Sample ID: CS - 7 A (H900582-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	02/16/2019	ND	448	112	400	3.64	

**Sample ID: CS - 9 A (H900582-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	02/16/2019	ND	448	112	400	3.64	

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	02/13/2019	Sampling Date:	02/13/2019
Reported:	02/18/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Jodi Henson
Project Location:	ARTESIA NM		

**Sample ID: CS - 17 A (H900582-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	256	16.0	02/16/2019	ND	448	112	400	3.64		

**Sample ID: CS - 19 A (H900582-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	240	16.0	02/16/2019	ND	448	112	400	3.64		

**Sample ID: BSP - 1 A (H900582-07)**

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	02/16/2019	ND	448	112	400	3.64	

**Sample ID: BSP - 2 A (H900582-08)**

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	02/16/2019	ND	448	112	400	3.64	

**Sample ID: BSP - 3 A (H900582-09)**

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	02/16/2019	ND	448	112	400	3.64	

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Celey D. Keene, Lab Director/Quality Manager





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---

### Notes and Definitions

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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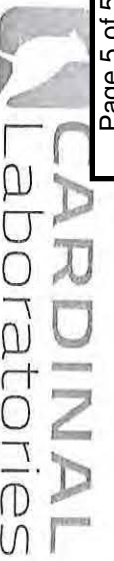
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A handwritten signature in black ink, appearing to read "Celey D. Keene".

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Celey D. Keene, Lab Director/Quality Manager

5 jo 5 eba



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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Ranger Environmental Services, Inc.		P.O. #:		BILL TO										ANALYSIS REQUEST																						
Project Manager: Max Cook		Company: EOG Y Resources																																		
Address: PO Box 201179		Attn: Chase Settle																																		
City: Austin		Address: 104 S. 4th Street																																		
Phone #: 512-497-1556		City: Artesia																																		
Project #: 5375		State: NM																																		
Project Name: North Daboe Deep STATION		Zip: 88210																																		
Project Location: Artesia, NM		Phone #: 575-748-1471																																		
Sampler Name: Andrew Lester		Fax #:																																		
FOR LAB USE ONLY																																				
Lab I.D.	Sample I.D.																																			
H900582																																				
1	CS-34	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER:		ACID/BASE:		ICE / COOL		OTHER:		DATE	TIME	TPH: 8015 EXT	BTEX 8021B/5030 or BTEX 8260	Chloride (300 or 4500)										
2	CS-54																					2/13/14	0827													
3	CS-74																					2/13/14	0901													
4	CS-94																					2/13/14	0832													
5	CS-174																					2/13/14	0841													
6	CS-194																					2/13/14	0810													
7	CS-1A																					2/13/14	0931													
8	CS-2A																					2/13/14	0940													
9	CS-3A																					2/13/14	0946													

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Relinquished By: \_\_\_\_\_ Received By: \_\_\_\_\_  
Date: 2/13/14 Date: 2/13/14  
Time: 10:20 Time: 11:30

Relinquished By: \_\_\_\_\_ Received By: \_\_\_\_\_  
Date: 2/13/14 Date: 2/13/14  
Time: 11:30 Time: 11:30

Delivered By: (Circle One) \_\_\_\_\_  
Sampler - UPS - Bus - Other: \_\_\_\_\_

Sample Condition  
Cool ☒ Intact ☒  
Yes ☒ No ☐  
Yes ☒ No ☐

CHECKED BY: \_\_\_\_\_ (Initials)

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

REMARKS: \_\_\_\_\_

Please hold the following samples pending initial results: \_\_\_\_\_



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

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January 17, 2019

MAX COOK

RANGER ENVIRONMENTAL SERVICES, INC.

PO BOX 201179

AUSTIN, TX 78729

RE: NORTH DAGGER DRAW WATER STATION

Enclosed are the results of analyses for samples received by the laboratory on 01/10/19 7:50.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATIO	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATIO		

**Sample ID: BSP - 1 (H900072-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	01/11/2019	ND	400	100	400	3.92	

**Sample ID: BSP - 2 (H900072-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	464	16.0	01/11/2019	ND	400	100	400	3.92	

**Sample ID: BSP - 3 (H900072-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	01/11/2019	ND	400	100	400	3.92	

**Sample ID: BSP - 4 (H900072-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	544	16.0	01/11/2019	ND	400	100	400	3.92	

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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: BSP - 5 (H900072-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	240	16.0	01/11/2019	ND	400	100	400	3.92		

**Sample ID: BSP - 6 (H900072-06)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	416	16.0	01/11/2019	ND	400	100	400	3.92	

**Sample ID: BSP - 7 (H900072-07)**

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	01/11/2019	ND	400	100	400	3.92	

**Sample ID: BSP - 8 (H900072-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	720	16.0	01/14/2019	ND	400	100	400	3.92		

**Sample ID: BSP - 9 (H900072-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	960	16.0	01/14/2019	ND	400	100	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: BSP - 10 (H900072-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	640	16.0	01/14/2019	ND	400	100	400	3.92		

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**Analytical Results For:**

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 MAX COOK  
 PO BOX 201179  
 AUSTIN TX, 78729  
 Fax To: (512) 335-0527

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: TC - 1 (H900072-11)**

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	01/15/2019	ND	2.03	101	2.00	18.3	
Toluene*	<0.050	0.050	01/15/2019	ND	2.18	109	2.00	19.1	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.09	104	2.00	20.2	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.17	103	6.00	21.7	
Total BTEx	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	01/14/2019	ND	400	100	400	3.92	

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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	196	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	26.6	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 87.7 % 41-142

Surrogate: 1-Chlorooctadecane 93.8 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: TC - 2 (H900072-12)**

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	01/15/2019	ND	2.03	101	2.00	18.3	
Toluene*	<0.050	0.050	01/15/2019	ND	2.18	109	2.00	19.1	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.09	104	2.00	20.2	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.17	103	6.00	21.7	
Total BTEx	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	880	16.0	01/14/2019	ND	400	100	400	3.92	

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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	160	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	21.6	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 87.4 % 41-142

Surrogate: 1-Chlorooctadecane 91.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: TC - 3 (H900072-13)**

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	01/15/2019	ND	2.03	101	2.00	18.3	
Toluene*	<0.050	0.050	01/15/2019	ND	2.18	109	2.00	19.1	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.09	104	2.00	20.2	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.17	103	6.00	21.7	
Total BTEx	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	768	16.0	01/14/2019	ND	400	100	400	3.92	

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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	278	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	51.3	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 87.8 % 41-142

Surrogate: 1-Chlorooctadecane 94.9 % 37.6-147

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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: TC - 4 (H900072-14)**

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	01/15/2019	ND	2.03	101	2.00	18.3	
Toluene*	<0.050	0.050	01/15/2019	ND	2.18	109	2.00	19.1	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.09	104	2.00	20.2	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.17	103	6.00	21.7	
Total BTEx	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	800	16.0	01/14/2019	ND	432	108	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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	253	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	40.2	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 45.2 % 41-142

Surrogate: 1-Chlorooctadecane 52.3 % 37.6-147

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 MAX COOK  
 PO BOX 201179  
 AUSTIN TX, 78729  
 Fax To: (512) 335-0527

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: TC - 5 (H900072-15)**

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	01/15/2019	ND	2.15	108	2.00	0.550	
Toluene*	<0.050	0.050	01/15/2019	ND	2.07	104	2.00	0.491	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.03	102	2.00	1.31	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.15	103	6.00	0.577	
Total BTEX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.2 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	688	16.0	01/14/2019	ND	432	108	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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	349	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	69.4	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 74.9 % 41-142

Surrogate: 1-Chlorooctadecane 84.1 % 37.6-147

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 MAX COOK  
 PO BOX 201179  
 AUSTIN TX, 78729  
 Fax To: (512) 335-0527

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: TC - 6 (H900072-16)**

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	01/15/2019	ND	2.15	108	2.00	0.550	
Toluene*	<0.050	0.050	01/15/2019	ND	2.07	104	2.00	0.491	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.03	102	2.00	1.31	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.15	103	6.00	0.577	
Total BTEX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	640	16.0	01/14/2019	ND	432	108	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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	340	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	61.3	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 84.4 % 41-142

Surrogate: 1-Chlorooctadecane 94.9 % 37.6-147

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 Fax To: (512) 335-0527

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: TC - 7 (H900072-17)**

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	01/15/2019	ND	2.15	108	2.00	0.550	
Toluene*	<0.050	0.050	01/15/2019	ND	2.07	104	2.00	0.491	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.03	102	2.00	1.31	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.15	103	6.00	0.577	
Total BTEX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	784	16.0	01/14/2019	ND	432	108	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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	453	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	97.8	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 88.0 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

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 Fax To: (512) 335-0527

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: TC - 8 (H900072-18)**

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	01/15/2019	ND	2.15	108	2.00	0.550		
Toluene*	<0.050	0.050	01/15/2019	ND	2.07	104	2.00	0.491		
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.03	102	2.00	1.31		
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.15	103	6.00	0.577		
Total BTEX	<0.300	0.300	01/15/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	640	16.0	01/14/2019	ND	432	108	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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	129	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	15.6	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 86.4 % 41-142

Surrogate: 1-Chlorooctadecane 90.4 % 37.6-147

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 PO BOX 201179  
 AUSTIN TX, 78729  
 Fax To: (512) 335-0527

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: TC - 9 (H900072-19)**

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	01/15/2019	ND	2.15	108	2.00	0.550	
Toluene*	<0.050	0.050	01/15/2019	ND	2.07	104	2.00	0.491	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.03	102	2.00	1.31	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.15	103	6.00	0.577	
Total BTEX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	544	16.0	01/14/2019	ND	432	108	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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	77.1	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	12.5	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 79.2 % 41-142

Surrogate: 1-Chlorooctadecane 81.2 % 37.6-147

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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: TC - 10 (H900072-20)**

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	01/15/2019	ND	2.15	108	2.00	0.550	
Toluene*	<0.050	0.050	01/15/2019	ND	2.07	104	2.00	0.491	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.03	102	2.00	1.31	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.15	103	6.00	0.577	
Total BTEX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.2 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1300	16.0	01/14/2019	ND	432	108	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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	189	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	26.7	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 62.1 % 41-142

Surrogate: 1-Chlorooctadecane 69.7 % 37.6-147

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 Fax To: (512) 335-0527

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: CS - 1 (H900072-21)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	416	16.0	01/14/2019	ND	432	108	400	3.77		

**Sample ID: CS - 2 (H900072-22)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1500	16.0	01/14/2019	ND	432	108	400	3.77		

**Sample ID: CS - 3 (H900072-23)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1010	16.0	01/14/2019	ND	432	108	400	3.77		

**Sample ID: CS - 4 (H900072-24)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	720	16.0	01/14/2019	ND	432	108	400	3.77		

**Sample ID: CS - 5 (H900072-25)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2240	16.0	01/14/2019	ND	432	108	400	3.77		

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 Fax To: (512) 335-0527

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: CS - 6 (H900072-26)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	544	16.0	01/14/2019	ND	432	108	400	3.77	

**Sample ID: CS - 7 (H900072-27)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	01/14/2019	ND	432	108	400	3.77	

**Sample ID: CS - 8 (H900072-28)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	01/14/2019	ND	432	108	400	3.77	

**Sample ID: CS - 9 (H900072-29)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	704	16.0	01/14/2019	ND	432	108	400	3.77	

**Sample ID: CS - 10 (H900072-30)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	01/14/2019	ND	432	108	400	3.77	

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: CS - 11 (H900072-31)**

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	01/15/2019	ND	2.15	108	2.00	0.550		
Toluene*	<0.050	0.050	01/15/2019	ND	2.07	104	2.00	0.491		
Ethylbenzene*	0.137	0.050	01/15/2019	ND	2.03	102	2.00	1.31		
Total Xylenes*	0.211	0.150	01/15/2019	ND	6.15	103	6.00	0.577		
Total BTEX	0.347	0.300	01/15/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.5 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<b>7920</b>	16.0	01/14/2019	ND	432	108	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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	268	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	54.2	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 86.6 % 41-142

Surrogate: 1-Chlorooctadecane 94.8 % 37.6-147

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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: CS - 12 (H900072-32)**

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	01/15/2019	ND	2.15	108	2.00	0.550	
Toluene*	<0.050	0.050	01/15/2019	ND	2.07	104	2.00	0.491	
Ethylbenzene*	0.091	0.050	01/15/2019	ND	2.03	102	2.00	1.31	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.15	103	6.00	0.577	
Total BTEx	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1380	16.0	01/14/2019	ND	432	108	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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	241	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	37.3	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 86.0 % 41-142

Surrogate: 1-Chlorooctadecane 94.0 % 37.6-147

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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: CS - 13 (H900072-33)**

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/15/2019	ND	2.15	108	2.00	0.550	
Toluene*	<0.050	0.050	01/15/2019	ND	2.07	104	2.00	0.491	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.03	102	2.00	1.31	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.15	103	6.00	0.577	
Total BTX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2200	16.0	01/14/2019	ND	432	108	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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	244	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	29.4	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 79.6 % 41-142

Surrogate: 1-Chlorooctadecane 87.4 % 37.6-147

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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: CS - 14 (H900072-34)**

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/15/2019	ND	2.15	108	2.00	0.550	
Toluene*	<0.050	0.050	01/15/2019	ND	2.07	104	2.00	0.491	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.03	102	2.00	1.31	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.15	103	6.00	0.577	
Total BTX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.5 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	784	16.0	01/14/2019	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*	<10.0	10.0	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	117	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	13.8	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 82.1 % 41-142

Surrogate: 1-Chlorooctadecane 86.4 % 37.6-147

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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: CS - 15 (H900072-35)**

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	01/15/2019	ND	2.15	108	2.00	0.550	
Toluene*	<0.050	0.050	01/15/2019	ND	2.07	104	2.00	0.491	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.03	102	2.00	1.31	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.15	103	6.00	0.577	
Total BTEx	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	528	16.0	01/14/2019	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	01/10/2019	ND	193	96.7	200	1.06	
DRO >C10-C28*	280	10.0	01/10/2019	ND	228	114	200	6.74	
EXT DRO >C28-C36	52.9	10.0	01/10/2019	ND					

Surrogate: 1-Chlorooctane 82.0 % 41-142

Surrogate: 1-Chlorooctadecane 90.4 % 37.6-147

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**Analytical Results For:**

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

Received:	01/10/2019	Sampling Date:	01/09/2019
Reported:	01/17/2019	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER STATION	Sampling Condition:	Cool & Intact
Project Number:	5375	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAW WATER STATION		

**Sample ID: CS - 16 (H900072-36)**

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	01/14/2019	ND	416	104	400	3.77	

**Sample ID: CS - 17 (H900072-37)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	7060	16.0	01/14/2019	ND	416	104	400	3.77	

**Sample ID: CS - 18 (H900072-38)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	01/14/2019	ND	416	104	400	3.77	

**Sample ID: CS - 19 (H900072-39)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1380	16.0	01/14/2019	ND	416	104	400	3.77	

**Sample ID: CS - 20 (H900072-40)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	01/14/2019	ND	416	104	400	3.77	

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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.
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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A handwritten signature in black ink, appearing to read "Celey D. Keene".

---

Celey D. Keene, Lab Director/Quality Manager



Page 24 of 27



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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

Page 25 of 27



101 East Marland, Hobbs, NM 88240  
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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

3 of 4

<b>Company Name:</b> Ranger Environmental Services, Inc.		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>									
<b>Project Manager:</b> Max Cook		<b>P.O. #:</b>											
<b>Address:</b> PO Box 201179		<b>Company:</b> EOG Y Resources											
<b>City:</b> Austin		<b>Attn:</b> Chase Settle											
<b>Phone #:</b> 512-497-1556		<b>Address:</b> 104 S. 4th Street											
<b>Fax #:</b> 512-335-0527		<b>City:</b> Artesia											
<b>Project #:</b> 5375		<b>State:</b> NM		<b>Zip:</b> 88210									
<b>Project Name:</b> North Dagger Draw		<b>Phone #:</b> 575-748-1471											
<b>Project Location:</b> North Dagger Draw Water Station		<b>Fax #:</b>											
<b>Sampler Name:</b> W. Kierdorf													
FOR LAB USE ONLY													
<b>Lab I.D.</b>		<b>Sample I.D.</b>		<b>(G)RAB OR (C)OMP.</b>		<b># CONTAINERS</b>		<b>MATRIX</b>		<b>PRESERV.</b>		<b>SAMPLING</b>	
H900012													
21 CS-1		C		1		X		X		X		X	
22 CS-2		C		1		X		X		X		X	
23 CS-3		C		1		X		X		X		X	
24 CS-4		C		1		X		X		X		X	
25 CS-5		C		1		X		X		X		X	
26 CS-6		C		1		X		X		X		X	
27 CS-7		C		1		X		X		X		X	
28 CS-8		C		1		X		X		X		X	
29 CS-9		C		1		X		X		X		X	
30 CS-10		C		1		X		X		X		X	
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<b>Relinquished By:</b>		<b>Date:</b> 1/16/19		<b>Received By:</b>		<b>Date:</b> 1/16/19		<b>Time:</b> 0750		<b>Time:</b> 0750		<b>Time:</b> 0750	
<b>Relinquished By:</b>				<b>Received By:</b>									
<b>Delivered By: (Circle One)</b>		<b>Sample Condition</b>		<b>CHECKED BY:</b>		<b>COOL</b>		<b>INTACT</b>		<b>YES</b>		<b>NO</b>	
<b>Sampler - UPS - Bus - Other:</b>		<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>		<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>		<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>		<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>		<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>		<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>	
<b>FORM-006 R 2.0</b>		<b>† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476</b>											

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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

## APPENDIX E

# *Liquid Remediact™* SAFETY DATA SHEET



# Material Safety Data Sheet

## SpillAway Projects Ltd

37 Underhill, Moulsoford, Oxfordshire UK OX10 9JH

Emergency Tel No: +44 (0)7767 018418

### Section 1 – Product Identification

**Product:** Liquid Remediate™

**Description:** Bioremedial Cleaner for Hydrocarbon Contamination in water and soil.

### Section 2 – Ingredients Classification

**Hazardous Components:** None

**Typical Composition:** An aqueous-water based solution of single-celled micro-organisms in a solution of micronutrients, extracts and bio-surfactants with natural food colour added for identification.

NAME	EC NUMBER	CAS NUMBER	CONTENT
NON-IONIC SHORT CHAIN ALCOHOL	500-019-9	9005-65-6	4-<5%
BACTERIAL CULTURES		N/A	5-<6%
FOLDED ORANGE OIL	232-433-8	8028-48-6	5-<6%

All contents are non-hazardous and readily biodegradable.

### Section 3 – Hazards Identification

**Hazardous Components:** None

**SARA Hazard:** *Title III Section 313:* Not Listed  
*Fire-(Section 311/312):* None Noted

### Section 4 – Emergency First Aid Measures

Follow Standard First Aid Procedures:

**Swallowing:** Call Physician or poison control centre  
**Skin Contact:** Wash affected area with water  
**Eye Contact:** Flush eyes with cool water for at least 15 minutes  
**Inhalation:** Remove victim to fresh air

### Section 5 – Fire & Explosion Hazards

**Flash Point & Method Used:** N/A  
**Flammable Limits:** N/A  
**NFPA Rating:** NO NFPA RATING

**HMIS Rating:** Health: 0 Fire: 0 Reactivity: 0

**Special fire fighting procedures & precautions:** NONE  
**Unusual Fire & Explosion Hazards:** NONE

## Section 6 – Accidental Release Measures

**Spill or Leak Precautions:** None  
**Waste Disposal:** May be disposed of in normal waste stream according to local government rules and other by-law requirements

## Section 7 – Precautions: Handling, Storage & Usage

Although there are no special precautions to be taken in handling, storage or usage of this product that will change its safe use, it is recommended that it be kept at a temperature between 32° F. & 120° F. in order for it to be most effective.

## Section 8 – Exposure Controls & Personal Protection

**Exposure Limits:** **WEL:** NO OSHA WEL **TLV:** NO ACGIH TLV

**Employee Protection:**

**Control Measures:** Adequate Ventilation  
**Respiratory Protection:** None Required  
**Protective Clothing:** None Required  
**Eye Protection:** None Required, but recommended

## Section 9 – Physical Data

**Boiling Point:** 212° F.  
**Melting Point:** N/A  
**Vapour Pressure:** MM/HG: <0.01 @ 20°C  
**Specific Gravity:** H<sub>2</sub>O=1 1.00=+/- 0.1  
**Solubility in Water:** Complete  
**Appearance:** Liquid  
**Odour:** Mild Citrus  
**Colour:** Colourless  
**pH:** 6.9 to 7.2

## Section 10 – Stability & Reactivity

**Stability:** Stable  
**Hazardous Polymerization:** None  
**Materials to Avoid:** Strong oxidizing agents & strong acids  
**Hazardous Decomposition Products:** None  
**Conditions to Avoid:** Do not quick freeze or expose to temperatures over 150° F. These temperatures pose no hazard but they are not compatible to this product.



## Section 11 – Toxicological Information

### Effects of Overexposure:

**Inhalation:** No Known Problem  
**Ingestion:** May Cause Mild Transient Gastrointestinal Irritation.  
**Eye Contact:** May Cause Mild Transient Irritation. Not Classified.  
**Skin Contact:** Not Classified As A Skin Irritant Or Corrosive Material.

## Section 12 – Environmental Information

**Environmental Protection:** None. This product is environmentally safe even when large quantities are released into the environment.  
**Spill or Leak Precautions:** None

## Section 13 – Disposal Consideration

**Waste Disposal:** May be disposed of in normal waste stream according to federal, state or local requirements

## Section 14 – Transport Information

**Special Precautions:** None  
**DOT Classification:** Class 55  
**DOT Proper Shipping Name:** Cleaning Compounds

## Section 15 – Regulatory Information

**DOT Classification:** Class 55  
**DOT Proper Shipping Name:** Cleaning Compounds  
**Other Regulatory Requirements:** None

## Section 16 – Other Information

This information relates only to the specific material designated & may not be valid for such material used in combination with any other materials or in any other process. The stated M.S.D.S. is reliable to the best of the company's knowledge & believed to be accurate as of the date indicated. However, no representation, warranty or guarantee of any kind, expressed or implied, is made as to its accuracy, reliability or completeness & we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of use. It is the user's responsibility to satisfy himself or herself as to the suitability & completeness of such information for his or her own particular use.

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Revision Date: 30/03/2009  
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State of New Mexico  
Energy, Minerals and Natural Resources  
Oil Conservation Division  
1220 S. St Francis Dr.  
Santa Fe, NM 87505

CONDITIONS  
  
Action 189055

CONDITIONS

Operator: EOG Y RESOURCES, INC. 104 S 4th St Artesia, NM 88210	OGRID: 25575
	Action Number: 189055
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
bhall	None	2/22/2023