



February 13, 2018

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

Re: Site Characterization Work Plan  
North Dagger Draw Water Station  
2RP-3651 & Recently Identified Pipeline Affected Area  
Section 20, T19S-R25E  
Eddy County, New Mexico

Dear Mr. Bratcher:

On behalf of EOG Resources, Inc. (EOG Y), Ranger Environmental Services, Inc. (Ranger) has prepared the following work plan in response to the C-141 report dated July 24, 2017 for the 2RP-3651 release location. Ranger has also included provisions in this work plan to further assess an affected area west of the facility tank battery where a historic pipeline release appears to have occurred.

## **SITE LOCATION**

The North Dagger Draw Water Station is located in Eddy County, New Mexico. The facility is situated in Section 20, T19S-R25E at GPS coordinates 32.64091; -104.51321.

## **BACKGROUND**

On April 15, 2016, Yates Petroleum Corporation (Yates), submitted to the NMOCD District II office a Form C-141 for the release of 100 B/O with 94 B/O 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 Petroleum, opened the valve on the bottom of the equalizing tank. The valve was shut and vacuum trucks were called to recover 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 as an attachment.

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 facility storage tanks have been relocated north of the release location and a new tank battery has been constructed. Therefore, the former tank battery location is cleared to conduct proper assessment and remediation activities.

North Dagger Draw Water Station  
Site Characterization Work Plan

Delineation samples were collected on October 9, 2017 and sent to a NMOCD-approved laboratory (results enclosed). During the delineation sample collection activities, an area west of the tank battery was discovered to have been impacted. Therefore, a total of three (3) soil borings were installed in the 2RP-3651 release area (S1 through S3) and one soil boring (S1) was installed in the area west of the tank battery. A total of 42 soil samples were collected for analysis of BTEX, TPH and chlorides. Laboratory reports and a table summarizing the laboratory results from the October 2017 sampling is included as an attachment. Additionally, an aerial site map documenting the location of the October 2017 soil borings is attached.

## **SURFACE AND GROUND WATER**

The New Mexico Office of the State Engineer (NM OSE) did not have any records for average depth to water in the vicinity of the site. The ChevronTexaco Trend Map (Section 20, T19S-R25E) displays at this location that the depth to groundwater is approximately 150' making the site ranking for this site a zero (0).

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

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

### **Site RRALS**

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

### **Chloride Delineation Goals**

Chloride: 600 mg/Kg

## **DELINEATION STATUS**

### **Soil Delineation Current Status (2RP-3651)**

- Horizontal & Vertical BTEX/TPH Delineation:

**Horizontal** - The horizontal BTEX/TPH delineation goals were not achieved during the initial October 2017 soil assessment activities. Based on the sample results, there were documented exceedances of the site RRALS in soil borings S1 and S2. The exceedances were limited to soils occurring at depths of eight (8) feet or shallower. The horizontal extent of the BTEX/TPH RRAL exceedances thus far have not been defined.  
**Additional Horizontal BTEX/TPH Delineation Required.**

**Vertical** - The vertical BTEX/TPH delineation goals were achieved during the initial October 2017 soil assessment activities. Based on the sample results, there were no exceedances of the site RRALS in any of the three soil boring beneath eight (8) feet. The terminal drilling depth benzene concentrations in the soil borings ranged from

nondetectable concentrations to 0.100 mg/Kg in soil boring S-1 at 18'. The terminal drilling depth BTEX concentrations in the soil borings were all reported as nondetectable. The terminal drilling depth TPH concentrations in the soil borings ranged from nondetectable to a maximum of 69.5 mg/Kg (at a depth of 18' in boring S2). **No Additional Vertical BTEX/TPH Delineation Required.**

- Horizontal & Vertical Chloride Delineation:

**Horizontal** - The horizontal chloride delineation goal is to delineate the soil chloride concentrations to below 600 mg/Kg, most critically in the 0'-4' depth interval. All three (3) soil borings (S1 through S3) installed in October 2017 were found to exhibit chloride concentrations in excess of 600 mg/Kg. Within the 0' - 4' depth interval, only soil borings S1 and S3 were found to exhibit chloride concentrations in excess of 600 mg/Kg. Thus, the horizontal extent of chloride concentrations in excess of 600 mg/Kg have not been defined. **Additional Horizontal Chloride Delineation Required.**

**Vertical** - The vertical chloride delineation goal is to delineate the soil chloride concentrations to below 600 mg/Kg, and to document at least 10' of separation between the base of the 600 mg/Kg chlorides level and the underlying groundwater. Soil boring S3 had the highest documented site chloride concentration (7,300 mg/Kg @ 10'). Soil boring S1 exhibited the deepest chloride impact in excess of 600 mg/kg (1,140 mg/Kg @ 18'). Thus, the vertical chloride delineation goal has not been achieved. **Additional Vertical Chloride Delineation Required.**

#### ***Soil Delineation Current Status (Pipeline Area west of the Former Tank Battery)***

- Horizontal & Vertical BTEX/TPH Delineation: The October 2017 soil assessment activities did not document any detectable BTEX or TPH concentrations in the Pipeline Area. **No Additional Horizontal or Vertical BTEX/TPH Delineation Required.**

- Horizontal & Vertical Chloride Delineation:

**Horizontal** - The horizontal chloride delineation goal is to delineate the soil chloride concentrations to below 600 mg/Kg, most critically in the 0'-4' depth interval. Only one (1) soil boring (S1) has been installed to date in the North Pipeline Area. All soil samples from 1' to 17' (boring terminal depth) were documented to contain chlorides concentrations in excess of 600 mg/Kg. **Additional Horizontal Chloride Delineation Required.**

**Vertical** - The vertical chloride delineation goal is to delineate the soil chloride concentrations to below 600 mg/Kg, most critically in the 0'-4' depth interval. Only one (1) soil boring (S1) has been installed to date in the North Pipeline Area. All soil samples from 1' to 17' (boring terminal depth) were documented to contain chlorides concentrations in excess of 600 mg/Kg. **Additional Horizontal Chloride Delineation Required.**

#### ***Soil Delineation Work Plan (2RP-3651)***

As summarized above, additional horizontal BTEX/TPH delineation activities are needed to delineate the BTEX/TPH concentrations to below the site RRALs. Additional horizontal and vertical chloride delineation is needed to delineate the extent of the soil chloride impacts to 600

mg/Kg. As the release occurred within the interior a former tank battery enclosed within an earthen berm, it is suspected that the horizontal extent of the impacts may be largely confined to the former bermed area.

**BTEX/TPH Horizontal Delineation**

Ranger proposes to install five (5) horizontal delineation soil borings north, south, and west of S1 and S2. The area along the southeastern portion of the former tank battery location was previously remediated and a liner was installed at approximately 8' below ground surface (bgs). Therefore, no borings in this area will exceed a depth of 8' bgs. As RRAL exceedances were noted to a depth of 8 feet in soil boring S2, the horizontal delineation borings will be installed to a depth of 8 feet in order to delineate both the BTEX/TPH RRAL exceedances. Six soil samples will be collected for laboratory analysis from each boring at depths of 1', 2', 3', 4', 6' and 8'. The samples will be analyzed for BTEX using either Method 8021 or 8260, TPH using Method 8015 extended range (GRO+DRO+MRO; C6-C36). If soil samples from the 1', 2', 3', and 4' intervals document no exceedances of the site BTEX/TPH RRALs, then the samples from the 6' and 8' intervals will not be analyzed.

**BTEX/TPH Vertical Delineation**

None

**Chloride Horizontal Delineation**

Ranger proposes to install six (6) horizontal delineation soil borings in all cardinal directions of the former tank battery and S1, S2, and S3. The horizontal delineation borings will be installed to a depth of 4 feet so that the boundaries of chloride-affected soils requiring remediation can be determined. Four soil samples will be collected for laboratory analysis from each boring at depths of 1', 2', 3', and 4'. The samples will be analyzed for chlorides using Method 300 (or equivalent). If elevated chloride concentrations are suspected within the proposed horizontal delineation borings based upon the field screening results, then Ranger may advance additional horizontal delineation soil borings and collect soil samples from appropriate depth intervals for laboratory analysis.

**Chloride Vertical Delineation**

Ranger proposes to install one (1) vertical delineation soil boring offset to existing soil boring S1. The vertical delineation boring will be installed in order to attempt to delineate the soil chloride concentrations to below 600 mg/Kg, and to document at least 10' of separation between the base of the 600 mg/Kg chlorides level and the underlying groundwater. Ranger anticipates this boring to be installed to 30' bgs. Since boring S1 was already sampled to a depth of 18 feet, these depth intervals will not be re-sampled. Samples will be collected at appropriate depths in order to comply with the requirement that vertical characterization samples be taken at depth intervals no greater than five feet apart. Thus, the proposed boring will be sampled at 20', 25' and 30'. The samples will be analyzed for chlorides using Method 300 (or equivalent). Please note that Ranger will also conduct field screening activities using a soil electrical conductivity (EC) meter. If elevated chloride concentrations are suspected at the 30' depth interval based upon the field screening results, then Ranger may advance the chloride vertical delineation soil boring to a depth greater than 30' and collect additional soil samples for laboratory analysis.

Attached are figures illustrating the locations of the proposed horizontal and vertical soil borings.

Please note that a vertical BTEX/TPH delineation map is not included since no further BTEX/TPH vertical delineation was determined to be needed.

***Soil Delineation Work Plan (Pipeline Area west of the Former Tank Battery)***

As summarized above, additional horizontal and vertical chloride delineation is needed in the pipeline area west of former tank battery location to delineate the extent of the soil chloride impacts to 600 mg/Kg. As this previously unknown release has yet to be reported to the NM OCD, a C-141 will be forthcoming.

**BTEX/TPH Horizontal Delineation**

None

**BTEX/TPH Vertical Delineation**

None

**Chloride Horizontal Delineation**

Ranger proposes to install four (4) horizontal delineation soil borings in all cardinal directions of soil boring S1. The horizontal delineation borings will be installed to a depth of 4 feet so that the boundaries of chloride-affected soils requiring remediation can be determined. Four soil samples will be collected for laboratory analysis from each boring at depths of 1', 2', 3', and 4'. The samples will be analyzed for chlorides using Method 300 (or equivalent). If elevated chloride concentrations are suspected within the proposed horizontal delineation borings based upon the field screening results, then Ranger may advance additional horizontal delineation soil borings and collect soil samples from appropriate depth intervals for laboratory analysis.

**Chloride Vertical Delineation**

Ranger proposes to install one (1) vertical delineation soil boring offset to existing soil boring S1 Pipeline. The vertical delineation boring will be installed in order to attempt to delineate the soil chloride concentrations to below 600 mg/Kg, and to document at least 10' of separation between the base of the 600 mg/Kg chlorides level and the underlying groundwater. Ranger anticipates this boring to be installed to 30' bgs. Since boring S1 Pipeline was already sampled to a depth of 17 feet, these depth intervals will not be re-sampled. Samples will be collected at appropriate depths in order to comply with the requirement that vertical characterization samples be taken at depth intervals no greater than five feet apart. Thus, the proposed boring will be sampled at 20', 25' and 30'. The samples will be analyzed for chlorides using Method 300 (or equivalent). Please note that Ranger will also conduct field screening activities using a soil electrical conductivity (EC) meter. If elevated chloride concentrations are suspected at the 30' depth interval based upon the field screening results, then Ranger may advance the chloride vertical delineation soil boring to a depth greater than 30' and collect additional soil samples for laboratory analysis.

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

***Soil Remediation Work Plan***

Once the soil delineation activities are completed, all soil in excess of the BTEX and TPH

North Dagger Draw Water Station  
Site Characterization Work Plan

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

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

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

Sincerely,

**RANGER ENVIRONMENTAL SERVICES, INC.**

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

Patrick K. Finn  
Project Geologist

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

Max Cook  
Project Manager

MC/PKF

Attachments

INITIAL C-141  
(2RP-3651)

# NM OIL CONSERVATION

ARTESIA DISTRICT

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.

## # JMW1325435121 Release Notification and Corrective Action

0 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/banned 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	
	Attached <input type="checkbox"/>	

\* Attach Additional Sheets If Necessary

SUBMIT REMEDIATION PROPOSAL NO  
LATER THAN: 5/20/16

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**

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**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)

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## **Bratcher, Mike, EMNRD**

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**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

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**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)**

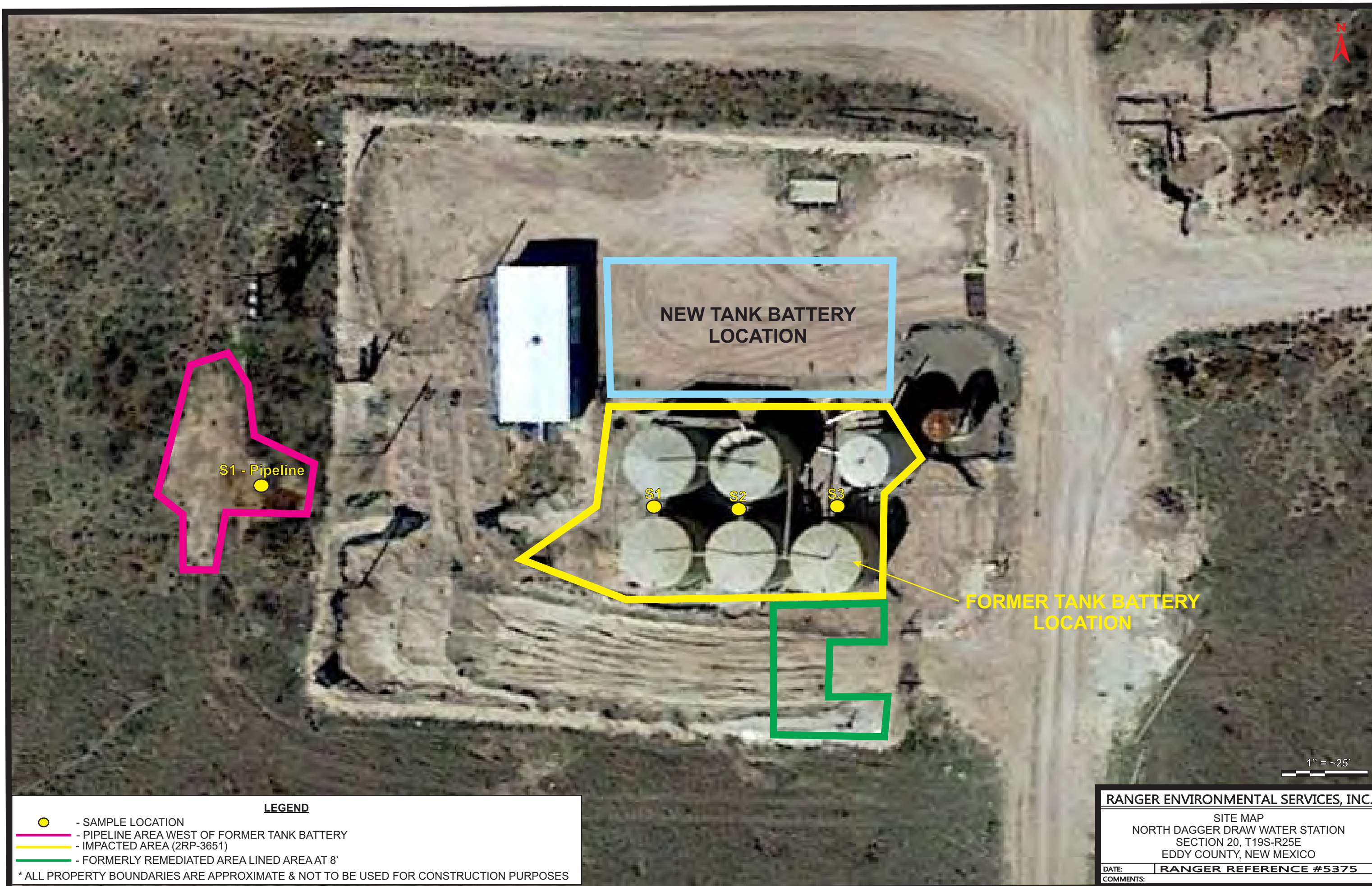
**575-703-6537 (Cell)**

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## SITE MAP & TABLE(S)



**LEGEND**

-  - SAMPLE LOCATION
-  - PIPELINE AREA WEST OF FORMER TANK BATTERY
-  - IMPACTED AREA (2RP-3651)
-  - FORMERLY REMEDIATED AREA LINED AREA AT 8'

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

**RANGER ENVIRONMENTAL SERVICES, INC.**

SITE MAP  
NORTH DAGGER DRAW WATER STATION  
SECTION 20, T19S-R25E  
EDDY COUNTY, NEW MEXICO

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

### North Dagger Draw Sample Analysis

Sample ID	Depth (ft. bgs)	Date	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH (GRO)	TPH (DRO)	TPH EXT DRO	Total TPH	Chlorides
Pipeline Area West of Former Tank Battery												
S1-1' N. Pipe	1'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	4560
S1-2' N. Pipe	2'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	3880
S1-3' N. Pipe	3'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2440
S1-4' N. Pipe	4'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	3760
S1-6' N. Pipe	6'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	4640
S1-8' N. Pipe	8'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2240
S1-10' N. Pipe	10'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2640
S1-12' N. Pipe	12'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1300
S1-14' N. Pipe	14'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1260
S1-16' N. Pipe	16'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	880
S1-17' N. Pipe	17'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	800
2RP-3651												
S1-1'	1'	10/9/17	1.76	7.27	65.8	74.0	149	1280	3390	481	5151	48
S1-2'	2'	10/9/17	0.093	0.224	5.43	7.23	13.0	75.2	497	60.1	632.3	224
S1-3'	3'	10/9/17	<0.050	<0.050	0.496	0.506	1.00	<10.0	18.5	<10.0	18.5	224
S1-4'	4'	10/9/17	<0.050	<0.050	0.172	<0.150	0.305	<10.0	<10.0	<10.0	0	1310
S1-6'	6'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2500
S1-8'	8'	10/9/17	0.099	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	944
S1-10'	10'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2360
S1-12'	12'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	2760
S1-14'	14'	10/9/17	0.122	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	5760
S1-16'	16'	10/9/17	0.111	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	3560
S1-18'	18'	10/9/17	0.100	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1140
S2-1'	1'	10/9/17	6.75	57.5	51.6	70.6	187	868	3710	621	5199	144
S2-2'	2'	10/9/17	11.4	55.5	57.1	86.2	210	1110	3120	481	4711	144
S2-3'	3'	10/9/17	2.67	0.834	21.8	20.6	45.8	189	2250	422	2861	256
S2-4'	4'	10/9/17	1.33	7.62	15.3	20.5	44.8	142	491	84.9	717.9	144
S2-6'	6'	10/9/17	5.21	26.1	79.8	101	212	1330	4070	592	5992	160
S2-8'	8'	10/9/17	5.65	19.4	74.8	97.5	197	1710	4910	614	7234	192
S2-10'	10'	10/9/17	0.170	1.13	16.6	21.2	39.1	285	1620	219	2124	240
S2-12'	12'	10/9/17	<0.050	<0.050	0.062	<0.150	<0.300	<10.0	<10.0	<10.0	0	768
S2-14'	14'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1470
S2-16'	16'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	112
S2-18'	18'	10/9/17	<0.050	<0.050	0.067	<0.150	<0.300	<10.0	69.5	<10.0	0	48
S3-1'	1'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	608
S3-2'	2'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	5040
S3-3'	3'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	1570
S3-4'	4'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	576
S3-6'	6'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	4240
S3-8'	8'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	5600
S3-10'	10'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	7300
S3-12'	12'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	5000
S3-13'	13'	10/9/17	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	0	4400

## LABORATORY REPORT(S)



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

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October 16, 2017

CHASE SETTLE

EOG Y RESOURCES, INC

105 SOUTH 4TH STREET

ARTESIA, NM 88210

RE: NORTH DAGGER DRAW

Enclosed are the results of analyses for samples received by the laboratory on 10/11/17 16:00.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Mike Snyder". The signature is fluid and cursive, with the first name "Mike" and last name "Snyder" clearly distinguishable.

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/16/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW	Sampling Condition:	Cool & Intact
Project Number:	WATER TRANSFER / 3651	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

**Sample ID: S1 - 1' (H702755-01)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>1.76</b>	0.500	10/12/2017	ND	2.01	100	2.00	0.565	
<b>Toluene*</b>	<b>7.27</b>	0.500	10/12/2017	ND	1.82	90.8	2.00	0.154	
<b>Ethylbenzene*</b>	<b>65.8</b>	0.500	10/12/2017	ND	1.85	92.6	2.00	0.489	
<b>Total Xylenes*</b>	<b>74.0</b>	1.50	10/12/2017	ND	5.69	94.8	6.00	0.328	
<b>Total BTX</b>	<b>149</b>	3.00	10/12/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 120 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>48.0</b>	16.0	10/13/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>1280</b>	10.0	10/12/2017	ND	185	92.6	200	1.05	
<b>DRO &gt;C10-C28</b>	<b>3390</b>	10.0	10/12/2017	ND	201	100	200	2.44	
<b>EXT DRO &gt;C28-C36</b>	<b>481</b>	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 151 % 28.3-164

Surrogate: 1-Chlorooctadecane 113 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S1 - 2' (H702755-02)**

BTX 8021B		mg/kg		Analyzed By: MS				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.093	0.050	10/12/2017	ND	2.01	100	2.00	0.565	
Toluene*	0.224	0.050	10/12/2017	ND	1.82	90.8	2.00	0.154	
Ethylbenzene*	5.43	0.050	10/12/2017	ND	1.85	92.6	2.00	0.489	
Total Xylenes*	7.23	0.150	10/12/2017	ND	5.69	94.8	6.00	0.328	
Total BTEX	13.0	0.300	10/12/2017	ND					

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

Chloride, SM4500CI-B			mg/kg					Analyzed By: HM			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
<b>Chloride</b>	<b>224</b>	16.0	10/13/2017	ND	448	112	400	0.00			

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	75.2	10.0	10/12/2017	ND	185	92.6	200	1.05		
DRO >C10-C28	497	10.0	10/12/2017	ND	201	100	200	2.44		
EXT DRO >C28-C36	60.1	10.0	10/12/2017	ND						

Surrogate: 1-Chlorooctane 87.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 80.6 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S1 - 3' (H702755-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/12/2017	ND	2.01	100	2.00	0.565	
Toluene*	<0.050	0.050	10/12/2017	ND	1.82	90.8	2.00	0.154	
Ethylbenzene*	0.496	0.050	10/12/2017	ND	1.85	92.6	2.00	0.489	
Total Xylenes*	0.506	0.150	10/12/2017	ND	5.69	94.8	6.00	0.328	
Total BTEX	1.00	0.300	10/12/2017	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	10/13/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	18.5	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 79.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 80.2 % 34.7-157

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/16/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW	Sampling Condition:	Cool & Intact
Project Number:	WATER TRANSFER / 3651	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

**Sample ID: S1 - 4' (H702755-04)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/12/2017	ND	2.01	100	2.00	0.565	
Toluene*	<0.050	0.050	10/12/2017	ND	1.82	90.8	2.00	0.154	
Ethylbenzene*	0.172	0.050	10/12/2017	ND	1.85	92.6	2.00	0.489	
Total Xylenes*	<0.150	0.150	10/12/2017	ND	5.69	94.8	6.00	0.328	
Total BTEx	0.305	0.300	10/12/2017	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1310	16.0	10/13/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 80.9 % 28.3-164

Surrogate: 1-Chlorooctadecane 85.4 % 34.7-157

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\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S1 - 6' (H702755-05)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/12/2017	ND	2.01	100	2.00	0.565	
Toluene*	<0.050	0.050	10/12/2017	ND	1.82	90.8	2.00	0.154	
Ethylbenzene*	<0.050	0.050	10/12/2017	ND	1.85	92.6	2.00	0.489	
Total Xylenes*	<0.150	0.150	10/12/2017	ND	5.69	94.8	6.00	0.328	
Total BTEx	<0.300	0.300	10/12/2017	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2500	16.0	10/13/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 80.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 86.7 % 34.7-157

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\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S1 - 8' (H702755-06)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.099	0.050	10/12/2017	ND	2.01	100	2.00	0.565	
Toluene*	<0.050	0.050	10/12/2017	ND	1.82	90.8	2.00	0.154	
Ethylbenzene*	<0.050	0.050	10/12/2017	ND	1.85	92.6	2.00	0.489	
Total Xylenes*	<0.150	0.150	10/12/2017	ND	5.69	94.8	6.00	0.328	
Total BTX	<0.300	0.300	10/12/2017	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	944	16.0	10/13/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 79.9 % 28.3-164

Surrogate: 1-Chlorooctadecane 84.9 % 34.7-157

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/16/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW	Sampling Condition:	Cool & Intact
Project Number:	WATER TRANSFER / 3651	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

**Sample ID: S1 - 10' (H702755-07)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/12/2017	ND	2.01	100	2.00	0.565	
Toluene*	<0.050	0.050	10/12/2017	ND	1.82	90.8	2.00	0.154	
Ethylbenzene*	<0.050	0.050	10/12/2017	ND	1.85	92.6	2.00	0.489	
Total Xylenes*	<0.150	0.150	10/12/2017	ND	5.69	94.8	6.00	0.328	
Total BTEx	<0.300	0.300	10/12/2017	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2360	16.0	10/13/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 81.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 83.3 % 34.7-157

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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: 10/11/2017  
 Reported: 10/16/2017  
 Project Name: NORTH DAGGER DRAW  
 Project Number: WATER TRANSFER / 3651  
 Project Location: NONE GIVEN

 Sampling Date: 10/09/2017  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: S1 - 12' (H702755-08)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/12/2017	ND	2.01	100	2.00	0.565	
Toluene*	<0.050	0.050	10/12/2017	ND	1.82	90.8	2.00	0.154	
Ethylbenzene*	<0.050	0.050	10/12/2017	ND	1.85	92.6	2.00	0.489	
Total Xylenes*	<0.150	0.150	10/12/2017	ND	5.69	94.8	6.00	0.328	
Total BTEx	<0.300	0.300	10/12/2017	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2760	16.0	10/13/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 81.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 90.5 % 34.7-157

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S1 - 14' (H702755-09)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.122	0.050	10/12/2017	ND	2.01	100	2.00	0.565	
Toluene*	<0.050	0.050	10/12/2017	ND	1.82	90.8	2.00	0.154	
Ethylbenzene*	<0.050	0.050	10/12/2017	ND	1.85	92.6	2.00	0.489	
Total Xylenes*	<0.150	0.150	10/12/2017	ND	5.69	94.8	6.00	0.328	
Total BTX	<0.300	0.300	10/12/2017	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5760	16.0	10/13/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 82.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 89.8 % 34.7-157

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/16/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW	Sampling Condition:	Cool & Intact
Project Number:	WATER TRANSFER / 3651	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

**Sample ID: S1 - 16' (H702755-10)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	0.111	0.050	10/12/2017	ND	2.01	100	2.00	0.565		
Toluene*	<0.050	0.050	10/12/2017	ND	1.82	90.8	2.00	0.154		
Ethylbenzene*	<0.050	0.050	10/12/2017	ND	1.85	92.6	2.00	0.489		
Total Xylenes*	<0.150	0.150	10/12/2017	ND	5.69	94.8	6.00	0.328		
Total BTEX	<0.300	0.300	10/12/2017	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>3560</b>	16.0	10/13/2017	ND	448	112	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 81.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 82.7 % 34.7-157

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S1 - 18' (H702755-11)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.100	0.050	10/12/2017	ND	2.01	100	2.00	0.565	
Toluene*	<0.050	0.050	10/12/2017	ND	1.82	90.8	2.00	0.154	
Ethylbenzene*	<0.050	0.050	10/12/2017	ND	1.85	92.6	2.00	0.489	
Total Xylenes*	<0.150	0.150	10/12/2017	ND	5.69	94.8	6.00	0.328	
Total BTX	<0.300	0.300	10/12/2017	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1140	16.0	10/13/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 73.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 79.7 % 34.7-157

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S2 - 1' (H702755-12)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	6.75	0.500	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	57.5	0.500	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	51.6	0.500	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	70.6	1.50	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTEX	187	3.00	10/13/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 121 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	10/13/2017	ND	448	112	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	868	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	3710	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	621	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 132 % 28.3-164

Surrogate: 1-Chlorooctadecane 131 % 34.7-157

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S2 - 2' (H702755-13)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	11.4	0.500	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	55.5	0.500	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	57.1	0.500	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	86.2	1.50	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTEX	210	3.00	10/13/2017	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	10/13/2017	ND	448	112	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	1110	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	3120	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	481	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 139 % 28.3-164

Surrogate: 1-Chlorooctadecane 111 % 34.7-157

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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: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S2 - 3' (H702755-14)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	2.67	0.500	10/15/2017	ND	2.03	101	2.00	0.0522	
Toluene*	0.834	0.500	10/15/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	21.8	0.500	10/15/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	20.6	1.50	10/15/2017	ND	5.57	92.9	6.00	0.282	
Total BTX	45.8	3.00	10/15/2017	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	10/13/2017	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	189	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	2250	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	422	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 89.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 123 % 34.7-157

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S2 - 4' (H702755-15)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	1.33	0.500	10/15/2017	ND	2.03	101	2.00	0.0522	
Toluene*	7.62	0.500	10/15/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	15.3	0.500	10/15/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	20.5	1.50	10/15/2017	ND	5.57	92.9	6.00	0.282	
Total BTX	44.8	3.00	10/15/2017	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	10/13/2017	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	142	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	491	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	84.9	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 88.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 80.7 % 34.7-157

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

EOG Y RESOURCES, INC  
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Fax To: (575) 748-4131

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/16/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW	Sampling Condition:	Cool & Intact
Project Number:	WATER TRANSFER / 3651	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

**Sample ID: S2 - 6' (H702755-16)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	5.21	1.00	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	26.1	1.00	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	79.8	1.00	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	101	3.00	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTEX	212	6.00	10/13/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 122 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	160	16.0	10/13/2017	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	1330	10.0	10/12/2017	ND	185	92.6	200	1.05	
DRO >C10-C28	4070	10.0	10/12/2017	ND	201	100	200	2.44	
EXT DRO >C28-C36	592	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 163 % 28.3-164

Surrogate: 1-Chlorooctadecane 130 % 34.7-157

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Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S2 - 8' (H702755-17)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	5.65	1.00	10/13/2017	ND	2.03	101	2.00	0.0522		
Toluene*	19.4	1.00	10/13/2017	ND	1.80	90.2	2.00	0.138		
Ethylbenzene*	74.8	1.00	10/13/2017	ND	1.84	92.0	2.00	0.00375		
Total Xylenes*	97.5	3.00	10/13/2017	ND	5.57	92.9	6.00	0.282		
Total BTEX	197	6.00	10/13/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 122 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	192	16.0	10/13/2017	ND	432	108	400	3.77		
TPH 8015M		mg/kg		Analyzed By: MS						
									S-06	

TPH 8015M	mg/kg		Analyzed By: MS					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	1710	100	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	4910	100	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	614	100	10/13/2017	ND					

Surrogate: 1-Chlorooctane 193 % 28.3-164

Surrogate: 1-Chlorooctadecane 138 % 34.7-157

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Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S2 - 10' (H702755-18)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.170	0.100	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	1.13	0.100	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	16.6	0.100	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	21.2	0.300	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTEX	39.1	0.600	10/13/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 140 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	240	16.0	10/13/2017	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	285	10.0	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	1620	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	219	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 112 % 28.3-164

Surrogate: 1-Chlorooctadecane 102 % 34.7-157

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 Project Name: NORTH DAGGER DRAW  
 Project Number: WATER TRANSFER / 3651  
 Project Location: NONE GIVEN

 Sampling Date: 10/09/2017  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: S2 - 12' (H702755-19)**

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	10/13/2017	ND	2.03	101	2.00	0.0522		
Toluene*	<0.050	0.050	10/13/2017	ND	1.80	90.2	2.00	0.138		
Ethylbenzene*	0.062	0.050	10/13/2017	ND	1.84	92.0	2.00	0.00375		
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.57	92.9	6.00	0.282		
Total BTEx	<0.300	0.300	10/13/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 120 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	768	16.0	10/13/2017	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	10/16/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/16/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/16/2017	ND					

Surrogate: 1-Chlorooctane 85.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 87.9 % 34.7-157

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 Project Name: NORTH DAGGER DRAW  
 Project Number: WATER TRANSFER / 3651  
 Project Location: NONE GIVEN

 Sampling Date: 10/09/2017  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: S2 - 14' (H702755-20)**

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	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	<0.050	0.050	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTEx	<0.300	0.300	10/13/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 121 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1470	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 79.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 83.1 % 34.7-157

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Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S2 - 16' (H702755-21)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	<0.050	0.050	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTX	<0.300	0.300	10/13/2017	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 79.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 85.2 % 34.7-157

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Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S2 - 18' (H702755-22)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	<0.050	0.050	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	0.067	0.050	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTX	<0.300	0.300	10/13/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 121 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	69.5	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 83.1 % 28.3-164

Surrogate: 1-Chlorooctadecane 84.6 % 34.7-157

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Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S3 - 1' (H702755-23)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	<0.050	0.050	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTX	<0.300	0.300	10/13/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 122 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	608	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 79.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 86.6 % 34.7-157

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\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S3 - 2' (H702755-24)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	<0.050	0.050	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTX	<0.300	0.300	10/13/2017	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5040	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 80.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 88.6 % 34.7-157

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\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S3 - 3' (H702755-25)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	<0.050	0.050	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTEx	<0.300	0.300	10/13/2017	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1570	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 82.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 82.2 % 34.7-157

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S3 - 4' (H702755-26)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	<0.050	0.050	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTEx	<0.300	0.300	10/13/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 120 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	576	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					


Surrogate: 1-Chlorooctane 84.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 83.6 % 34.7-157

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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: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S3 - 6' (H702755-27)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	<0.050	0.050	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTEx	<0.300	0.300	10/13/2017	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4240	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 80.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 81.8 % 34.7-157

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 10/11/2017  
 Reported: 10/16/2017  
 Project Name: NORTH DAGGER DRAW  
 Project Number: WATER TRANSFER / 3651  
 Project Location: NONE GIVEN

 Sampling Date: 10/09/2017  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: S3 - 8' (H702755-28)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/13/2017	ND	2.03	101	2.00	0.0522		
Toluene*	<0.050	0.050	10/13/2017	ND	1.80	90.2	2.00	0.138		
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.84	92.0	2.00	0.00375		
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.57	92.9	6.00	0.282		
Total BTEx	<0.300	0.300	10/13/2017	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5600	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 78.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 79.7 % 34.7-157

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/16/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW	Sampling Condition:	Cool & Intact
Project Number:	WATER TRANSFER / 3651	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

**Sample ID: S3 - 10' (H702755-29)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2017	ND	2.03	101	2.00	0.0522	
Toluene*	<0.050	0.050	10/13/2017	ND	1.80	90.2	2.00	0.138	
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.84	92.0	2.00	0.00375	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.57	92.9	6.00	0.282	
Total BTEx	<0.300	0.300	10/13/2017	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	7300	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 82.1 % 28.3-164

Surrogate: 1-Chlorooctadecane 86.2 % 34.7-157

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S3 - 12' (H702755-30)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2017	ND	2.10	105	2.00	1.68	
Toluene*	<0.050	0.050	10/13/2017	ND	1.90	95.2	2.00	3.53	
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.93	96.5	2.00	2.79	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.78	96.3	6.00	2.55	
Total BTX	<0.300	0.300	10/13/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 122 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5000	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 82.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 84.9 % 34.7-157

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 10/11/2017  
Reported: 10/16/2017  
Project Name: NORTH DAGGER DRAW  
Project Number: WATER TRANSFER / 3651  
Project Location: NONE GIVEN

Sampling Date: 10/09/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: S3 - 13' (H702755-31)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2017	ND	2.10	105	2.00	1.68	
Toluene*	<0.050	0.050	10/13/2017	ND	1.90	95.2	2.00	3.53	
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.93	96.5	2.00	2.79	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.78	96.3	6.00	2.55	
Total BTX	<0.300	0.300	10/13/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 122 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4400	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 79.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 83.8 % 34.7-157

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
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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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



ARDINAL LABORATORIES  
101 East Marland, Hobbs, NM 88240

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

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Chase Settle

Company Name: EOG Y Resources Inc.

Company Address: 105 South 4th Street

City/State/Zip: Artesia, NM 88210

Telephone No: 575-748-4171

Sampler Signature:

(lab use only)

ORDER #:

Fax No:

e-mail:

[Chase.Settle@eoqresources.com](mailto:Chase.Settle@eoqresources.com)

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

PO #: 205-0750

Project Name: North Dagger Draw Water Transfer

Project #: 3651

Project Loc: North Dagger Draw Water Transfer

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Matrix	TPH: 8015B EXTENDED	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO <sub>4</sub> , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX: 8021B	RCI	N.O.R.M.	Chlorides	SAR	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
1	S1-1'			10/9/2017	11:06 AM		1	X									S	X														X
2	S1-2'			10/9/2017	11:07 AM		1	X									S	X														X
3	S1-3'			10/9/2017	11:10 AM		1	X									S	X														X
4	S1-4'			10/9/2017	11:16 AM		1	X									S	X														X
5	S1-6'			10/9/2017	11:21 AM		1	X									S	X														X
6	S1-8'			10/9/2017	11:25 AM		1	X									S	X														X
7	S1-10'			10/9/2017	11:28 AM		1	X									S	X														X
8	S1-12'			10/9/2017	11:31 AM		1	X									S	X														X
9	S1-14'			10/9/2017	11:35 AM		1	X									S	X														X
10	S1-16'			10/9/2017	11:45 AM		1	X									S	X														X
Special Instructions: TPH EXTENDED NEEDED!																																
Relinquished by:  Date: 10-11-17 Time: 11:30 Received by: Holly Curbo Date: 10/11/17 Time: 4:00																																
Relinquished by: Date: Time: Received by: ELOTT: Date: Time:																																
Temperature Upon Receipt: 28.4/3.05 °C																																



ARDINAL LABORATORIES  
101 East Marland, Hobbs, NM 88240

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

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Chase Settle

Company Name: EOG Y Resources Inc.

Company Address: 105 South 4th Street

City/State/Zip: Artesia, NM 88210

Telephone No: 575-748-4171

Sampler Signature:

Fax No:

e-mail:

[Chase.Settle@eogresources.com](mailto:Chase.Settle@eogresources.com)

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

Project Name: North Dagger Draw Water Transfer

Project #: 3651

Project Loc: North Dagger Draw Water Transfer

PO #: 205-0750

(lab use only)

ORDER #:

LAB # (lab use only)

4702755

FIELD CODE

Beginning Depth

Ending Depth

Date Sampled

Time Sampled

Field Filtered

Total #. of Containers

Ice

HNO<sub>3</sub>

HCl

H<sub>2</sub>SO<sub>4</sub>

NaOH

Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>

None

Other (Specify)

DW=Drinking Water SL=Sludge

GW = Groundwater S=Soil/Solid

NP=Non-Potable Specify Other

TPH: 8015B EXTENDED

TPH: TX 1005 TX 1006

Cations (Ca, Mg, Na, K)

Anions (Cl, SO<sub>4</sub>, Alkalinity)

SAR / ESP / CEC

Metals: As Ag Ba Cd Cr Pb Hg Se

Volatiles

Semivolatiles

BTEX: 8021B

RCI

N.O.R.M.

Chlorides

SAR

RUSH TAT (Pre-Schedule) 24, 48, 72 hrs

Standard TAT

Preservation & # of Containers

Matrix

Analyze For:

TCLP:

TOTAL:

Special Instructions:

TPH EXTENDED NEEDED!

Relinquished by:

Date

Time

Received by:

Date

Time

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

Relinquished by:

Date

Time

Received by:

Date

Time

Relinquished by:

Date

Time

Received by:

Date

Time

Temperature Upon Receipt: 2.8°C / 3.05°C





ARDINAL LABORATORIES  
101 East Marland, Hobbs, NM 88240

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

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Chase Settle

Company Name: EOG Y Resources Inc.

Company Address: 105 South 4th Street

City/State/Zip: Artesia, NM 88210

Telephone No: 575-748-4171

Sampler Signature:

e-mail:

[Chase.Settle@eogresources.com](mailto:Chase.Settle@eogresources.com)

Fax No:

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

Project Name: North Dagger Draw Water Transfer

Project #: 3651

Project Loc: North Dagger Draw Water Transfer

PO #: 205-0750

(lab use only)

ORDER #:

LAB # (lab use only)  
H702755

FIELD CODE

31 S3-13'

Beginning Depth

Ending Depth

Date Sampled

Time Sampled

Field Filtered

Total #. of Containers

1

X

Ice

HNO<sub>3</sub>

HCl

H<sub>2</sub>SO<sub>4</sub>

NaOH

Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>

None

Other (Specify)

DW=Drinking Water SL=Sludge  
GW = Groundwater S=Soil/Solid  
NP=Non-Potable Specify Other

S

X

TPH: 8015B EXTENDED

TPH: TX 1005 TX 1006

Cations (Ca, Mg, Na, K)

Anions (Cl, SO<sub>4</sub>, Alkalinity)

SAR / ESP / CEC

Metals: As Ag Ba Cd Cr Pb Hg Se

Volatiles

Semivolatiles

X

BTEX: 8021B

RCI

N.O.R.M.

Chlorides

SAR

RUSH TAT (Pre-Schedule) 24, 48, 72 hrs

X

Standard TAT

Preservation & # of Containers

Matrix

Analyze For:

TCLP:

TOTAL:

TPH EXTENDED NEEDED!

Special Instructions:

Relinquished by:

Date

Time

Received by:

Haley Curshaw

Date

Time

Relinquished by:

Date

Time

Received by:

Haley Curshaw

Date

Time

Relinquished by:

Date

Time

Received by:

Haley Curshaw

Date

Time

Laboratory Comments:

Sample Containers Intact?

N

VOCs Free of Headspace?

N

Labels on container(s)  
Custody seals on container(s)

N

Custody seals on cooler(s)  
Sample Hand Delivered  
by Sampler/Client Rep.?

N

by Courier? UPS DHL FedEx Lone Star

N

Temperature Upon Receipt:

28°C

°C

#75

corrected to 25°C



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

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October 18, 2017

CHASE SETTLE

EOG Y RESOURCES, INC

105 SOUTH 4TH STREET

ARTESIA, NM 88210

RE: NORTH DAGGER DRAW WATER TRANSFER

Enclosed are the results of analyses for samples received by the laboratory on 10/11/17 16:00.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/18/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER TRANSF	Sampling Condition:	Cool & Intact
Project Number:	NORTH PIPELINE	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAQ WATER TRANSFE		

**Sample ID: S1 - 1' (H702756-01)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2017	ND	2.10	105	2.00	1.68	
Toluene*	<0.050	0.050	10/13/2017	ND	1.90	95.2	2.00	3.53	
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.93	96.5	2.00	2.79	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.78	96.3	6.00	2.55	
Total BTX	<0.300	0.300	10/13/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 121 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4560	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 64.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 68.3 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/18/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER TRANSF	Sampling Condition:	Cool & Intact
Project Number:	NORTH PIPELINE	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAQ WATER TRANSF		

**Sample ID: S1 - 2' (H702756-02)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2017	ND	2.10	105	2.00	1.68	
Toluene*	<0.050	0.050	10/13/2017	ND	1.90	95.2	2.00	3.53	
Ethylbenzene*	<0.050	0.050	10/13/2017	ND	1.93	96.5	2.00	2.79	
Total Xylenes*	<0.150	0.150	10/13/2017	ND	5.78	96.3	6.00	2.55	
Total BTX	<0.300	0.300	10/13/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 122 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3880	16.0	10/13/2017	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	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 80.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 88.1 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/18/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER TRANSF	Sampling Condition:	Cool & Intact
Project Number:	NORTH PIPELINE	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAQ WATER TRANSF		

**Sample ID: S1 - 3' (H702756-03)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/14/2017	ND	2.10	105	2.00	1.68		
Toluene*	<0.050	0.050	10/14/2017	ND	1.90	95.2	2.00	3.53		
Ethylbenzene*	<0.050	0.050	10/14/2017	ND	1.93	96.5	2.00	2.79		
Total Xylenes*	<0.150	0.150	10/14/2017	ND	5.78	96.3	6.00	2.55		
Total BTEX	<0.300	0.300	10/14/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 122 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2440	16.0	10/13/2017	ND	416	104	400	3.77	QM-07	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/13/2017	ND	187	93.7	200	0.0379	
DRO >C10-C28	<10.0	10.0	10/13/2017	ND	201	101	200	1.23	
EXT DRO >C28-C36	<10.0	10.0	10/13/2017	ND					

Surrogate: 1-Chlorooctane 71.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 79.0 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/18/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER TRANSF	Sampling Condition:	Cool & Intact
Project Number:	NORTH PIPELINE	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAQ WATER TRANSF		

**Sample ID: S1 - 4' (H702756-04)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2017	ND	2.10	105	2.00	1.68	
Toluene*	<0.050	0.050	10/14/2017	ND	1.90	95.2	2.00	3.53	
Ethylbenzene*	<0.050	0.050	10/14/2017	ND	1.93	96.5	2.00	2.79	
Total Xylenes*	<0.150	0.150	10/14/2017	ND	5.78	96.3	6.00	2.55	
Total BTEX	<0.300	0.300	10/14/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 123 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3760	16.0	10/13/2017	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	209	105	200	1.02	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	219	109	200	0.795	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 75.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 76.9 % 34.7-157

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/18/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER TRANSF	Sampling Condition:	Cool & Intact
Project Number:	NORTH PIPELINE	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAQ WATER TRANSF		

**Sample ID: S1 - 6' (H702756-05)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/14/2017	ND	2.10	105	2.00	1.68		
Toluene*	<0.050	0.050	10/14/2017	ND	1.90	95.2	2.00	3.53		
Ethylbenzene*	<0.050	0.050	10/14/2017	ND	1.93	96.5	2.00	2.79		
Total Xylenes*	<0.150	0.150	10/14/2017	ND	5.78	96.3	6.00	2.55		
Total BTEx	<0.300	0.300	10/14/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 122 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4640	16.0	10/13/2017	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	209	105	200	1.02	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	219	109	200	0.795	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 77.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 74.1 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/18/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER TRANSF	Sampling Condition:	Cool & Intact
Project Number:	NORTH PIPELINE	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAQ WATER TRANSF		

**Sample ID: S1 - 8' (H702756-06)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/14/2017	ND	2.10	105	2.00	1.68		
Toluene*	<0.050	0.050	10/14/2017	ND	1.90	95.2	2.00	3.53		
Ethylbenzene*	<0.050	0.050	10/14/2017	ND	1.93	96.5	2.00	2.79		
Total Xylenes*	<0.150	0.150	10/14/2017	ND	5.78	96.3	6.00	2.55		
Total BTEx	<0.300	0.300	10/14/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 122 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2240	16.0	10/13/2017	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	209	105	200	1.02	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	219	109	200	0.795	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 70.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 66.7 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/18/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER TRANSF	Sampling Condition:	Cool & Intact
Project Number:	NORTH PIPELINE	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAQ WATER TRANSF		

**Sample ID: S1 - 10' (H702756-07)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2017	ND	2.10	105	2.00	1.68	
Toluene*	<0.050	0.050	10/14/2017	ND	1.90	95.2	2.00	3.53	
Ethylbenzene*	<0.050	0.050	10/14/2017	ND	1.93	96.5	2.00	2.79	
Total Xylenes*	<0.150	0.150	10/14/2017	ND	5.78	96.3	6.00	2.55	
Total BTX	<0.300	0.300	10/14/2017	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2640	16.0	10/13/2017	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	209	105	200	1.02	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	219	109	200	0.795	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 75.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 69.3 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/18/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER TRANSF	Sampling Condition:	Cool & Intact
Project Number:	NORTH PIPELINE	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAQ WATER TRANSF		

**Sample ID: S1 - 12' (H702756-08)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2017	ND	2.10	105	2.00	1.68	
Toluene*	<0.050	0.050	10/14/2017	ND	1.90	95.2	2.00	3.53	
Ethylbenzene*	<0.050	0.050	10/14/2017	ND	1.93	96.5	2.00	2.79	
Total Xylenes*	<0.150	0.150	10/14/2017	ND	5.78	96.3	6.00	2.55	
Total BTX	<0.300	0.300	10/14/2017	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1300	16.0	10/13/2017	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	209	105	200	1.02	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	219	109	200	0.795	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 71.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 71.5 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/18/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER TRANSF	Sampling Condition:	Cool & Intact
Project Number:	NORTH PIPELINE	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAQ WATER TRANSF		

**Sample ID: S1 - 14' (H702756-09)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2017	ND	2.10	105	2.00	1.68	
Toluene*	<0.050	0.050	10/14/2017	ND	1.90	95.2	2.00	3.53	
Ethylbenzene*	<0.050	0.050	10/14/2017	ND	1.93	96.5	2.00	2.79	
Total Xylenes*	<0.150	0.150	10/14/2017	ND	5.78	96.3	6.00	2.55	
Total BTX	<0.300	0.300	10/14/2017	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1260	16.0	10/13/2017	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	209	105	200	1.02	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	219	109	200	0.795	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 88.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 76.1 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/18/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER TRANSF	Sampling Condition:	Cool & Intact
Project Number:	NORTH PIPELINE	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAQ WATER TRANSF		

**Sample ID: S1 - 16' (H702756-10)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/14/2017	ND	2.10	105	2.00	1.68		
Toluene*	<0.050	0.050	10/14/2017	ND	1.90	95.2	2.00	3.53		
Ethylbenzene*	<0.050	0.050	10/14/2017	ND	1.93	96.5	2.00	2.79		
Total Xylenes*	<0.150	0.150	10/14/2017	ND	5.78	96.3	6.00	2.55		
Total BTEX	<0.300	0.300	10/14/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 123 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	880	16.0	10/13/2017	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	209	105	200	1.02	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	219	109	200	0.795	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 82.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 78.4 % 34.7-157

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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:	10/11/2017	Sampling Date:	10/09/2017
Reported:	10/18/2017	Sampling Type:	Soil
Project Name:	NORTH DAGGER DRAW WATER TRANSF	Sampling Condition:	Cool & Intact
Project Number:	NORTH PIPELINE	Sample Received By:	Tamara Oldaker
Project Location:	NORTH DAGGER DRAQ WATER TRANSF		

**Sample ID: S1 - 17' (H702756-11)**

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	10/14/2017	ND	2.10	105	2.00	1.68	
Toluene*	<0.050	0.050	10/14/2017	ND	1.90	95.2	2.00	3.53	
Ethylbenzene*	<0.050	0.050	10/14/2017	ND	1.93	96.5	2.00	2.79	
Total Xylenes*	<0.150	0.150	10/14/2017	ND	5.78	96.3	6.00	2.55	
Total BTEX	<0.300	0.300	10/14/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 125 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	800	16.0	10/13/2017	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2017	ND	209	105	200	1.02	
DRO >C10-C28	<10.0	10.0	10/12/2017	ND	219	109	200	0.795	
EXT DRO >C28-C36	<10.0	10.0	10/12/2017	ND					

Surrogate: 1-Chlorooctane 82.9 % 28.3-164

Surrogate: 1-Chlorooctadecane 82.3 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

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

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Celey D. Keene, Lab Director/Quality Manager

## CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Name:

## North Dagger Draw Water Transfer

**Project #:** North Pipeline

**Project Loc:** North Dagger Draw Water Transfer

PO #: 205-0750

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

Project Manager:	Chase Settle
Company Name	EOG Y Resources Inc.
Company Address:	105 South 4th Street
City/State/Zip:	Artesia, NM 88210

Telephone No: 575-748-4171

Fax No:

Sampler Signature:

e-mail:

[Chase.Settle@eoqresources.com](mailto:Chase.Settle@eoqresources.com)

(lab use only)

ORDER #:

[illegible]

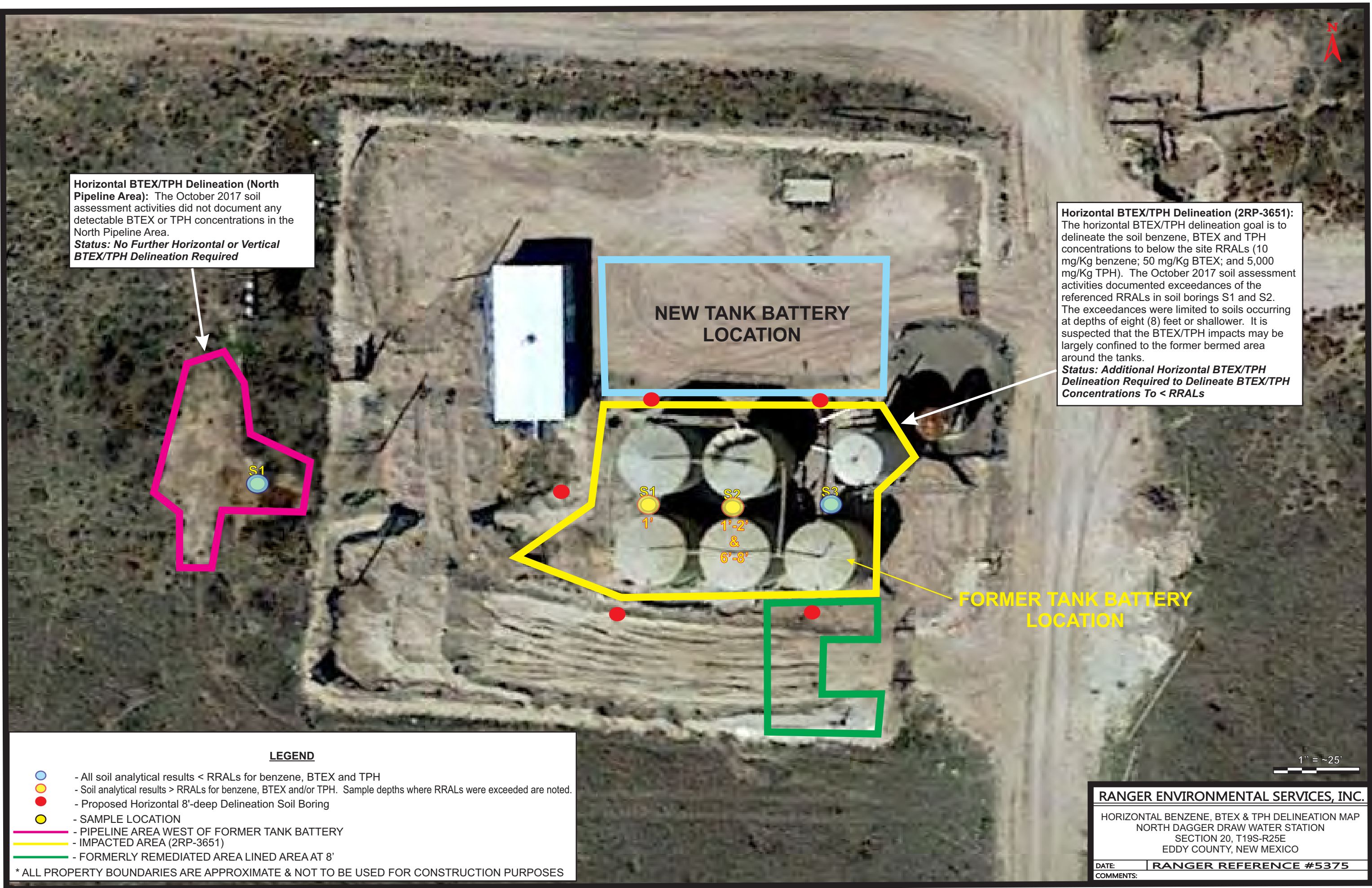


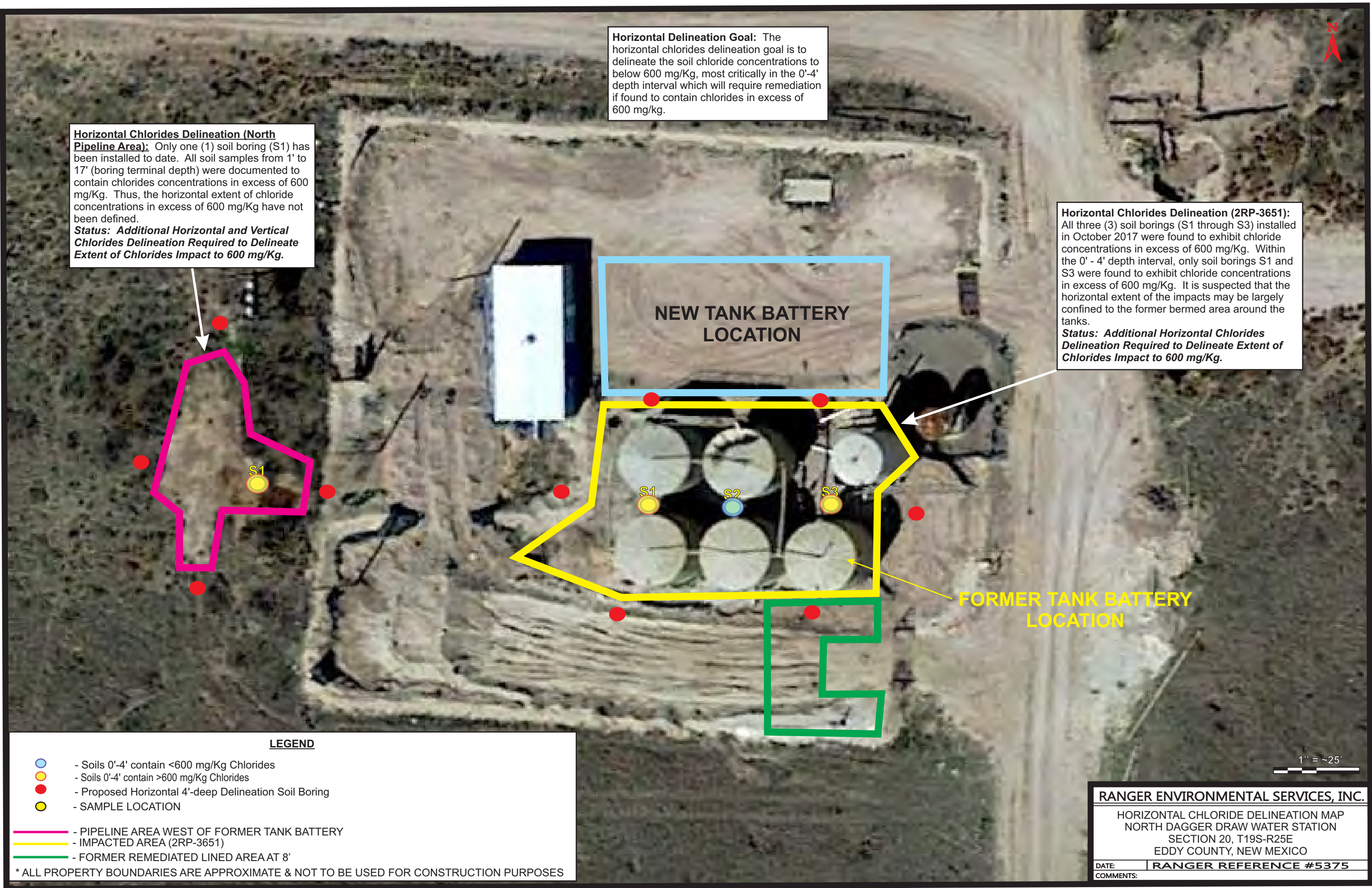
Project Name:	North Dagger Draw Water Transfer
Project #:	North Pipeline

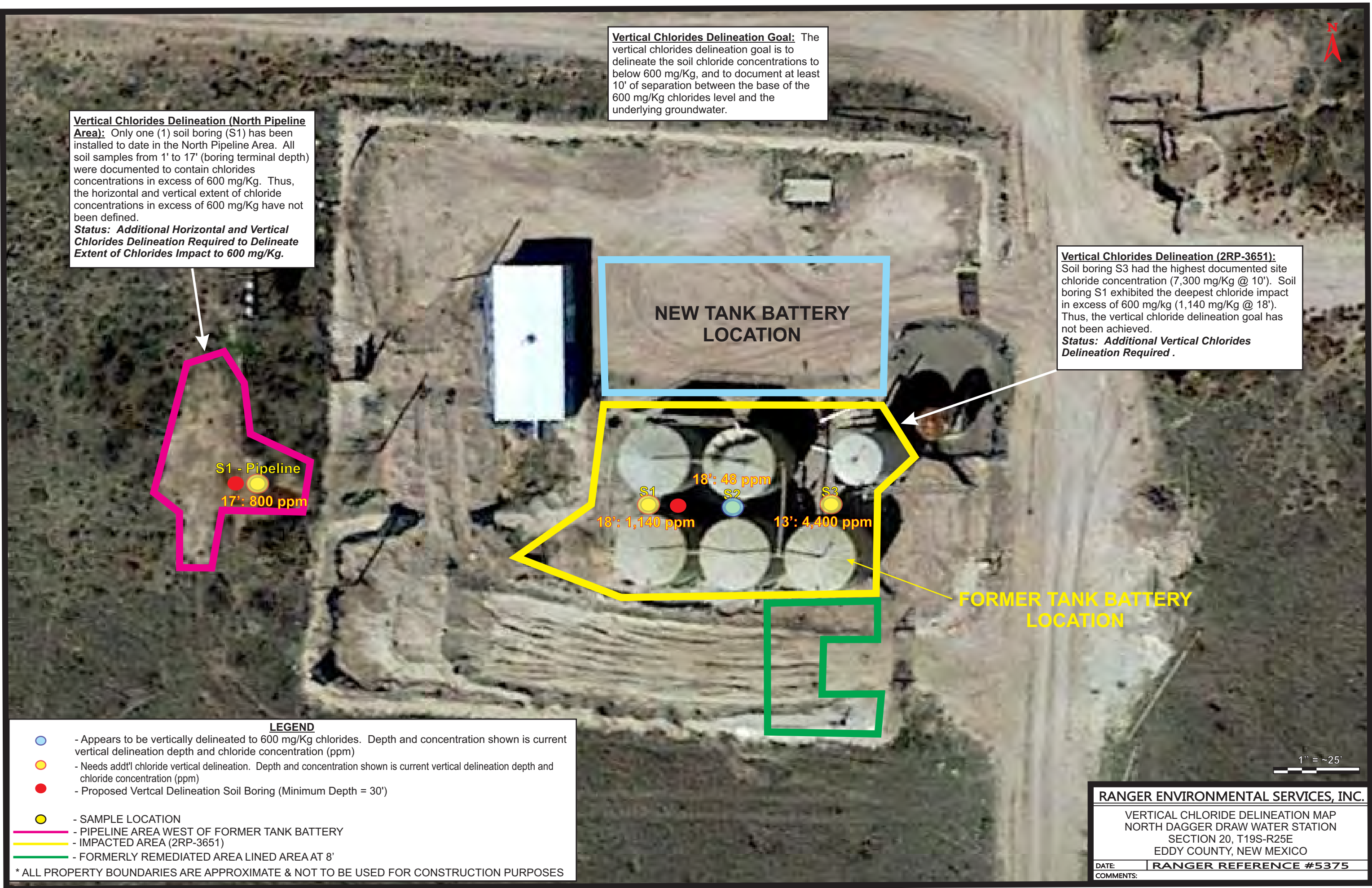
**Project Loc:** North Dagger Draw Water Transfer

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

## PROPOSED SOIL BORING LOCATIONS







**Vertical Chlorides Delineation Goal:** The vertical chlorides delineation goal is to delineate the soil chloride concentrations to below 600 mg/Kg, and to document at least 10' of separation between the base of the 600 mg/Kg chlorides level and the underlying groundwater.

**Vertical Chlorides Delineation (North Pipeline Area):** Only one (1) soil boring (S1) has been installed to date in the North Pipeline Area. All soil samples from 1' to 17' (boring terminal depth) were documented to contain chlorides concentrations in excess of 600 mg/Kg. Thus, the horizontal and vertical extent of chloride concentrations in excess of 600 mg/Kg have not been defined.  
**Status:** *Additional Horizontal and Vertical Chlorides Delineation Required to Delineate Extent of Chlorides Impact to 600 mg/Kg.*

**Vertical Chlorides Delineation (2RP-3651):** Soil boring S3 had the highest documented site chloride concentration (7,300 mg/Kg @ 10'). Soil boring S1 exhibited the deepest chloride impact in excess of 600 mg/kg (1,140 mg/Kg @ 18'). Thus, the vertical chloride delineation goal has not been achieved.  
**Status:** *Additional Vertical Chlorides Delineation Required .*

NEW TANK BATTERY LOCATION

S1 - Pipeline  
17': 800 ppm

S1  
18': 1,140 ppm

S2  
18': 48 ppm

S3  
13': 4,400 ppm

FORMER TANK BATTERY LOCATION

**LEGEND**

- Appears to be vertically delineated to 600 mg/Kg chlorides. Depth and concentration shown is current vertical delineation depth and chloride concentration (ppm)
- Needs add'l chloride vertical delineation. Depth and concentration shown is current vertical delineation depth and chloride concentration (ppm)
- Proposed Vertical Delineation Soil Boring (Minimum Depth = 30')
- SAMPLE LOCATION
- PIPELINE AREA WEST OF FORMER TANK BATTERY
- IMPACTED AREA (2RP-3651)
- FORMERLY REMEDIATED AREA LINED AREA AT 8'

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

**RANGER ENVIRONMENTAL SERVICES, INC.**

VERTICAL CHLORIDE DELINEATION MAP  
NORTH DAGGER DRAW WATER STATION  
SECTION 20, T19S-R25E  
EDDY COUNTY, NEW MEXICO

DATE: | **RANGER REFERENCE #5375**

COMMENTS: