

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

Form C-141  
Revised August 24, 2018  
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD)
Contact mailing address	

### Location of Release Source

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☐ Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

## Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

### Initial Response

*The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury*

<input type="checkbox"/> The source of the release has been stopped.	
<input type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: _____	Title: _____
Signature: <u>Delann Opreant</u>	Date: _____
email: _____	Telephone: _____
<b><u>OCD Only</u></b>	
Received by: _____	Date: _____

Incident ID	NRM1930839312
District RP	
Facility ID	
Application ID	

## Site Assessment/Characterization

*This information must be provided to the appropriate district office no later than 90 days after the release discovery date.*

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>75</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

### **Characterization Report Checklist:** *Each of the following items must be included in the report.*

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

## Oil Conservation Division

Incident ID	NRM1930839312
District RP	
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I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Dakota NeelTitle: HSE CoordinatorSignature: Date: 4/28/2020email: dneel2@concho.comTelephone: 575-746-2010**OCD Only**Received by: Cristina EadsDate: 04/28/2020

Incident ID	NRM1930839312
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## Remediation Plan


**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- ☐ Detailed description of proposed remediation technique
- ☐ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only:** *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☒ Extents of contamination must be fully delineated.
- ☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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

Printed Name: Dakota Neel Title: HSE Coordinator  
Signature:  Date: 4/28/2020  
email: dneel2@concho.com Telephone: 575-746-2010

**OCD Only**

Received by: Cristina Eads Date: 04/28/2020

☐ Approved ☐ Approved with Attached Conditions of Approval ☒ Denied ☐ Deferral Approved

Signature:  Date: 07/02/2020

## Remediation Summary and Deferral Request

### **COG Operating, LLC Red Raider BKS St. #001**

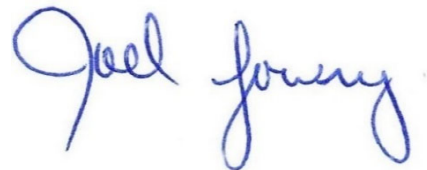
Lea County, New Mexico  
Unit Letter J, Section 25, Township 24S South, Range 33E West  
Latitude 32.18675 North, Longitude 103.52391 West  
**NMOCD Reference No. 1RP-5776**

Prepared By:

**Etech Environmental & Safety Solutions, Inc.**  
3100 Plains Highway  
Lovington, New Mexico 88260



Lance Crenshaw



Joel W. Lowry



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## 2.0 SITE CHARACTERIZATION

A search of groundwater databases maintained by the New Mexico Office of the State Engineer (NMOSE) and United States Geological Survey (USGS) was conducted in an effort to determine the horizontal distance to known water sources within a half mile radius of the Release Site. Probable groundwater depth was determined using data generated by numeric models based on available water well data and published information. Depth to groundwater information is provided as Appendix A.

What is the shallowest depth to groundwater beneath the area affected by the release?	>75 Ft.	
Did the release impact groundwater or surface water?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of any occupied permanent residence, school, hospital, institution or church?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the lateral extents of the release within the incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production or storage site?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

NMOCD Siting Criteria data was gathered from available resources including Bureau of Land Management (BLM) shapefiles; topographic maps; NMOSE and USGS databases; and aerial imagery. The results are depicted on Figures 1 & 2.

## 3.0 CLOSURE CRITERIA FOR SOILS IMPACTED BY A RELEASE

Based on the volume and nature of the release, inferred depth to groundwater and NMOCD Siting Criteria, the NMOCD Closure Criteria for the Site is as follows:

Closure Criteria for Soil Impacted by a Release			
Probable Depth to Groundwater	Constituent	Method	Limit
>75 Ft.	Chloride	EPA 300.0 or SM4500 Cl B	10000 mg/kg
	TPH (GRO + DRO + MRO)	EPA SW-846 Method 8015M Ext	100 mg/kg
	DRO + GRO	EPA SW-846 Method 8015M	1000 mg/kg
	BTEX	EPA SW-846 Methods 8021b or 8260b	50 mg/kg
	Benzene	EPA SW-846 Methods 8021b or 8260b	10 mg/kg

## 4.0 INITIAL SITE ASSESSMENT

On October 28, 2019, Etech conducted an initial site assessment. During the initial site assessment, a hand-augered soil bore (V2) was advanced within the release margins in an effort to determine the vertical extent of soil impacts. In addition, hand-augered soil bores were advanced at the inferred edges of the affected area in an effort to determine the horizontal extent of soil impacts. During the advancement of the hand-augered soil bores, field soil samples were collected and field-screened for the presence of TPH and/or concentrations of chloride utilizing a Hach Quantab® chloride test kit. A "Site & Sample Location Map" is provided as Figure 3. Field data and soil profile logs, if applicable, are provided as Appendix B.

Based on field observations and field test data, fourteen (14) delineation soil samples (V2 @ Surf., V2 @ 2.5, NH-1 @ Surf., NH-1 @ 1', EH-1 @ Surf., Eh-1 @ 1', EH-2 @ Surf., EH-2 @ 1', WH-1 @ Surf., SH-1 @ 1', SH1e @ Surf., SH1e @ 1', SH2d @ Surf. and SH2d @ 1') were submitted to the laboratory for analysis of BTEX, TPH and/or Chloride. Based on laboratory analytical results it was determined soil was not affected above the NMOCD Closure Criteria beyond 2.5 Ft. bgs in the area characterized by sample point V2 and the horizontal extent of affected soil impacted above the NMOCD Closure Criteria was adequately defined. A "Soil Chemistry Table" is provided as Table 1. Laboratory Analytical Reports are provided in Appendix C.

On December 3, 2019, Etech revisited the Site in an effort to further characterize impacts from the release. During the site visit, a series of soil bores (V1 and V2) were advanced in an effort to determine the vertical extent of soil impacts. Soil bore V1 was advanced within the lined containment, using the hole in the liner as a conduit. During the advancement of the soil bore, two (2) soil samples (V-1 @ 2' and V-1 @ 2.5') were collected and submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated benzene, BTEX and chloride concentrations were below the NMOCD Closure Criteria in each of the submitted soil samples; TPH concentrations exceeded the NMOCD Closure Criteria in each of the submitted soil samples. During the advancement of soil bore V1 refusal was met with the hand auger limiting the collection of additional soil samples. Soil bore V2 was advanced south of the lined containment area within an inferred pooling area. During the advancement of soil bore V2, three (3) soil samples ( V2 @ 5', V2 @ 7' and V2 @ 10.5') were collected and submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated BTEX, TPH and chloride concentrations were below the NMOCD Closure Criteria in each of the submitted soil samples.

On December 12, 2019, Etech revisited the Site in an effort to further characterize impacts in the area characterized by soil point V1. During the site visit, one (1) soil bore (VT1b) was advanced in an effort to determine the vertical extent of soil impacts in the area characterized by sample point V1. Soil bore VT1b was advanced outside and adjacent to the lined containment, proximate to sample point V1 and the hole in the lined containment. During the advancement of the soil bore, two (2) soil samples (VT1b @ 4.5' and VT1b @ 5'-R) was collected and submitted to the laboratory for analysis of TPH concentrations, which were determined to be below the NMOCD Closure Criteria.

## 5.0 REMEDIATION ACTIVITIES SUMMARY

On February 12, 2020, remediation activities commenced at the Site. Impacted soil affected above the NMOCD Closure Criteria on the caliche well pad was excavated and stockpiled on-site atop an impermeable liner pending final disposition at an NMOCD-approved surface waste disposal facility. The floor and sidewalls of the excavation were advanced until laboratory analytical results indicated BTEX, TPH and chloride concentrations were below the NMOCD Closure Criteria.

On February 13, 2020, Etech collected sixteen (16) excavation confirmation soil samples (FL-1 through FL-8, NW-1, NW-2, EW-1, EW-2, SW-1, SW-2, WW-1 and WW-2) from the floor and sidewalls of the excavated area. The collected soil samples were submitted to a certified commercial laboratory for analysis of BTEX, TPH and/or chloride. Laboratory analytical results indicated BTEX, TPH and chloride concentrations below the applicable NMOCD Closure Criteria in each of the submitted soil

A "Site & Sample Location Map" is provided as Figure 3. A "Soil Chemistry Table" is provided as Table 1. Laboratory Analytical Reports are provided in Appendix C. Field data and soil profile logs, if applicable, are provided as Appendix B.

The final dimensions of the excavated area were approximately 50 Ft. in length, 15 to 30 Ft. in width and 1.5 Ft. in depth. During the course of remediation activities approximately 80 cubic yards of impacted soil were transported to an NMOCD-approved surface waste facility for disposal.

## **6.0 RESTORATION, RECLAMATION AND RE-VEGETATION PLAN**

Upon receiving laboratory analytical results from confirmation soil samples, excavated areas were backfilled with locally sourced, non-impacted "like" material placed at or near original relative positions. The affected area was graded and compacted to meet the needs of the facility. Since the affected area was on a production reseeded will not be required at this time.

## **7.0 DEFERRAL REQUEST**

Remediation activities were conducted in accordance with the NMOCD. Laboratory analytical results from the collected soil samples indicate concentrations of BTEX, TPH and chloride are below the NMOCD Closure Criteria in each of the submitted soil samples with the exception of soil samples V1 @ 2', V1 @ 2.5' and V2 @ Surf. Impacted soil affected above the NMOCD Closure Criteria in the area characterized by sample point V2 was excavated and transported to an NMOCD-approved disposal facility. Impacted soil affected above the NMOCD Closure Criteria beneath the lined tank battery facility in the area characterized by sample points V1 and VT1b will be remediated upon decommissioning the facility.

Based on laboratory analytical results and field activities conducted to date, Etech recommends COG Operating, LLC provide copies of this Remediation Summary and Deferral Request to the appropriate agencies and request partial closure be granted to the Red Raider BKS St. #001 Site.

## **8.0 LIMITATIONS**

Etech Environmental & Safety Solutions, Inc., has prepared this Remediation Summary and Deferral Request to the best of its ability. No other warranty, expressed or implied, is made or intended. Etech has examined and relied upon documents reference in the report and on oral statements made by certain individuals. Etech has not conducted an independent examination of the facts contained in referenced materials and statements. Etech has presumed the genuineness of these documents and statements and that the information provided therein is true and accurate. Etech has prepared the report in a professional manner, using the degree of skill and care exercised by similar environmental consultants. Etech notes that the facts and conditions referenced in this report may change over time, and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of COG Operating, LLC. Use of the information contained in this report is prohibited within the consent of Etech and/or COG Operating, LLC.

## **9.0 DISTRIBUTION**

***COG Operating, LLC***

*600 West Illinois Avenue  
Midland, TX 79701*

***New Mexico Energy, Minerals and Natural Resources Department***

*Oil Conservation Division, District 1  
1220 South St. Francis Drive  
Santa Fe, NM 87505*

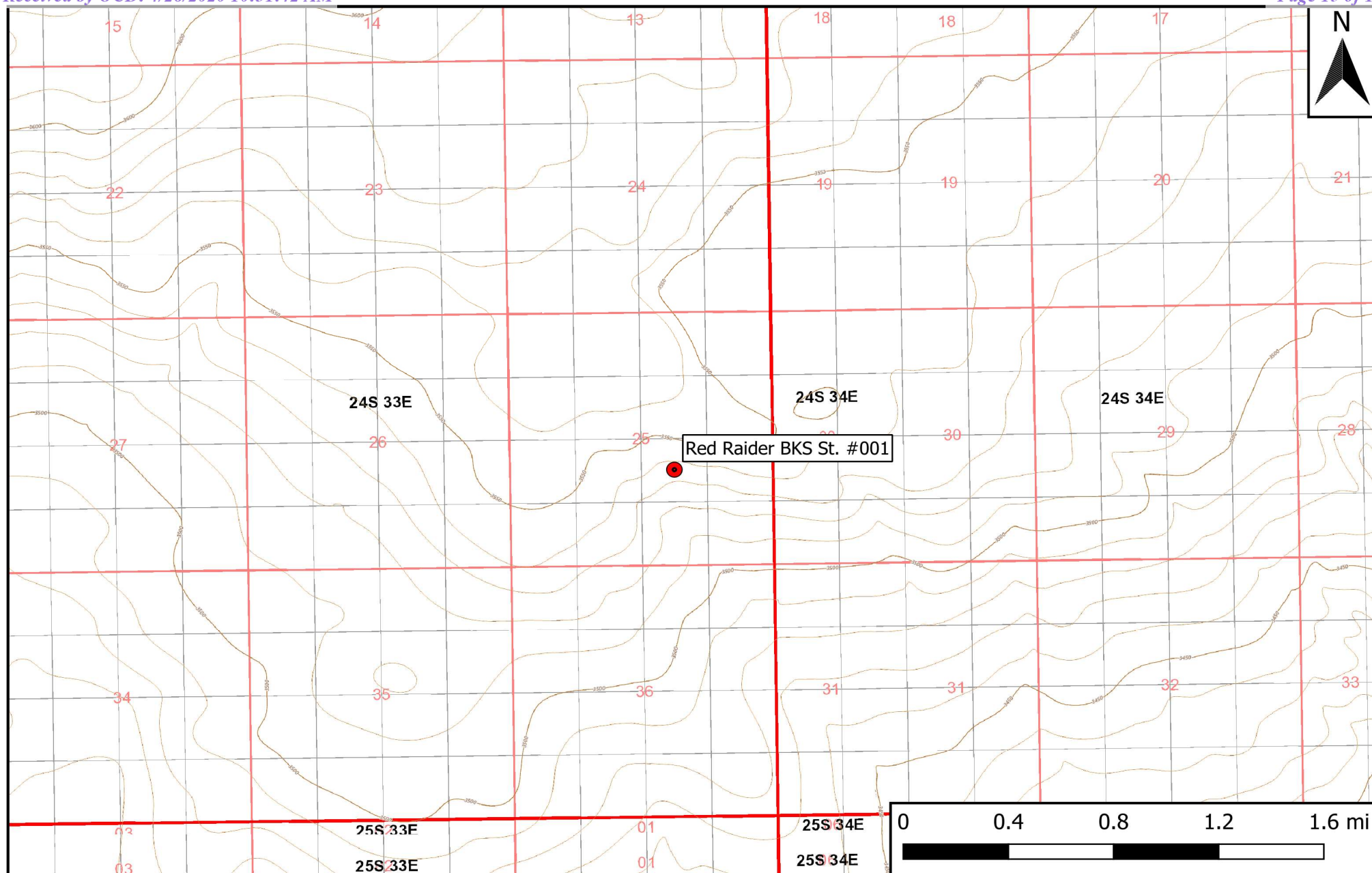
***Hobbs Field Office***

*New Mexico State Land Office  
2827 North Dal Paso Street  
Suite 117  
Hobbs, NM 88240*

*(Electronic Submission)*

## **Figure 1**

### **Topographic Map**



## Legend

● Site Location

## Figure 1

Topographic Map  
 COG Operating, LLC  
 Red Raider BKS St. #001  
 GPS: 32.18675, -103.52391  
 Lea County



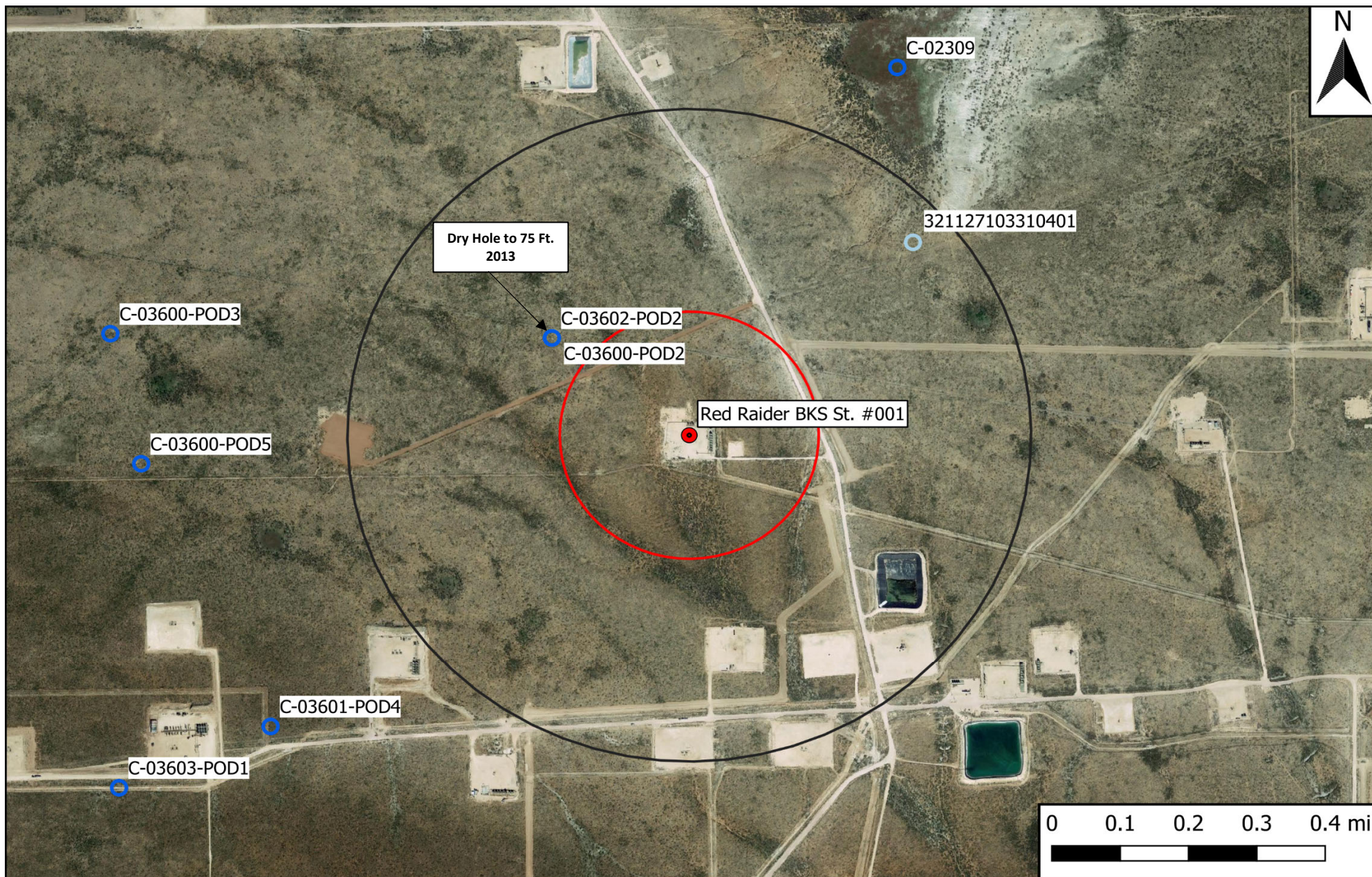
Drafted: mag

Checked: jwl

Date: 11/15/19

## **Figure 2**

### **Aerial Proximity Map**



## Legend

- |   |   |
|---|---|
| <span style="color: red;">●</span> Site Location  | <span style="color: lightblue;">○</span> Well - USGS  |
| <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> 0.5 Mi Radius              | <span style="color: blue;">○</span> Well - NMOSE  |
| <span style="border: 2px solid red; display: inline-block; width: 10px; height: 10px;"></span> 1000 Ft Radius               | <span style="background-color: pink; display: inline-block; width: 10px; height: 10px;"></span> High Karst      |
| <span style="background-color: lightblue; display: inline-block; width: 10px; height: 10px;"></span> 1% Annual Flood Chance | <span style="background-color: orange; display: inline-block; width: 10px; height: 10px;"></span> Medium Karst  |
| <span style="background-color: blue; display: inline-block; width: 10px; height: 10px;"></span> Surface Water               | <span style="border-bottom: 1px solid orange; display: inline-block; width: 10px;"></span> Potash Mine Workings |

**Figure 2**  
 Aerial Map  
 COG Operating, LLC  
 Red Raider BKS St. #001  
 GPS: 32.18675, -103.52391  
 Lea County



Drafted: mag

Checked: jwl

Date:

1/7/20

### **Figure 3**

### **Site and Sample Location Map**



**Legend:**

- Delineation Sample Point
- SW-2 Confirmation Sample Location
- Excavated Area

**Figure 3**  
 Site and Sample Location Map  
 COG Operating, LLC  
 Red Raider BKS St. #001  
 GPS: 32.18675, -103.52391  
 Lea County

**eTECH**  
 Environmental & Safety Solutions, Inc.

Drafted: mag

Checked: jwl

Date: 3/4/20

**Table 1**  
**Concentrations of BTEX, TPH, and/or Chloride in Soil**

**TABLE 1**  
**CONCENTRATIONS OF BENZENE, BTEX, TPH AND CHLORIDE IN SOIL**  
**COG Operating, LLC**  
**Red Raider BKS St. #001**  
**NMOCD Ref. #: 1RP-5776**

Sample ID	Date	Depth	Soil Status	SW 846 8021B		SW 846 8015M Ext.					4500 Cl
				Benzene (mg/kg)	BTEX (mg/kg)	GRO C <sub>6</sub> -C <sub>10</sub> (mg/kg)	DRO C <sub>10</sub> -C <sub>28</sub> (mg/kg)	GRO + DRO C <sub>6</sub> -C <sub>28</sub> (mg/kg)	ORO C <sub>28</sub> -C <sub>36</sub> (mg/kg)	TPH C <sub>6</sub> -C <sub>36</sub> (mg/kg)	Chloride (mg/kg)
V1 @ 2'	12/3/2019	2'	In-Situ	<0.050	<0.300	57.90	4,150	<b>4,207.9</b>	1,090	<b>5,297.9</b>	64.0
V1 @ 2.5'	12/3/2019	2.5'	In-Situ	<0.050	<0.300	40.20	4,700	<b>4,740.2</b>	1,260	<b>6,000.2</b>	64.0
VT1b @ 4.5'	12/12/2019	4.5'	In-Situ	-	-	<10.0	410	410	75.5	486	-
VT1b @ 5'-R	12/12/2019	5'	In-Situ	-	-	<10.0	238	238	55.2	293.2	-
V2 @ Surf.	10/28/2019	0	Excavated	<0.050	<0.300	13.9	3,550	<b>3,563.9</b>	821	<b>4,384.9</b>	2,920
V2 @ 2.5'	10/28/2019	2.5'	In-Situ	<0.050	<0.300	<10.0	427	427	74.8	501.8	2,360
V2 @ 5'	12/3/2019	5'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	1,070
V2 @ 7'	12/3/2019	7'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	736
V2 @ 10.5'	12/3/2019	10.5'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	448
NH-1 @ Surf.	10/28/2019	0	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
NH-1 @ 1'	10/28/2019	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
EH-1 @ Surf.	10/28/2019	0	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
EH-1 @ 1'	10/28/2019	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
EH-2 @ Surf.	10/28/2019	0	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
EH-2 @ 1'	10/28/2019	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
WH-1 @ Surf.	10/28/2019	0	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	80.0
WH-1 @ 1'	10/28/2019	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	304
SH1e @ Surf.	10/28/2019	0	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	432
SH1e @ 1'	10/28/2019	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	240
SH2d @ Surf.	10/28/2019	0	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	512
SH2d @ 1'	10/28/2019	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	592
FL-1	2/13/2020	1.5'	In-Situ	<0.0019	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	648
FL-2	2/13/2020	1.5'	In-Situ	<0.00198	<0.00198	<50.2	<50.2	<50.2	<50.2	<50.2	580
FL-3	2/13/2020	1.5'	In-Situ	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	672
FL-4	2/13/2020	1.5'	In-Situ	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<50.1	718
FL-5	2/13/2020	1.5'	In-Situ	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	683
FL-6	2/13/2020	1.5'	In-Situ	<0.00199	<0.00199	<50.3	<50.3	<50.3	<50.3	<50.3	615
FL-7	2/13/2020	1.5'	In-Situ	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	740
FL-8	2/13/2020	1.5'	In-Situ	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	642
NW-1	2/13/2020	NA	In-Situ	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	605
NW-2	2/13/2020	NA	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	685
EW-1	2/13/2020	NA	In-Situ	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	675
EW-2	2/13/2020	NA	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	624
SW-1	2/13/2020	NA	In-Situ	<0.00198	<0.00198	<50.3	<50.3	<50.3	<50.3	<50.3	697
SW-2	2/13/2020	NA	In-Situ	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	860
WW-1	2/13/2020	NA	In-Situ	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	869
WW-2	2/13/2020	NA	In-Situ	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	666
<b>Closure Criteria</b>				<b>10</b>	<b>50</b>	<b>-</b>	<b>-</b>	<b>1,000</b>	<b>-</b>	<b>2,500</b>	<b>10,000</b>

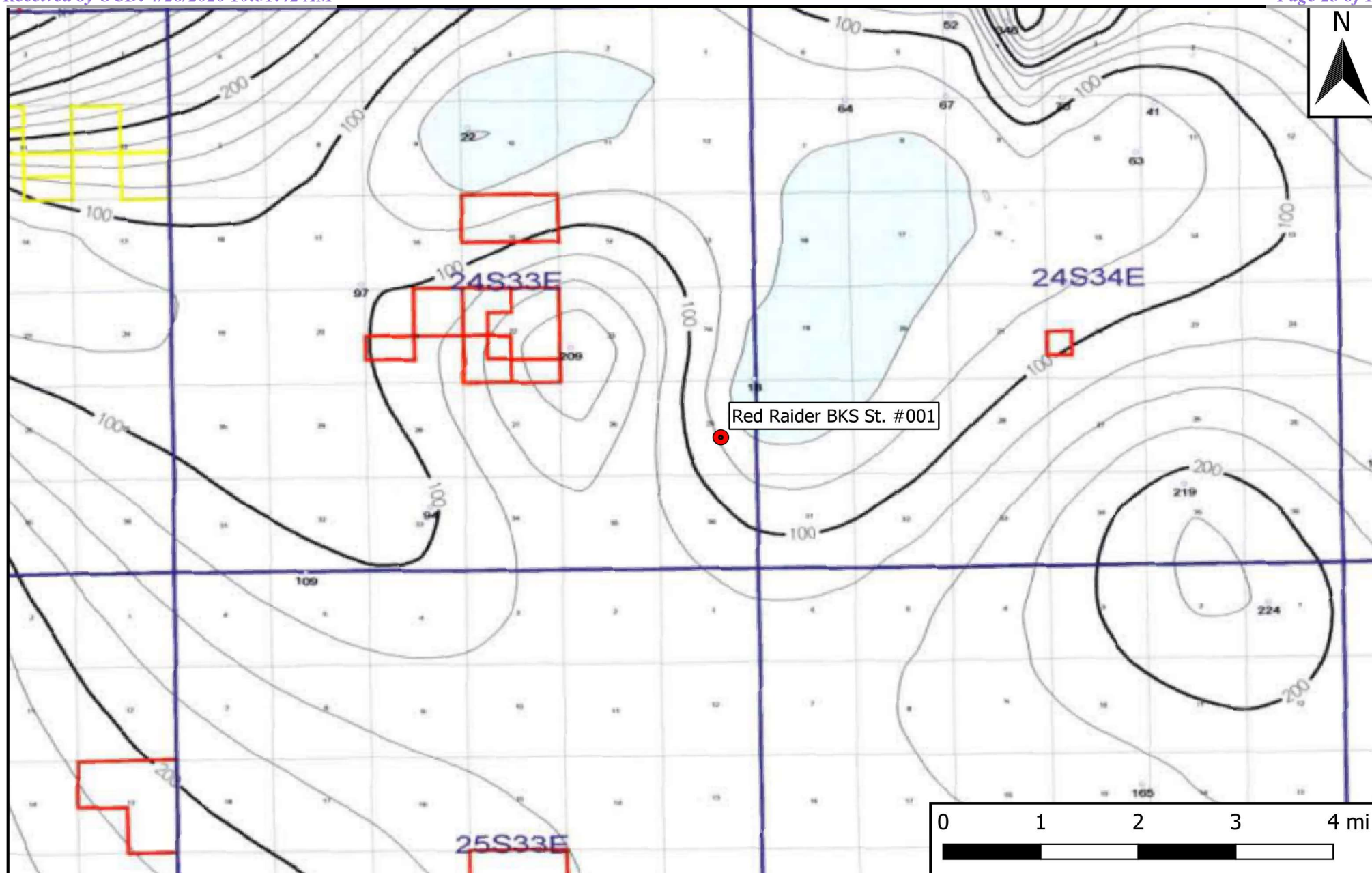
NOTES:

- =

Bold text denotes a concentration that exceeds the NMOCD Closure Criteria

## **Appendix A**

### **Depth to Groundwater Information**



## Legend

● Site Location

## Figure 4

Inferred Depth to Groundwater Trend Map  
 COG Operating, LLC  
 Red Raider BKS St. #001  
 GPS: 32.18675, -103.52391  
 Lea County



Drafted: mag

Checked: jwl

Date: 11/15/19



# WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

[www.ose.state.nm.us](http://www.ose.state.nm.us)

1. GENERAL AND WELL LOCATION	OSE POD NUMBER (WELL NUMBER) BH 18				OSE FILE NUMBER(S) C3682; 518347			
	WELL OWNER NAME(S) INTERCONTINENTAL POTASH CORP				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS 600 W. BENDER BLVD.				CITY HOBBS		STATE NM	ZIP 88240
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 11	SECONDS 20.2 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84			
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE T24S; R 33E; SECTION 25								
2. DRILLING & CASING INFORMATION	LICENSE NUMBER WD-1186		NAME OF LICENSED DRILLER RODNEY HAMMER			NAME OF WELL DRILLING COMPANY ENVIRO-DRILL, INC.		
	DRILLING STARTED 01-15-13		DRILLING ENDED 01-15-13		DEPTH OF COMPLETED WELL (FT)		BORE HOLE DEPTH (FT) 75'	DEPTH WATER FIRST ENCOUNTERED (FT) N/A
	COMPLETED WELL IS: <input type="radio"/> ARTESIAN <input checked="" type="radio"/> DRY HOLE <input type="radio"/> SHALLOW (UNCONFINED)							STATIC WATER LEVEL IN COMPLETED WELL (FT)
	DRILLING FLUID: <input type="radio"/> AIR <input type="radio"/> MUD ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input type="radio"/> ROTARY <input type="radio"/> HAMMER <input type="radio"/> CABLE TOOL <input checked="" type="radio"/> OTHER - SPECIFY: AUGER							
	DEPTH (feet bgl) FROM TO		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
	0 75		8"	N/A	N/A	N/A	N/A	N/A
3. ANNULAR MATERIAL	DEPTH (feet bgl) FROM TO		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL		AMOUNT (cubic feet)	METHOD OF PLACEMENT	

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER C-3602	POD NUMBER POD 2	TRN NUMBER 518397
LOCATION T24S - R33E - Sec 25.144		PAGE 1 OF 2

aka C-3600 POD 2

STATE ENGINEER OF THE STATE  
ROSWELL, N.M.  
2013 JAN 30 PM 1:00  
OTHER THAN LIC  
GOING IS TRUE  
THE STATE

WR-20 WELL RECORD &amp; LOG (Version 06/08/2012)

FILE NUMBER	C-3602	POD NUMBER	2	TRN NUMBER	
LOCATION	T24S-R33E-Sec 25.144				PAGE 2 OF 2



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,  
O=orphaned,  
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
<a href="#">C 03600 POD2</a>		CUB	LE	4	4	1	25	24S	33E	638824	3562329	402			
<a href="#">C 03602 POD2</a>		CUB	LE	4	4	1	25	24S	33E	638824	3562329	402			

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

**Record Count:** 2

### UTM NAD83 Radius Search (in meters):

**Easting (X):** 639147.96

**Northing (Y):** 3562090.74

**Radius:** 804.67

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

11/15/19 9:31 AM

WATER COLUMN/ AVERAGE DEPTH TO  
WATER



# New Mexico Office of the State Engineer

## Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
C	03600 POD2	4	4	1	25	24S	33E	638824	3562329

x

**Driller License:** 1186 **Driller Company:** ENVIRO-DRILL, INC.**Driller Name:** RODNEY HAMMER**Drill Start Date:** 01/07/2013 **Drill Finish Date:** 01/08/2013 **Plug Date:****Log File Date:** 01/30/2013 **PCW Rcv Date:** **Source:** Shallow**Pump Type:** **Pipe Discharge Size:** **Estimated Yield:****Casing Size:** **Depth Well:** **Depth Water:**

x

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

11/15/19 9:32 AM

POINT OF DIVERSION SUMMARY



# New Mexico Office of the State Engineer

## Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE)							
		(quarters are smallest to largest)						(NAD83 UTM in meters)	
<b>Well Tag</b>	<b>POD Number</b>	<b>Q64</b>	<b>Q16</b>	<b>Q4</b>	<b>Sec</b>	<b>Tws</b>	<b>Rng</b>	<b>X</b>	<b>Y</b>
C	03602 POD2	4	4	1	25	24S	33E	638824	3562329



x

**Driller License:** 1186      **Driller Company:** ENVIRO-DRILL, INC.

**Driller Name:** RODNEY HAMMER

**Drill Start Date:** 01/15/2013

**Drill Finish Date:** 01/15/2013

**Plug Date:**

**Log File Date:** 01/30/2013

**PCW Rcv Date:**

**Source:** Shallow

**Pump Type:**

**Pipe Discharge Size:**

**Estimated Yield:**

**Casing Size:**

**Depth Well:**

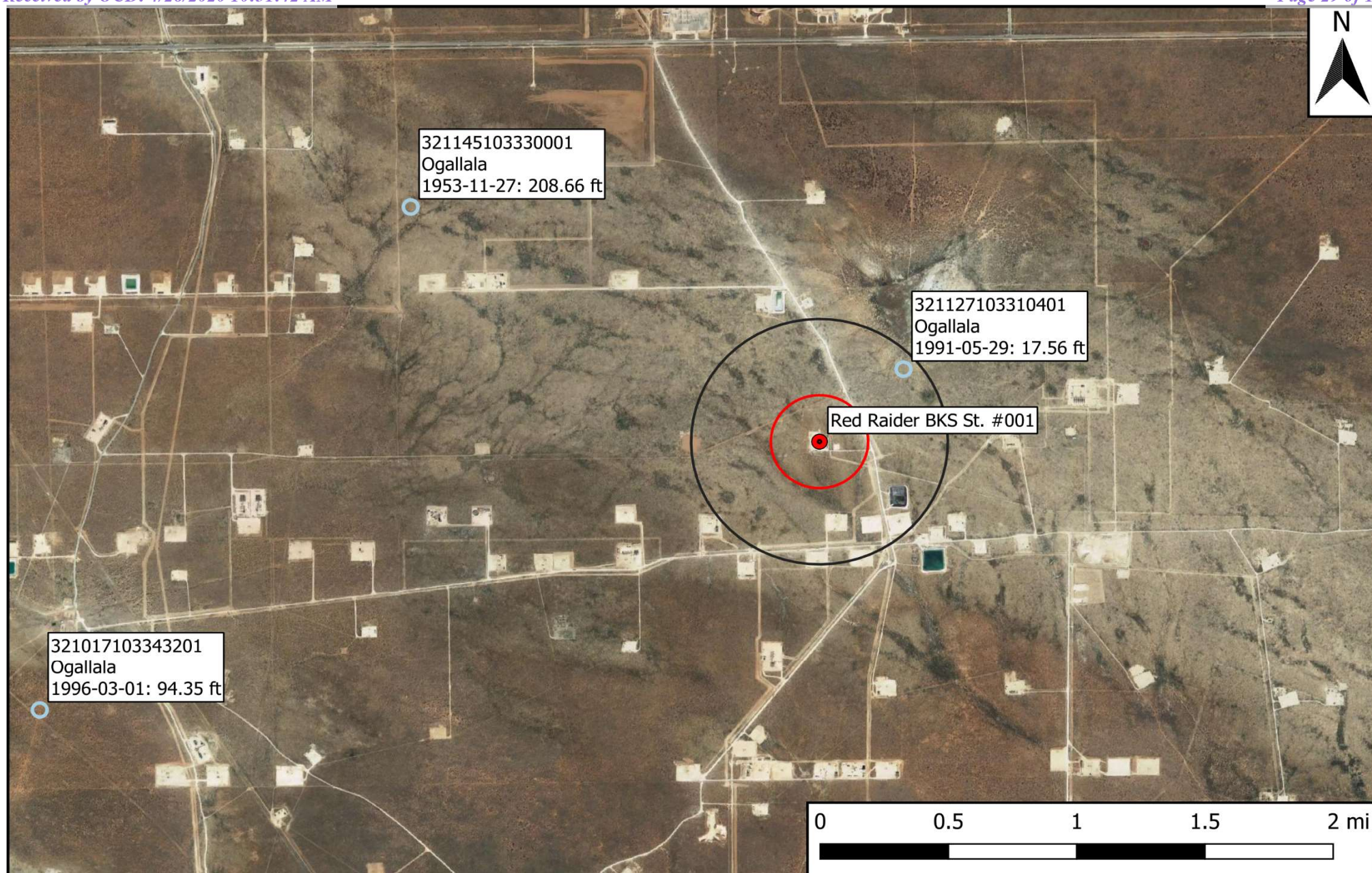
**Depth Water:**

x

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

11/15/19 9:32 AM

POINT OF DIVERSION SUMMARY



## Legend

- Site Location
- Well - USGS
- 0.5 Mi Radius
- 1000 Ft Radius

## Figure 5

USGS Well Proximity Map  
COG Operating, LLC  
Red Raider BKS St. #001  
GPS: 32.18675, -103.52391  
Lea County



Drafted: mag

Checked: jwl

Date: 11/15/19



# National Water Information System: Web Interface

USGS Water Resources

Data Category:  
Groundwater

Geographic Area:  
United States

GO

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- [Full News](#)

Groundwater levels for the Nation

## Search Results -- 1 sites found

Agency code = usgs  
site\_no list =

- 321017103343201

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

## USGS 321017103343201 24S.33E.33.23231

Available data for this site 

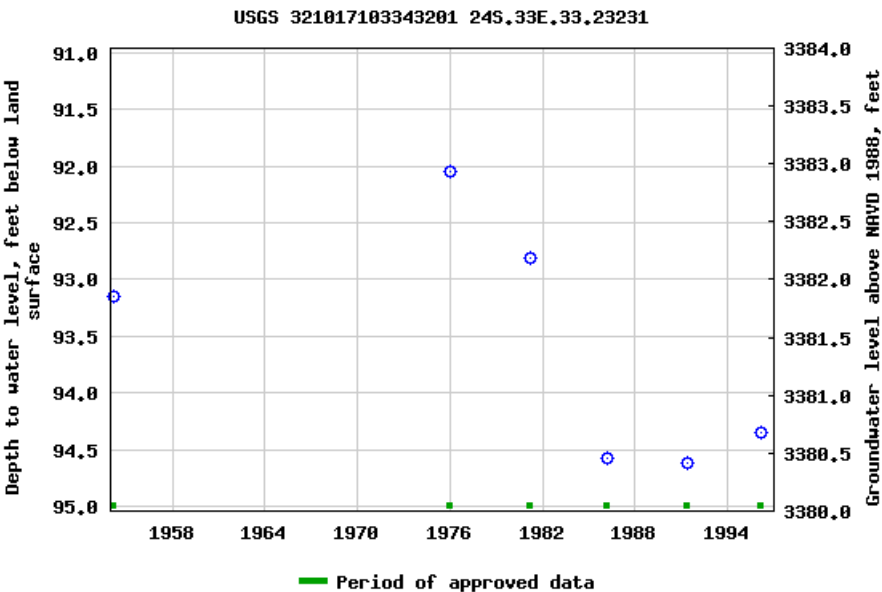
Groundwater: Field measurements

GO

Lea County, New Mexico  
Hydrologic Unit Code 13070007  
Latitude 32°10'17", Longitude 103°34'32" NAD27  
Land-surface elevation 3,475 feet above NAVD88  
This well is completed in the Ogallala Formation (121OGLL) local aquifer.

### Output formats

<a href="#">Table of data</a>
<a href="#">Tab-separated data</a>
<a href="#">Graph of data</a>
<a href="#">Reselect period</a>



Breaks in the plot represent a gap of at least one year between field measurements.

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**Title: Groundwater for USA: Water Levels**

**URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>**



Page Contact Information: [USGS Water Data Support Team](#)

Page Last Modified: 2019-11-15 11:25:45 EST

0.49 0.45 nadww02



# National Water Information System: Web Interface

USGS Water Resources

Data Category:  
Groundwater

Geographic Area:  
United States

GO

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Groundwater levels for the Nation

## Search Results -- 1 sites found

Agency code = usgs  
site\_no list =

- 321127103310401

Minimum number of levels = 1

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## USGS 321127103310401 24S.33E.24.44444

Available data for this site 

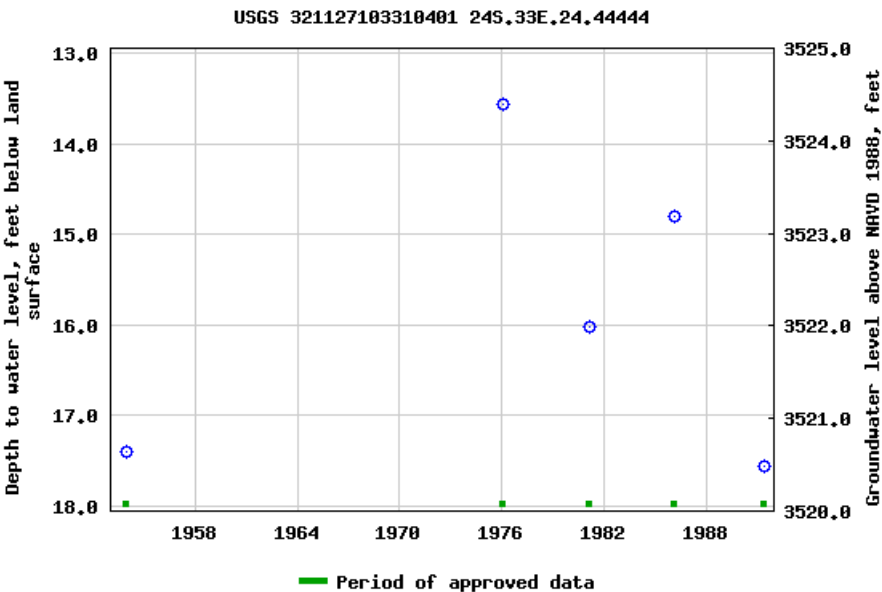
Groundwater: Field measurements

GO

Lea County, New Mexico  
Hydrologic Unit Code 13070007  
Latitude 32°11'27", Longitude 103°31'04" NAD27  
Land-surface elevation 3,538 feet above NAVD88  
This well is completed in the Ogallala Formation (121OGLL) local aquifer.

### Output formats

<a href="#">Table of data</a>
<a href="#">Tab-separated data</a>
<a href="#">Graph of data</a>
<a href="#">Reselect period</a>



Breaks in the plot represent a gap of at least one year between field measurements.

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**Title: Groundwater for USA: Water Levels**

**URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>**



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0.49 0.44 nadww02



National Water Information System: Web Interface

USGS Water Resources

Data Category:  
Groundwater

Geographic Area:  
United States

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Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs  
site\_no list =

- 321145103330001

Minimum number of levels = 1  
[Save file of selected sites](#) to local disk for future upload

USGS 321145103330001 24S.33E.23.31322

Available data for this site

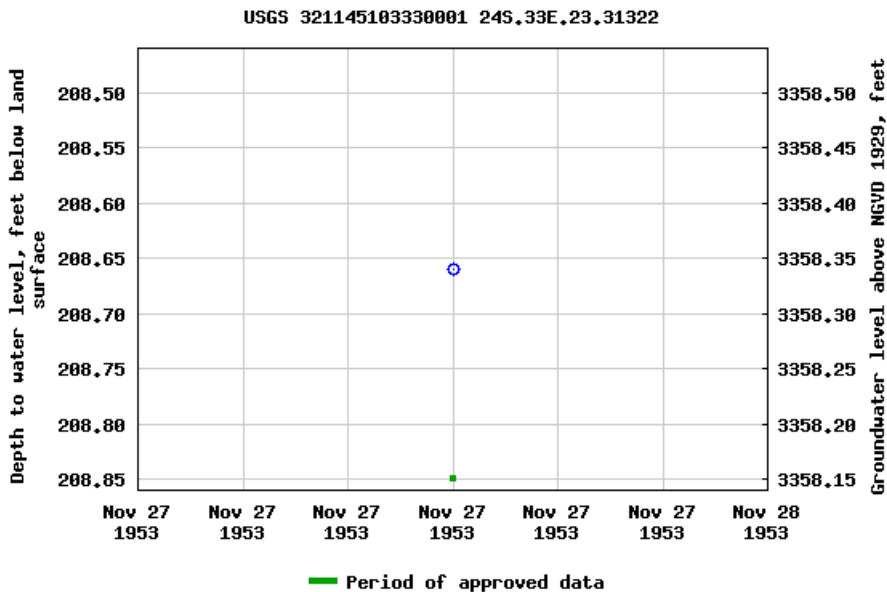
Groundwater: Field measurements

GO

Lea County, New Mexico  
Hydrologic Unit Code 13070007  
Latitude 32°12'03.2", Longitude 103°33'03.20" NAD83  
Land-surface elevation 3,567.00 feet above NGVD29  
The depth of the well is 232 feet below land surface.  
This well is completed in the Ogallala Formation (121OGLL) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.

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**Title: Groundwater for USA: Water Levels**

**URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>**



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0.57 0.44 nadww02

## **Appendix B**

### **Field Data and Soil Profile Logs**

## Soil Profile

Project: Red Raider BKS St. #001 Date: 12/3/2019  
Project Number: 11420 Latitude: 32.18675 Longitude: -103.52391

Depth (ft. bgs)

Description

1	Imported Fill/Caliche
2	
3	Brown Sand w/ Clay
4	
5	Caliche w/ Sand
6	
7	
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## **Appendix C**

### **Laboratory Analytical Reports**



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

---

November 04, 2019

JOEL LOWRY

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: RED RAIDER BKS ST. #001

Enclosed are the results of analyses for samples received by the laboratory on 10/30/19 14:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: NH 1 @ SURFACE (H903707-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/31/2019	ND	1.92	95.8	2.00	4.21		
Toluene*	<0.050	0.050	10/31/2019	ND	1.92	95.8	2.00	3.85		
Ethylbenzene*	<0.050	0.050	10/31/2019	ND	1.95	97.4	2.00	3.06		
Total Xylenes*	<0.150	0.150	10/31/2019	ND	5.81	96.8	6.00	2.72		
Total BTEX	<0.300	0.300	10/31/2019	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	220	110	200	1.67	
DRO >C10-C28*	<10.0	10.0	10/31/2019	ND	221	111	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 110 % 41-142

Surrogate: 1-Chlorooctadecane 118 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: NH 1 @ 1' (H903707-02)**

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	10/31/2019	ND	1.92	95.8	2.00	4.21		
Toluene*	<0.050	0.050	10/31/2019	ND	1.92	95.8	2.00	3.85		
Ethylbenzene*	<0.050	0.050	10/31/2019	ND	1.95	97.4	2.00	3.06		
Total Xylenes*	<0.150	0.150	10/31/2019	ND	5.81	96.8	6.00	2.72		
Total BTX	<0.300	0.300	10/31/2019	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	220	110	200	1.67	
DRO >C10-C28*	<10.0	10.0	10/31/2019	ND	221	111	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 113 % 41-142

Surrogate: 1-Chlorooctadecane 119 % 37.6-147

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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: EH 1 @ SURFACE (H903707-03)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/31/2019	ND	1.92	95.8	2.00	4.21		
Toluene*	<0.050	0.050	10/31/2019	ND	1.92	95.8	2.00	3.85		
Ethylbenzene*	<0.050	0.050	10/31/2019	ND	1.95	97.4	2.00	3.06		
Total Xylenes*	<0.150	0.150	10/31/2019	ND	5.81	96.8	6.00	2.72		
Total BTX	<0.300	0.300	10/31/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.4 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	220	110	200	1.67	
DRO >C10-C28*	<10.0	10.0	10/31/2019	ND	221	111	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 110 % 41-142

Surrogate: 1-Chlorooctadecane 114 % 37.6-147

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**Analytical Results For:**

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 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: EH 1 @ 1' (H903707-04)**

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	10/31/2019	ND	1.92	95.8	2.00	4.21		
Toluene*	<0.050	0.050	10/31/2019	ND	1.92	95.8	2.00	3.85		
Ethylbenzene*	<0.050	0.050	10/31/2019	ND	1.95	97.4	2.00	3.06		
Total Xylenes*	<0.150	0.150	10/31/2019	ND	5.81	96.8	6.00	2.72		
Total BTX	<0.300	0.300	10/31/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	220	110	200	1.67	
DRO >C10-C28*	<10.0	10.0	10/31/2019	ND	221	111	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 114 % 41-142

Surrogate: 1-Chlorooctadecane 119 % 37.6-147

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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: EH 2 @ SURFACE (H903707-05)**

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	10/31/2019	ND	1.92	95.8	2.00	4.21		
Toluene*	<0.050	0.050	10/31/2019	ND	1.92	95.8	2.00	3.85		
Ethylbenzene*	<0.050	0.050	10/31/2019	ND	1.95	97.4	2.00	3.06		
Total Xylenes*	<0.150	0.150	10/31/2019	ND	5.81	96.8	6.00	2.72		
Total BTEx	<0.300	0.300	10/31/2019	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	220	110	200	1.67	
DRO >C10-C28*	<10.0	10.0	10/31/2019	ND	221	111	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 111 % 41-142

Surrogate: 1-Chlorooctadecane 117 % 37.6-147

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Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: EH 2 @ 1' (H903707-06)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/01/2019	ND	1.59	79.5	2.00	6.17		
Toluene*	<0.050	0.050	11/01/2019	ND	1.49	74.6	2.00	2.15		
Ethylbenzene*	<0.050	0.050	11/01/2019	ND	1.50	75.2	2.00	2.50		
Total Xylenes*	<0.150	0.150	11/01/2019	ND	4.60	76.7	6.00	1.29		
Total BTX	<0.300	0.300	11/01/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	220	110	200	1.67	
DRO >C10-C28*	<10.0	10.0	10/31/2019	ND	221	111	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 108 % 41-142

Surrogate: 1-Chlorooctadecane 113 % 37.6-147

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 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: WH 1 @ SURFACE (H903707-07)**

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	11/01/2019	ND	1.59	79.5	2.00	6.17	
Toluene*	<0.050	0.050	11/01/2019	ND	1.49	74.6	2.00	2.15	
Ethylbenzene*	<0.050	0.050	11/01/2019	ND	1.50	75.2	2.00	2.50	
Total Xylenes*	<0.150	0.150	11/01/2019	ND	4.60	76.7	6.00	1.29	
Total BTX	<0.300	0.300	11/01/2019	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	220	110	200	1.67	
DRO >C10-C28*	<10.0	10.0	10/31/2019	ND	221	111	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 116 % 41-142

Surrogate: 1-Chlorooctadecane 123 % 37.6-147

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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: WH 1 @ 1' (H903707-08)**

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	11/01/2019	ND	1.59	79.5	2.00	6.17		
Toluene*	<0.050	0.050	11/01/2019	ND	1.49	74.6	2.00	2.15		
Ethylbenzene*	<0.050	0.050	11/01/2019	ND	1.50	75.2	2.00	2.50		
Total Xylenes*	<0.150	0.150	11/01/2019	ND	4.60	76.7	6.00	1.29		
Total BTEx	<0.300	0.300	11/01/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	304	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	215	108	200	1.46	
DRO >C10-C28*	<10.0	10.0	10/31/2019	ND	203	102	200	5.41	
EXT DRO >C28-C36	<10.0	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

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 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: V 2 @ SURFACE (H903707-09)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/01/2019	ND	1.59	79.5	2.00	6.17		
Toluene*	<0.050	0.050	11/01/2019	ND	1.49	74.6	2.00	2.15		
Ethylbenzene*	<0.050	0.050	11/01/2019	ND	1.50	75.2	2.00	2.50		
Total Xylenes*	<0.150	0.150	11/01/2019	ND	4.60	76.7	6.00	1.29		
Total BTEx	<0.300	0.300	11/01/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2920	16.0	11/01/2019	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	13.9	10.0	10/31/2019	ND	215	108	200	1.46	
DRO >C10-C28*	3550	10.0	10/31/2019	ND	203	102	200	5.41	
EXT DRO >C28-C36	821	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 97.1 % 41-142

Surrogate: 1-Chlorooctadecane 199 % 37.6-147

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Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: V 2 @ 2.5' (H903707-10)**

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	11/01/2019	ND	1.59	79.5	2.00	6.17		
Toluene*	<0.050	0.050	11/01/2019	ND	1.49	74.6	2.00	2.15		
Ethylbenzene*	<0.050	0.050	11/01/2019	ND	1.50	75.2	2.00	2.50		
Total Xylenes*	<0.150	0.150	11/01/2019	ND	4.60	76.7	6.00	1.29		
Total BTEx	<0.300	0.300	11/01/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.1 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2360	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	215	108	200	1.46	
DRO >C10-C28*	427	10.0	10/31/2019	ND	203	102	200	5.41	
EXT DRO >C28-C36	74.8	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 98.3 % 41-142

Surrogate: 1-Chlorooctadecane 115 % 37.6-147

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Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: SH 1e @ SURFACE (H903707-11)**

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	11/01/2019	ND	1.59	79.5	2.00	6.17		
Toluene*	<0.050	0.050	11/01/2019	ND	1.49	74.6	2.00	2.15		
Ethylbenzene*	<0.050	0.050	11/01/2019	ND	1.50	75.2	2.00	2.50		
Total Xylenes*	<0.150	0.150	11/01/2019	ND	4.60	76.7	6.00	1.29		
Total BTEx	<0.300	0.300	11/01/2019	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	215	108	200	1.46	
DRO >C10-C28*	<10.0	10.0	10/31/2019	ND	203	102	200	5.41	
EXT DRO >C28-C36	<10.0	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 82.4 % 41-142

Surrogate: 1-Chlorooctadecane 84.2 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: SH 1e @ 1' (H903707-12)**

BTEx 8021B			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/01/2019	ND	1.91	95.6	2.00	3.05	
Toluene*	<0.050	0.050	11/01/2019	ND	1.91	95.4	2.00	2.45	
Ethylbenzene*	<0.050	0.050	11/01/2019	ND	1.95	97.5	2.00	2.26	
Total Xylenes*	<0.150	0.150	11/01/2019	ND	5.83	97.2	6.00	2.37	
Total BTEX	<0.300	0.300	11/01/2019	ND					

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

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AC				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	215	108	200	1.46	
DRO >C10-C28*	<10.0	10.0	10/31/2019	ND	203	102	200	5.41	
EXT DRO >C28-C36	<10.0	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 91.1 % 41-142

Surrogate: 1-Chlorooctadecane 93.5 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: SH 2d @ SURFACE (H903707-13)**

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	11/01/2019	ND	1.91	95.6	2.00	3.05		
Toluene*	<0.050	0.050	11/01/2019	ND	1.91	95.4	2.00	2.45		
Ethylbenzene*	<0.050	0.050	11/01/2019	ND	1.95	97.5	2.00	2.26		
Total Xylenes*	<0.150	0.150	11/01/2019	ND	5.83	97.2	6.00	2.37		
Total BTEX	<0.300	0.300	11/01/2019	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	512	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	215	108	200	1.46	
DRO >C10-C28*	<10.0	10.0	10/31/2019	ND	203	102	200	5.41	
EXT DRO >C28-C36	<10.0	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 85.7 % 41-142

Surrogate: 1-Chlorooctadecane 88.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/30/2019	Sampling Date:	10/28/2019
Reported:	11/04/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: SH 2d @ 1' (H903707-14)**

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	11/01/2019	ND	1.91	95.6	2.00	3.05		
Toluene*	<0.050	0.050	11/01/2019	ND	1.91	95.4	2.00	2.45		
Ethylbenzene*	<0.050	0.050	11/01/2019	ND	1.95	97.5	2.00	2.26		
Total Xylenes*	<0.150	0.150	11/01/2019	ND	5.83	97.2	6.00	2.37		
Total BTX	<0.300	0.300	11/01/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	592	16.0	11/01/2019	ND	416	104	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	10/31/2019	ND	215	108	200	1.46	
DRO >C10-C28*	<10.0	10.0	10/31/2019	ND	203	102	200	5.41	
EXT DRO >C28-C36	<10.0	10.0	10/31/2019	ND					

Surrogate: 1-Chlorooctane 98.2 % 41-142

Surrogate: 1-Chlorooctadecane 100 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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### Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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

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Celey D. Keene, Lab Director/Quality Manager

Page 17 of 18



# ARDINAL LABORATORIES

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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



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

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Etech Environmental & Safety Solutions, Inc.

Project Manager: Joel Lowry

Address: P.O. Box 301

City: Lovington

State: NM Zip: 88260

Phone #: (575) 396-2378

Fax #: (575) 396-1429

Project #: 11420

Project Owner: Concho

Project Name: Red Raider BKS St. #001

Project Location: Rural Lea

Sampler Name: Hayden Scott

## BILL TO

P.O. #:

Company: Concho

Attn:

Address:

City:

State:

Phone #:

Fax #:

## ANALYSIS REQUEST

FOR LAB USE ONLY

Lab I.D.

Sample I.D.

#903707

(G)RAB OR (C)OMP.

# CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

Chloride

TPH (8015M)

BTEX (8021B)

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Relinquished By:

Date: 10-30-19

Received By:

P.O. #:

Company:

Attn:

Address:

City:

State:

Phone #:

Fax #:

Project #:

Project Name:

Project Location:

Sampler Name:

Relinquished By:

Date: 10-30-19

Received By:

P.O. #:

Company:

Attn:

Address:

City:

State:

Phone #:

Fax #:

Project #:

Project Name:

Project Location:

Sampler Name:

Delivered By: (Circle One) D.42

Date: 10-30-19

Received By:

P.O. #:

Company:

Attn:

Address:

City:

State:

Phone #:

Fax #:

Project #:

Project Name:

Project Location:

Sampler Name:

Sampler - UPS - Bus - Other:

Date: 10-30-19

Received By:

P.O. #:

Company:

Attn:

Address:

City:

State:

Phone #:

Fax #:

Project #:

Project Name:

Project Location:

Sampler Name:

FORM-006  
Revision 1.0

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

Please email results to joel@etechenv.com

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

Fax Result: ☐ Yes ☐ No Add'l Fax #:

REMARKS:

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

---

December 09, 2019

SHELDON HITCHCOCK

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: RED RAIDER BKS ST. #001

Enclosed are the results of analyses for samples received by the laboratory on 12/04/19 16:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at

[www.tceq.texas.gov/field/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

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

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

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

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

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

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210Project: RED RAIDER BKS ST. #001  
Project Number: 11420  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONEReported:  
09-Dec-19 14:15

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
V2 @ 10.5'	H904066-01	Soil	03-Dec-19 10:30	04-Dec-19 16:45
V2 @ 7'	H904066-02	Soil	03-Dec-19 10:45	04-Dec-19 16:45
V2 @ 5'	H904066-03	Soil	03-Dec-19 11:00	04-Dec-19 16:45

Joel revised the sample ID for -01. This is the revised report and will replace the one sent on 12/06/19.

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A handwritten signature in cursive script, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RED RAIDER BKS ST. #001  
Project Number: 11420  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
09-Dec-19 14:15

**V2 @ 10.5'**  
**H904066-01 (Soil)**

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

<b>Chloride</b>	<b>448</b>		16.0	mg/kg	4	9120504	AC	05-Dec-19	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	mg/kg	50	9120508	MS	06-Dec-19	8021B	
Toluene*	<0.050	0.050	mg/kg	50	9120508	MS	06-Dec-19	8021B	
Ethylbenzene*	<0.050	0.050	mg/kg	50	9120508	MS	06-Dec-19	8021B	
Total Xylenes*	<0.150	0.150	mg/kg	50	9120508	MS	06-Dec-19	8021B	
Total BTEX	<0.300	0.300	mg/kg	50	9120508	MS	06-Dec-19	8021B	

Surrogate: 4-Bromofluorobenzene (PID)		106 %		73.3-129	9120508	MS	06-Dec-19	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	mg/kg	1	9120507	MS	06-Dec-19	8015B	
DRO >C10-C28*	<10.0	10.0	mg/kg	1	9120507	MS	06-Dec-19	8015B	
EXT DRO >C28-C36	<10.0	10.0	mg/kg	1	9120507	MS	06-Dec-19	8015B	

Surrogate: 1-Chlorooctane		101 %		41-142	9120507	MS	06-Dec-19	8015B	
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Surrogate: 1-Chlorooctadecane		106 %		37.6-147	9120507	MS	06-Dec-19	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RED RAIDER BKS ST. #001  
Project Number: 11420  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
09-Dec-19 14:15

**V2 @ 7'****H904066-02 (Soil)**

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

Chloride	736		16.0	mg/kg	4	9120504	AC	05-Dec-19	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	9120508	MS	06-Dec-19	8021B	
Toluene*	<0.050		0.050	mg/kg	50	9120508	MS	06-Dec-19	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	9120508	MS	06-Dec-19	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	9120508	MS	06-Dec-19	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	9120508	MS	06-Dec-19	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			102 %	73.3-129		9120508	MS	06-Dec-19	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	9120507	MS	06-Dec-19	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	9120507	MS	06-Dec-19	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	9120507	MS	06-Dec-19	8015B	

Surrogate: 1-Chlorooctane			103 %	41-142		9120507	MS	06-Dec-19	8015B	
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Surrogate: 1-Chlorooctadecane			108 %	37.6-147		9120507	MS	06-Dec-19	8015B	
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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RED RAIDER BKS ST. #001  
Project Number: 11420  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
09-Dec-19 14:15

**V2 @ 5'**  
**H904066-03 (Soil)**

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

<b>Chloride</b>	<b>1070</b>		16.0	mg/kg	4	9120504	AC	05-Dec-19	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	9120508	MS	06-Dec-19	8021B	
Toluene*	<0.050		0.050	mg/kg	50	9120508	MS	06-Dec-19	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	9120508	MS	06-Dec-19	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	9120508	MS	06-Dec-19	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	9120508	MS	06-Dec-19	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			100 %	73.3-129		9120508	MS	06-Dec-19	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	9120507	MS	06-Dec-19	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	9120507	MS	06-Dec-19	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	9120507	MS	06-Dec-19	8015B	

<i>Surrogate: 1-Chlorooctane</i>			99.0 %	41-142		9120507	MS	06-Dec-19	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			103 %	37.6-147		9120507	MS	06-Dec-19	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RED RAIDER BKS ST. #001  
Project Number: 11420  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
09-Dec-19 14:15

**Inorganic Compounds - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 9120504 - 1:4 DI Water</b>									
<b>Blank (9120504-BLK1)</b>									
					Prepared & Analyzed: 05-Dec-19				
Chloride	ND	16.0	mg/kg						
<b>LCS (9120504-BS1)</b>									
					Prepared & Analyzed: 05-Dec-19				
Chloride	416	16.0	mg/kg	400	104	80-120			
<b>LCS Dup (9120504-BSD1)</b>									
					Prepared & Analyzed: 05-Dec-19				
Chloride	416	16.0	mg/kg	400	104	80-120	0.00	20	

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**Analytical Results For:**

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RED RAIDER BKS ST. #001  
Project Number: 11420  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
09-Dec-19 14:15

**Volatile Organic Compounds by EPA Method 8021 - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9120508 - Volatiles****Blank (9120508-BLK1)**

Prepared &amp; Analyzed: 05-Dec-19

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	ND		mg/kg	0.0500		99.8	73.3-129			

**LCS (9120508-BS1)**

Prepared &amp; Analyzed: 05-Dec-19

Benzene	1.92	0.050	mg/kg	2.00		95.9	72.2-131			
Toluene	1.85	0.050	mg/kg	2.00		92.3	71.7-126			
Ethylbenzene	1.88	0.050	mg/kg	2.00		93.9	68.9-126			
Total Xylenes	5.67	0.150	mg/kg	6.00		94.5	71.4-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0503		mg/kg	0.0500		101	73.3-129			

**LCS Dup (9120508-BSD1)**

Prepared &amp; Analyzed: 05-Dec-19

Benzene	1.97	0.050	mg/kg	2.00		98.5	72.2-131	2.67	14.6	
Toluene	1.91	0.050	mg/kg	2.00		95.4	71.7-126	3.27	17.4	
Ethylbenzene	1.93	0.050	mg/kg	2.00		96.6	68.9-126	2.89	18.9	
Total Xylenes	5.84	0.150	mg/kg	6.00		97.4	71.4-125	3.06	18.5	
Surrogate: 4-Bromofluorobenzene (PID)	0.0507		mg/kg	0.0500		101	73.3-129			

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RED RAIDER BKS ST. #001  
Project Number: 11420  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
09-Dec-19 14:15

**Petroleum Hydrocarbons by GC FID - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9120507 - General Prep - Organics****Blank (9120507-BLK1)**

Prepared: 05-Dec-19 Analyzed: 06-Dec-19

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	61.1		mg/kg	50.0		122	41-142			
Surrogate: 1-Chlorooctadecane	65.1		mg/kg	50.0		130	37.6-147			

**LCS (9120507-BS1)**

Prepared &amp; Analyzed: 05-Dec-19

GRO C6-C10	202	10.0	mg/kg	200		101	76.5-133			
DRO >C10-C28	209	10.0	mg/kg	200		104	72.9-138			
Total TPH C6-C28	410	10.0	mg/kg	400		103	78-132			
Surrogate: 1-Chlorooctane	67.6		mg/kg	50.0		135	41-142			
Surrogate: 1-Chlorooctadecane	69.0		mg/kg	50.0		138	37.6-147			

**LCS Dup (9120507-BSD1)**

Prepared &amp; Analyzed: 05-Dec-19

GRO C6-C10	206	10.0	mg/kg	200		103	76.5-133	2.35	20.6	
DRO >C10-C28	203	10.0	mg/kg	200		102	72.9-138	2.66	20.6	
Total TPH C6-C28	409	10.0	mg/kg	400		102	78-132	0.163	18	
Surrogate: 1-Chlorooctane	68.0		mg/kg	50.0		136	41-142			
Surrogate: 1-Chlorooctadecane	71.1		mg/kg	50.0		142	37.6-147			

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Celey D. Keene, Lab Director/Quality Manager



---

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---

### Notes and Definitions

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

---

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A handwritten signature in cursive script, appearing to read "Celey D. Keene".

---

Celey D. Keene, Lab Director/Quality Manager



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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



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

---

December 09, 2019

SHELDON HITCHCOCK

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: RED RAIDER BKS ST. #001

Enclosed are the results of analyses for samples received by the laboratory on 12/04/19 16:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

COG OPERATING  
SHELDON HITCHCOCK  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 12/04/2019  
Reported: 12/09/2019  
Project Name: RED RAIDER BKS ST. #001  
Project Number: 11420  
Project Location: LEA CO., NM

Sampling Date: 12/03/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: V1 @ 2.5' (H904067-01)**

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	12/06/2019	ND	1.92	95.9	2.00	2.67	
Toluene*	<0.050	0.050	12/06/2019	ND	1.85	92.3	2.00	3.27	
<b>Ethylbenzene*</b>	<b>0.106</b>	0.050	12/06/2019	ND	1.88	93.9	2.00	2.89	
Total Xylenes*	<0.150	0.150	12/06/2019	ND	5.67	94.5	6.00	3.06	GC-NC
Total BTX	<0.300	0.300	12/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 123 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>64.0</b>	16.0	12/05/2019	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10*</b>	<b>40.2</b>	10.0	12/06/2019	ND	202	101	200	2.35		
<b>DRO &gt;C10-C28*</b>	<b>4700</b>	10.0	12/06/2019	ND	209	104	200	2.66		
<b>EXT DRO &gt;C28-C36</b>	<b>1260</b>	10.0	12/06/2019	ND						

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 257 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
SHELDON HITCHCOCK  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 12/04/2019  
Reported: 12/09/2019  
Project Name: RED RAIDER BKS ST. #001  
Project Number: 11420  
Project Location: LEA CO., NM

Sampling Date: 12/03/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: V1 @ 2' (H904067-02)**

BTX 8021B		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/06/2019	ND	1.92	95.9	2.00	2.67	
Toluene*	<0.050	0.050	12/06/2019	ND	1.85	92.3	2.00	3.27	
Ethylbenzene*	<b>0.298</b>	0.050	12/06/2019	ND	1.88	93.9	2.00	2.89	
Total Xylenes*	<0.150	0.150	12/06/2019	ND	5.67	94.5	6.00	3.06	GC-NC
Total BTX	<0.300	0.300	12/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 159 % 73.3-129

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<b>64.0</b>	16.0	12/05/2019	ND	416	104	400	0.00	

TPH 8015M		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<b>57.9</b>	10.0	12/09/2019	ND	202	101	200	8.83	
DRO >C10-C28*	<b>4150</b>	10.0	12/09/2019	ND	217	109	200	1.54	
EXT DRO >C28-C36	<b>1090</b>	10.0	12/09/2019	ND					

Surrogate: 1-Chlorooctane 93.7 % 41-142

Surrogate: 1-Chlorooctadecane 202 % 37.6-147

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### Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
GC-NC	8260 confirmation analysis was performed; initial GC results were not supported by GC/MS analysis and are reported as ND.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

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

---

Celey D. Keene, Lab Director/Quality Manager

Page 5 of 5



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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

<b>Company Name:</b>	COG Operating, LLC	<b>P.O. #:</b>	BILL TO
<b>Project Manager:</b>	0	<b>Company:</b>	Cog
<b>Address:</b>	3100 Plains Hwy	<b>Attn:</b>	CO Sheldon Hitchcock
<b>City:</b>	Lovington	<b>State:</b>	NM
<b>Phone #:</b>	575-396-2378	<b>Fax #:</b>	575-396-1429
<b>Project #:</b>	11420	<b>Project Owner:</b>	COG Operating, LLC
<b>Project Location:</b>	UL / Sec TS - RE	<b>State:</b>	Zip:
<b>Sampler Name:</b>		<b>Phone #:</b>	
<b>FOR LAB USE ONLY</b>		<b>Fax #:</b>	

**Lab I.D.** H9C4D67      **Sample I.D.**

(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX	PRESERV	SAMPLING	DATE	TIME	Chloride	TPH	BTEX 8021
VIP 2:5'	G 1	X WASTEWATER			12/3/19	10:00	X	X	X
2 VIP @ 2'	G 1	X SOIL			12/3/19	10:45	X	X	X

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<b>Relinquished By:</b>	Date:	Received By:	Phone Result:	Yes	No	Add'l Phone #:
[Signature]	12/4/19	[Signature]	Fax Result:	Yes	No	Add'l Fax #:
<b>Reinquinshed By:</b>	Date:		<b>REMARKS:</b>	Email results to	#N/A	
<b>Delivered By:</b>	(Circle One)	1.7 <sup>c</sup>	<b>Sample Condition</b>	Cool Intact	Checked BY:	
<b>Dumper - UPS - Bus - Other:</b>	Converted 2.3 <sup>e</sup>	#97	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	(Initials)	

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



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

---

December 18, 2019

JOEL LOWRY

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: RED RAIDER BKS ST. #001

Enclosed are the results of analyses for samples received by the laboratory on 12/13/19 15:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	12/13/2019	Sampling Date:	12/12/2019
Reported:	12/18/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: VT1B @ 4.5' (H904183-01)**

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	12/16/2019	ND	215	107	200	2.02	
<b>DRO &gt;C10-C28*</b>	<b>410</b>	10.0	12/16/2019	ND	217	108	200	0.514	
<b>EXT DRO &gt;C28-C36</b>	<b>75.5</b>	10.0	12/16/2019	ND					

Surrogate: 1-Chlorooctane 99.7 % 41-142

Surrogate: 1-Chlorooctadecane 119 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



---

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### Notes and Definitions

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

---

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\*=Accredited Analyte

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A handwritten signature in cursive script, appearing to read "Celey D. Keene".

---

Celey D. Keene, Lab Director/Quality Manager

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603  
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

[illegible]



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

---

December 18, 2019

JOEL LOWRY

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: RED RAIDER BKS ST. #001

Enclosed are the results of analyses for samples received by the laboratory on 12/13/19 15:25.

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

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	12/13/2019	Sampling Date:	12/12/2019
Reported:	12/18/2019	Sampling Type:	Soil
Project Name:	RED RAIDER BKS ST. #001	Sampling Condition:	Cool & Intact
Project Number:	11420	Sample Received By:	Tamara Oldaker
Project Location:	CONCHO - LEA CO NM		

**Sample ID: VT1B @ 5' R (H904182-01)**

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	12/16/2019	ND	215	107	200	2.02	
<b>DRO &gt;C10-C28*</b>	<b>238</b>	10.0	12/16/2019	ND	217	108	200	0.514	
<b>EXT DRO &gt;C28-C36</b>	<b>55.2</b>	10.0	12/16/2019	ND					

Surrogate: 1-Chlorooctane 97.6 % 41-142

Surrogate: 1-Chlorooctadecane 121 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



---

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---

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RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
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-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

Cardinal Laboratories

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

---

Celey D. Keene, Lab Director/Quality Manager

Page 4 of 4



# ORDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603  
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



# Certificate of Analysis Summary 652422

Etech Environmental & Safety Solution, Inc, Midland, TX

Project Name: Red Raider BKS ST#1 RP 5776

Project Id: 11420  
Contact: Joel Lowry  
Project Location: Rurla Lee

Date Received in Lab: Fri Feb-14-20 10:00 am

Report Date: 17-FEB-20

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	652422-001	652422-002	652422-003	652422-004	652422-005	652422-006
	<i>Field Id:</i>	FL-1	FL-2	FL-3	FL-4	FL-5	FL-6
	<i>Depth:</i>	1.5- ft	1.5- ft	1.5- ft	1.5- ft	1.5- ft	1.5- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Feb-13-20 08:00	Feb-13-20 08:15	Feb-13-20 08:30	Feb-13-20 08:45	Feb-13-20 09:00	Feb-13-20 09:15
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Feb-14-20 11:30	Feb-14-20 11:30	Feb-14-20 11:30	Feb-14-20 11:30	Feb-14-20 11:30	Feb-14-20 11:30
	<i>Analyzed:</i>	Feb-14-20 15:22	Feb-14-20 15:43	Feb-14-20 16:03	Feb-14-20 16:23	Feb-14-20 16:44	Feb-14-20 17:04
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199
Toluene		<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199
Ethylbenzene		<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199
m,p-Xylenes		<0.00398 0.00398	<0.00396 0.00396	<0.00401 0.00401	<0.00402 0.00402	<0.00401 0.00401	<0.00398 0.00398
o-Xylene		<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199
Total Xylenes		<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199
Total BTEX		<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	Feb-14-20 12:30	Feb-14-20 12:30	Feb-14-20 12:30	Feb-14-20 12:30	Feb-14-20 12:30	Feb-14-20 12:30
	<i>Analyzed:</i>	Feb-14-20 13:31	Feb-14-20 13:47	Feb-14-20 13:53	Feb-14-20 13:58	Feb-14-20 14:04	Feb-14-20 14:20
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		648 9.96	580 9.96	672 9.94	718 9.88	683 9.96	615 9.94
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Feb-14-20 11:00	Feb-14-20 11:00	Feb-14-20 11:00	Feb-14-20 11:00	Feb-14-20 11:00	Feb-14-20 11:00
	<i>Analyzed:</i>	Feb-14-20 11:13	Feb-14-20 11:32	Feb-14-20 12:03	Feb-14-20 12:03	Feb-14-20 12:23	Feb-14-20 12:23
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<50.2 50.2	<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.3 50.3
Diesel Range Organics (DRO)		<50.0 50.0	<50.2 50.2	<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.3 50.3
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.2 50.2	<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.3 50.3
Total TPH		<50.0 50.0	<50.2 50.2	<50.1 50.1	<50.1 50.1	<50.3 50.3	<50.3 50.3

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Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

**Project Id:** 11420  
**Contact:** Joel Lowry  
**Project Location:** Rurla Lee

**Project Name:** Red Raider BKS ST#1 RP 5776

**Date Received in Lab:** Fri Feb-14-20 10:00 am  
**Report Date:** 17-FEB-20  
**Project Manager:** Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	652422-007	652422-008	652422-009	652422-010	652422-011	652422-012
	<i>Field Id:</i>	FL-7	FL-8	NW-1	NW-2	EW-1	EW-2
	<i>Depth:</i>	1.5- ft	1.5- ft	1.5- ft	1.5- ft	1.5- ft	1.5- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Feb-13-20 09:30	Feb-13-20 09:45	Feb-13-20 10:00	Feb-13-20 11:15	Feb-13-20 10:20	Feb-13-20 10:45
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Feb-14-20 11:30	Feb-14-20 11:30	Feb-14-20 11:30	Feb-14-20 11:30	Feb-14-20 11:30	Feb-14-20 11:30
	<i>Analyzed:</i>	Feb-14-20 17:25	Feb-14-20 17:45	Feb-14-20 18:05	Feb-14-20 18:26	Feb-14-20 19:27	Feb-14-20 19:47
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Toluene		<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
m,p-Xylenes		<0.00402 0.00402	<0.00402 0.00402	<0.00402 0.00402	<0.00401 0.00401	<0.00401 0.00401	<0.00401 0.00401
o-Xylene		<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Total Xylenes		<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Total BTEX		<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	Feb-14-20 12:30	Feb-14-20 12:30	Feb-14-20 12:30	Feb-14-20 12:30	Feb-14-20 12:30	Feb-14-20 12:30
	<i>Analyzed:</i>	Feb-14-20 14:26	Feb-14-20 14:31	Feb-14-20 14:37	Feb-14-20 14:42	Feb-14-20 14:47	Feb-14-20 15:04
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		740 9.92	642 9.92	605 9.88	685 9.98	675 9.92	624 10.0
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Feb-14-20 11:00	Feb-14-20 11:00	Feb-14-20 11:00	Feb-14-20 11:00	Feb-14-20 11:00	Feb-14-20 11:00
	<i>Analyzed:</i>	Feb-14-20 12:43	Feb-14-20 12:43	Feb-14-20 17:41	Feb-14-20 17:41	Feb-14-20 18:41	Feb-14-20 13:42
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.2 50.2	<49.9 49.9	<50.2 50.2	<49.9 49.9	<50.2 50.2	<49.9 49.9
Diesel Range Organics (DRO)		<50.2 50.2	<49.9 49.9	<50.2 50.2	<49.9 49.9	<50.2 50.2	<49.9 49.9
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<49.9 49.9	<50.2 50.2	<49.9 49.9	<50.2 50.2	<49.9 49.9
Total TPH		<50.2 50.2	<49.9 49.9	<50.2 50.2	<49.9 49.9	<50.2 50.2	<49.9 49.9

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 652422

Etech Environmental & Safety Solution, Inc, Midland, TX

Project Name: Red Raider BKS ST#1 RP 5776

Project Id: 11420  
Contact: Joel Lowry  
Project Location: Rurla Lee

Date Received in Lab: Fri Feb-14-20 10:00 am  
Report Date: 17-FEB-20  
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	652422-013	652422-014	652422-015	652422-016		
	<i>Field Id:</i>	SW-1	SW-2	WW-1	WW-2		
	<i>Depth:</i>	1.5- ft	1.5- ft	1.5- ft	1.5- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Feb-13-20 11:00	Feb-13-20 11:15	Feb-13-20 11:20	Feb-13-20 11:45		
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Feb-14-20 11:30	Feb-14-20 11:30	Feb-14-20 11:30	Feb-14-20 11:30		
	<i>Analyzed:</i>	Feb-14-20 20:08	Feb-14-20 20:28	Feb-14-20 20:48	Feb-14-20 21:09		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00198 0.00198	<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201		
Toluene		<0.00198 0.00198	<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201		
Ethylbenzene		<0.00198 0.00198	<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201		
m,p-Xylenes		<0.00397 0.00397	<0.00402 0.00402	<0.00398 0.00398	<0.00402 0.00402		
o-Xylene		<0.00198 0.00198	<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201		
Total Xylenes		<0.00198 0.00198	<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201		
Total BTEX		<0.00198 0.00198	<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201		
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	Feb-14-20 12:30	Feb-14-20 12:30	Feb-14-20 12:30	Feb-14-20 12:30		
	<i>Analyzed:</i>	Feb-14-20 15:20	Feb-14-20 15:26	Feb-14-20 15:31	Feb-14-20 15:37		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		697 10.0	860 9.98	869 9.92	666 9.98		
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Feb-14-20 11:00	Feb-14-20 11:00	Feb-14-20 11:00	Feb-14-20 11:00		
	<i>Analyzed:</i>	Feb-14-20 13:42	Feb-14-20 14:02	Feb-14-20 14:02	Feb-14-20 14:21		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<50.3 50.3	<50.2 50.2	<49.9 49.9	<49.9 49.9		
Diesel Range Organics (DRO)		<50.3 50.3	<50.2 50.2	<49.9 49.9	<49.9 49.9		
Motor Oil Range Hydrocarbons (MRO)		<50.3 50.3	<50.2 50.2	<49.9 49.9	<49.9 49.9		
Total TPH		<50.3 50.3	<50.2 50.2	<49.9 49.9	<49.9 49.9		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.  
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Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

*Jessica Kramer*

Jessica Kramer  
Project Assistant

**Analytical Report 652422**  
**for**  
**Etech Environmental & Safety Solution, Inc**

**Project Manager: Joel Lowry**

**Red Raider BKS ST#1 RP 5776**

**11420**

**17-FEB-20**

Collected By: Client



**1089 N Canal Street**  
**Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)  
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)

Xenco-Carlsbad (LELAP): Louisiana (05092)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Tampa: Florida (E87429), North Carolina (483)



17-FEB-20

Project Manager: **Joel Lowry**  
**Etech Environmental & Safety Solution, Inc**  
P.O. Box 62228  
Midland, TX 79711

Reference: XENCO Report No(s): **652422**  
**Red Raider BKS ST#1 RP 5776**  
Project Address: Rurla Lee

**Joel Lowry:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 652422. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 652422 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'.

---

**Jessica Kramer**  
Project Assistant

***Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.***

*Certified and approved by numerous States and Agencies.*

*A Small Business and Minority Status Company that delivers SERVICE and QUALITY*

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

**Sample Cross Reference 652422****Etech Environmental & Safety Solution, Inc, Midland, TX**

Red Raider BKS ST#1 RP 5776

<b>Sample Id</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Sample Depth</b>	<b>Lab Sample Id</b>
FL-1	S	02-13-20 08:00	1.5 ft	652422-001
FL-2	S	02-13-20 08:15	1.5 ft	652422-002
FL-3	S	02-13-20 08:30	1.5 ft	652422-003
FL-4	S	02-13-20 08:45	1.5 ft	652422-004
FL-5	S	02-13-20 09:00	1.5 ft	652422-005
FL-6	S	02-13-20 09:15	1.5 ft	652422-006
FL-7	S	02-13-20 09:30	1.5 ft	652422-007
FL-8	S	02-13-20 09:45	1.5 ft	652422-008
NW-1	S	02-13-20 10:00	1.5 ft	652422-009
NW-2	S	02-13-20 11:15	1.5 ft	652422-010
EW-1	S	02-13-20 10:20	1.5 ft	652422-011
EW-2	S	02-13-20 10:45	1.5 ft	652422-012
SW-1	S	02-13-20 11:00	1.5 ft	652422-013
SW-2	S	02-13-20 11:15	1.5 ft	652422-014
WW-1	S	02-13-20 11:20	1.5 ft	652422-015
WW-2	S	02-13-20 11:45	1.5 ft	652422-016



## CASE NARRATIVE

**Client Name:** *Etech Environmental & Safety Solution, Inc*

**Project Name:** *Red Raider BKS ST#1 RP 5776*

Project ID: 11420  
Work Order Number(s): 652422

Report Date: 17-FEB-20  
Date Received: 02/14/2020

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**Sample receipt non conformances and comments:**

None

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**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3116659 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-1**  
Lab Sample Id: 652422-001

Matrix: Soil  
Date Collected: 02.13.20 08.00

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<b>648</b>	9.96	mg/kg	02.14.20 13.31		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	02.14.20 11.13	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	02.14.20 11.13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.14.20 11.13	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	02.14.20 11.13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	02.14.20 11.13	
o-Terphenyl	84-15-1	107	%	70-135	02.14.20 11.13	



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-1**  
Lab Sample Id: 652422-001

Matrix: Soil  
Date Collected: 02.13.20 08.00

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.14.20 15.22	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.14.20 15.22	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.14.20 15.22	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.14.20 15.22	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.14.20 15.22	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.14.20 15.22	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.14.20 15.22	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	123	%	70-130	02.14.20 15.22		
1,4-Difluorobenzene	540-36-3	103	%	70-130	02.14.20 15.22		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-2**  
Lab Sample Id: 652422-002

Matrix: Soil  
Date Collected: 02.13.20 08.15

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	580	9.96	mg/kg	02.14.20 13.47		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	02.14.20 11.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	02.14.20 11.32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	02.14.20 11.32	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	02.14.20 11.32	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1-Chlorooctane	111-85-3	97	%	70-135	02.14.20 11.32		
o-Terphenyl	84-15-1	106	%	70-135	02.14.20 11.32		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-2**  
Lab Sample Id: 652422-002

Matrix: Soil  
Date Collected: 02.13.20 08.15

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	02.14.20 15.43	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	02.14.20 15.43	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	02.14.20 15.43	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	02.14.20 15.43	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	02.14.20 15.43	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	02.14.20 15.43	U	1
Total BTEX		<0.00198	0.00198	mg/kg	02.14.20 15.43	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	96	%	70-130	02.14.20 15.43		
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.14.20 15.43		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-3**  
Lab Sample Id: 652422-003

Matrix: Soil  
Date Collected: 02.13.20 08.30

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	672	9.94	mg/kg	02.14.20 13.53		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.14.20 12.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.14.20 12.03	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.14.20 12.03	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.14.20 12.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	02.14.20 12.03	
o-Terphenyl	84-15-1	105	%	70-135	02.14.20 12.03	



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-3**  
Lab Sample Id: 652422-003

Matrix: Soil  
Date Collected: 02.13.20 08.30

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.14.20 16.03	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.14.20 16.03	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.14.20 16.03	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	02.14.20 16.03	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.14.20 16.03	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.14.20 16.03	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.14.20 16.03	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.14.20 16.03		
4-Bromofluorobenzene	460-00-4	95	%	70-130	02.14.20 16.03		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-4**  
Lab Sample Id: 652422-004

Matrix: Soil  
Date Collected: 02.13.20 08.45

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	718	9.88	mg/kg	02.14.20 13.58		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	02.14.20 12.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	02.14.20 12.03	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	02.14.20 12.03	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	02.14.20 12.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	02.14.20 12.03	
o-Terphenyl	84-15-1	103	%	70-135	02.14.20 12.03	



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-4**  
Lab Sample Id: 652422-004

Matrix: Soil  
Date Collected: 02.13.20 08.45

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.14.20 16.23	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	02.14.20 16.23	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.14.20 16.23	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	02.14.20 16.23	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.14.20 16.23	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	02.14.20 16.23	U	1
Total BTEX		<0.00201	0.00201	mg/kg	02.14.20 16.23	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	96	%	70-130	02.14.20 16.23		
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.14.20 16.23		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-5**  
Lab Sample Id: 652422-005

Matrix: Soil  
Date Collected: 02.13.20 09.00

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	683	9.96	mg/kg	02.14.20 14.04		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	02.14.20 12.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	02.14.20 12.23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	02.14.20 12.23	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	02.14.20 12.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	02.14.20 12.23	
o-Terphenyl	84-15-1	101	%	70-135	02.14.20 12.23	



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-5**  
Lab Sample Id: 652422-005

Matrix: Soil  
Date Collected: 02.13.20 09.00

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.14.20 16.44	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.14.20 16.44	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.14.20 16.44	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	02.14.20 16.44	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.14.20 16.44	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.14.20 16.44	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.14.20 16.44	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.14.20 16.44		
4-Bromofluorobenzene	460-00-4	98	%	70-130	02.14.20 16.44		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-6**  
Lab Sample Id: 652422-006

Matrix: Soil  
Date Collected: 02.13.20 09.15

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	615	9.94	mg/kg	02.14.20 14.20		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	02.14.20 12.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	02.14.20 12.23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	02.14.20 12.23	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	02.14.20 12.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	02.14.20 12.23	
o-Terphenyl	84-15-1	103	%	70-135	02.14.20 12.23	



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-6**  
Lab Sample Id: 652422-006

Matrix: Soil  
Date Collected: 02.13.20 09.15

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.14.20 17.04	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.14.20 17.04	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.14.20 17.04	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.14.20 17.04	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.14.20 17.04	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.14.20 17.04	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.14.20 17.04	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.14.20 17.04		
4-Bromofluorobenzene	460-00-4	97	%	70-130	02.14.20 17.04		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-7**  
Lab Sample Id: 652422-007

Matrix: Soil  
Date Collected: 02.13.20 09.30

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	740	9.92	mg/kg	02.14.20 14.26		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	02.14.20 12.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	02.14.20 12.43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	02.14.20 12.43	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	02.14.20 12.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	02.14.20 12.43	
o-Terphenyl	84-15-1	103	%	70-135	02.14.20 12.43	



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-7**  
Lab Sample Id: 652422-007

Matrix: Soil  
Date Collected: 02.13.20 09.30

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.14.20 17.25	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	02.14.20 17.25	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.14.20 17.25	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	02.14.20 17.25	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.14.20 17.25	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	02.14.20 17.25	U	1
Total BTEX		<0.00201	0.00201	mg/kg	02.14.20 17.25	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.14.20 17.25		
4-Bromofluorobenzene	460-00-4	94	%	70-130	02.14.20 17.25		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-8**  
Lab Sample Id: 652422-008

Matrix: Soil  
Date Collected: 02.13.20 09.45

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	642	9.92	mg/kg	02.14.20 14.31		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.14.20 12.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	02.14.20 12.43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.14.20 12.43	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.14.20 12.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	02.14.20 12.43	
o-Terphenyl	84-15-1	102	%	70-135	02.14.20 12.43	



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **FL-8**  
Lab Sample Id: 652422-008

Matrix: Soil  
Date Collected: 02.13.20 09.45

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.14.20 17.45	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	02.14.20 17.45	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.14.20 17.45	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	02.14.20 17.45	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.14.20 17.45	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	02.14.20 17.45	U	1
Total BTEX		<0.00201	0.00201	mg/kg	02.14.20 17.45	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.14.20 17.45		
4-Bromofluorobenzene	460-00-4	94	%	70-130	02.14.20 17.45		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: NW-1  
Lab Sample Id: 652422-009

Matrix: Soil  
Date Collected: 02.13.20 10.00

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	605	9.88	mg/kg	02.14.20 14.37		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	02.14.20 17.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	02.14.20 17.41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	02.14.20 17.41	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	02.14.20 17.41	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1-Chlorooctane	111-85-3	104	%	70-135	02.14.20 17.41		
o-Terphenyl	84-15-1	114	%	70-135	02.14.20 17.41		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: NW-1  
Lab Sample Id: 652422-009

Matrix: Soil  
Date Collected: 02.13.20 10.00

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.14.20 18.05	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	02.14.20 18.05	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.14.20 18.05	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	02.14.20 18.05	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.14.20 18.05	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	02.14.20 18.05	U	1
Total BTEX		<0.00201	0.00201	mg/kg	02.14.20 18.05	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	98	%	70-130	02.14.20 18.05		
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.14.20 18.05		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: NW-2  
Lab Sample Id: 652422-010

Matrix: Soil  
Date Collected: 02.13.20 11.15

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	685	9.98	mg/kg	02.14.20 14.42		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.14.20 17.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	02.14.20 17.41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.14.20 17.41	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.14.20 17.41	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1-Chlorooctane	111-85-3	113	%	70-135	02.14.20 17.41		
o-Terphenyl	84-15-1	111	%	70-135	02.14.20 17.41		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: NW-2  
Lab Sample Id: 652422-010

Matrix: Soil  
Date Collected: 02.13.20 11.15

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.14.20 18.26	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.14.20 18.26	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.14.20 18.26	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	02.14.20 18.26	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.14.20 18.26	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.14.20 18.26	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.14.20 18.26	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.14.20 18.26		
4-Bromofluorobenzene	460-00-4	97	%	70-130	02.14.20 18.26		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **EW-1**  
Lab Sample Id: 652422-011

Matrix: Soil  
Date Collected: 02.13.20 10.20

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	675	9.92	mg/kg	02.14.20 14.47		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	02.14.20 18.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	02.14.20 18.41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	02.14.20 18.41	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	02.14.20 18.41	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1-Chlorooctane	111-85-3	107	%	70-135	02.14.20 18.41		
o-Terphenyl	84-15-1	118	%	70-135	02.14.20 18.41		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **EW-1**  
Lab Sample Id: 652422-011

Matrix: Soil  
Date Collected: 02.13.20 10.20

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3116659

Date Prep: 02.14.20 11.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.14.20 19.27	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.14.20 19.27	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.14.20 19.27	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	02.14.20 19.27	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.14.20 19.27	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.14.20 19.27	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.14.20 19.27	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	94	%	70-130	02.14.20 19.27		
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.14.20 19.27		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **EW-2**  
Lab Sample Id: 652422-012

Matrix: Soil  
Date Collected: 02.13.20 10.45

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	624	10.0	mg/kg	02.14.20 15.04		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.14.20 13.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	02.14.20 13.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.14.20 13.42	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.14.20 13.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	02.14.20 13.42	
o-Terphenyl	84-15-1	101	%	70-135	02.14.20 13.42	



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **EW-2**  
Lab Sample Id: 652422-012

Matrix: Soil  
Date Collected: 02.13.20 10.45

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3116659

Date Prep: 02.14.20 11.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.14.20 19.47	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.14.20 19.47	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.14.20 19.47	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	02.14.20 19.47	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.14.20 19.47	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.14.20 19.47	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.14.20 19.47	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	99	%	70-130	02.14.20 19.47		
1,4-Difluorobenzene	540-36-3	106	%	70-130	02.14.20 19.47		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **SW-1**  
Lab Sample Id: 652422-013

Matrix: Soil  
Date Collected: 02.13.20 11.00

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	697	10.0	mg/kg	02.14.20 15.20		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	02.14.20 13.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	02.14.20 13.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	02.14.20 13.42	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	02.14.20 13.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	02.14.20 13.42	
o-Terphenyl	84-15-1	101	%	70-135	02.14.20 13.42	



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **SW-1**  
Lab Sample Id: 652422-013

Matrix: Soil  
Date Collected: 02.13.20 11.00

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3116659

Date Prep: 02.14.20 11.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	02.14.20 20.08	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	02.14.20 20.08	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	02.14.20 20.08	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	02.14.20 20.08	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	02.14.20 20.08	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	02.14.20 20.08	U	1
Total BTEX		<0.00198	0.00198	mg/kg	02.14.20 20.08	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.14.20 20.08		
4-Bromofluorobenzene	460-00-4	96	%	70-130	02.14.20 20.08		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **SW-2**  
Lab Sample Id: 652422-014

Matrix: Soil  
Date Collected: 02.13.20 11.15

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	860	9.98	mg/kg	02.14.20 15.26		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	02.14.20 14.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	02.14.20 14.02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	02.14.20 14.02	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	02.14.20 14.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	02.14.20 14.02	
o-Terphenyl	84-15-1	106	%	70-135	02.14.20 14.02	



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **SW-2**  
Lab Sample Id: 652422-014

Matrix: Soil  
Date Collected: 02.13.20 11.15

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.14.20 20.28	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	02.14.20 20.28	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.14.20 20.28	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	02.14.20 20.28	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.14.20 20.28	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	02.14.20 20.28	U	1
Total BTEX		<0.00201	0.00201	mg/kg	02.14.20 20.28	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	99	%	70-130	02.14.20 20.28		
1,4-Difluorobenzene	540-36-3	104	%	70-130	02.14.20 20.28		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **WW-1**  
Lab Sample Id: 652422-015

Matrix: Soil  
Date Collected: 02.13.20 11.20

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	869	9.92	mg/kg	02.14.20 15.31		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.14.20 14.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	02.14.20 14.02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.14.20 14.02	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.14.20 14.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	02.14.20 14.02	
o-Terphenyl	84-15-1	101	%	70-135	02.14.20 14.02	



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **WW-1**  
Lab Sample Id: 652422-015

Matrix: Soil  
Date Collected: 02.13.20 11.20

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.14.20 20.48	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.14.20 20.48	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.14.20 20.48	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.14.20 20.48	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.14.20 20.48	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.14.20 20.48	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.14.20 20.48	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	96	%	70-130	02.14.20 20.48		
1,4-Difluorobenzene	540-36-3	105	%	70-130	02.14.20 20.48		



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **WW-2**  
Lab Sample Id: 652422-016

Matrix: Soil  
Date Collected: 02.13.20 11.45

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3116671

Date Prep: 02.14.20 12.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	666	9.98	mg/kg	02.14.20 15.37		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3116625

Date Prep: 02.14.20 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	02.14.20 14.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	02.14.20 14.21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.14.20 14.21	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.14.20 14.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	02.14.20 14.21	
o-Terphenyl	84-15-1	101	%	70-135	02.14.20 14.21	



# Certificate of Analytical Results 652422

## Etech Environmental & Safety Solution, Inc, Midland, TX

Red Raider BKS ST#1 RP 5776

Sample Id: **WW-2**  
Lab Sample Id: 652422-016

Matrix: Soil  
Date Collected: 02.13.20 11.45

Date Received: 02.14.20 10.00  
Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 02.14.20 11.30

Basis: Wet Weight

Seq Number: 3116659

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.14.20 21.09	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	02.14.20 21.09	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.14.20 21.09	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	02.14.20 21.09	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.14.20 21.09	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	02.14.20 21.09	U	1
Total BTEX		<0.00201	0.00201	mg/kg	02.14.20 21.09	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	106	%	70-130	02.14.20 21.09		
4-Bromofluorobenzene	460-00-4	98	%	70-130	02.14.20 21.09		



## Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

**MDL** Method Detection Limit      **SDL** Sample Detection Limit      **LOD** Limit of Detection

**PQL** Practical Quantitation Limit      **MQL** Method Quantitation Limit      **LOQ** Limit of Quantitation

**DL** Method Detection Limit

**NC** Non-Calculable

**SMP** Client Sample      **BLK** Method Blank

**BKS/LCS** Blank Spike/Laboratory Control Sample      **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

**MD/SD** Method Duplicate/Sample Duplicate      **MS** Matrix Spike      **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

\* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



**Etech Environmental & Safety Solution, Inc**  
Red Raider BKS ST#1 RP 5776

**Analytical Method: Chloride by EPA 300**

Seq Number: 3116671

MB Sample Id: 7696715-1-BLK

Matrix: Solid

LCS Sample Id: 7696715-1-BKS

Prep Method: E300P

Date Prep: 02.14.20

LCSD Sample Id: 7696715-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	258	103	259	104	90-110	0	20	mg/kg	02.14.20 13:20	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3116671

Parent Sample Id: 652422-001

Matrix: Soil

MS Sample Id: 652422-001 S

Prep Method: E300P

Date Prep: 02.14.20

MSD Sample Id: 652422-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	648	199	850	102	863	108	90-110	2	20	mg/kg	02.14.20 13:36	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3116671

Parent Sample Id: 652422-011

Matrix: Soil

MS Sample Id: 652422-011 S

Prep Method: E300P

Date Prep: 02.14.20

MSD Sample Id: 652422-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	675	199	881	104	862	94	90-110	2	20	mg/kg	02.14.20 14:53	

**Analytical Method: TPH by SW8015 Mod**

Seq Number: 3116625

MB Sample Id: 7696686-1-BLK

Matrix: Solid

LCS Sample Id: 7696686-1-BKS

Prep Method: SW8015P

Date Prep: 02.14.20

LCSD Sample Id: 7696686-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	862	86	828	83	70-135	4	35	mg/kg	02.14.20 10:46	
Diesel Range Organics (DRO)	<50.0	1000	798	80	745	75	70-135	7	35	mg/kg	02.14.20 10:46	

**Surrogate**

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	99		107		105		70-135	%	02.14.20 10:46
o-Terphenyl	101		109		93		70-135	%	02.14.20 10:46

**Analytical Method: TPH by SW8015 Mod**

Seq Number: 3116625

Matrix: Solid

MB Sample Id: 7696686-1-BLK

Prep Method: SW8015P

Date Prep: 02.14.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	02.14.20 10:27	

MS/MSD Percent Recovery  
Relative Percent Difference  
LCS/LCSD Recovery  
Log Difference

$[D] = 100 * (C-A) / B$   
 $RPD = 200 * |(C-E) / (C+E)|$   
 $[D] = 100 * (C) / [B]$   
 $\text{Log Diff.} = \text{Log}(\text{Sample Duplicate}) - \text{Log}(\text{Original Sample})$

LCS = Laboratory Control Sample  
A = Parent Result  
C = MS/LCS Result  
E = MSD/LCSD Result

MS = Matrix Spike  
B = Spike Added  
D = MSD/LCSD % Rec



**Etech Environmental & Safety Solution, Inc**  
Red Raider BKS ST#1 RP 5776

**Analytical Method:** TPH by SW8015 Mod

Seq Number: 3116625

Parent Sample Id: 652422-001

Matrix: Soil

MS Sample Id: 652422-001 S

Prep Method: SW8015P

Date Prep: 02.14.20

MSD Sample Id: 652422-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	832	83	782	78	70-135	6	35	mg/kg	02.14.20 11:13	
Diesel Range Organics (DRO)	<49.9	997	749	75	717	72	70-135	4	35	mg/kg	02.14.20 11:13	

**Surrogate**

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	87		79		70-135	%	02.14.20 11:13
o-Terphenyl	80		82		70-135	%	02.14.20 11:13

**Analytical Method:** BTEX by EPA 8021B

Seq Number: 3116659

MB Sample Id: 7696729-1-BLK

Matrix: Solid

LCS Sample Id: 7696729-1-BKS

Prep Method: SW5030B

Date Prep: 02.14.20

LCSD Sample Id: 7696729-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.110	110	0.107	107	70-130	3	35	mg/kg	02.14.20 13:40	
Toluene	<0.00200	0.100	0.106	106	0.104	104	70-130	2	35	mg/kg	02.14.20 13:40	
Ethylbenzene	<0.00200	0.100	0.103	103	0.101	101	71-129	2	35	mg/kg	02.14.20 13:40	
m,p-Xylenes	<0.00400	0.200	0.212	106	0.208	104	70-135	2	35	mg/kg	02.14.20 13:40	
o-Xylene	<0.00200	0.100	0.105	105	0.103	103	71-133	2	35	mg/kg	02.14.20 13:40	

**Surrogate**

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		104		104		70-130	%	02.14.20 13:40
4-Bromofluorobenzene	94		93		93		70-130	%	02.14.20 13:40

**Analytical Method:** BTEX by EPA 8021B

Seq Number: 3116659

Parent Sample Id: 652422-001

Matrix: Soil

MS Sample Id: 652422-001 S

Prep Method: SW5030B

Date Prep: 02.14.20

MSD Sample Id: 652422-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.108	108	0.0923	93	70-130	16	35	mg/kg	02.14.20 14:21	
Toluene	<0.00200	0.0998	0.105	105	0.0902	91	70-130	15	35	mg/kg	02.14.20 14:21	
Ethylbenzene	<0.00200	0.0998	0.101	101	0.0866	87	71-129	15	35	mg/kg	02.14.20 14:21	
m,p-Xylenes	<0.00399	0.200	0.208	104	0.178	89	70-135	16	35	mg/kg	02.14.20 14:21	
o-Xylene	<0.00200	0.0998	0.103	103	0.0873	88	71-133	17	35	mg/kg	02.14.20 14:21	

**Surrogate**

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		104		70-130	%	02.14.20 14:21
4-Bromofluorobenzene	96		93		70-130	%	02.14.20 14:21

MS/MSD Percent Recovery  
Relative Percent Difference  
LCS/LCSD Recovery  
Log Difference

$[D] = 100 * (C - A) / B$   
 $RPD = 200 * |(C - E) / (C + E)|$   
 $[D] = 100 * (C) / [B]$   
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample  
 A = Parent Result  
 C = MS/LCS Result  
 E = MSD/LCSD Result

MS = Matrix Spike  
 B = Spike Added  
 D = MSD/LCSD % Rec



## Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300, San Antonio, TX (210) 509-3334  
 Midland, TX (432) 704-5440, El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296  
 Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199, Phoenix, AZ (480) 355-0900  
 Tampa, FL (813) 620-2000, Tallahassee, FL (904) 756-0747, Delray Beach, FL (561) 899-6701  
 Atlanta, GA (770) 449-8800

Work Order No: 652422

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of

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Project Manager:	Joel Lowry	Bill to: (if different)	C/O Sheldon Hitchcock
Company Name:	Etech Environmental & Safety	Company Name:	Xenco
Address:	3100 Plains Highway	Address:	
City, State ZIP:	Lovington, NM, 88260	City, State ZIP:	
Phone:	575-396-2378	Email:	Email Results to PM@etechenv.com + Client

Work Order Comments	
Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting Level: <input type="checkbox"/> Level I <input type="checkbox"/> PST/UST <input type="checkbox"/> TRR <input type="checkbox"/> Level II <input type="checkbox"/>	
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:	

Project Name:	Red Raider BKS #44 K0.5716	Turn Around	
Project Number:	11420	Routine:	<input type="checkbox"/>
Project Location:	Rural Lee	Rush:	<input checked="" type="checkbox"/>
Sample's Name:	Hector Ulla	Due Date:	
PO #:			

SAMPLE RECEIPT		Temp Blank:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Wet Ice:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Temperature (°C):	1.0	Thermometer ID	TMM007		
Received Inact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Correction Factor:	-0.2		
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Total Containers:	16		
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A				

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers/Preservative Code	Chloride E300	BTEX 8021	TPH Modified Ext	TPH TX1005	ANALYSIS REQUEST	Preservative Codes	Sample Comments
CL-1		1-13-20	8:10	1.5		/	/	/	/		HN03: HN	
CL-2		1-13-20	8:15	1.5		/	/	/	/		H2SO4: H2	
CL-3		1-13-20	8:30	1.5		/	/	/	/		HCL: HL	
CL-4		1-13-20	8:45	1.5		/	/	/	/		None: NO	
CL-5		1-13-20	9:00	1.5		/	/	/	/		NaOH: Na	
CL-6		1-13-20	9:15	1.5		/	/	/	/		MeOH: Me	
CL-7		1-13-20	9:30	1.5		/	/	/	/		Zn Acetate+ NaOH: Zn	
CL-8		1-13-20	9:45	1.5		/	/	/	/		TAT starts the day received by the lab, if received by 4:30pm	
Ulla-1		1-13-20	10:00	1.5		/	/	/	/			
Ulla-2		1-13-20	10:15	1.5		/	/	/	/			

Total 200.7 / 6010 200.8 / 6020:

Circle Method(s) and Metal(s) to be analyzed

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471: Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
2-14-20-10:00	2-14-20-10:00	2			2-14-20
		4			
		6			



## Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300, San Antonio, TX (210) 509-3334  
 Midland, TX (432) 704-5440, El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296  
 Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 968-3199, Phoenix, AZ (480) 355-0900  
 Tampa, FL (813) 620-2000, Tallahassee, FL (850) 756-0747, Delray Beach, FL (561) 889-6701  
 Atlanta, GA (770) 449-8800

Work Order No: 652422

Project Manager:	Joel Lowry	Bill to: (if different)	C/O Sheldon Hitchcock
Company Name:	Etech Environmental & Safety	Company Name:	Cencho
Address:	3100 Plains Highway	Address:	
City, State ZIP:	Lovington, NM, 88260	City, State ZIP:	
Phone:	575-396-2378	Email:	Email Results to PM@etechny.com + Client
Project Name:	Red Raider Bks #4 10-5716	Turn Around	
Project Number:	11420	Route:	<input type="checkbox"/>
Project Location:	Rural Lee	Rush:	<input checked="" type="checkbox"/>
Sampler's Name:	Hector Villa	Due Date:	
PO #:			

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Work Order Comments	
Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting Level: <input type="checkbox"/> Level I <input type="checkbox"/> PST/US <input type="checkbox"/> TRR <input type="checkbox"/> Level II <input type="checkbox"/>	Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

SAMPLE RECEIPT		Temp Blank:	Yes	No	Wetted:	Yes	No
Temperature (°C):		Thermometer ID					
Received intact:	Yes	No	Correction Factor:				
Cooler Custody Seals:	Yes	No	Total Containers:				
Sample Custody Seals:	Yes	No					

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers/Preservative Code	Chloride E300	BTEX 8021	TPH Modified Ext	TPH TX1005	Rush	Preservative Codes	Sample Comments
EW-1		11:20	10:20	1.5								
EW-2		11:20	10:45	1.5								
SW-1		11:20	11:00	1.5								
SW-2		11:20	11:00	1.5								
EW-1		11:20	11:00	1.5								
EW-2		11:20	11:00	1.5								
SW-1		11:20	11:00	1.5								
SW-2		11:20	11:00	1.5								

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

1631 / 245.1 / 7470 / 7471 : Hg

TAT starts the day received by the lab, if received by 4:30pm

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		2-14-20 10:00			

## **Appendix D**

### **Photographic Log**

## Photographic Log

<b>Photo Number:</b> 1	
<b>Photo Direction:</b> NA	
<b>Photo Description:</b> View of the hole cut into the lined containment.	

<b>Photo Number:</b> 2	
<b>Photo Direction:</b> Northeast	
<b>Photo Description:</b> View of portion of the affected area.	


## Photographic Log

<b>Photo Number:</b> 3	
<b>Photo Direction:</b> North	
<b>Photo Description:</b> View of portion of the affected area and sample locations.	

<b>Photo Number:</b> 4	
<b>Photo Direction:</b> NA	
<b>Photo Description:</b> View of portion of the affected area and sample locations.	

## Photographic Log

<b>Photo Number:</b> 5	
<b>Photo Direction:</b> North	
<b>Photo Description:</b> View of the affected area after remediation activities.	

<b>Photo Number:</b> 6	
<b>Photo Direction:</b> West	
<b>Photo Description:</b> View of the affected area after remediation activities.	