



February 25, 2021

Oil Conservation Division, District 1
1625 N. French Dr.
Hobbs, NM 88240

New Mexico State Land Office
1001 S. Atkinson
Roswell, NM 88230

Deferral Request

Red Raider BKS State #001

API #: 30-025-29141

Incident #: NRM1927341646

DOR: August 30, 2019

GPS: 32.1867561 -103.5238647

**Unit Letter J, Section 25, Township 24 South, Range 33 East
Lea County, New Mexico**

To Whom It May Concern,

COG Operating, LLC (COG) is pleased to submit the following deferral request in response to a release that occurred at the Red Raider BKS State #001. The release was located in Unit Letter J, Section 25, Township 24 South and Range 33 East in Lea County, New Mexico. More specifically the latitude and longitude for the release are 32.1867561 North and -103.5238647 West.

BACKGROUND

The release was discovered on August 30, 2019. A C-141 initial report was submitted to the New Mexico Oil Conservation Division (NMOCD) and the New Mexico State Land Office (NMSLO). The C-141 is presented in Appendix A. Failure of a valve on the water dump resulted in the release of approximately forty (40) barrels (bbls) of produced water and five (5) bbls of oil. A vacuum truck was utilized to recover thirty-five (35) bbls of produced water and four (4) bbls of oil.

GROUNDWATER AND REGULATORY FRAMEWORK

In order to determine the depth to groundwater in the project vicinity, a soil boring was installed on the Red Raider BKS State #001 well pad. The soil boring was advanced to a depth of fifty-five (55) feet below ground surface (BGS). Casing and slotted well screen were installed and the soil boring was left open for 72-hours. No water was discovered in the well following the 72-hour period. The drillers log is shown in Appendix B.

According to the New Mexico Office of the State Engineer groundwater in the project vicinity is greater than seventy-five (75) feet BGS. The water well information is shown in Appendix B.

A risk based evaluation and site determinations were performed in accordance to the New Mexico Oil Conservation Division (NMOCD) Rule (Title 19 Chapter 15 Part 29) for releases on oil and gas development and production in New Mexico (effective August 14, 2018). According to the site characterization evaluation, no other receptors (water wells, playas, karst, water course, lake beds or ordinance boundaries) were located within each specific boundaries or distance from the site. The groundwater data and the site characterization evaluation data is summarized in Appendix B. The delineation and closure criteria are listed below:

General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (ft.)
None Located	>55 feet

Delineation and Closure Criteria:

Recommended Remedial Action Levels (RRALs)	
Chlorides	10,000 mg/kg
TPH (GRO and DRO and MRO)	2,500 mg/kg
TPH (GRO and DRO)	1,000 mg/kg
Benzene	10 mg/kg
Total BTEX	50 mg/kg

REMEDIAL ACTIONS

- 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, a third-party environmental consultant (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 samples.
- On December 15, 2020, a soil boring was installed inside of the containment to vertically delineate the area of V-1. This boring is labeled B-1 in the analytical table.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- Confirmation soil samples were taken from the bottom and sidewalls of the excavated areas per NMED 19.15.29.13.
- All of the impacted soil above Table 1 closure criteria was removed except in the vicinity of sample location V-1/BH-1. Due to the tank battery further excavation in this area would necessitate a major facility deconstruction.

SITE RECLAMATION AND RESTORATION

All of the fluid remained on the well pad. No reclamation activities will be required at this site.

DEFERRAL REQUEST

Due to the infrastructure present at this location further excavation and soil assessment activities are not feasible without threatening the structural integrity of the surrounding equipment and the safety of personnel. COG Operating, LLC respectfully requests that any further remedial activities be deferred until abandonment of the facility.

Should you have any questions or concerns, please do not hesitate to contact me.

Sincerely,



Sheldon L. Hitchcock
HSE Coordinator
slhitchcock@concho.com

FIGURES



Legend:

- Delineation Sample Point
- Confirmation Sample Location
- Excavated Area

Figure 3
Site and Sample Location Map
#N/A
#N/A
#N/A
Lea County

eTECH
Environmental & Safety Solutions, Inc.

Drafted: mag Checked: jwl Date: 2/25/21

TABLES

TABLE 1
CONCENTRATIONS OF BENZENE, BTEX, TPH AND CHLORIDE IN SOIL
 #N/A
 #N/A
 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 ₆ -C ₁₀ (mg/kg)	DRO C ₁₀ -C ₂₈ (mg/kg)	GRO + DRO C ₆ -C ₂₈ (mg/kg)	ORO C ₂₈ -C ₃₆ (mg/kg)	TPH C ₆ -C ₃₆ (mg/kg)	Chloride (mg/kg)
V1 @ 2'	12/3/2019	2'	In-Situ	<0.050	<0.300	57.90	4,150	4,207.9	1,090	5,297.9	64.0
V1 @ 2.5'	12/3/2019	2.5'	In-Situ	<0.050	<0.300	40.20	4,700	4,740.2	1,260	6,000.2	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	3,563.9	821	4,384.9	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
BH-1	12/16/2020	0-1'	In-Situ	-	-	<251	13,200.00	13,200.00	2,250.00	15,500.00	-
BH-1	12/16/2020	2-3'	In-Situ	-	-	<49.8	80.00	80.00	<49.8	80.00	-
BH-1	12/16/2020	4-5'	In-Situ	-	-	<50.0	498.00	498.00	148.00	646.00	-
BH-1	12/16/2020	10'	In-Situ	-	-	<50.0	79.80	79.80	<50.0	79.80	-
BH-1	12/16/2020	15'	In-Situ	-	-	<49.8	<49.8	<49.8	<49.8	<49.8	-
Closure Criteria				10	50	-	-	1,000	-	2,500	10,000

NOTES:

- =

Bold text denotes a concentration that exceeds the NMOCD Closure Criteria

APPENDIX A

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		

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>Sheldon Nitan</u>	Date: _____
email: _____	Telephone: _____
<u>OCD Only</u>	
Received by: _____	Date: _____

Incident ID	
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?	_____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input 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 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 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 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 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 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 type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input 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.

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	
District RP	
Facility ID	
Application ID	

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: Sheldon Nitan Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

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: _____ Title: _____

Signature: Sheldon Nitan Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral ApprovedSignature: Chad Henry Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

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

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

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

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

Printed Name: _____ Title: _____

Signature: Sheldon Hittman Date: _____

email: _____ Telephone: _____

OCD Only

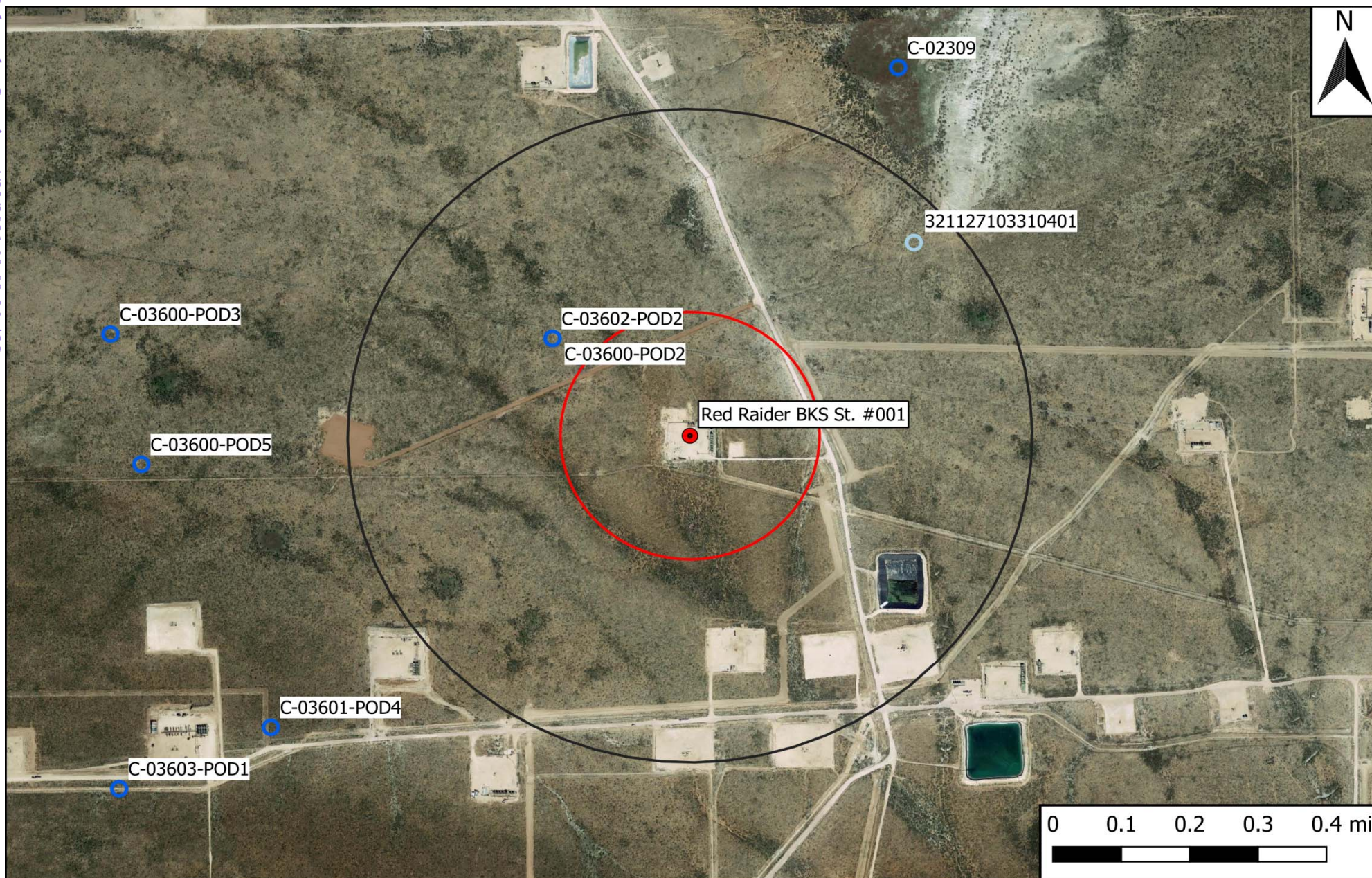
Received by: _____ Date: _____

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

Closure Approved by: Chad Henry Date: _____

Printed Name: _____ Title: _____

APPENDIX B



Legend

- Site Location
- 0.5 Mi Radius
- 1000 Ft Radius
- 1% Annual Flood Chance
- Surface Water
- Well - USGS
- Well - NMOSE
- High Karst
- Medium Karst
- Potash Mine Workings

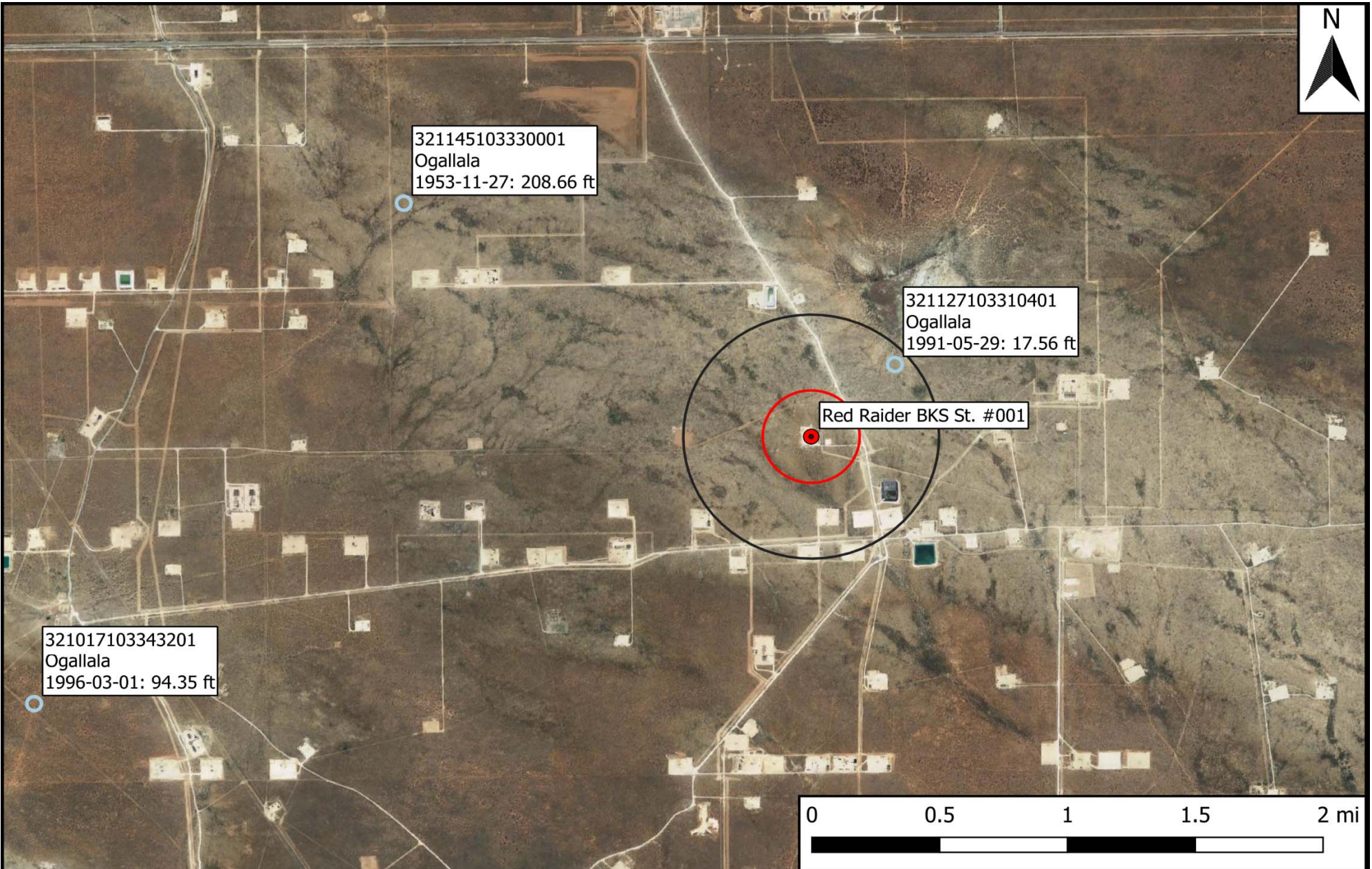
Figure 2
 Aerial Map
 #N/A
 #N/A
 #N/A
 Lea County

eTECH
 Environmental & Safety Solutions, Inc.

Drafted: mag

Checked: jwl

Date: 2/25/21



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

Figure 5
 USGS Well Proximity Map
 #N/A
 #N/A
 #N/A
 Lea County



Drafted: mag Checked: jwl Date: 2/25/21

TEST HOLES • WATER WELLS
P.O. Box 305 - Ph. 806-872-3285 or 872-9349
LAMESA, TEXAS 79331
2001 South Hwy. 87

WELL LOG		
From	To	FORMATION
0	1	Caliche
1	18	Top Soil
18	27	Caliche
27	42	Sand
42	55	Red Shale
		BH-1
		LOG - Red Rider BKS
		State # 14-T13
		Plugged w/ Hde Plug
		32.186306, -103.524444

Date 12-15-20 Driller

Driller

Live Searly

GIBBS PRINTING CO.-LAMESA, TX

APPENDIX C

Certificate of Analysis Summary 681355

COG Operating LLC, Artesia, NM

Project Name: Red Raider BRS #1

Project Id:

Date Received in Lab: Wed 12.16.2020 12:00

Contact: Sheldon Hitchcock

Report Date: 12.17.2020 16:24

Project Location: Lea County, New Mexico

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	681355-001	681355-002	681355-003	681355-004	681355-005	
	<i>Field Id:</i>	BH-1 0-1'	BH-1 2-3'	BH-1 4-5'	BH-1 10'	BH-1 15'	
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	
	<i>Sampled:</i>	12.16.2020 09:30	12.16.2020 09:35	12.16.2020 09:40	12.16.2020 09:45	12.16.2020 09:50	
TPH By SW8015 Mod	<i>Extracted:</i>	12.16.2020 18:00	12.16.2020 18:00	12.16.2020 18:00	12.16.2020 18:00	12.16.2020 18:00	
	<i>Analyzed:</i>	12.17.2020 02:40	12.17.2020 03:00	12.17.2020 03:20	12.17.2020 03:40	12.17.2020 04:00	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons		<251 251	<49.8 49.8	<50.0 50.0	<50.0 50.0	<49.8 49.8	
Diesel Range Organics		13200 251	80.0 49.8	498 50.0	79.8 50.0	<49.8 49.8	
Motor Oil Range Hydrocarbons (MRO)		2250 251	<49.8 49.8	148 50.0	<50.0 50.0	<49.8 49.8	
Total TPH		15500 251	80.0 49.8	646 50.0	79.8 50.0	<49.8 49.8	

BRL - Below Reporting Limit

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





Analytical Report 681355

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

Red Raider BRS #1

12.17.2020

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.17.2020

Project Manager: **Sheldon Hitchcock**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **681355**

Red Raider BRS #1

Project Address: Lea County, New Mexico

Sheldon Hitchcock:

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 Eurofins Xenco, LLC Report Number(s) 681355. 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 Eurofins Xenco, LLC. 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. 681355 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 Eurofins Xenco, LLC 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 Manager

A Small Business and Minority Company

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

**Sample Cross Reference 681355****COG Operating LLC, Artesia, NM**

Red Raider BRS #1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH-1 0-1'	S	12.16.2020 09:30		681355-001
BH-1 2-3'	S	12.16.2020 09:35		681355-002
BH-1 4-5'	S	12.16.2020 09:40		681355-003
BH-1 10'	S	12.16.2020 09:45		681355-004
BH-1 15'	S	12.16.2020 09:50		681355-005



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Red Raider BRS #1

Project ID:
Work Order Number(s): 681355

Report Date: 12.17.2020
Date Received: 12.16.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



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.

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



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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: 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, SM4500CI-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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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: EH 1 @ SURFACE (H903707-03)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/31/2019	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) 99.4 % 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	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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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: 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, SM4500CI-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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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: EH 2 @ SURFACE (H903707-05)

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/31/2019	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) 100 % 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	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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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: 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, SM4500CI-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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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
 Reported: 11/04/2019
 Project Name: RED RAIDER BKS ST. #001
 Project Number: 11420
 Project Location: CONCHO - LEA CO NM

Sampling Date: 10/28/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

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, SM4500CI-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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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
 Reported: 11/04/2019
 Project Name: RED RAIDER BKS ST. #001
 Project Number: 11420
 Project Location: CONCHO - LEA CO NM

Sampling Date: 10/28/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

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, SM4500CI-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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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: 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, SM4500CI-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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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: V 2 @ 2.5' (H903707-10)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	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) 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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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 1e @ SURFACE (H903707-11)

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) 102 % 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	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

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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
 Reported: 11/04/2019
 Project Name: RED RAIDER BKS ST. #001
 Project Number: 11420
 Project Location: CONCHO - LEA CO NM

Sampling Date: 10/28/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

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

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) 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	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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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)

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	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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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, SM4500CI-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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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".

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

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 Owner: Concho
Project #:	11420
Project Name:	Red Raider BKS St. #001
Project Location:	Rural Lea
Sampler Name:	Hayden Scott
Fax #:	

BILL TO

P.O.#:

Company: Concho
Attn:
Address:
City:
State: Zip:
Phone #:
Fax #:

ANALYSIS REQUEST

	Chloride			TPH (8015M)			BTEX (8021B)																	
	X	-	N/A	X	-	N/A	X	-	N/A	X	-	N/A	X	-	N/A	X	-	N/A	X	-	N/A	X	-	N/A
Lab I.D.	#03707																							
Sample I.D.		(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX	PRESERV.	SAMPLING																		
1 NH1 @ Surface	g	1	x			10/28/19	10:12	x	x	x														
2 NH1 @ 1'	g	1	x			10/28/19	10:15	x	x	x														
3 EH1 @ Surface	g	1	x			10/28/19	10:21	x	x	x														
4 EH1 @ 1'	g	1	x			10/28/19	10:24	x	x	x	'													
5 EH2 @ Surface	g	1	x			10/28/19	10:45	x	x	x														
6 EH2 @ 1'	g	1	x			10/28/19	10:51	x	x	x														
7 WH1 @ Surface	g	1	x			10/28/19	10:34	x	x	x														
8 WH1 @ 1'	g	1	x			10/28/19	10:36	x	x	x														
9 V2 @ Surface	g	1	x			10/28/19	11:20	x	x	x														
10 V2 @ *2.5' NG	g	1	x			10/28/19	13:25	x	x	x														

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Relinquished By: [Signature] Date: 10-30-19 Time: 14:30 Received By: [Signature]
Reinquinshed By: [Signature] Date: _____ Time: _____ Received By: [Signature]

Delivered By: (Circle One) O.K.
Sampler - UPS - Bus - Other: Connected at 8:20 AM

Sample Condition: Cool Intact Yes No
CHECKED BY: (Initials)
 Please email results to joel@etecheny.com

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

Page 18 of 18



ARDINAL LABORATORIES

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

Etech Environmental & Safety Solutions, Inc.

Company Name: Ettech Environmental & Safety Solutions, Inc.		BILL TO		ANALYSIS REQUEST					
Project Manager: Joel Lowry		P.O. #:							
Address: P.O. Box 301		Company: Concho							
City: Lovington		Attn:							
State: NM		Address:							
Zip: 88260		City:							
Phone #: (575) 396-2378		State:							
Fax #: (575) 396-1429		Phone #:							
Project #: 11420		Zip:							
Project Owner: Concho		Fax #:							
Project Name: Red Raider BKS St. #001		P.O. #:							
Project Location: Rural Lea		Company: Concho							
City: Lovington		Attn:							
State: NM		Address:							
Zip: 88260		City:							
Phone #: (575) 396-2378		State:							
Fax #: (575) 396-1429		Phone #:							
Project #: 11420		Zip:							
Project Owner: Concho		Fax #:							
Project Name: Red Raider BKS St. #001		P.O. #:							
Project Location: Rural Lea		Company: Concho							
City: Lovington		Attn:							
State: NM		Address:							
Zip: 88260		City:							
Phone #: (575) 396-2378		State:							
Fax #: (575) 396-1429		Phone #:							
Project #: 11420		Zip:							
Project Owner: Concho		Fax #:							
Project Name: Red Raider BKS St. #001		P.O. #:							
Project Location: Rural Lea		Company: Concho							
City: Lovington		Attn:							
State: NM		Address:							
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Project #: 11420		Zip:							
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Project Location: Rural Lea		Company: Concho							
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City: Lovington		Attn:							
State: NM		Address:							
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Project Location: Rural Lea		Company: Concho							
City: Lovington		Attn:							
State: NM		Address:							
Zip: 88260		City:							
Phone #: (575) 396-2378		State:							
Fax #: (575) 396-1429		Phone #:							
Project #: 11420		Zip:							
Project Owner: Concho		Fax #:							
Project Name: Red Raider BKS St. #001		P.O. #:							
Project Location: Rural Lea		Company: Concho							
City: Lovington		Attn:							
State: NM		Address:							
Zip: 88260		City:							
Phone #: (575) 396-2378		State:							
Fax #: (575) 396-1429		Phone #:							
Project #: 11420		Zip:							
Project Owner: Concho		Fax #:							
Project Name: Red Raider BKS St. #001		P.O. #:							
Project Location: Rural Lea		Company: Concho							
City: Lovington		Attn:							
State: NM		Address:							
Zip: 88260		City:							
Phone #: (575) 396-2378		State:							
Fax #: (575) 396-1429		Phone #:							
Project #: 11420		Zip:							
Project Owner: Concho		Fax #:							
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Project Location: Rural Lea		Company: Concho							
City: Lovington		Attn:							
State: NM		Address:							
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City: Lovington		Attn:							
State: NM		Address:							
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Fax #: (575) 396-1429		Phone #:							
Project #: 11420		Zip:							
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Project Location: Rural Lea		Company: Concho							
City: Lovington		Attn:							
State: NM		Address:							
Zip: 88260		City:							
Phone #: (575) 396-2378		State:							
Fax #: (575) 396-1429		Phone #:							
Project #: 11420		Zip:							
Project									

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

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Relinquished By:

Date: 22/10

Received By:

Relinquished By:

Date: _____

Received By:

Delivered By: (Circle One)

0.40

#07

Sample Condition

CHECKED BY:

Please email results to joel@etechenv.com

Phone Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Phone #:
Fax Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Fax #:
REMARKS:			

FORM-006
Revision 1.0

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



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.

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,

A handwritten signature in black ink that reads "Celey D. Keene".

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.

Cardinal Laboratories

*=Accredited Analyte

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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 @ 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**

Chloride	448		16.0	mg/kg	4	9120504	AC	05-Dec-19	4500-Cl-B	
-----------------	------------	--	------	-------	---	---------	----	-----------	-----------	--

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	
---------------------------------------	--	-------	--	----------	--	---------	----	-----------	-------	--

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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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:

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
---------	--------	-----	-----------------	-------	----------	-------	---------	----------	--------	-------

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	
---------------------------------------	-------	----------	---------	----	-----------	-------	--

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**

Chloride	1070		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)	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	

Surrogate: 1-Chlorooctane	99.0 %	41-142	9120507	MS	06-Dec-19	8015B	
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Surrogate: 1-Chlorooctadecane	103 %	37.6-147	9120507	MS	06-Dec-19	8015B	
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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:

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
Batch 9120504 - 1:4 DI Water									
Blank (9120504-BLK1)				Prepared & Analyzed: 05-Dec-19					
Chloride	ND	16.0	mg/kg						
LCS (9120504-BS1)				Prepared & Analyzed: 05-Dec-19					
Chloride	416	16.0	mg/kg	400		104 80-120			
LCS Dup (9120504-BSD1)				Prepared & Analyzed: 05-Dec-19					
Chloride	416	16.0	mg/kg	400		104 80-120	0.00	20	

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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

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 & 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 & 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 & 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



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

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

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

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 & 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 & 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		

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

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", written in black ink.

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.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



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	
Ethylbenzene*	0.106	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
Chloride	64.0	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*	40.2	10.0	12/06/2019	ND	202	101	200	2.35		
DRO >C10-C28*	4700	10.0	12/06/2019	ND	209	104	200	2.66		
EXT DRO >C28-C36	1260	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*	0.298	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	64.0	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*	57.9	10.0	12/09/2019	ND	202	101	200	8.83	
DRO >C10-C28*	4150	10.0	12/09/2019	ND	217	109	200	1.54	
EXT DRO >C28-C36	1090	10.0	12/09/2019	ND					

Surrogate: 1-Chlorooctane 93.7 % 41-142

Surrogate: 1-Chlorooctadecane 202 % 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.
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



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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[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.

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.

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:	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	
DRO >C10-C28*	238	10.0	12/16/2019	ND	217	108	200	0.514	
EXT DRO >C28-C36	55.2	10.0	12/16/2019	ND					

Surrogate: 1-Chlorooctane 97.6 % 41-142

Surrogate: 1-Chlorooctadecane 121 % 37.6-147

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

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RPD	Relative Percent Difference
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***	Insufficient time to reach temperature.
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A handwritten signature in black ink, appearing to read "Celey D. Keene", is written over a horizontal line.

Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

COG

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



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.

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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:	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	
DRO >C10-C28*	410	10.0	12/16/2019	ND	217	108	200	0.514	
EXT DRO >C28-C36	75.5	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

Cardinal Laboratories

*=Accredited Analyte

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

Celey D. Keene, Lab Director/Quality Manager

4 jo 4 ebaD

**CARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240 211 Beechwood, Abilene, TX 79603
 (505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: COG

Project Manager: Joel Lowry

Address:

City:

State: Zip:

Phone #:

Fax #:

Project #: 11420

Project Owner:

Project Name: Red Raider BKS St. #001

Project Location:

Sampler Name: Lance Crenshaw

Fax #:

BILL TO

P.O. #:

Company: COG

Attn:

Address:

City:

State: Zip:

Phone #:

ANALYSIS REQUEST

FOR LAB USE ONLY

Lab I.D.

Sample I.D.

H904183

VT1B @ 4.5'

(G)RAB OR (C)OMP.

CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

Chlorides

TPH 8015 M

BTEX

Texas TPH

Complete Cations/Anions

TDS

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Relinquished By:

Date:

Time:

Received By:

Date:

Time:

Received By:

Phone Result:

Fax Result:

Yes

No

Add'l Phone #:

Add'l Fax #:

REMARKS:

email results

pm@etechenv.com

Relinquished By:

Date:

Time:

Received By:

Date:

Time:

Received By:

Phone Result:

Fax Result:

Yes

No

Add'l Phone #:

Add'l Fax #:

REMARKS:

email results

pm@etechenv.com

Delivered By: (Circle One)

-0.92

#49

Sample Condition

Cool

Intact

CHECKED BY:

(Initials)

Yes

No

Add'l Phone #:

Add'l Fax #:

REMARKS:

email results

pm@etechenv.com

pm@etechenv.com

Sampler - UPS - Bus - Other:

-0.92

#49

Sample Condition

Cool

Intact

CHECKED BY:

(Initials)

Yes

No

Add'l Phone #:

Add'l Fax #:

REMARKS:

email results

pm@etechenv.com

pm@etechenv.com

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



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>	652422-001	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
BTEX by EPA 8021B	<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
Chloride by EPA 300	<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
TPH by SW8015 Mod	<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

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.

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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>	652422-007	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
BTEX by EPA 8021B	<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
Chloride by EPA 300	<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
TPH by SW8015 Mod	<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.

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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		
BTEX by EPA 8021B	<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		
Chloride by EPA 300	<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		
TPH by SW8015 Mod	<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		

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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.

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

Red Raider BKS ST#1 RP 5776

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
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

Sample receipt non conformances and comments:

None

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	648	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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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		



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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	



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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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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		



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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	



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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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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		



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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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
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

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 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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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

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 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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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

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 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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
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	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

$[D] = 100 * (C-A) / B$
 $RPD = 200 * |(C-E) / (C+E)|$
 $[D] = 100 * (C) / [B]$
 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



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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Work Order Comments

Program: ☐ UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
 State of Project: ☐ Reporting Level ☐ Level ☐ PST/UST ☐ TRR ☐ Level ☐

Deliverables: EDD ☐ ADAPT ☐ Other:

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

Project Name:	Red River BKS #4A 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:	

SAMPLE RECEIPT		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):	1.0	Thermometer ID	TMM007				
Received Inact:	Yes	No					
Cooler Custody Seals:	Yes	No					
Sample Custody Seals:	Yes	No					
Correction Factor:	-0.2						
Total Containers:	16						

ANALYSIS REQUEST

Number of Containers/Preservative Code
 Chloride E300
 BTEX 8021
 TPH Modified Ext
 TPH TX1005
 Rush!!

Preservative Codes

HNO3: HN
 H2SO4: H2
 HCL: HL
 None: NO
 NaOH: Na
 MeOH: Me
 Zn Acetate+ NaOH: Zn

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

Sample Comments

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers/Preservative Code	Chloride E300	BTEX 8021	TPH Modified Ext	TPH TX1005	Rush!!
CL-1		1-13-20	8:10	1.5						
CL-2		1-13-20	8:15	1.5						
CL-3		1-13-20	8:30	1.5						
CL-4		1-13-20	8:45	1.5						
CL-5		1-13-20	9:00	1.5						
CL-6		1-13-20	9:15	1.5						
CL-7		1-13-20	9:30	1.5						
CL-8		1-13-20	9:45	1.5						
CL-9		1-13-20	10:00	1.5						
CL-10		1-13-20	10:15	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
 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:	

Temp Blank:	Yes	No	Wet:	Yes	No
Temperature (°C):	22	Thermometer ID			
Received In:	Yes	No	Correction Factor:		
Cooler Custody Seals:	Yes	No			
Sample Custody Seals:	Yes	No	Total Containers:		

ANALYSIS REQUEST		PRESERVATIVE CODES	
Number of Containers/Preservative Code		HN03: HN	
Chloride E300		H2SO4: H2	
BTEX 8021		HCL: HL	
TPH Modified Ext		None: NO	
TPH TX1005		NaOH: Na	
		MeOH: Me	
		Zn Acetate+ NaOH: Zn	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers/Preservative Code	Chloride E300	BTEX 8021	TPH Modified Ext	TPH TX1005	Rush
2W-1		1-13-20	10:20	1.5						
2W-2		1-13-20	10:45	1.5						
SW-1		1-13-20	11:00	1.5						
SW-2		1-13-20	11:05	1.5						
2W-1		1-13-20	11:15	1.5						
2W-2		1-13-20	11:30	1.5						
2W-1		1-13-20	11:45	1.5						
2W-2		1-13-20	11:55	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

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			



Certificate of Analytical Results 681355

COG Operating LLC, Artesia, NM

Red Raider BRS #1

Sample Id: **BH-1 0-1'**

Matrix: Soil

Date Received: 12.16.2020 12:00

Lab Sample Id: 681355-001

Date Collected: 12.16.2020 09:30

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 12.16.2020 18:00

% Moisture:

Seq Number: 3145189

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<251	251	mg/kg	12.17.2020 02:40	U	5
Diesel Range Organics	C10C28DRO	13200	251	mg/kg	12.17.2020 02:40		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	2250	251	mg/kg	12.17.2020 02:40		5
Total TPH	PHC635	15500	251	mg/kg	12.17.2020 02:40		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	115	%	70-135	12.17.2020 02:40		
o-Terphenyl	84-15-1	116	%	70-135	12.17.2020 02:40		



Certificate of Analytical Results 681355

COG Operating LLC, Artesia, NM

Red Raider BRS #1

Sample Id: **BH-1 2-3'**

Matrix: Soil

Date Received: 12.16.2020 12:00

Lab Sample Id: 681355-002

Date Collected: 12.16.2020 09:35

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 12.16.2020 18:00

% Moisture:

Seq Number: 3145189

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	12.17.2020 03:00	U	1
Diesel Range Organics	C10C28DRO	80.0	49.8	mg/kg	12.17.2020 03:00		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	12.17.2020 03:00	U	1
Total TPH	PHC635	80.0	49.8	mg/kg	12.17.2020 03:00		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	105	%	70-135	12.17.2020 03:00		
o-Terphenyl	84-15-1	108	%	70-135	12.17.2020 03:00		



Certificate of Analytical Results 681355

COG Operating LLC, Artesia, NM

Red Raider BRS #1

Sample Id: **BH-1 4-5'**

Matrix: Soil

Date Received: 12.16.2020 12:00

Lab Sample Id: 681355-003

Date Collected: 12.16.2020 09:40

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 12.16.2020 18:00

% Moisture:

Seq Number: 3145189

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	12.17.2020 03:20	U	1
Diesel Range Organics	C10C28DRO	498	50.0	mg/kg	12.17.2020 03:20		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	148	50.0	mg/kg	12.17.2020 03:20		1
Total TPH	PHC635	646	50.0	mg/kg	12.17.2020 03:20		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	108	%	70-135	12.17.2020 03:20		
o-Terphenyl	84-15-1	114	%	70-135	12.17.2020 03:20		



Certificate of Analytical Results 681355

COG Operating LLC, Artesia, NM

Red Raider BRS #1

Sample Id: **BH-1 10'**
Lab Sample Id: 681355-004

Matrix: Soil
Date Collected: 12.16.2020 09:45

Date Received: 12.16.2020 12:00

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 12.16.2020 18:00

% Moisture:
Basis: Wet Weight

Seq Number: 3145189

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	12.17.2020 03:40	U	1
Diesel Range Organics	C10C28DRO	79.8	50.0	mg/kg	12.17.2020 03:40		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.17.2020 03:40	U	1
Total TPH	PHC635	79.8	50.0	mg/kg	12.17.2020 03:40		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	103	%	70-135	12.17.2020 03:40		
o-Terphenyl	84-15-1	96	%	70-135	12.17.2020 03:40		



Certificate of Analytical Results 681355

COG Operating LLC, Artesia, NM

Red Raider BRS #1

Sample Id: **BH-1 15'**
Lab Sample Id: 681355-005

Matrix: Soil
Date Collected: 12.16.2020 09:50

Date Received: 12.16.2020 12:00

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 12.16.2020 18:00

% Moisture:
Basis: Wet Weight

Seq Number: 3145189

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	12.17.2020 04:00	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	12.17.2020 04:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	12.17.2020 04:00	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	12.17.2020 04:00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	109	%	70-135	12.17.2020 04:00		
o-Terphenyl	84-15-1	98	%	70-135	12.17.2020 04:00		

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. **ND** Not Detected.

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

COG Operating LLC

Red Raider BRS #1

Analytical Method: TPH By SW8015 Mod

Seq Number: 3145189

MB Sample Id: 7717318-1-BLK

Matrix: Solid

LCS Sample Id: 7717318-1-BKS

Prep Method: SW8015P

Date Prep: 12.16.2020

LCSD Sample Id: 7717318-1-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	<50.0	1000	1010	101	1090	109	70-135	8	35	mg/kg	12.16.2020 19:57	
Diesel Range Organics	<50.0	1000	1060	106	925	93	70-135	14	35	mg/kg	12.16.2020 19:57	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	113		114		95		70-135	%	12.16.2020 19:57
o-Terphenyl	112		108		91		70-135	%	12.16.2020 19:57

Analytical Method: TPH By SW8015 Mod

Seq Number: 3145189

Matrix: Solid

MB Sample Id: 7717318-1-BLK

Prep Method: SW8015P

Date Prep: 12.16.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	12.16.2020 19:37	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3145189

Matrix: Soil

Parent Sample Id: 681437-041

MS Sample Id: 681437-041 S

Prep Method: SW8015P

Date Prep: 12.16.2020

MSD Sample Id: 681437-041 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	<50.2	1000	1220	122	1110	111	70-135	9	35	mg/kg	12.16.2020 20:57	
Diesel Range Organics	<50.2	1000	1110	111	1110	111	70-135	0	35	mg/kg	12.16.2020 20:57	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	114		121		70-135	%	12.16.2020 20:57
o-Terphenyl	106		111		70-135	%	12.16.2020 20:57

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

Analysis Request of Chain of Custody Record



One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443

Page 1 of 1

5-055

[illegible]

ORIGINAL COPY

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 12.16.2020 12.00.00 PM

Work Order #: 681355

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 12.16.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.17.2020

APPENDIX D

Photographic Log


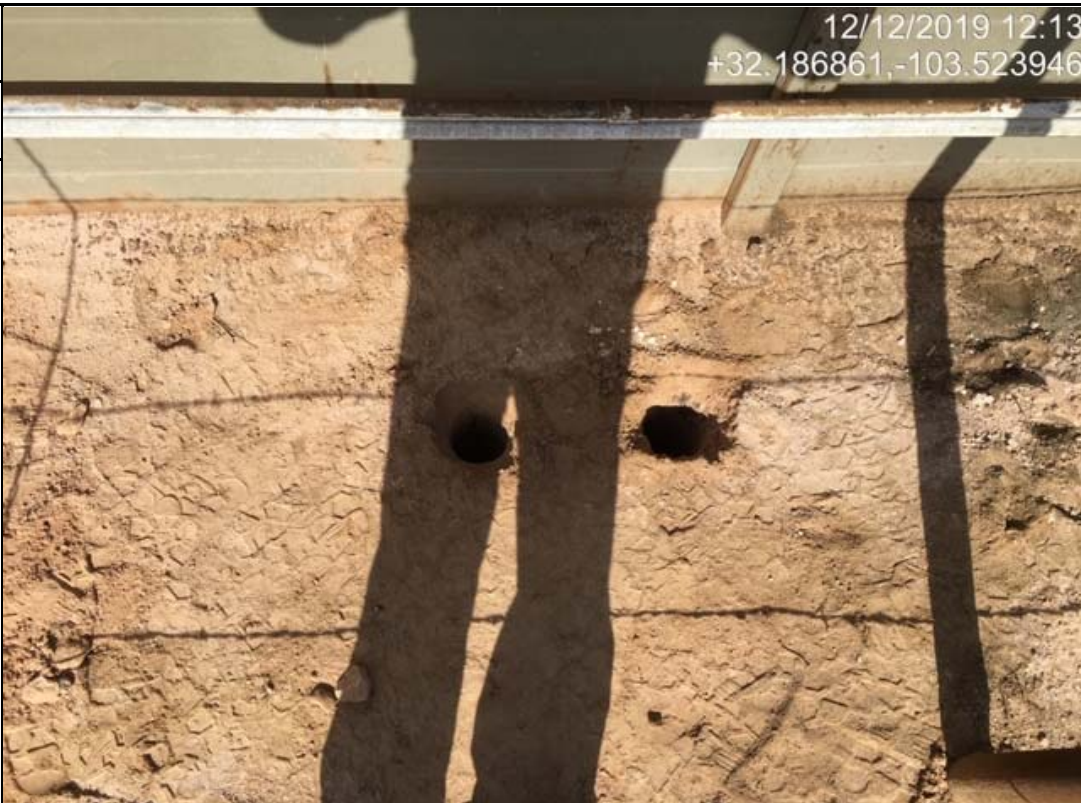
Photo Number: 1	
Photo Direction: NA	
Photo Description: View of the hole cut into the lined containment.	

Photo Number: 2	
Photo Direction: Northeast	
Photo Description: View of portion of the affected area.	

Photographic Log

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

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

Photographic Log



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

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

District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 19013

CONDITIONS OF APPROVAL

Operator:	COG OPERATING LLC	600 W Illinois Ave	Midland, TX79701	OGRID:	229137	Action Number:	19013	Action Type:	C-141
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OCD Reviewer	Condition
chensley	COG's deferral requests to complete final remediation during any future major construction/alteration or final plugging and abandonment, whichever occurs first is approved. The we Request and C-141 will be accepted for record and marked accordingly. The release will remain open in OCD database files and reflect an open environmental issue.