

Incident ID	nRM1932335844
District RP	
Facility ID	
Application ID	

Remediation Plan

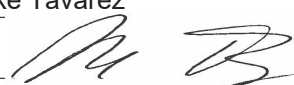
Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☒ 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. Deferral **D E N I E D**
- ☒ Extents of contamination must be fully delineated. Deferral **D E N I E D**
- ☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater. Deferral **D E N I E D**

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: Ike Tavaréz Title: Senior HSE Supervisor
Signature:  Date: 2/25/2021
email: itavaréz@concho.com Telephone: (432)685-2573

OCD Only

Received by: Chad Hensley Date: 03/31/2021 Deferral **D E N I E D**

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

Signature:  Date: 03/31/2021

Remediation Summary, Variance & Deferral Request

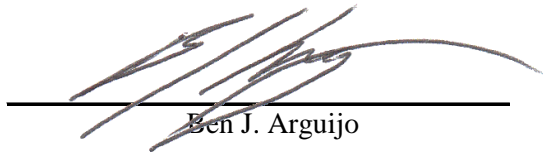
COG Operating, LLC Showstopper 19 Fed Com #004H-005H

Eddy County, New Mexico
Unit Letter O, Section 19, Township 25 South, Range 29 East
Latitude 32.11037 North, Longitude 104.02296 West
NMOCD Reference No. nRM1932335844

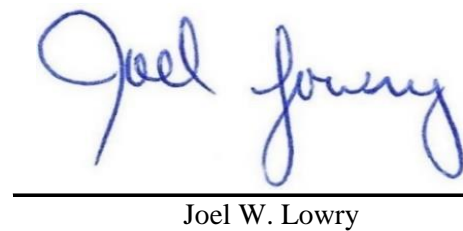
Prepared By:

Etech Environmental & Safety Solutions, Inc.

3100 Plains Highway
Lovington, New Mexico 88260



Ben J. Arguijo



Joel W. Lowry



Midland • San Antonio • Lubbock • Lovington • Lafayette

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1.0 PROJECT INFORMATION

Etech Environmental & Safety Solutions, Inc. (Etech), on behalf of COG Operating, LLC, has prepared this *Remediation Summary, Variance & Deferral Request* for the release site known as the Showstopper 19 Fed Com #004H-005H (henceforth "Site"). Details of the release are summarized below:

Location of Release Source

Latitude: 32.11037 Longitude: -104.02296

Provided GPS are in WGS84 format.

Site Name: Showstopper 19 Fed Com #004H-005H	Site Type: Tank Battery
Date Release Discovered: 10/2/2019	API # (if applicable): 30-015-37374

Unit Letter	Section	Township	Range	County
O	19	25S	29E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (Name _____)

Nature and Volume of Release

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 2	Volume Recovered (bbls) 0
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 48	Volume Recovered (bbls) 45
	Is the concentration of dissolved chloride in the produced water > 10,000 mg/L?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<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	Volume/Weight Recovered

Cause of Release and Affected Area:

The release was attributed to lightning striking the water tank. A majority of the release was limited to a lined containment. Portions of the release exited the containment, affecting an area on the caliche production pad measuring approximately 11,000 sq. ft. south of the tank battery.

Initial Response

<input checked="" type="checkbox"/> The source of the release has been stopped.
<input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment.
<input checked="" type="checkbox"/> Release materials have been contained via the use of berms or dikes, absorbent pad, or other containment devices
<input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.

Previously submitted portions of the NMOCD Form C-141 are available on the NMOCD Imaging System.

2.0 SITE CHARACTERIZATION

A search of groundwater databases maintained by the New Mexico Office of the State Engineer (NMOSE) and United States Geological Survey (USGS) was conducted in an effort to determine the horizontal distance to known water sources within a half-mile radius of the Site. Probable groundwater depth was determined using data generated by numeric models based on available water well data and published information. In addition, on December 8, 2020, a temporary monitor well was drilled on-site to forty (40) feet below ground surface (bgs) to verify depth to groundwater. Depth to groundwater information is provided in Appendix A. A monitor well drilling log is provided in Appendix B.

What is the shallowest depth to groundwater beneath the area affected by the release?	35'		
Did the release impact groundwater or surface water?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Are the lateral extents of the release within 300 feet of any occupied permanent residence, school, hospital, institution or church?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Are the lateral extents of the release within the incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Did the release impact areas not on an exploration, development, production or storage site?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	

NMOCD Siting Criteria data was gathered from available resources including Bureau of Land Management (BLM) shapefiles; topographic maps; NMOSE and USGS databases; and aerial imagery. The results are depicted on Figures 1, 2, 4, and 5.

3.0 CLOSURE CRITERIA FOR SOILS IMPACTED BY A RELEASE

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

Probable Depth to Groundwater	Constituent	Method	Closure Criteria	Reclamation Standard*
35'	Chloride	EPA 300.0 or SM4500 Cl B	600 mg/kg	600 mg/kg
	TPH (GRO + DRO + MRO)	EPA SW-846 Method 8015M Ext	100 mg/kg	100 mg/kg
	DRO + GRO	EPA SW-846 Method 8015M	-	-
	BTEX	EPA SW-846 Methods 8021b or 8260b	50 mg/kg	50 mg/kg
	Benzene	EPA SW-846 Methods 8021b or 8260b	10 mg/kg	10 mg/kg

* The NMOCD Reclamation Standard applies only to the top 4' of soil in non-production areas.

4.0 INITIAL SITE ASSESSMENT

On December 19, 2019, Etech conducted an initial site assessment. During the initial site assessment, a series of hand-augered soil bores (SP1 through SP4) were advanced within the release margins in an effort to determine the vertical extent of impacted soil. In addition, hand-augered soil bores (NHB, EHB, SH, and WHB) were advanced at the inferred edges of the affected area in an effort to determine the horizontal extent of impacted soil. During advancement of the hand-augered soil bores, soil samples were collected and field-screened for the presence of Volatile Organic Compounds utilizing a Photoionization Detector (PID) and/or concentrations of chloride utilizing a Hach Quantab® chloride test kit.

Based on field observations and field test data, sixteen (16) delineation soil samples (SP1 @ Surf, SP1 @ 2', SP2 @ Surf, SP2 @ 1', SP3 @ Surf, SP3 @ 1', SP4 @ Surf, SP4 @ 1', NHB @ Surf, NHB @ 1', EHB @ Surf, EHB @ 1', SH @ Surf, SH @ 1', WHB @ Surf, and WHB @ 1') were submitted to a certified commercial laboratory for analysis of BTEX, TPH, and chloride. Based on laboratory analytical results, soil was not affected above the NMOCD Closure Criteria beyond two (2) feet bgs in the area characterized by sample point SP1 and one (1) foot bgs in the areas characterized by sample points SP2 through SP4. The horizontal extent of impacted soil was adequately defined in the areas characterized by NHB and EHB. However, additional horizontal delineation was required in the areas characterized by sample points SH and WHB.

On December 31, 2019, Etech revisited the Site. During the site visit, two (2) additional hand-augered soil bores (SHb and WHc) were advanced at the inferred edges of the affected area in an effort to further investigate the horizontal extent of impacted soil in the areas characterized by sample points SH and WHB. During advancement of the soil bores, three (3) soil samples (SHB @ Surf, SHB @ 1', and WHC @ Surf) were collected and submitted to the laboratory for analysis of BTEX, TPH, and chloride. Based on laboratory analytical results, the horizontal extent of impacted soil was adequately defined.

Locations of the hand-augered soil bores are depicted in Figure 3A, "Site & Sample Location Map (Delineation)". A soil chemistry data table is provided as Table 1. Laboratory analytical reports are provided in Appendix C. General photographs of the Site are provided in Appendix D.

5.0 FIELD ACTIVITIES SUMMARY

On February 17, 2020, remediation activities commenced at the Site. Impacted soil affected above the NMOCD Closure Criteria was excavated and stockpiled on-site, pending transfer to an NMOCD-approved surface waste facility for disposal. The floor and sidewalls of the excavation were advanced until field observations and test results suggested BTEX, TPH, and chloride concentrations were below the applicable NMOCD Closure Criteria or to the maximum extent practicable.

On February 18, 2020, Etech collected fifteen (15) excavation confirmation soil samples (BHS 1 @ 2', BH 2 @ 2' through BH 5 @ 2', NSW 1 @ 2', NSW 2b @ 2', NSW 3 @ 2', NSW 4 @ 1', NSW 5 @ 1', NSW 6 @ 1', ESW 1 @ 2', ESW 2 @ 2', SWSW 1 @ 2', and WSW 1 @ 2') from the floor and sidewalls of the excavated area. The soil samples were submitted to a certified commercial laboratory for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated BTEX, TPH, and chloride concentrations were below the applicable NMOCD Closure Criteria in each of the submitted soil samples, with the exceptions of soil samples NSW 4 @ 1', NSW 5 @ 1', and NSW 6 @ 1', which exhibited chloride concentrations ranging from 640 mg/kg (NSW 5 @ 1') to 1,280 mg/kg (NSW 4 @ 1'). Additional excavation of the areas characterized by sample points NSW 4 @ 1', NSW 5 @ 1' and NSW 6 @ 1' was precluded by the presence of the lined tank battery containment.

On February 19, 2020, Etech collected fourteen (14) excavation confirmation soil samples (BH6 1 @ 1', BH7b @ 1.5', BH 8 @ 1' through BH 15 @ 1', BH 16D @ 4', BH 17D @ 4', ESW 3 @ 1', and ESW 4 @ 1') from the floor and sidewalls of the excavated area. The soil samples were submitted to the laboratory for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated BTEX, TPH, and chloride concentrations were below the applicable NMOCD Closure Criteria in each of the submitted soil samples, with the exceptions of soil samples BH7b @ 1.5', BH 16D @ 4', and BH 17D @ 4', which exhibited chloride concentrations ranging from 624 mg/kg (BH7b @ 1.5') to 1,420 mg/kg (BH 16D @ 4'). The excavation was advanced in the area characterized by soil sample BH 7b @ 1.5'.

A test trench (ST BH 16/17) was also advanced north of the pumping unit, in the area characterized by sample points BH 16D @ 4' and BH 17D @ 4', to further investigate the vertical extent of impacted soil. During advancement of the test trench, three (3) soil samples (ST BH 16/17 @ 6', ST BH 16/17 @ 8', and ST BH 16/17 @ 12') were collected and submitted to the laboratory for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated BTEX and TPH concentrations were below the applicable NMOCD Closure Criteria in each of the submitted soil samples. Chloride concentrations ranged from 1,330 mg/kg in soil sample ST BH 16/17 @ 12' to 1,680 mg/kg in soil sample ST BH 16/17 @ 8'. Based on laboratory analytical results, additional vertical delineation was required in the area characterized by test trench ST BH 16/17.

On February 20, 2020, Etech collected nine (9) excavation confirmation soil samples (BH-18 through BH-21, ESW 5b, SSW 1, SSW 2, SSW 3b, and SWSW 2) from the floor and sidewalls of the excavated area. The soil samples were submitted to the laboratory for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated BTEX, TPH, and chloride concentrations were below the applicable NMOCD Closure Criteria in each of the submitted soil samples, with the exceptions of soil samples BH-20 and BH-21, which exhibited chloride concentrations of 864 mg/kg and 672 mg/kg, respectively. The excavation was advanced in the area characterized by soil sample BH-20.

On February 24, 2020, Etech collected twenty-five (25) excavation confirmation soil samples (FL-1 through FL-25) from the floor of the excavated area. The soil samples were submitted to the laboratory for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated BTEX, TPH, and chloride concentrations were below the applicable NMOCD Closure Criteria in each of the submitted soil samples, with the exception of soil sample FL-25, which exhibited chloride concentration of 1,150 mg/kg.

A test trench (TT- 16/17) was also advanced in the area characterized by test trench ST BH 16/17 to further investigate the vertical extent of impacted soil. During advancement of the test trench, one (1) soil sample (TT-16/17 @ 19') was collected and submitted to the laboratory for analysis of chloride. Laboratory analytical results indicated the chloride concentration was below the NMOCD Closure Criteria, and the vertical extent of impacted soil was adequately defined.

Upon discovering impacted soil affected above the NMOCD Closure Criteria at depth adjacent to the pumping unit and beneath the lined containment, Etech prepared and submitted a *Site Assessment Report, Variance Request & Proposed Remediation Workplan* to the NMOCD and BLM, detailing delineation activities and the need for a variance and/or deferral to avoid a major facility deconstruction.

On February 25, 2020, Etech collected eighteen (18) excavation confirmation soil samples (FL-26 through FL-39, NSW 7 through NSW 9, and ESW 6) from the floor and sidewalls of the excavated area. The soil samples were submitted to the laboratory for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated BTEX, TPH, and chloride concentrations were below the applicable NMOCD Closure Criteria in each of the submitted soil samples.

On March 3, 2020, Etech collected two (2) excavation confirmation soil samples (BH-7c and BH-20b) from the floor of the excavated area. The soil samples were submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations were below the NMOCD Closure Criteria in both of the soil samples.

Upon receiving laboratory analytical results from excavation confirmation soil samples, a 20-mil polyurethane liner was installed on the floor of the excavation atop impacted soil affected above the NMOCD Closure Criteria in the area characterized by soil samples BH-16D @ 4', BH-17D @ 4', BH-21, and FL-25, and test trenches ST BH 16/17 and TT-16/17. The liner was sloped to facilitate shedding of moisture outside both the footprint of the excavation and the maximum horizontal extent of impacted soil. This engineered control is designed to inhibit the vertical migration of chloride contamination remaining in-situ. During the installation of the liner, an approximate 6-inch layer of pad material was installed both above and below the liner in an effort to maintain its integrity during backfilling activities. Subsequent to installation of the liner and pad material, the excavated area was backfilled with locally sourced, non-impacted "like" material in an effort to reduce safety and environmental concerns associated with the open excavation and to restore access to the facility.

The final dimensions of the excavated area were 160 feet in length, twenty-five (25) to ninety (90) feet in width, and one (1) to four (4) feet in depth. During the course of remediation activities, approximately 1,160 cubic yards of impacted soil was excavated and transported to an NMOCD-approved surface waste facility for disposal.

Locations of confirmation soil samples, test trenches, and the extents of the excavation and liner are depicted in Figure 3B, "Site & Sample Location Map (Excavation)". A soil chemistry data table is provided as Table 2. Laboratory analytical reports are provided in Appendix C. General photographs of the Site are provided in Appendix D.

6.0 GROUNDWATER INVESTIGATION & IN-SITU CHLORIDE MIGRATION MODELING

Review of the most recent GIS map data published by the BLM's Carlsbad Field Office on January 14, 2021, indicates the Site is in an area of "medium" potential for karst occurrence. On December 8, 2020, an investigative soil boring/temporary monitor well was installed at the Site in an effort to further investigate site characteristics and confirm the depth to groundwater. The investigative soil bore was advanced to a total depth of approximately forty (40) feet bgs. During the advancement of the investigative soil bore, no karst characteristics were noted. The investigative soil bore was left open for seventy-two (72) hours, then gauged. Groundwater gauging data indicated that the original depth to groundwater estimate of approximately thirty-five (35) feet bgs was accurate. The soil boring log is provided in Appendix B.

Based on this information, Etech utilized the Environmental Protection Agency's (EPA) Multimedia Exposure Assessment Model (MULTIMED) to determine if the contamination remaining in-situ under the liner poses a threat to groundwater quality. The most appropriate and conservative parameters possible for the Site and karst/limestone were used for the assessment model in regard to unsaturated transport zone thickness (i.e., 16 feet between the maximum vertical extent of the spill and groundwater surface), contaminant concentration (1,680 mg/kg, the maximum concentration remaining in-situ), porosity (0.13), saturated hydraulic conductivity (1 m/day), etc. The model indicated that the peak concentration of chloride in the underlying groundwater contributed by the contamination remaining in-situ under the liner would be approximately 136.4 mg/L in 101 years, versus 714.1 mg/L in 28.3 years if the area was not lined (see Appendix E).

Etech also utilized the EPA MULTIMED simulator to determine if the contamination remaining in-situ under the lined containment area poses a threat to groundwater quality. Again, using the most appropriate and conservative parameters possible for the Site and area of interest, the model indicated that the peak concentration of chloride in the underlying groundwater contributed by the contamination remaining in-situ under the lined containment area would be approximately 70.39 mg/L in 193 years, versus 453.2 mg/L in 54.3 years if the containment area was not lined (see Appendix E).

The estimated increases in chloride concentration are below the New Mexico Water Quality Control Commission (NMWQCC) standard of 250.0 mg/L specified in Section 20.6.2.3103 B.(1) of the New Mexico Administrative Code (NMAC). Leaving the contamination in-situ "does not cause an imminent risk to human health, the environment, or ground water", pursuant to NMAC Section 19.15.29.12.C(3). In addition, the maximum concentration of chloride remaining in-situ under the excavation liner (1,680 mg/kg), which was utilized for the model, occurred at eight (8) feet bgs. Pursuant to Sections 19.15.29.13.E and 19.15.29.14.A(2) NMAC, the migration model effectively demonstrates that the 4-foot excavation/reclamation and liner installation performed at the Site provides an "equal...protection of fresh water, public health and the environment" as a deeper excavation to eight (8) feet bgs (or beyond), and additional excavation is not required at this time.

7.0 VARIANCE & DEFERRAL REQUESTS

Based on laboratory analytical results from delineation soil samples and on in-situ chloride migration modeling, Etech, on behalf of COG Operating, LLC, requests a variance to the requirements of Section 19.15.29.12.C(3) NMAC and permission to leave the chloride contamination in the areas characterized by test trenches ST BH 16/17 and TT-16/17 and soil samples BH-16D @ 4', BH-17D @ 4', BH-21, FL-25, NSW 4 @ 1', NSW 5 @ 1', NSW 6 @ 1' in-situ. Etech also requests permission to leave the installed liner in place at four (4) feet bgs.

Etech recommends COG Operating, LLC, provide copies of this *Remediation Summary, Variance & Deferral Request* to the appropriate agencies and cease remediation activities at the Site. Remediation of impacted soil affected above the NMOCD Closure Criteria remaining in-situ beneath the liner and/or lined tank battery will be completed upon decommission and abandonment of the facility.

8.0 RESTORATION, RECLAMATION & RE-VEGETATION PLAN

The release was limited to an active tank battery facility on a production pad. Final reclamation and re-vegetation will be conducted in accordance with NMAC Section 19.15.29.13 upon decommission and abandonment of the facility.

9.0 LIMITATIONS

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

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

10.0 DISTRIBUTION

COG Operating, LLC

*600 West Illinois Avenue
Midland, TX 79701*

New Mexico Energy, Minerals and Natural Resources Department

*Oil Conservation Division, District 2
811 S. First Street
Artesia, NM 88210*

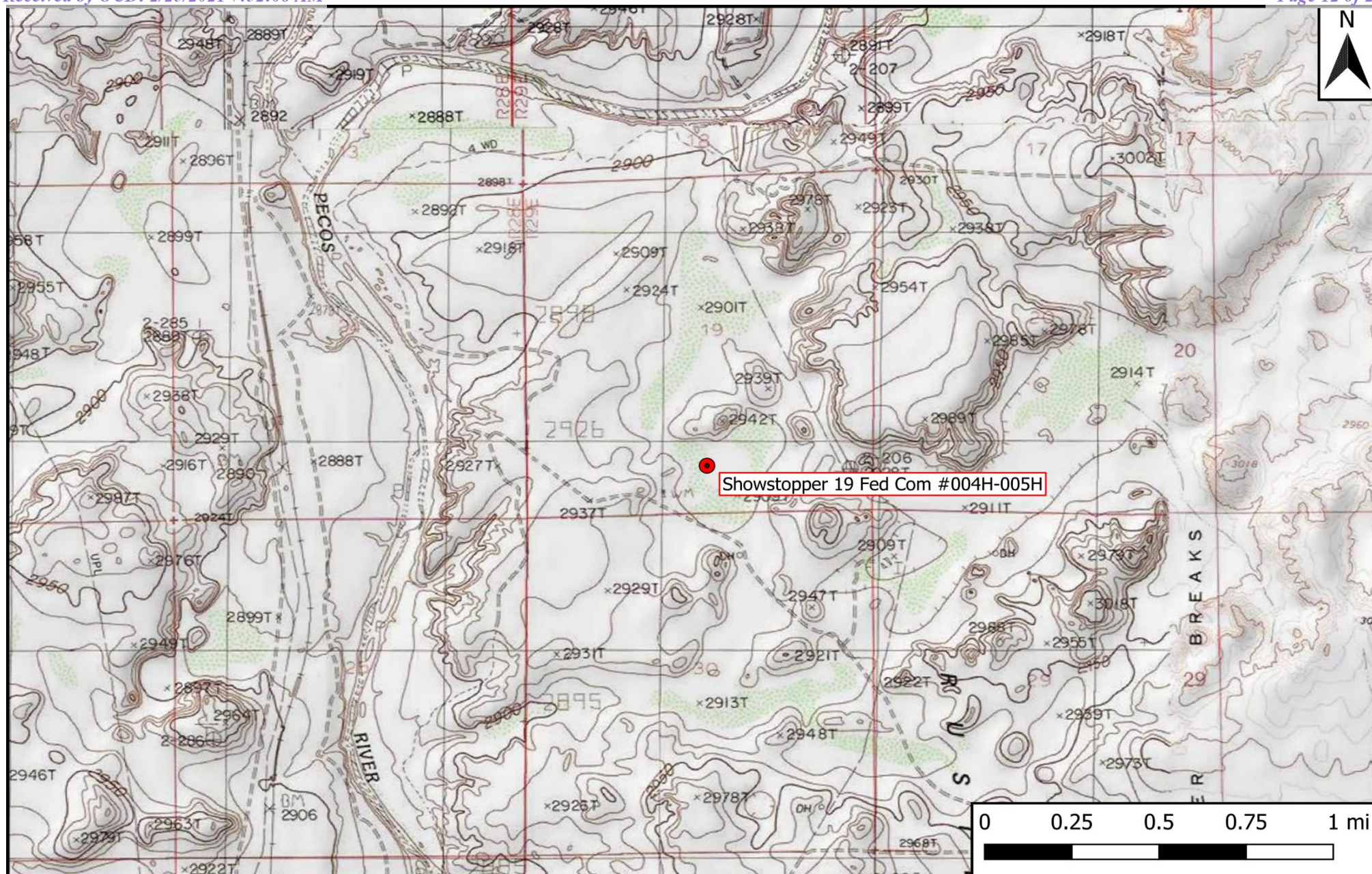
United States Department of the Interior

*Bureau of Land Management
620 E. Greene Street
Carlsbad, NM 88220*

(Electronic Submission)

Figure 1

Topographic Map



Legend

-  Site Location

Figure 1

Topographic Map
COG Operating, LLC
Showstopper 19 Fed Com #004H-005H
GPS: 32.11037, -104.02296
Eddy County



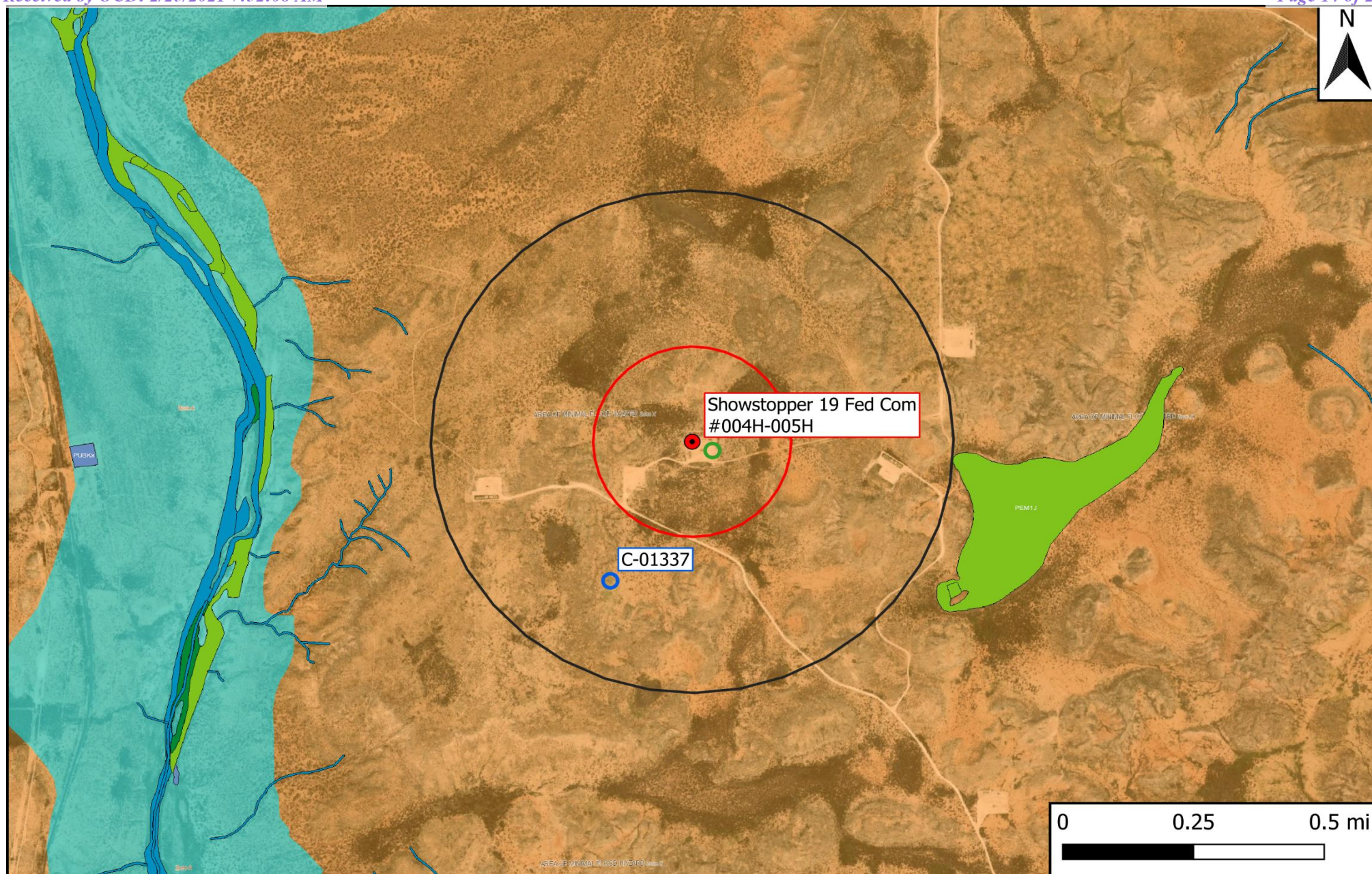
Drafted: bja

Checked: jwl

Date: 1/19/21

Figure 2

Aerial Proximity Map



Legend

- Site Location
- Well - NMOSE
- Well - USGS
- Well - Investigative/Monitor
- Potash Mine Workings
- 1,000-Ft Radius
- 0.5-Mi Radius
- 1% Annual Flood Chance
- Emergent/Forested Wetlands
- Lake/Freshwater Pond
- Medium/High Karst
- Riverine

Figure 2

Aerial Proximity Map
 COG Operating, LLC
 Showstopper 19 Fed Com #004H-005H
 GPS: 32.11037, -104.02296
 Eddy County



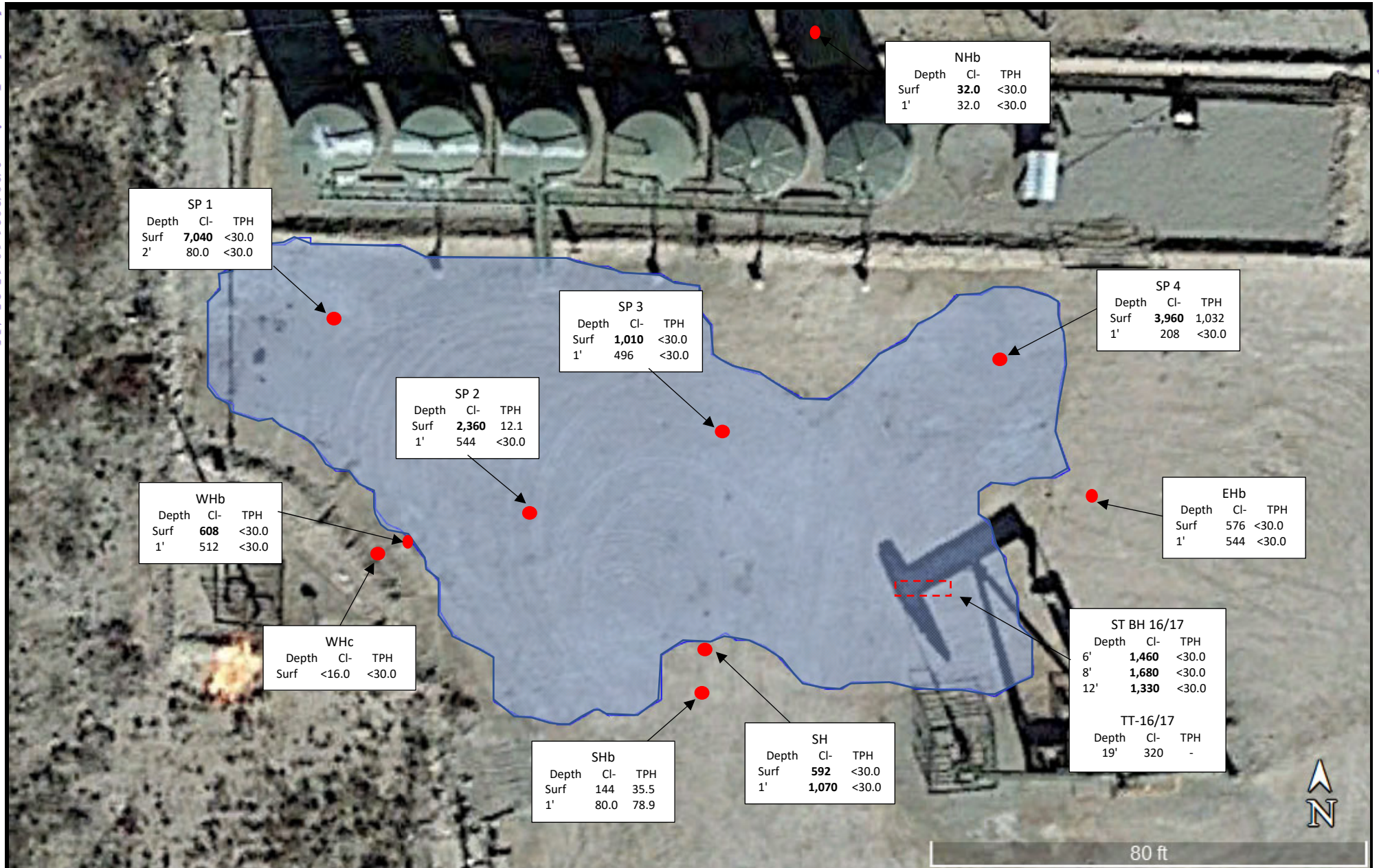
Drafted: bja

Checked: jwl

Date: 2/22/21

Figures 3A & 3B

Site & Sample Location Maps



**Legend:**

- SSW 1 Composite Sample Location
- Lined Area
- Excavated Area
- Test Trench

Figure 3B (Excavation)

Site and Sample Location Map
 COG Operating, LLC
 Showstopper 19 Fed Com #004H-005H
 GPS: 32.11037, -104.02296
 Lea County



Drafted: mag

Checked: jwl

Date: 7/24/20

Tables 1 & 2
Concentrations of BTEX, TPH & Chloride in Soil

TABLE 1
Concentrations of BTEX, TPH & Chloride in Soil (Delineation)
COG Operating, LLC
Showstopper 19 Fed Com #004H-005H
NMOCD Ref. #: 2RP-5703

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)
SP 1 @ Surf	12/19/2019	Surf	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	7,040
SP 1 @ 2'	12/19/2019	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	80.0
SP 2 @ Surf	12/19/2019	Surf	Excavated	<0.050	<0.300	<10.0	12.1	12.1	<10.0	12.1	2,360
SP 2 @ 1'	12/19/2019	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	544
SP 3 @ Surf	12/19/2019	Surf	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	1,010
SP 3 @ 1'	12/19/2019	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	496
SP 4 @ Surf	12/19/2019	Surf	Excavated	<0.050	<0.300	<10.0	735	735	297	1,032	3,960
SP 4 @ 1'	12/19/2019	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	208
NH b @ 1'	12/19/2019	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
NH b @ Surf	12/19/2019	Surf	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
EH b @ 1'	12/19/2019	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	544
EH b @ Surf	12/19/2019	Surf	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	576
SH @ 1'	12/19/2019	1'	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	1,070
SH @ Surf	12/19/2019	Surf	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	592
SHB @ 1	12/31/2019	1'	In-Situ	<0.050	<0.300	<10.0	78.9	78.9	<10.0	78.9	80.0
SHB @ Surf	12/31/2019	Surf	In-Situ	<0.050	<0.300	<10.0	22.9	22.9	12.6	35.5	144
WH b @ 1'	12/19/2019	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	512
WH b @ Surf	12/31/2019	Surf	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	608
WHC @ Surf	12/31/2019	Surf	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	<16.0
ST BH 16/17 @ 6'	2/19/2020	6'	Risked	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	1,460
ST BH 16/17 @ 8'	2/19/2020	8'	Risked	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	1,680
ST BH 16/17 @ 12'	2/19/2020	12'	Risked	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	1,330
TT - 16/17 @ 19'	2/24/2020	19'	In-Situ	-	-	-	-	-	-	-	320
Closure Criteria				10	50	-	-	N/A	-	100	600

NOTES:

- =

Bold text denotes a concentration that exceeds the NMOCD Closure Criteria

TABLE 2
Concentrations of BTEX, TPH & Chloride in Soil (Excavation)
COG Operating, LLC
Showstopper 19 Fed Com #004H-005H
NMOCD Ref. #: 2RP-5703

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)
BHS 1 @ 2'	2/18/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
BH 2 @ 2'	2/18/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	64.0
BH 3 @ 2'	2/18/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	112
BH 4 @ 2'	2/18/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	144
BH 5 @ 2'	2/18/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	112
BH 6 @ 1'	2/19/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	464
BH 7b @ 1.5'	2/19/2020	1.5'	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	624
BH - 7c	3/3/2020	2'	In-Situ	-	-	-	-	-	-	-	208
BH 8 @ 1'	2/19/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	400
BH 9 @ 1'	2/19/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	368
BH 10 @ 1'	2/19/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	192
BH 11 @ 1'	2/19/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	416
BH 12 @ 1'	2/19/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	336
BH 13 @ 1'	2/19/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	416
BH 14 @ 1'	2/19/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	144
BH 15 @ 1'	2/19/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	256
BH 16D @ 4'	2/19/2020	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	1,420
BH 17D @ 4'	2/19/2020	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	928
BH - 18	2/20/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	448
BH - 19	2/20/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	224
BH - 20	2/20/2020	2'	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	864
BH - 20b	3/3/2020	3'	In-Situ	-	-	-	-	-	-	-	256
BH - 21	2/20/2020	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	672
FL - 1	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
FL - 2	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	96.0
FL - 3	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	80.0
FL - 4	2/24/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	80.0
FL - 5	2/24/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	112
FL - 6	2/24/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	112
FL - 7	2/24/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	128
FL - 8	2/24/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	544
FL - 9	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	480
FL - 10	2/24/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	384
FL - 11	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	432
FL - 12	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	368
FL - 13	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	480
FL - 14	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	368
FL - 15	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	384
FL - 16	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	368
FL - 17	2/24/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	368
FL - 18	2/24/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	384
FL - 19	2/24/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	416
Closure Criteria				10	50	-	-	N/A	-	100	600

NOTES:

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Bold text denotes a concentration that exceeds the NMOCD Closure Criteria

TABLE 2
Concentrations of BTEX, TPH & Chloride in Soil (Excavation)
COG Operating, LLC
Showstopper 19 Fed Com #004H-005H
NMOCD Ref. #: 2RP-5703

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)
FL - 20	2/24/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	208
FL - 21	2/24/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	336
FL - 22	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	288
FL - 23	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	240
FL - 24	2/24/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	272
FL - 25	2/24/2020	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	1,150
FL - 26	2/25/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	256
FL - 27	2/25/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	288
FL - 28	2/25/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	256
FL - 29	2/25/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	320
FL - 30	2/25/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	256
FL - 31	2/25/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	256
FL - 32	2/25/2020	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	336
FL - 33	2/25/2020	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	352
FL - 34	2/25/2020	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	272
FL - 35	2/25/2020	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	368
FL - 36	2/25/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	320
FL - 37	2/25/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	352
FL - 38	2/25/2020	2'	In-Situ	<0.050	<0.300	<10.0	10.40	10.40	<10.0	10.40	272
FL - 39	2/25/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	256
NSW 1 @ 2'	2/18/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
NSW 2b @ 2'	2/18/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	128
NSW 3 @ 2'	2/18/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	112
NSW 4 @ 1'	2/18/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	1,280
NSW 5 @ 1'	2/18/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	640
NSW 6 @ 1'	2/18/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	1,020
NSW 7	2/25/2020	NA	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	352
NSW 8	2/25/2020	NA	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	352
NSW 9	2/25/2020	NA	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	384
ESW 1 @ 2'	2/18/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	96.0
ESW 2 @ 2'	2/18/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	224
ESW 3 @ 1'	2/19/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	272
ESW 4 @ 1'	2/19/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	448
ESW 5b	2/20/2020	NA	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	352
ESW 6	2/25/2020	NA	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	320
SSW 1	2/20/2020	NA	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	80.0
SSW 2	2/20/2020	NA	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	320
SSW 3b	2/20/2020	NA	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	192
SWSW 1 @ 2'	2/18/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
SWSW 2	2/20/2020	NA	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	224
WSW 1 @ 2'	2/18/2020	2'	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
Closure Criteria				10	50	-	-	N/A	-	100	600

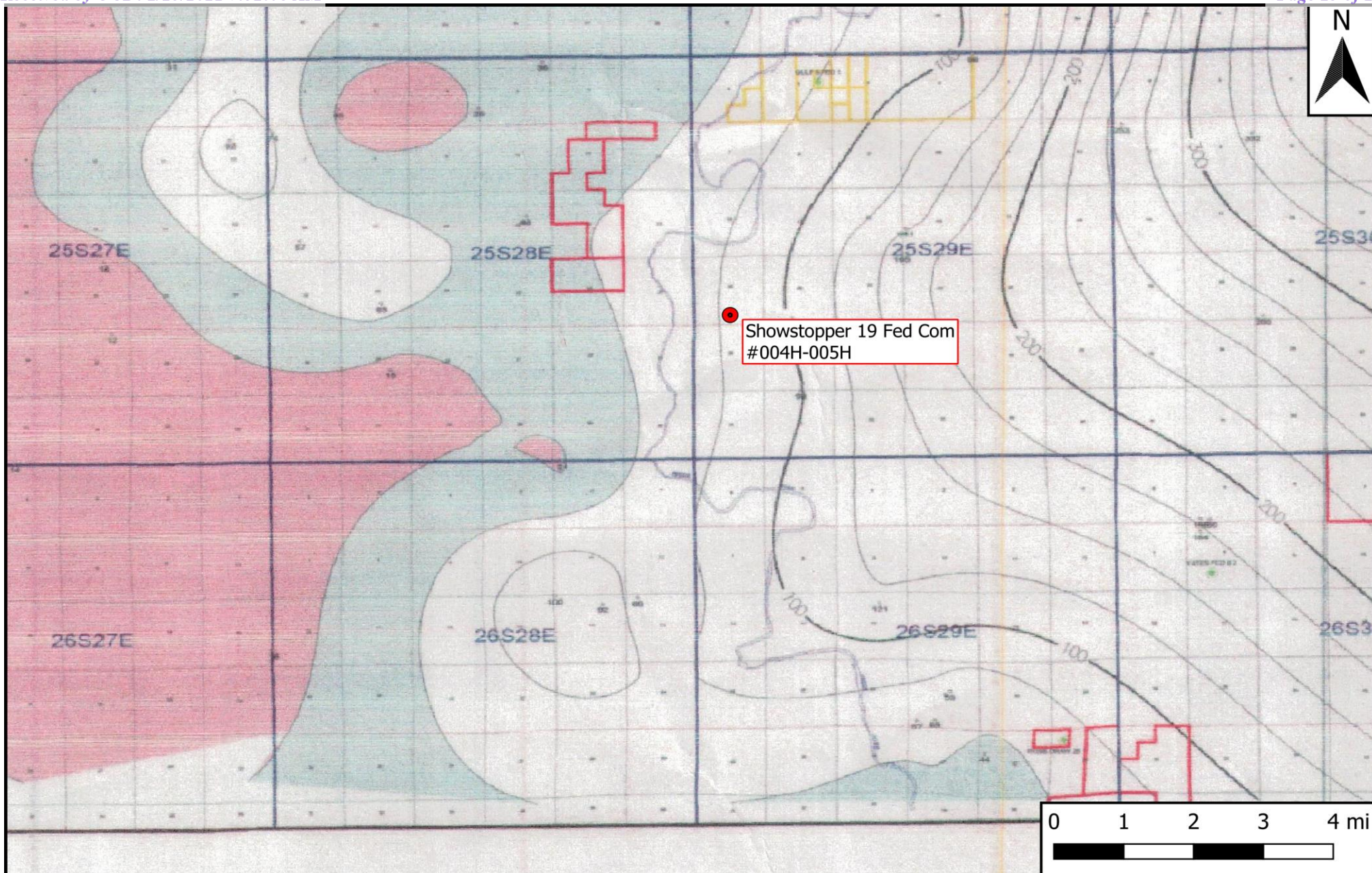
NOTES:

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Bold text denotes a concentration that exceeds the NMOCD Closure Criteria

Appendix A

Depth to Groundwater Information



Legend

- Site Location

Figure 4

Inferred Depth to Groundwater Trend Map
 COG Operating, LLC
 Showstopper 19 Fed Com #004H-005H
 GPS: 32.11037, -104.02296
 Eddy County

eTECH
 Environmental & Safety Solutions, Inc.

Drafted: bja

Checked: jwl

Date: 2/14/21



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

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

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
C_01337		C	ED	2	1	30	25S	29E		591926	3552642*	511	180	30	150

Average Depth to Water: **30 feet**

Minimum Depth: **30 feet**

Maximum Depth: **30 feet**

Record Count: 1

UTMNAD83 Radius Search (in meters):

Easting (X): 592177.89

Northing (Y): 3553087.27

Radius: 804.67

*UTM location was derived from PLSS - see Help

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

12/13/19 2:00 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

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

(In feet)

POD Number	Code	Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
C 01337		C	ED	2	1	30	25S	29E		591926	3552642*	511	180	30	150
C 01453		C	ED	1	2	26	25S	28E		589096	3552612*	3118	70	40	30

Average Depth to Water: **35 feet**

Minimum Depth: **30 feet**

Maximum Depth: **40 feet**

Record Count: 2

UTM NAD83 Radius Search (in meters):

Easting (X): 592177.89

Northing (Y): 3553087.27

Radius: 3220

*UTM location was derived from PLSS - see Help

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

12/13/19 2:03 PM

WATER COLUMN/ AVERAGE DEPTH TO
WATER



New Mexico Office of the State Engineer

Point of Diversion Summary

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
C	01337	2	1	30	25S	29E	591926	3552642*	

x

Driller License: 24 **Driller Company:** BRININSTOOL, M.D.

Driller Name: HOWARD HEMLER

Drill Start Date: 08/25/1966

Drill Finish Date: 08/30/1966

Plug Date:

Log File Date: 01/26/1967

PCW Rcv Date:

Source: Shallow

Pump Type:

Pipe Discharge Size:

Estimated Yield:

Casing Size: 7.00

Depth Well: 180 feet

Depth Water: 30 feet

x

Water Bearing Stratifications:

Top	Bottom	Description
73	93	Sandstone/Gravel/Conglomerate
163	172	Sandstone/Gravel/Conglomerate

x

Casing Perforations:

Top	Bottom
163	172

x

*UTM location was derived from PLSS - see Help

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

12/13/19 2:01 PM

POINT OF DIVERSION SUMMARY



New Mexico Office of the State Engineer

Point of Diversion Summary

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
C	01453	1	2	26	25S	28E	589096	3552612*	

x

Driller License: 30 **Driller Company:** BARRON, EMMETT

Driller Name: BARRON, EMMETT

Drill Start Date: 07/17/1971

Drill Finish Date: 07/20/1971

Plug Date:

Log File Date: 08/02/1971

PCW Rcv Date:

Source: Shallow

Pump Type:

Pipe Discharge Size:

Estimated Yield:

Casing Size: 6.00

Depth Well: 70 feet

Depth Water: 40 feet

x

Water Bearing Stratifications: **Top Bottom Description**

50 70 Shale/Mudstone/Siltstone

x

*UTM location was derived from PLSS - see Help

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

12/13/19 2:03 PM

POINT OF DIVERSION SUMMARY



Legend

- Site Location
- Well - USGS
- 1,000-Ft Radius
- 0.5-Mi Radius

Figure 5

USGS Well Proximity Map
COG Operating, LLC
Showstopper 19 Fed Com #004H-005H
GPS: 32.11037, -104.02296
Eddy County



Drafted: bja

Checked: jwl

Date: 2/1/21



[USGS Home](#)
[Contact USGS](#)
[Search USGS](#)

National Water Information System: Web Interface

USGS Water Resources

Data Category:


Groundwater

Geographic Area:

United States

GO

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Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs
site_no list =

- 320518104031401

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

USGS 320518104031401 25S.28E.35.2324

Available data for this site

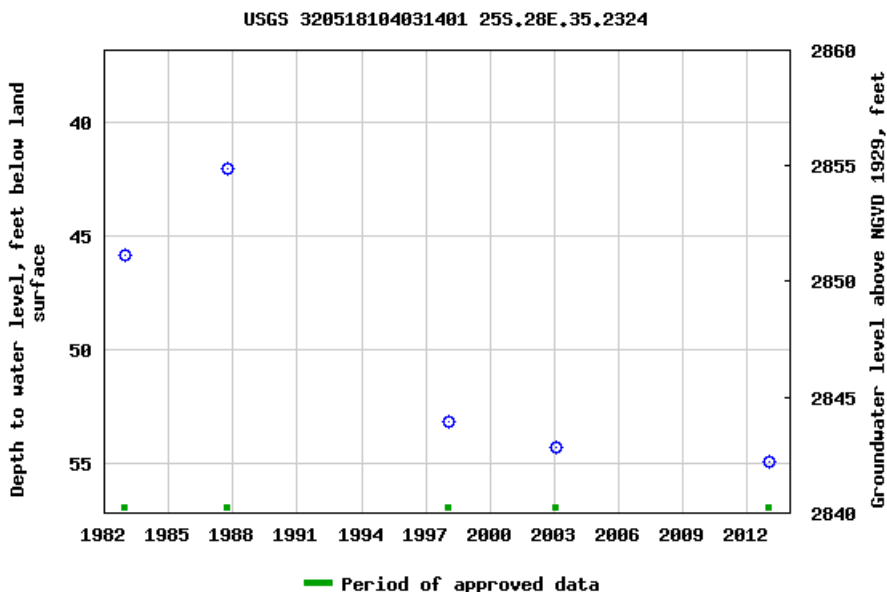
Groundwater: Field measurements

GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°05'19.0", Longitude 104°03'17.3" NAD83
Land-surface elevation 2,897 feet above NGVD29
The depth of the well is 180 feet below land surface.
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

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



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

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Search Results -- 1 sites found

Agency code = usgs
site_no list =

- 320532104001701

Minimum number of levels = 1

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

USGS 320532104001701 25S.29E.32.21111

Available data for this site

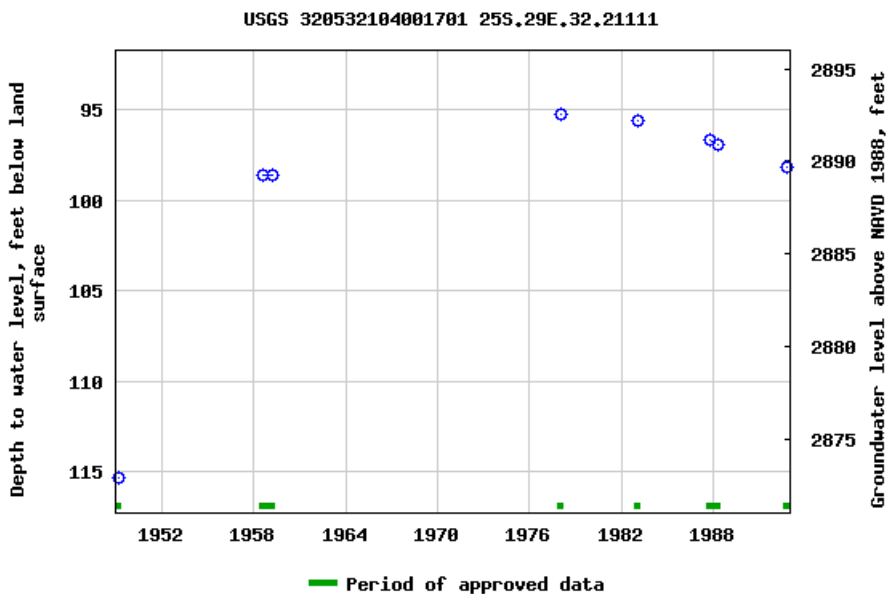
Groundwater: Field measurements ▼

GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°05'32", Longitude 104°00'17" NAD27
Land-surface elevation 2,988 feet above NAVD88
The depth of the well is 128 feet below land surface.
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

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



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

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National Water Information System: Web Interface

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Search Results -- 1 sites found

Agency code = usgs
site_no list =

- 320719103584601

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

USGS 320719103584601 25S.29E.16.44444

Available data for this site

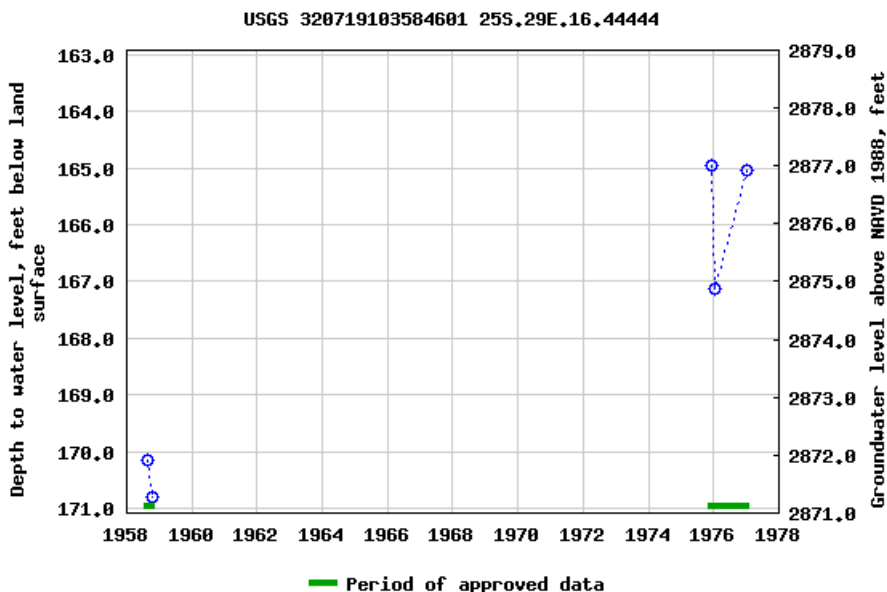
Groundwater: Field measurements ▼

GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°07'19", Longitude 103°58'46" NAD27
Land-surface elevation 3,042 feet above NAVD88
The depth of the well is 200 feet below land surface.
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

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



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

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Search Results -- 1 sites found

Agency code = usgs
site_no list =

- 320739103584201

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

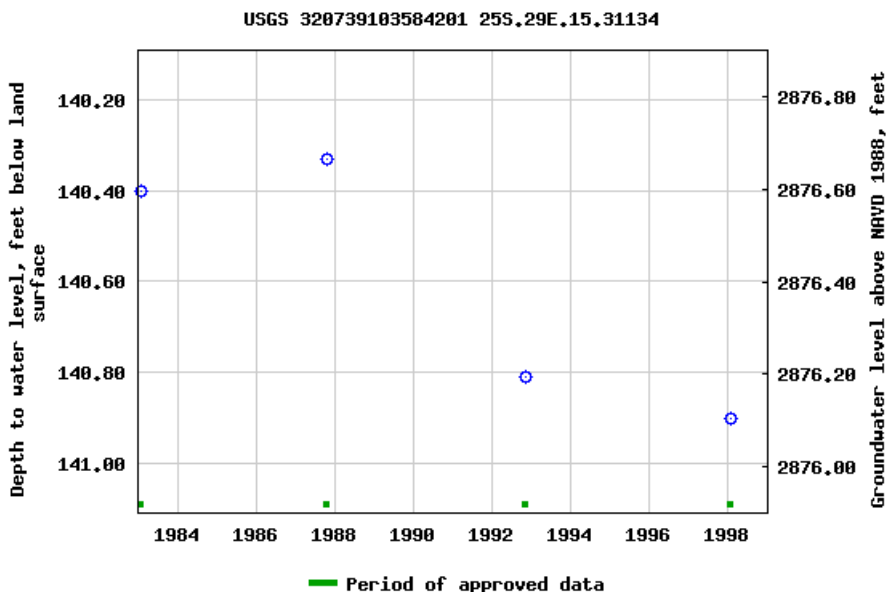
USGS 320739103584201 25S.29E.15.31134

Available data for this site Groundwater: Field measurements GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°07'39", Longitude 103°58'42" NAD27
Land-surface elevation 3,017 feet above NAVD88
The depth of the well is 192 feet below land surface.
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

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



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

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Search Results -- 1 sites found

Agency code = usgs
site_no list =

- 320749104041001

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

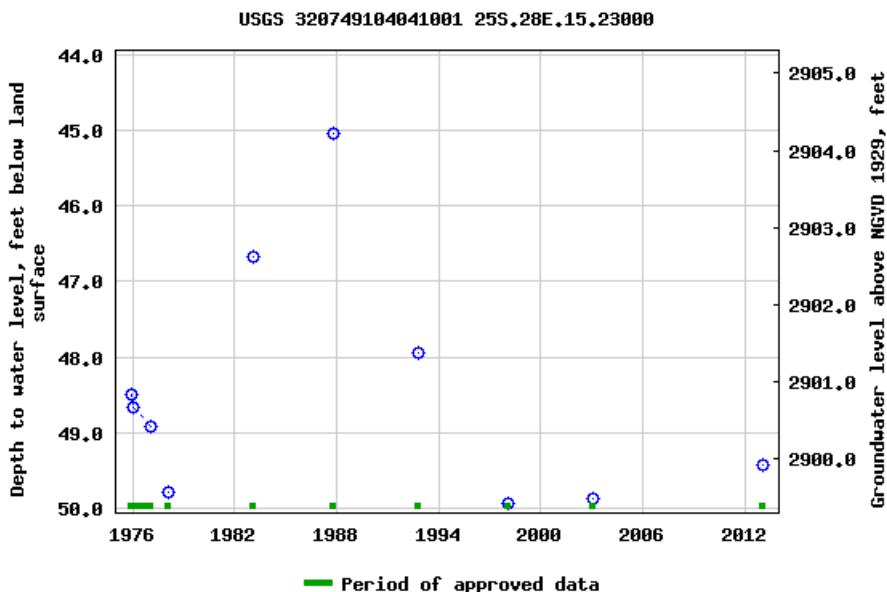
USGS 320749104041001 25S.28E.15.23000

Available data for this site Groundwater: Field measurements GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°07'54.6", Longitude 104°04'20.3" NAD83
Land-surface elevation 2,949.30 feet above NGVD29
The depth of the well is 70 feet below land surface.
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

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



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

Download a presentation-quality graph



National Water Information System: Web Interface

USGS Water Resources

Data Category:
Groundwater

Geographic Area:
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Search Results -- 1 sites found

Agency code = usgs
site_no list =

- 320758104041601

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

USGS 320758104041601 25S.28E.15.23231

Available data for this site

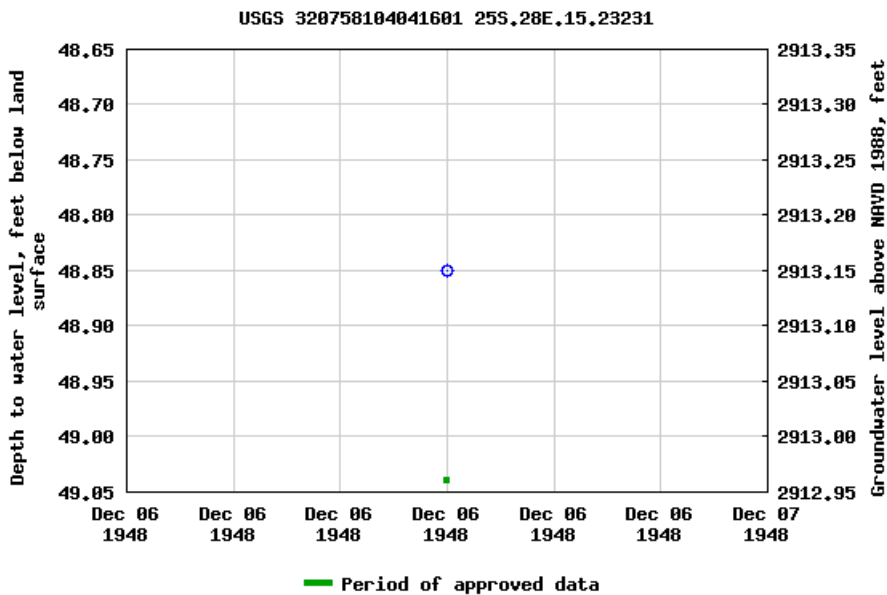
Groundwater: Field measurements

GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°07'58", Longitude 104°04'16" NAD27
Land-surface elevation 2,962 feet above NAVD88
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

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



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

Field Data & Soil Profile Logs



Sample Log

Date:

12/19/19

Project: Show Stopper 19 4H-5H

Project Number: 11626

Latitude: 32.11037

Longitude: -104.02296

[illegible]

Sample Point = SP #1 @ ## etc

Floor = FL #1 etc

Sidewall = SW #1 etc

Test Trench = TT #1 @ ##

Refusal = SP #1 @ 4'-R

Soil Intended to be Deferred = SP #1 @ 4' In-Situ

Resamples= SP #1 @ 5b or SW #1b

Stockpile = Stockpile #1

GPS Sample Points, Center of Comp Areas



Soil Profile

Date:

12/19/19

Project: Show Stopper 19 4H-5H

Project Number: 11626

Latitude: 32.11037

Longitude: -104.02296

Depth (ft. bgs)

Description

1
2
3
4
5
6
7
8
9
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11
12
13
14
15
16
17
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19
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21
22
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26
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31
32
33
34
35
36
37
38
39
40

Caliche

Red Sand



Soil Boring/Temporary Monitor Well BH-1

Company: COG Operating, LLC	Well/Borehole ID: BH-1	Drilling Company: Scarborough Drilling, Inc.
Site: Showstopper 19 Fed Com #004H-005H	Coordinates (NAD 83): 32.110111,-104.022302	Driller: L. Scarborough
NMOCD Reference #: nRM1932335844	Drilling Date: 12/8/2020	Drilling Method: Air Rotary
Location: Eddy Co., NM	Depth of Boring (ft): 40	Logged By: L. Scarborough
PLSS: Unit 'O' (SW/SE), Sec. 19, T25S, R29E	Depth to Groundwater (ft): 35	Drafted By: B. Arguijo
	Plugging Date: 12/8/2020	Draft Date: 2/14/2021

Completion: N/A

Casing: N/A

Screen: N/A

Comments: N/A

Depth (ft)	Graphic Log	Groundwater	Material Description	PID	Chloride Field Test	Petroleum Odor	Petroleum Stain	Moisture	Lab	TPH	Benzene	BTEX	Chloride	Well Construction
0			Topsoil											
5			Caliche	-	-	-	-	-	-	-	-	-	-	
10				-	-	-	-	-	-	-	-	-	-	
15				-	-	-	-	-	-	-	-	-	-	
20			Brown clay	-	-	-	-	-	-	-	-	-	-	Bentonite
25			Tight gravel w/ streaks of clay	-	-	-	-	-	-	-	-	-	-	
30				-	-	-	-	-	-	-	-	-	-	
35		▽		-	-	-	-	Y	-	-	-	-	-	▽
40				-	-	-	-	Y	-	-	-	-	-	
45			Notes: Lines between material types represent approximate boundaries. Actual transitions may be gradual.											
50														
55														
60														
65														
70														
75														
80														
85														
90														
95														

Disclaimer This bore log is intended for environmental not geotechnical purposes.

Appendix C

Laboratory Analytical Reports



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

December 30, 2019

JOEL LOWRY

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: SHOWSTOPPER 19 4H-5H

Enclosed are the results of analyses for samples received by the laboratory on 12/20/19 15:10.

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:	12/20/2019	Sampling Date:	12/19/2019
Reported:	12/30/2019	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO NM		

Sample ID: NH b @ SURFACE (H904266-01)

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	12/27/2019	ND	2.00	99.8	2.00	7.39	
Toluene*	<0.050	0.050	12/27/2019	ND	2.00	100	2.00	7.26	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	2.02	101	2.00	7.16	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.99	99.9	6.00	6.43	
Total BTEX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	12/26/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/26/2019	ND	210	105	200	1.11	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	208	104	200	0.713	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 91.3 % 41-142

Surrogate: 1-Chlorooctadecane 91.0 % 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: 12/20/2019
 Reported: 12/30/2019
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: EDDY CO NM

Sampling Date: 12/19/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: NH b @ 1' (H904266-02)

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	12/27/2019	ND	2.00	99.8	2.00	7.39	
Toluene*	<0.050	0.050	12/27/2019	ND	2.00	100	2.00	7.26	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	2.02	101	2.00	7.16	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.99	99.9	6.00	6.43	
Total BTX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	12/26/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/26/2019	ND	210	105	200	1.11	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	208	104	200	0.713	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 94.1 % 41-142

Surrogate: 1-Chlorooctadecane 96.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	12/20/2019	Sampling Date:	12/19/2019
Reported:	12/30/2019	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO NM		

Sample ID: EH b @ SURFACE (H904266-03)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/27/2019	ND	1.76	88.1	2.00	9.56	
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6	
Total BTX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	576	16.0	12/26/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/26/2019	ND	210	105	200	1.11	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	208	104	200	0.713	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 86.2 % 41-142

Surrogate: 1-Chlorooctadecane 87.1 % 37.6-147

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Analytical Results For:

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

Received: 12/20/2019
 Reported: 12/30/2019
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: EDDY CO NM

Sampling Date: 12/19/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: EH b @ 1' (H904266-04)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/27/2019	ND	1.76	88.1	2.00	9.56		
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4		
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3		
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6		
Total BTEX	<0.300	0.300	12/27/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 115 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	544	16.0	12/26/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/26/2019	ND	210	105	200	1.11	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	208	104	200	0.713	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 84.2 % 41-142

Surrogate: 1-Chlorooctadecane 84.9 % 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: 12/20/2019
 Reported: 12/30/2019
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: EDDY CO NM

Sampling Date: 12/19/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SH @ SURFACE (H904266-05)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/27/2019	ND	1.76	88.1	2.00	9.56		
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4		
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3		
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6		
Total BTEX	<0.300	0.300	12/27/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 114 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	592	16.0	12/26/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/26/2019	ND	210	105	200	1.11	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	208	104	200	0.713	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 82.0 % 41-142

Surrogate: 1-Chlorooctadecane 81.6 % 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: 12/20/2019
 Reported: 12/30/2019
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: EDDY CO NM

Sampling Date: 12/19/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SH @ 1' (H904266-06)

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	12/27/2019	ND	1.76	88.1	2.00	9.56	
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6	
Total BTX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 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	1070	16.0	12/26/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/26/2019	ND	210	105	200	1.11	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	208	104	200	0.713	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 81.2 % 41-142

Surrogate: 1-Chlorooctadecane 82.7 % 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: 12/20/2019
 Reported: 12/30/2019
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: EDDY CO NM

Sampling Date: 12/19/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: WH b @ SURFACE (H904266-07)

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	12/27/2019	ND	1.76	88.1	2.00	9.56		
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4		
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3		
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6		
Total BTX	<0.300	0.300	12/27/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	608	16.0	12/26/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/26/2019	ND	210	105	200	1.11	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	208	104	200	0.713	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 91.7 % 41-142

Surrogate: 1-Chlorooctadecane 92.4 % 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: 12/20/2019
 Reported: 12/30/2019
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: EDDY CO NM

Sampling Date: 12/19/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: WH b @ 1' (H904266-08)

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	12/27/2019	ND	1.76	88.1	2.00	9.56	
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6	
Total BTEX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	12/26/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/26/2019	ND	210	105	200	1.11	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	208	104	200	0.713	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 87.9 % 41-142

Surrogate: 1-Chlorooctadecane 89.0 % 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: 12/20/2019
 Reported: 12/30/2019
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: EDDY CO NM

Sampling Date: 12/19/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 1 @ SURFACE (H904266-09)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/27/2019	ND	1.76	88.1	2.00	9.56	
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6	
Total BTX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	7040	16.0	12/26/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/26/2019	ND	210	105	200	1.11	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	208	104	200	0.713	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 83.4 % 41-142

Surrogate: 1-Chlorooctadecane 83.9 % 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: 12/20/2019
 Reported: 12/30/2019
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: EDDY CO NM

Sampling Date: 12/19/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 1 @ 2' (H904266-10)

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	12/27/2019	ND	1.76	88.1	2.00	9.56	
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6	
Total BTX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	12/26/2019	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	12/26/2019	ND	210	105	200	1.11	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	208	104	200	0.713	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 85.6 % 41-142

Surrogate: 1-Chlorooctadecane 86.7 % 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: 12/20/2019
 Reported: 12/30/2019
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: EDDY CO NM

Sampling Date: 12/19/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ SURFACE (H904266-11)

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	12/27/2019	ND	1.76	88.1	2.00	9.56	
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6	
Total BTX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	2360	16.0	12/26/2019	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	12/26/2019	ND	210	105	200	1.11	
DRO >C10-C28*	12.1	10.0	12/26/2019	ND	208	104	200	0.713	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 90.4 % 41-142

Surrogate: 1-Chlorooctadecane 92.7 % 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: 12/20/2019
 Reported: 12/30/2019
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: EDDY CO NM

Sampling Date: 12/19/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ 1' (H904266-12)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/27/2019	ND	1.76	88.1	2.00	9.56	
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6	
Total BTEX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	544	16.0	12/26/2019	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	12/26/2019	ND	210	105	200	1.11	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	208	104	200	0.713	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 95.3 % 41-142

Surrogate: 1-Chlorooctadecane 95.7 % 37.6-147

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

Received:	12/20/2019	Sampling Date:	12/19/2019
Reported:	12/30/2019	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO NM		

Sample ID: SP 3 @ SURFACE (H904266-13)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/27/2019	ND	1.76	88.1	2.00	9.56	
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6	
Total BTX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	1010	16.0	12/26/2019	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	12/26/2019	ND	204	102	200	1.50	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	211	106	200	2.24	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 70.9 % 41-142

Surrogate: 1-Chlorooctadecane 72.2 % 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: 12/20/2019
 Reported: 12/30/2019
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: EDDY CO NM

Sampling Date: 12/19/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 3 @ 1' (H904266-14)

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	12/27/2019	ND	1.76	88.1	2.00	9.56	
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6	
Total BTX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 117 % 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	496	16.0	12/26/2019	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	12/26/2019	ND	204	102	200	1.50	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	211	106	200	2.24	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 69.0 % 41-142

Surrogate: 1-Chlorooctadecane 69.5 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	12/20/2019	Sampling Date:	12/19/2019
Reported:	12/30/2019	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO NM		

Sample ID: SP 4 @ SURFACE (H904266-15)

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	12/27/2019	ND	1.76	88.1	2.00	9.56	
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6	
Total BTX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 118 % 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	3960	16.0	12/26/2019	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	12/26/2019	ND	204	102	200	1.50	
DRO >C10-C28*	735	10.0	12/26/2019	ND	211	106	200	2.24	
EXT DRO >C28-C36	297	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 69.4 % 41-142

Surrogate: 1-Chlorooctadecane 91.7 % 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: 12/20/2019
 Reported: 12/30/2019
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: EDDY CO NM

Sampling Date: 12/19/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 4 @ 1' (H904266-16)

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	12/27/2019	ND	1.76	88.1	2.00	9.56	
Toluene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.4	
Ethylbenzene*	<0.050	0.050	12/27/2019	ND	1.74	87.1	2.00	11.3	
Total Xylenes*	<0.150	0.150	12/27/2019	ND	5.24	87.4	6.00	10.6	
Total BTX	<0.300	0.300	12/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 117 % 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	208	16.0	12/26/2019	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	12/26/2019	ND	204	102	200	1.50	
DRO >C10-C28*	<10.0	10.0	12/26/2019	ND	211	106	200	2.24	
EXT DRO >C28-C36	<10.0	10.0	12/26/2019	ND					

Surrogate: 1-Chlorooctane 74.7 % 41-142

Surrogate: 1-Chlorooctadecane 74.3 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

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Notes and Definitions

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

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

Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <u>Etech Environmental</u>				BILL TO				ANALYSIS REQUEST																									
Project Manager: <u>Joel Lowry</u>				P.O. #:																													
Address: <u>3100 Plains Hwy</u>				Company:																													
City: <u>Lovington</u> State: <u>NM</u> Zip: <u>88260</u>				Attn:																													
Phone #: <u>432-466-4450</u> Fax #:				Address:																													
Project #: <u>11626</u> Project Owner:				City:																													
Project Name: <u>Showstopper 19 44-5H</u>				State: Zip:																													
Project Location: <u>Eddy Co, New Mexico</u>				Phone #:																													
Sampler Name: <u>Miguel Ramirez</u>				Fax #:																													
FOR LAB USE ONLY						MATRIX		PRESERV.		SAMPLING																							
Lab I.D.		Sample I.D.		(G/RAB OR (C)OMP. # CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER:		ACID/BASE:		ICE / COOL		OTHER:		DATE		TIME		Chloride		TPH		BTEX 8021	
<u>H904266</u>																																	
1		NH ₆ @surface		G 1		X																		12/15/19		1:00		X		X			
2		NH ₆ @1'		G 1		X																				1:10							
3		EH ₆ @surface		G 1		X																				1:50							
4		EH ₆ @1'		G 1		X																				2:06							
5		SH@surface		G 1		X																				11:50							
6		SH@1'		G 1		X																				12:01							
7		WH ₆ @surface		G 1		X																				1:30							
8		WH ₆ @1'		G 1		X																				1:40							
9		SP1@surface		G 1		X																				11:00							
10		SP1@2'		G 1		X																				12:40							

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Relinquished By: <u>[Signature]</u>	Date: <u>12-20-19</u>	Received By: <u>[Signature]</u>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Date:	Received By:	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) <u>-1.9c</u>	Time: <u>1510</u>	Sample Condition: <u>#97</u>	REMARKS: email results to <u>joel@etechenv.com</u> <u>lance@etechenv.com</u>	
Sampler - <u>UPS</u> - Bus - Other:	Time:	Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No		
		Checked By: (Initials) <u>T.O.</u>		

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476
FORM-006 R 2.0



Company Name: Etech Environmental Project Manager: Joel Lowry Address: 3100 Plains Hwy City: Livingston State: NM Zip: 88260 Phone #: 432-466-4450 Fax #: Project #: 11626 Project Owner: Project Name: Showstopper 19 4H-5H Project Location: Eddy Co, New Mexico Sampler Name: Miguel Ramirez				BILL TO P.O. #: Company: Attn: Address: City: State: Zip: Phone #: Fax #:		ANALYSIS REQUEST																																					
FOR LAB USE ONLY				MATRIX					PRESERV.		SAMPLING																																
Lab I.D.		Sample I.D.		(GRAB OR (C)OMP. # CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER :		ACID/BASE:		ICE / COOL		OTHER :		DATE		TIME		Chloride		TPH		BTEX 8021											
H90421d																																											
11 SP2 @ surface																																											
12 SP2 @ 1'																																											
13 SP3 @ surface																																											
14 SP3 @ 1'																																											
15 SP4 @ surface																																											
16 SP4 @ 1'																																											

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Relinquished By: <i>[Signature]</i> Date: 12-20-19 Time: 15:10		Received By: <i>[Signature]</i> Date: 12-20-19 Time: 15:10		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #: Add'l Fax #:	
Relinquished By: <i>[Signature]</i> Date: 12-20-19 Time: 15:10				Received By: <i>[Signature]</i> Date: 12-20-19 Time: 15:10	
Delivered By: (Circle One) -1.9c Sampler - UPS - Bus - Other: Corrected -1.5c				Sample Condition Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No CHECKED BY: (Initials) <i>[Initials]</i>	

REMARKS: email results to **joel@etechenv.com**
lance@etechenv.com

Cardinal cannot accept verbal changes. Please fax written changes to 575-293-8450

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Released to Imaging: 3/30/2021 10:15:25 AM



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

January 06, 2020

JOEL LOWRY

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: SHOWSTOPPER 19 4H-5H

Enclosed are the results of analyses for samples received by the laboratory on 12/31/19 16:08.

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 style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	12/31/2019	Sampling Date:	12/31/2019
Reported:	01/06/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Jodi Henson
Project Location:	COG - EDDY CO NM		

Sample ID: SHB @ SURFACE (H904326-01)

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	01/03/2020	ND	1.95	97.7	2.00	2.10	
Toluene*	<0.050	0.050	01/03/2020	ND	1.95	97.6	2.00	1.84	
Ethylbenzene*	<0.050	0.050	01/03/2020	ND	2.00	100	2.00	2.09	
Total Xylenes*	<0.150	0.150	01/03/2020	ND	5.83	97.1	6.00	2.08	
Total BTEX	<0.300	0.300	01/03/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	01/02/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/03/2020	ND	215	107	200	4.76	
DRO >C10-C28*	22.9	10.0	01/03/2020	ND	239	119	200	2.39	
EXT DRO >C28-C36	12.6	10.0	01/03/2020	ND					

Surrogate: 1-Chlorooctane 100 % 41-142

Surrogate: 1-Chlorooctadecane 108 % 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: 12/31/2019
 Reported: 01/06/2020
 Project Name: SHOWSTOPPER 19 4H-5H
 Project Number: 11626
 Project Location: COG - EDDY CO NM

Sampling Date: 12/31/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SHB @ 1 (H904326-02)

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	01/03/2020	ND	1.95	97.7	2.00	2.10	
Toluene*	<0.050	0.050	01/03/2020	ND	1.95	97.6	2.00	1.84	
Ethylbenzene*	<0.050	0.050	01/03/2020	ND	2.00	100	2.00	2.09	
Total Xylenes*	<0.150	0.150	01/03/2020	ND	5.83	97.1	6.00	2.08	
Total BTX	<0.300	0.300	01/03/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 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	01/02/2020	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/03/2020	ND	215	107	200	4.76	
DRO >C10-C28*	78.9	10.0	01/03/2020	ND	239	119	200	2.39	
EXT DRO >C28-C36	<10.0	10.0	01/03/2020	ND					

Surrogate: 1-Chlorooctane 96.1 % 41-142

Surrogate: 1-Chlorooctadecane 108 % 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:	12/31/2019	Sampling Date:	12/31/2019
Reported:	01/06/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Jodi Henson
Project Location:	COG - EDDY CO NM		

Sample ID: WHC @ SURFACE (H904326-03)

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	01/03/2020	ND	1.95	97.3	2.00	1.53		
Toluene*	<0.050	0.050	01/03/2020	ND	1.96	97.8	2.00	2.20		
Ethylbenzene*	<0.050	0.050	01/03/2020	ND	2.00	100	2.00	2.45		
Total Xylenes*	<0.150	0.150	01/03/2020	ND	5.82	97.0	6.00	2.28		
Total BTX	<0.300	0.300	01/03/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 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	<16.0	16.0	01/02/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/03/2020	ND	215	107	200	4.76	
DRO >C10-C28*	<10.0	10.0	01/03/2020	ND	239	119	200	2.39	
EXT DRO >C28-C36	<10.0	10.0	01/03/2020	ND					

Surrogate: 1-Chlorooctane 95.0 % 41-142

Surrogate: 1-Chlorooctadecane 103 % 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

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in black ink, appearing to read "C. D. Keene", is written over a horizontal line.

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

Page 6 of 6

Company Name: <u>Etech Environmental</u>				BILL TO				ANALYSIS REQUEST														
Project Manager: <u>Joel Lowry</u>				P.O. #:																		
Address: <u>3100 Plains Hwy</u>				Company:																		
City: <u>Livingston</u> State: <u>NM</u> Zip: <u>88260</u>				Attn:																		
Phone #: <u>432-466-4450</u> Fax #:				Address:																		
Project #: <u>11606</u> Project Owner: <u>COG operating, LLC</u>				City:																		
Project Name: <u>Showstopper 19 4H-SH</u>				State: Zip:																		
Project Location: <u>Eddy Co, New Mexico</u>				Phone #:																		
Sampler Name: <u>Heeter Villa</u>				Fax #:																		
FOR LAB USE ONLY				MATRIX		PRESERV.		SAMPLING														
Lab I.D.	Sample I.D.	(GRAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	Chloride	TPH	BTEX 8021						
<u>H904326</u>																						
<u>1</u>	<u>SHB @ Surface</u>	<u>1</u>	<u>1</u>									<u>12/31/19</u>	<u>9:00</u>	<u>/</u>	<u>/</u>	<u>/</u>						
<u>2</u>	<u>SHB @ 1</u>	<u>1</u>	<u>1</u>									<u>12/31/19</u>	<u>9:15</u>	<u>/</u>	<u>/</u>	<u>/</u>						
<u>3</u>	<u>WTC @ Surface</u>	<u>1</u>	<u>1</u>									<u>12/31/19</u>	<u>9:30</u>	<u>/</u>	<u>/</u>	<u>/</u>						

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Relinquished By: <u>Heeter Villa</u>		Date: <u>12/31/19</u>		Received By: <u>Joel Lowry</u>		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Phone #:	
Time: <u>7:30</u>		Date: <u>12/31/19</u>		Received By: <u>Jodi Hanson</u>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Fax #:	
Relinquished By: <u>Joel Lowry</u>		Time: <u>4:08</u>		Sample Condition: <u>#97</u>		REMARKS: email results to <u>joel@etechenv.com</u> <u>lance@etechenv.com</u> <u>pm@etechenv.com</u>			
Delivered By: (Circle One)		Time: <u>4:08</u>		Cool Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Sampler - <u>UPS</u> - Bus - Other: <u>0.10c / 0.52</u>		Checked By: <u>JH</u>		Initials: <u>JH</u>					

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476
FORM-006 R 2.0



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

February 27, 2020

LANCE CRENSHAW

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: SHOWSTOPPER 19 FED COM 4H-5H

Enclosed are the results of analyses for samples received by the laboratory on 02/20/20 13:10.

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 style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: ST BH 16/17 @ 6' (H000547-01)

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.99	99.5	2.00	5.45		
Toluene*	<0.050	0.050	02/26/2020	ND	2.00	99.8	2.00	5.21		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.00	100	2.00	5.12		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.92	98.6	6.00	5.18		
Total BTEX	<0.300	0.300	02/26/2020	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	1460	16.0	02/24/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 91.1 % 44.3-144

Surrogate: 1-Chlorooctadecane 91.2 % 42.2-156

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: ST BH 16/17 @ 8' (H000547-02)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.99	99.5	2.00	5.45		
Toluene*	<0.050	0.050	02/26/2020	ND	2.00	99.8	2.00	5.21		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.00	100	2.00	5.12		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.92	98.6	6.00	5.18		
Total BTX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 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	1680	16.0	02/24/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 86.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 88.3 % 42.2-156

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: ST BH 16/17 @ 12' (H000547-03)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.99	99.5	2.00	5.45		
Toluene*	<0.050	0.050	02/26/2020	ND	2.00	99.8	2.00	5.21		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.00	100	2.00	5.12		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.92	98.6	6.00	5.18		
Total BTEX	<0.300	0.300	02/26/2020	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	1330	16.0	02/24/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 85.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 87.3 % 42.2-156

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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 black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



CARDINAL LABORATORIES

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

February 27, 2020

LANCE CRENSHAW

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: SHOWSTOPPER 19 FED COM 4H-5H

Enclosed are the results of analyses for samples received by the laboratory on 02/26/20 8:50.

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

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: TT - 16/17 @ 19' (H000608-01)**Chloride, SM4500Cl-B****mg/kg****Analyzed By: GM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	02/27/2020	ND	432	108	400	0.00	

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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

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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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

Company Name: COG Operating, LLC				BILL TO				ANALYSIS REQUEST																			
Project Manager: Lance Crenshaw				P.O. #:																							
Address: 3100 Plains Hwy				Company: COG																							
City: Lovington		State: NM		Zip: 88260		Attn: Dakota Neel																					
Phone #: 575-396-2378		Fax #: 575-396-1429		Address:																							
Project #: 11626		Project Owner: COG Operating, LLC		City:																							
Project Name: Showstopper 19 Fed Com #004H-005H				State:		Zip:																					
Project Location: Rural Eddy				Phone #:																							
Sampler Name: <i>Jack Jones</i>				Fax #:																							
FOR LAB USE ONLY				MATRIX		PRESERV.		SAMPLING																			
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMF	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chloride	TPH	BTEX 8021										
H000608	TT-16/17 @ 19 Ft	C	1			X					X		2/24/20		X												

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: <i>M. L. Ho</i>	Date: 2-26-20	Received By: <i>Yamara C. Delgado</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: 0850		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: Email results to lance@etechenv.com	
	Time:		pm@etechenv.com	
Delivered By: (Circle One)		Sample Condition	CHECKED BY: (Initials)	
Sampler - UPS - Bus - Other: -6.8c #113		Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	T.O.	

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



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

February 28, 2020

LANCE CRENSHAW

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: SHOWSTOPPER 19 FED COM 4H-5H

Enclosed are the results of analyses for samples received by the laboratory on 02/20/20 13:10.

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

Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: WSW 1 @ 2' (H000548-01)

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/26/2020	ND	1.99	99.5	2.00	5.45	
Toluene*	<0.050	0.050	02/26/2020	ND	2.00	99.8	2.00	5.21	
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.00	100	2.00	5.12	
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.92	98.6	6.00	5.18	
Total BTEX	<0.300	0.300	02/26/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	02/25/2020	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 92.3 % 44.3-144

Surrogate: 1-Chlorooctadecane 92.3 % 42.2-156

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Analytical Results For:

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

Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BHS 1 @ 2' (H000548-02)

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.99	99.5	2.00	5.45		
Toluene*	<0.050	0.050	02/26/2020	ND	2.00	99.8	2.00	5.21		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.00	100	2.00	5.12		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.92	98.6	6.00	5.18		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.2 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/25/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 90.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 94.0 % 42.2-156

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Analytical Results For:

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

Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: NSW 1 @ 2' (H000548-03)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.99	99.5	2.00	5.45		
Toluene*	<0.050	0.050	02/26/2020	ND	2.00	99.8	2.00	5.21		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.00	100	2.00	5.12		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.92	98.6	6.00	5.18		
Total BTX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	02/25/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 85.9 % 44.3-144

Surrogate: 1-Chlorooctadecane 90.0 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: NSW 2b @ 2' (H000548-04)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.99	99.5	2.00	5.45		
Toluene*	<0.050	0.050	02/26/2020	ND	2.00	99.8	2.00	5.21		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.00	100	2.00	5.12		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.92	98.6	6.00	5.18		
Total BTX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	02/25/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 87.3 % 44.3-144

Surrogate: 1-Chlorooctadecane 88.3 % 42.2-156

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Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: NSW 3 @ 2' (H000548-05)

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.99	99.5	2.00	5.45		
Toluene*	<0.050	0.050	02/26/2020	ND	2.00	99.8	2.00	5.21		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.00	100	2.00	5.12		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.92	98.6	6.00	5.18		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	02/25/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 88.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 90.3 % 42.2-156

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Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 2 @ 2' (H000548-06)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.99	99.5	2.00	5.45		
Toluene*	<0.050	0.050	02/26/2020	ND	2.00	99.8	2.00	5.21		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.00	100	2.00	5.12		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.92	98.6	6.00	5.18		
Total BTX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	02/25/2020	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 76.3 % 44.3-144

Surrogate: 1-Chlorooctadecane 84.3 % 42.2-156

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Analytical Results For:

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 Lovington NM, 88260
 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 3 @ 2' (H000548-07)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.99	99.5	2.00	5.45		
Toluene*	<0.050	0.050	02/26/2020	ND	2.00	99.8	2.00	5.21		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.00	100	2.00	5.12		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.92	98.6	6.00	5.18		
Total BTX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	02/25/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 86.0 % 44.3-144

Surrogate: 1-Chlorooctadecane 90.2 % 42.2-156

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 Lovington NM, 88260
 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 4 @ 2' (H000548-08)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.99	99.5	2.00	5.45		
Toluene*	<0.050	0.050	02/26/2020	ND	2.00	99.8	2.00	5.21		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.00	100	2.00	5.12		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.92	98.6	6.00	5.18		
Total BTX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	02/25/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 88.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 93.8 % 42.2-156

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 Lovington NM, 88260
 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 5 @ 2' (H000548-09)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.99	99.5	2.00	5.45		
Toluene*	<0.050	0.050	02/26/2020	ND	2.00	99.8	2.00	5.21		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.00	100	2.00	5.12		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.92	98.6	6.00	5.18		
Total BTX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.3 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	02/25/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 90.2 % 44.3-144

Surrogate: 1-Chlorooctadecane 94.0 % 42.2-156

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Analytical Results For:

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

Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: ESW 1 @ 2' (H000548-10)

BTX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20	QR-03
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33	QR-03
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37	QR-03
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40	QR-03
Total BTX	<0.300	0.300	02/26/2020	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	02/25/2020	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 89.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 92.9 % 42.2-156

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 Lovington NM, 88260
 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: ESW 2 @ 2' (H000548-11)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.3 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	02/25/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 92.4 % 44.3-144

Surrogate: 1-Chlorooctadecane 96.8 % 42.2-156

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Analytical Results For:

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

Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SWSW 1 @ 2' (H000548-12)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEx	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/25/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	207	104	200	0.537	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	220	110	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 94.2 % 44.3-144

Surrogate: 1-Chlorooctadecane 97.4 % 42.2-156

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Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: NSW 4 @ 1' (H000548-13)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1280	16.0	02/25/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 83.2 % 44.3-144

Surrogate: 1-Chlorooctadecane 82.9 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: NSW 5 @ 1' (H000548-14)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.2 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	640	16.0	02/25/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 84.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 85.0 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/18/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: NSW 6 @ 1' (H000548-15)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1020	16.0	02/25/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 78.9 % 44.3-144

Surrogate: 1-Chlorooctadecane 79.9 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: ESW 3 @ 1' (H000548-16)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEx	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	02/25/2020	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 79.4 % 44.3-144

Surrogate: 1-Chlorooctadecane 75.8 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: ESW 4 @ 1' (H000548-17)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.2 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	448	16.0	02/25/2020	ND	432	108	400	0.00	QM-07	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 80.0 % 44.3-144

Surrogate: 1-Chlorooctadecane 78.6 % 42.2-156

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Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 6 @ 1' (H000548-18)

BTEx 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20	
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33	
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37	
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40	
Total BTEX	<0.300	0.300	02/26/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	464	16.0	02/25/2020	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 80.2 % 44.3-144

Surrogate: 1-Chlorooctadecane 79.1 % 42.2-156

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Analytical Results For:

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

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 8 @ 1' (H000548-19)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	400	16.0	02/25/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 79.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 76.3 % 42.2-156

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 Lovington NM, 88260
 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 9 @ 1' (H000548-20)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEx	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 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	368	16.0	02/25/2020	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 81.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 81.3 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 10 @ 1' (H000548-21)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEx	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	192	16.0	02/25/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 83.0 % 44.3-144

Surrogate: 1-Chlorooctadecane 82.4 % 42.2-156

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Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 11 @ 1' (H000548-22)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 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	416	16.0	02/25/2020	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 79.0 % 44.3-144

Surrogate: 1-Chlorooctadecane 75.5 % 42.2-156

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Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 12 @ 1' (H000548-23)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEx	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.7 % 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	336	16.0	02/25/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 86.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 85.5 % 42.2-156

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Analytical Results For:

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 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 13 @ 1' (H000548-24)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	416	16.0	02/25/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 83.2 % 44.3-144

Surrogate: 1-Chlorooctadecane 81.5 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 7b @ 1.5' (H000548-25)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEx	<0.300	0.300	02/26/2020	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	624	16.0	02/25/2020	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 81.0 % 44.3-144

Surrogate: 1-Chlorooctadecane 78.2 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 14 @ 1' (H000548-26)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEx	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	02/25/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 84.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 81.5 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 15 @ 1' (H000548-27)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEx	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.2 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	02/25/2020	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 80.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 76.9 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 16D @ 4' (H000548-28)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1420	16.0	02/25/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 79.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 75.2 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/20/2020	Sampling Date:	02/19/2020
Reported:	02/28/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH 17D @ 4' (H000548-29)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.91	95.6	2.00	1.20		
Toluene*	<0.050	0.050	02/26/2020	ND	1.92	95.9	2.00	1.33		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.93	96.5	2.00	1.37		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	1.40		
Total BTEx	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 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	928	16.0	02/25/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	207	104	200	3.81	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 71.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 68.8 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager

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Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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

Celey D. Keene, Lab Director/Quality Manager



(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Please email results to pm@etechenv.com



(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

FORM-006
Revision 1.0

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



CARDINAL 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: Lance Crenshaw Address: P.O. Box 301 City: Lovington State: NM Zip: 88260 Phone #: (575) 396-2378 Fax #: (575) 396-1429 Project #: 11626 Project Owner: COG Project Name: Showstopper 19 Fed Com 4H - 5H Project Location: Rural Eddy County, NM Sampler Name: David Robinson		BILL TO P.O. #: Company: COG Attn: Address: City: State: Zip: Phone #: Fax #:		ANALYSIS REQUEST																						
FOR LAB USE ONLY Lab I.D. H000548		Sample I.D.		(G)RAB OR (C)OMP. # CONTAINERS		MATRIX GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER :					PRESERV. ACID/BASE: ICE / COOL OTHER :		SAMPLING DATE TIME		Chloride TPH (8015M) BTEX (8021B)											
21		BH 10 @ 1'		G 1		X					X		2/19/20 9:20		X X X											
22		BH 11 @ 1'		G 1		X					X		2/19/20 9:25		X X X											
23		BH 12 @ 1'		G 1		X					X		2/19/20 9:30		X X X											
24		BH 13 @ 1'		G 1		X					X		2/19/20 9:35		X X X											
25		BH 7b @ 1.5'		G 1		X					X		2/19/20 11:20		X X X											
26		BH 14 @ 1'		G 1		X					X		2/19/20 11:35		X X X											
27		BH 15 @ 1'		G 1		X					X		2/19/20 11:30		X X X											
28		BH 16D @ 4'		G 1		X					X		2/19/20 13:00		X X X											
29		BH 17D @ 4'		G 1		X					X		2/19/20 13:30		X X X											
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Relinquished By: 				Date: 2/20/22 Time: 13:10		Received By: 				Date: Time:		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:														
Relinquished By: 				Date: Time:		Received By: 				Date: Time:		Delivered By: (Circle One) Sampler - UPS - Bus - Other: - 0.6c #113														
						Sample Condition Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No				CHECKED BY: (Initials) TO		Please email results to pm@etechenv.com														



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

February 27, 2020

LANCE CRENSHAW

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: SHOWSTOPPER 19 FED COM 4H-5H

Enclosed are the results of analyses for samples received by the laboratory on 02/26/20 8:50.

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 style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/20/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH - 18 (H000609-01)

BTX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/26/2020	ND	1.88	94.2	2.00	3.07	
Toluene*	<0.050	0.050	02/26/2020	ND	1.89	94.5	2.00	3.02	
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.91	95.5	2.00	3.87	
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	3.96	
Total BTX	<0.300	0.300	02/26/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	448	16.0	02/27/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	187	93.3	200	3.77	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	213	107	200	7.76	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 88.9 % 44.3-144

Surrogate: 1-Chlorooctadecane 94.7 % 42.2-156

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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/20/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH - 19 (H000609-02)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.88	94.2	2.00	3.07		
Toluene*	<0.050	0.050	02/26/2020	ND	1.89	94.5	2.00	3.02		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.91	95.5	2.00	3.87		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	3.96		
Total BTEx	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	02/27/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	187	93.3	200	3.77	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	213	107	200	7.76	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 90.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 95.8 % 42.2-156

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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/20/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH - 20 (H000609-03)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.88	94.2	2.00	3.07		
Toluene*	<0.050	0.050	02/26/2020	ND	1.89	94.5	2.00	3.02		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.91	95.5	2.00	3.87		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	3.96		
Total BTX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	864	16.0	02/27/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	187	93.3	200	3.77	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	213	107	200	7.76	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 93.1 % 44.3-144

Surrogate: 1-Chlorooctadecane 96.4 % 42.2-156

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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/20/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH - 21 (H000609-04)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.88	94.2	2.00	3.07		
Toluene*	<0.050	0.050	02/26/2020	ND	1.89	94.5	2.00	3.02		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.91	95.5	2.00	3.87		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	3.96		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	672	16.0	02/27/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	187	93.3	200	3.77	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	213	107	200	7.76	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 90.3 % 44.3-144

Surrogate: 1-Chlorooctadecane 96.3 % 42.2-156

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/20/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SSW 1 (H000609-05)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.88	94.2	2.00	3.07		
Toluene*	<0.050	0.050	02/26/2020	ND	1.89	94.5	2.00	3.02		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.91	95.5	2.00	3.87		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	3.96		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	02/27/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	187	93.3	200	3.77	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	213	107	200	7.76	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 92.0 % 44.3-144

Surrogate: 1-Chlorooctadecane 95.5 % 42.2-156

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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/20/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SSW 2 (H000609-06)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.88	94.2	2.00	3.07		
Toluene*	<0.050	0.050	02/26/2020	ND	1.89	94.5	2.00	3.02		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.91	95.5	2.00	3.87		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	3.96		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	02/27/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	187	93.3	200	3.77	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	213	107	200	7.76	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 84.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 89.5 % 42.2-156

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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/20/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SWSW 2 (H000609-07)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.88	94.2	2.00	3.07		
Toluene*	<0.050	0.050	02/26/2020	ND	1.89	94.5	2.00	3.02		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.91	95.5	2.00	3.87		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	3.96		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	02/27/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	187	93.3	200	3.77	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	213	107	200	7.76	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 90.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 95.4 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/20/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SSW 3b (H000609-08)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.88	94.2	2.00	3.07		
Toluene*	<0.050	0.050	02/26/2020	ND	1.89	94.5	2.00	3.02		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.91	95.5	2.00	3.87		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	3.96		
Total BTX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	192	16.0	02/27/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	187	93.3	200	3.77	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	213	107	200	7.76	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 93.4 % 44.3-144

Surrogate: 1-Chlorooctadecane 98.8 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/20/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: ESW 5b (H000609-09)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.88	94.2	2.00	3.07		
Toluene*	<0.050	0.050	02/26/2020	ND	1.89	94.5	2.00	3.02		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.91	95.5	2.00	3.87		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	3.96		
Total BTX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	352	16.0	02/27/2020	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	187	93.3	200	3.77	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	213	107	200	7.76	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 91.9 % 44.3-144

Surrogate: 1-Chlorooctadecane 93.2 % 42.2-156

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Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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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

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



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February 27, 2020

LANCE CRENSHAW

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: SHOWSTOPPER 19 FED COM 4H-5H

Enclosed are the results of analyses for samples received by the laboratory on 02/26/20 8:50.

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 style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 1 (H000606-01)

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62	
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95	
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83	
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89	
Total BTEX	<0.300	0.300	02/26/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.2 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	02/26/2020	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 97.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 99.8 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 2 (H000606-02)

BTEx 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62	
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95	
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83	
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89	
Total BTEX	<0.300	0.300	02/26/2020	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	02/26/2020	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 101 % 44.3-144

Surrogate: 1-Chlorooctadecane 105 % 42.2-156

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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 3 (H000606-03)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	02/26/2020	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	204	102	200	1.56		
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	196	98.2	200	1.53		
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND						

Surrogate: 1-Chlorooctane 100 % 44.3-144

Surrogate: 1-Chlorooctadecane 104 % 42.2-156

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 Lovington NM, 88260
 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 4 (H000606-04)

BTEx 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62	
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95	
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83	
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89	
Total BTEX	<0.300	0.300	02/26/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	02/26/2020	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 100 % 44.3-144

Surrogate: 1-Chlorooctadecane 103 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 5 (H000606-05)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	02/26/2020	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 101 % 44.3-144

Surrogate: 1-Chlorooctadecane 107 % 42.2-156

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Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 6 (H000606-06)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	02/26/2020	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 96.4 % 44.3-144

Surrogate: 1-Chlorooctadecane 101 % 42.2-156

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Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 7 (H000606-07)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	02/26/2020	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 103 % 44.3-144

Surrogate: 1-Chlorooctadecane 106 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 8 (H000606-08)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	544	16.0	02/26/2020	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 96.8 % 44.3-144

Surrogate: 1-Chlorooctadecane 100 % 42.2-156

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Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 9 (H000606-09)

BTEx 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62	
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95	
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83	
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89	
Total BTEX	<0.300	0.300	02/26/2020	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	480	16.0	02/26/2020	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 96.1 % 44.3-144

Surrogate: 1-Chlorooctadecane 100 % 42.2-156

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Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 10 (H000606-10)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	384	16.0	02/26/2020	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 96.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 101 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 11 (H000606-11)

BTEx 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62	
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95	
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83	
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89	
Total BTEX	<0.300	0.300	02/26/2020	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	432	16.0	02/26/2020	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 92.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 97.9 % 42.2-156

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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 12 (H000606-12)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	368	16.0	02/26/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 96.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 99.1 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 13 (H000606-13)

BTX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62	
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95	
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83	
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89	
Total BTX	<0.300	0.300	02/26/2020	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	480	16.0	02/26/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 97.3 % 44.3-144

Surrogate: 1-Chlorooctadecane 98.6 % 42.2-156

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Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 14 (H000606-14)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEx	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	368	16.0	02/26/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 98.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 99.6 % 42.2-156

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Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 15 (H000606-15)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	384	16.0	02/26/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 99.8 % 44.3-144

Surrogate: 1-Chlorooctadecane 103 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 16 (H000606-16)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	02/26/2020	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 94.3 % 44.3-144

Surrogate: 1-Chlorooctadecane 100 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 17 (H000606-17)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	368	16.0	02/26/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 83.0 % 44.3-144

Surrogate: 1-Chlorooctadecane 89.2 % 42.2-156

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Analytical Results For:

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 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 18 (H000606-18)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	384	16.0	02/26/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 86.8 % 44.3-144

Surrogate: 1-Chlorooctadecane 92.5 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 19 (H000606-19)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	416	16.0	02/26/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 94.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 99.5 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 20 (H000606-20)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	2.06	103	2.00	3.62		
Toluene*	<0.050	0.050	02/26/2020	ND	2.08	104	2.00	3.95		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	2.09	105	2.00	3.83		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	6.15	102	6.00	3.89		
Total BTX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	208	16.0	02/26/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	196	98.2	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 94.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 98.6 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 21 (H000606-21)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	336	16.0	02/26/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 88.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 93.7 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 22 (H000606-22)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	02/26/2020	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 93.0 % 44.3-144

Surrogate: 1-Chlorooctadecane 98.1 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 23 (H000606-23)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	02/26/2020	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 97.9 % 44.3-144

Surrogate: 1-Chlorooctadecane 101 % 42.2-156

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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 24 (H000606-24)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEx	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.2 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	272	16.0	02/26/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 98.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 101 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/24/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 25 (H000606-25)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1150	16.0	02/26/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 87.1 % 44.3-144

Surrogate: 1-Chlorooctadecane 92.8 % 42.2-156

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Notes and Definitions

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

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

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: COG Operating, LLC				BILL TO				ANALYSIS REQUEST															
Project Manager: Lance Crenshaw				P.O. #:																			
Address: 3100 Plains Hwy				Company: COG																			
City: Lovington State: NM Zip: 88260				Attn: Dakota Neel																			
Phone #: 575-396-2378 Fax #: 575-396-1429				Address:																			
Project #: 11626 Project Owner: COG Operating, LLC				City:																			
Project Name: Showstopper 19 Fed Com #004H-005H				State: Zip:																			
Project Location: Rural Eddy				Phone #:																			
Sampler Name: <i>Jack Jones</i>				Fax #:																			
FOR LAB USE ONLY				MATRIX		PRESERV.		SAMPLING															
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMF	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	Chloride	TPH	BTEX 8021						
<i>H000606</i>																							
1	FL-1	C	1			X				X			2/24/20		X	X	X						
2	FL-2	C	1			X				X			2/24/20		X	X	X						
3	FL-3	C	1			X				X			2/24/20		X	X	X						
4	FL-4	C	1			X				X			2/24/20		X	X	X						
5	FL-5	C	1			X				X			2/24/20		X	X	X						
6	FL-6	C	1			X				X			2/24/20		X	X	X						
7	FL-7	C	1			X				X			2/24/20		X	X	X						
8	FL-8	C	1			X				X			2/24/20		X	X	X						
9	FL-9	C	1			X				X			2/24/20		X	X	X						
10	FL-10	C	1			X				X			2/24/20		X	X	X						

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Relinquished By: <i>[Signature]</i>	Date: <i>2-26-20</i>	Received By: <i>[Signature]</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: <i>0850</i>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: Email results to <i>lance@etechenv.com</i>	
	Time:		<i>pm@etechenv.com</i>	
Delivered By: (Circle One)	Sample Condition	CHECKED BY: (Initials)	<i>ASAP!</i>	
Sampler - UPS - Bus - Other: <i>-6.8°C #113</i>	Cool <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	<i>TS</i>		

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



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: COG Operating, LLC		BILL TO		ANALYSIS REQUEST																
Project Manager: Lance Crenshaw		P.O. #:																		
Address: 3100 Plains Hwy		Company: COG																		
City: Lovington State: NM Zip: 88260		Attn: Dakota Neel																		
Phone #: 575-396-2378 Fax #: 575-396-1429		Address:																		
Project #: 11626 Project Owner: COG Operating, LLC		City:																		
Project Name: Showstopper 19 Fed Com #004H-005H		State: Zip:																		
Project Location: Rural Eddy		Phone #:																		
Sampler Name: <i>Good four</i>		Fax #:																		
FOR LAB USE ONLY																				
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMF	# CONTAINERS	MATRIX				PRESERV.	SAMPLING		Chloride	TPH	BTEX 8021							
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME						
H000606																				
11	FL-11	C	1		X					X			2/24/20		X	X	X			
12	FL-12	C	1		X					X			2/24/20		X	X	X			
13	FL-13	C	1		X					X			2/24/20		X	X	X			
14	FL-14	C	1		X					X			2/24/20		X	X	X			
15	FL-15	C	1		X					X			2/24/20		X	X	X			
16	FL-16	C	1		X					X			2/24/20		X	X	X			
17	FL-17	C	1		X					X			2/24/20		X	X	X			
18	FL-18	C	1		X					X			2/24/20		X	X	X			
19	FL-19	C	1		X					X			2/24/20		X	X	X			
20	FL-20	C	1		X					X			2/24/20		X	X	X			

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Relinquished By: <i>[Signature]</i>	Date: <i>2/24/20</i>	Received By: <i>[Signature]</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: <i>06:55</i>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: Email results to <i>lance@etechenv.com</i>	
	Time:		<i>pm@etechenv.com</i>	
Delivered By: (Circle One)	Sample Condition	CHECKED BY: (Initials)	<i>ASAP!</i>	
Sampler - UPS - Bus - Other: <i>-6.8°C #13</i>	Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> No	<i>T.O.</i>		

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



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

3 of 3

Company Name: COG Operating, LLC				BILL TO				ANALYSIS REQUEST											
Project Manager: Lance Crenshaw				P.O. #:															
Address: 3100 Plains Hwy				Company: COG															
City: Lovington		State: NM		Zip: 88260		Attn: Dakota Neel													
Phone #: 575-396-2378		Fax #: 575-396-1429		Address:															
Project #: 11626		Project Owner: COG Operating, LLC		City:															
Project Name: Showstopper 19 Fed Com #004H-005H				State:		Zip:													
Project Location: Rural Eddy				Phone #:															
Sampler Name: <i>Joel from</i>				Fax #:															
FOR LAB USE ONLY		Lab I.D.		Sample I.D.		(GRAB OR COMPOSITE)		MATRIX		PRESERV.		SAMPLING		Chloride		TPH		BTEX 8021	
						# CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER:	
								ACID/BASE:		ICE / COOL		OTHER:		DATE		TIME			
H000606		21		FL-21		C 1		X		X		X		2/24/20		X		X	
		22		FL-22		C 1		X		X		X		2/24/20		X		X	
		23		FL-23		C 1		X		X		X		2/24/20		X		X	
		24		FL-24		C 1		X		X		X		2/24/20		X		X	
		25		FL-25		C 1		X		X		X		2/24/20		X		X	

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Relinquished By: <i>M. Crenshaw</i>	Date: 2/24/20 Time: 08:55	Received By: <i>Lance Crenshaw</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Date:	Received By:	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other: <i>- 6.8c #113</i>			REMARKS: Email results to <i>lance@etechenv.com</i> <i>pme@etechenv.com</i> <i>ASAP!</i>	
Sample Condition Cool <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		CHECKED BY: (Initials) <i>T. C.</i>		

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



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

February 27, 2020

LANCE CRENSHAW

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: SHOWSTOPPER 19 FED COM 4H-5H

Enclosed are the results of analyses for samples received by the laboratory on 02/26/20 9:00.

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: ESW 6 (H000607-01)

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 97.3 % 44.3-144

Surrogate: 1-Chlorooctadecane 102 % 42.2-156

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: NSW 7 (H000607-02)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	352	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 104 % 44.3-144

Surrogate: 1-Chlorooctadecane 106 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: NSW 8 (H000607-03)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.5 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	352	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 98.3 % 44.3-144

Surrogate: 1-Chlorooctadecane 99.9 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: NSW 9 (H000607-04)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	384	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 99.9 % 44.3-144

Surrogate: 1-Chlorooctadecane 102 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 26 (H000607-05)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	256	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 93.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 94.3 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 27 (H000607-06)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	288	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 96.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 98.9 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 28 (H000607-07)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	256	16.0	02/27/2020	ND	416	104	400	3.77	QM-07	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 97.1 % 44.3-144

Surrogate: 1-Chlorooctadecane 103 % 42.2-156

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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 29 (H000607-08)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 98.4 % 44.3-144

Surrogate: 1-Chlorooctadecane 102 % 42.2-156

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Analytical Results For:

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 Lovington NM, 88260
 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 30 (H000607-09)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.7 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	256	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 94.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 98.5 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 31 (H000607-10)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	256	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 97.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 99.1 % 42.2-156

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Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 32 (H000607-11)

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	336	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 95.1 % 44.3-144

Surrogate: 1-Chlorooctadecane 98.7 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 33 (H000607-12)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	352	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 99.2 % 44.3-144

Surrogate: 1-Chlorooctadecane 102 % 42.2-156

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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 34 (H000607-13)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	272	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 96.4 % 44.3-144

Surrogate: 1-Chlorooctadecane 99.1 % 42.2-156

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Analytical Results For:

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 Lovington NM, 88260
 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 35 (H000607-14)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEX	<0.300	0.300	02/26/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.2 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	368	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 93.4 % 44.3-144

Surrogate: 1-Chlorooctadecane 99.4 % 42.2-156

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 Fax To: (575) 396-1429

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 36 (H000607-15)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.89	94.3	2.00	8.83		
Toluene*	<0.050	0.050	02/26/2020	ND	1.91	95.3	2.00	9.44		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.92	96.2	2.00	9.33		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.60	93.3	6.00	9.74		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/27/2020	ND	205	103	200	0.165	
DRO >C10-C28*	<10.0	10.0	02/27/2020	ND	203	102	200	0.254	
EXT DRO >C28-C36	<10.0	10.0	02/27/2020	ND					

Surrogate: 1-Chlorooctane 92.8 % 44.3-144

Surrogate: 1-Chlorooctadecane 98.3 % 42.2-156

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

Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 37 (H000607-16)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.88	94.2	2.00	3.07		
Toluene*	<0.050	0.050	02/26/2020	ND	1.89	94.5	2.00	3.02		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.91	95.5	2.00	3.87		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	3.96		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	352	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	187	93.3	200	3.77	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	213	107	200	7.76	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 84.2 % 44.3-144

Surrogate: 1-Chlorooctadecane 88.0 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 38 (H000607-17)

BTEx 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/26/2020	ND	1.88	94.2	2.00	3.07		
Toluene*	<0.050	0.050	02/26/2020	ND	1.89	94.5	2.00	3.02		
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.91	95.5	2.00	3.87		
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	3.96		
Total BTEX	<0.300	0.300	02/26/2020	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	272	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	187	93.3	200	3.77	
DRO >C10-C28*	10.4	10.0	02/26/2020	ND	213	107	200	7.76	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 82.1 % 44.3-144

Surrogate: 1-Chlorooctadecane 87.7 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	02/27/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: FL - 39 (H000607-18)

BTEx 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/26/2020	ND	1.88	94.2	2.00	3.07	
Toluene*	<0.050	0.050	02/26/2020	ND	1.89	94.5	2.00	3.02	
Ethylbenzene*	<0.050	0.050	02/26/2020	ND	1.91	95.5	2.00	3.87	
Total Xylenes*	<0.150	0.150	02/26/2020	ND	5.61	93.5	6.00	3.96	
Total BTEX	<0.300	0.300	02/26/2020	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	256	16.0	02/27/2020	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/26/2020	ND	187	93.3	200	3.77	
DRO >C10-C28*	<10.0	10.0	02/26/2020	ND	213	107	200	7.76	
EXT DRO >C28-C36	<10.0	10.0	02/26/2020	ND					

Surrogate: 1-Chlorooctane 85.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 91.1 % 42.2-156

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Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: COG Operating, LLC				BILL TO				ANALYSIS REQUEST															
Project Manager: Lance Crenshaw				P.O. #:																			
Address: 3100 Plains Hwy				Company: COG																			
City: Lovington		State: NM		Zip: 88260		Attn: Dakota Neel																	
Phone #: 575-396-2378		Fax #: 575-396-1429		Address:		City:																	
Project #: 11626		Project Owner: COG Operating, LLC		State:		Zip:																	
Project Name: Showstopper 19 Fed Com #004H-005H				Phone #:																			
Project Location: Rural Eddy				Fax #:																			
Sampler Name: <i>David Robinson</i>																							
FOR LAB USE ONLY				MATRIX		PRESERV.		SAMPLING															
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMF	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	Chloride	TPH	BTEX 8021						
4000607																							
1	ESW6	C	1			X				X			2/25/20		X	x	x						
2	NSW 7	C	1			x				x			2/25/20		X	X	X						
3	NSW 8	C	1			x				x			2/25/20		X	X	X						
4	NSW 9	C	1			x				x			2/25/20		X	X	X						
5	FL-26	C	1			x				x			2/25/20		X	X	X						
6	FL-27	C	1			x				x			2/25/20		X	X	X						
7	FL-28	C	1			x				x			2/25/20		X	X	X						
8	FL-29	C	1			x				x			2/25/20		X	X	X						
9	FL-30	C	1			x				x			2/25/20		X	X	X						
10	FL-31	C	1			x				x			2/25/20		X	X	X						

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Relinquished By: <i>Matt</i>	Date: 2/26/20	Received By: <i>Amara Aldrete</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Date:	Received By:	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One)	Time: 07:00		REMARKS: Email results to pm@etechenv.com	
Sampler - UPS - Bus - Other: -6.8°C #113	Time:		ASAP!	
Sample Condition Cool <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	CHECKED BY: (Initials) J.O.			

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



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: COG Operating, LLC				BILL TO				ANALYSIS REQUEST																			
Project Manager: Lance Crenshaw				P.O. #:																							
Address: 3100 Plains Hwy				Company: COG																							
City: Lovington		State: NM		Zip: 88260		Attn: Dakota Neel																					
Phone #: 575-396-2378		Fax #: 575-396-1429		Address:		City:																					
Project #: 11626		Project Owner: COG Operating, LLC		State:		Zip:																					
Project Name: Showstopper 19 Fed Com #004H-005H				Phone #:																							
Project Location: Rural Eddy				Fax #:																							
Sampler Name: <u>David Robinson</u>																											
FOR LAB USE ONLY				MATRIX		PRESERV.		SAMPLING																			
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMF	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chloride	TPH	BTEX 8021										
<u>HOOD 607</u>																											
11	FL-32	C	1			X				X			2/25/20		X	x	x										
12	FL-33	C	1			x				x			2/25/20		X	X	X										
13	FL-34	C	1			x				x			2/25/20		X	X	X										
14	FL-35	C	1			x				x			2/25/20		X	X	X										
15	FL-36	C	1			x				x			2/25/20		X	X	X										
16	FL-37	C	1			x				x			2/25/20		X	X	X										
17	FL-38	C	1			x				x			2/25/20		X	X	X										
18	FL-39	C	1			x				x			2/25/20		X	X	X										

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Relinquished By:	Date: <u>2/26/20</u>	Received By:	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
<u>Joe Jones</u>	Time:	<u>Sumera Qadri</u>	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: Email results to pm@etechenv.com	
	Time:		<u>Lush!</u>	
Delivered By: (Circle One)	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other:	Cool Intact	(Initials)		
<u>-6.8 e #113</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<u>JO</u>		
	<input type="checkbox"/> No <input type="checkbox"/> No			

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



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

March 04, 2020

LANCE CRENSHAW

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: SHOWSTOPPER 19 FED COM 4H-5H

Enclosed are the results of analyses for samples received by the laboratory on 03/03/20 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,

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

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	03/03/2020	Sampling Date:	03/03/2020
Reported:	03/04/2020	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 19 FED COM 4H-5H	Sampling Condition:	Cool & Intact
Project Number:	11626	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BH - 20B (H000694-01)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	256	16.0	03/04/2020	ND	416	104	400	10.9		

Sample ID: BH - 7C (H000694-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	03/04/2020	ND	416	104	400	10.9	

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Notes and Definitions

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

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

Celey D. Keene, Lab Director/Quality Manager



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(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

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Relinquished By: <i>[Signature]</i>		Date: <i>3/3/22</i>	Received By: <i>[Signature]</i>		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No	Add'l Phone #: _____
Time: <i>4:16</i>					Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No	Add'l Fax #: _____
Relinquished By: <i>[Signature]</i>		Date: <i>3-3-20</i>	Received By: <i>[Signature]</i>		REMARKS: Email results to pm@etechenv.com <i>Rush!</i>	
Time: <i>1045</i>						
Delivered By: (Circle One)			Sample Condition		CHECKED BY: (Initials) <i>J.O.</i>	
Sampler - UPS - Bus - Other: <i>-0.2° #113</i>			Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No			

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

Appendix D

Photographic Log

Photographic Log



Photographic Log

Photo Number: 3	 <p>February 21, 2020 at 10:23:00 AM 32.110201,104.022542</p>
Photo Direction: Southwest	
Photo Description: Excavation	

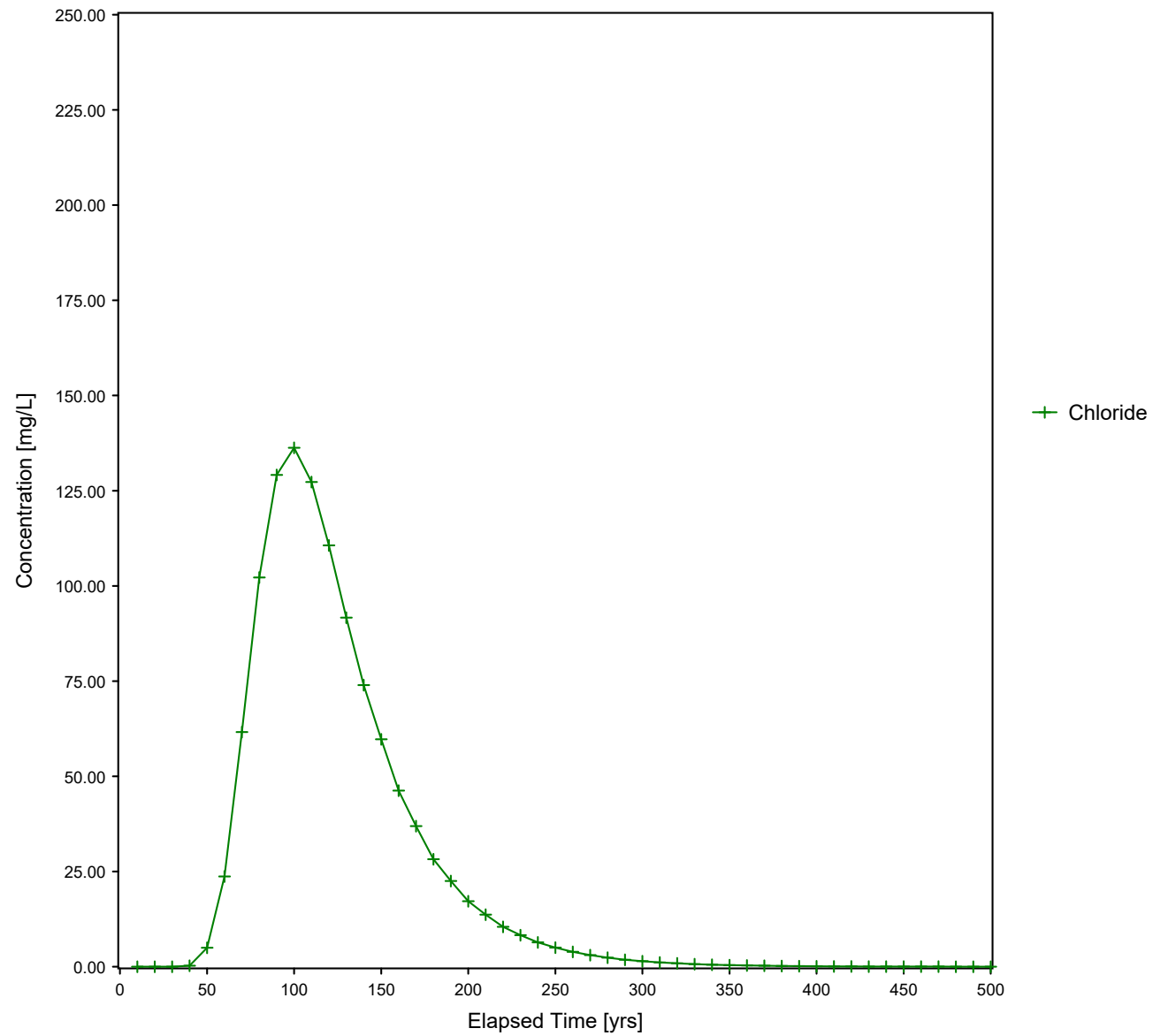
Photo Number: 4	 <p>February 21, 2020 at 10:23:05 AM 32.110201,104.022542</p>
Photo Direction: East-Northeast	
Photo Description: Test Trench TT-16/17	

Photographic Log



Appendix E
Multimedia Exposure Assessment Model
(MULTIMED)

**Chloride Concentration at the Receptor Well
(Proximate to Pumping Unit, Liner at 4' bgs)**
COG Operating, LLC
Showstopper 19 Fed Com #004H-005H



U. S. ENVIRONMENTAL PROTECTION AGENCY

EXPOSURE ASSESSMENT

MULTIMEDIA MODEL

MULTIMED (Version 1.50, 2005)

1
Run options

CG Operating, LLC
Slowstopper 19 Fed Com #004H-005H

Chemical simulated is Chloride

Option Chosen Saturated and unsaturated zone models
Run was DETERMIN
Infiltration Specified By User: 7.620E-03 m/yr
Run was transient
Well Times: Find Maximum Concentration
Reject runs if Y coordinate outside plume
Reject runs if Z coordinate outside plume
Gaussian source used in saturated zone model

1
1

UNSATURATED ZONE FLOW MODEL PARAMETERS
(input parameter description and value)
NP - Total number of nodal points 240
NMAT - Number of different porous materials 1
KPROP - Van Genuchten or Brooks and Corey 1
IMSHGN - Spatial discretization option 1
NVFLAYR - Number of layers in flow model 1

OPTIONS CHOSEN

Van Genuchten functional coefficients
User defined coordinate system

1

Layer information

LAYER NO.	LAYER THICKNESS	MATERIAL PROPERTY
1	4.88	1

VADOSE ZONE MATERIAL VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Saturated hydraulic conductivity	cm/hr	CONSTANT	4.17	-999.	-999.	-999.
Unsaturated zone porosity	--	CONSTANT	0.130	-999.	-999.	-999.
Air entry pressure head	m	CONSTANT	0.700	-999.	-999.	-999.
Depth of the unsaturated zone	m	CONSTANT	4.88	0.000	0.000	0.000

DATA FOR MATERIAL 1

VADOSE ZONE FUNCTION VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Residual water content	--	CONSTANT	0.116	-999.	-999.	-999.
Brook and Corey exponent, EN	--	CONSTANT	-999.	-999.	-999.	-999.
ALFA coefficient	1/cm	CONSTANT	0.500E-02	-999.	-999.	-999.
Van Genuchten exponent, ENN	--	CONSTANT	1.09	-999.	-999.	-999.

1

UNSATURATED ZONE TRANSPORT MODEL PARAMETERS

NLAY	- Number of different layers used	1
NTSTPS	- Number of time values concentration calc	40
DUMMY	- Not presently used	1
ISOL	- Type of scheme used in unsaturated zone	2
N	- Stehfest terms or number of increments	18
NTEL	- Points in Lagrangian interpolation	3
NGPTS	- Number of Gauss points	104
NIT	- Convolution integral segments	2
IBOUND	- Type of boundary condition	3
ITSGEN	- Time values generated or input	1
TMAX	- Max simulation time	-- 0.0
WTFUN	- Weighting factor	-- 1.2

OPTIONS CHOSEN

Convolution integral approach
Exponentially decaying continuous source
Computer generated times for computing concentrations

1

DATA FOR LAYER 1

VADOSE TRANSPORT VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Thickness of layer	m	CONSTANT	4.88	-999.	-999.	-999.
Longitudinal dispersivity of layer	m	DERIVED	-999.	-999.	-999.	-999.
Percent organic matter	--	CONSTANT	0.000	-999.	-999.	-999.
Bulk density of soil for layer	g/cc	CONSTANT	1.99	-999.	-999.	-999.
Biological decay coefficient	1/yr	CONSTANT	0.000	-999.	-999.	-999.

CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Solid phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Dissolved phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Overall chemical decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Acid catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Base catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Reference temperature	C	CONSTANT	25.0	-999.	-999.	-999.
Normalized distribution coefficient	ml/g	CONSTANT	0.000	-999.	-999.	-999.
Distribution coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Air diffusion coefficient	cm ² /s	CONSTANT	-999.	-999.	-999.	-999.
Reference temperature for air diffusion	C	CONSTANT	-999.	-999.	-999.	-999.
Molecular weight	g/M	CONSTANT	-999.	-999.	-999.	-999.
Mole fraction of solute	--	CONSTANT	-999.	-999.	-999.	-999.
Vapor pressure of solute	mm Hg	CONSTANT	-999.	-999.	-999.	-999.
Henry's law constant	atm-m ³ /M	CONSTANT	-999.	-999.	-999.	-999.
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000	0.000	0.000	1.00
Not currently used		CONSTANT	0.000	0.000	0.000	0.000
Not currently used		CONSTANT	0.000	0.000	0.000	0.000

SOURCE SPECIFIC VARIABLES

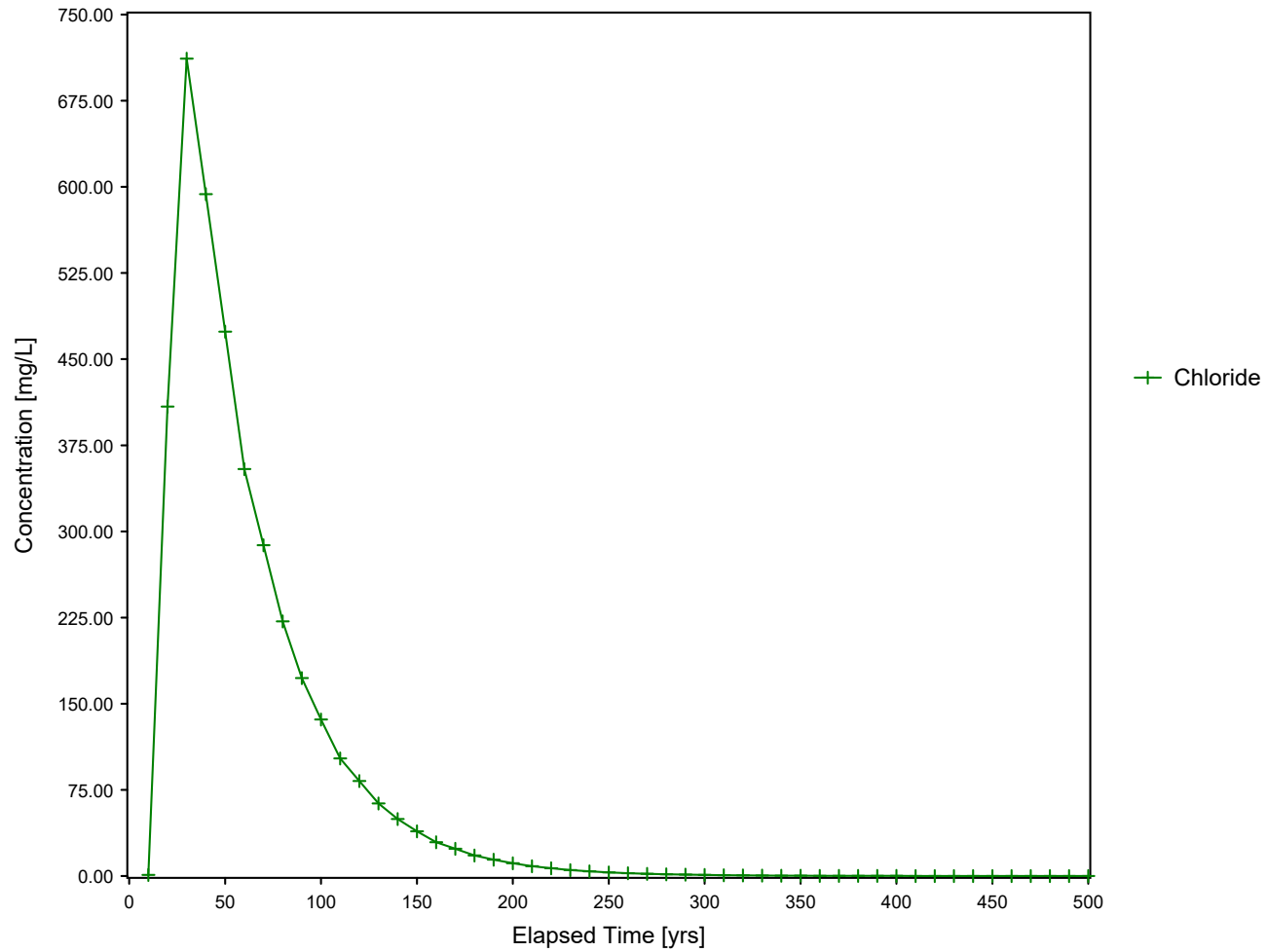
VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Infiltration rate	m/yr	CONSTANT	0.762E-02	-999.	-999.	-999.
Area of waste disposal unit	m ²	CONSTANT	186.	-999.	-999.	-999.
Duration of pulse	yr	DERIVED	0.100E-08	-999.	-999.	-999.
Spread of contaminant source	m	DERIVED	-999.	-999.	-999.	-999.
Recharge rate	m/yr	CONSTANT	0.000	-999.	-999.	-999.
Source decay constant	1/yr	CONSTANT	0.250E-01	0.000	0.000	0.000
Initial concentration at landfill	mg/l	CONSTANT	0.168E+04	-999.	-999.	-999.
Length scale of facility	m	DERIVED	-999.	-999.	-999.	-999.
Width scale of facility	m	DERIVED	-999.	-999.	-999.	-999.
Near field dilution		DERIVED	1.00	0.000	0.000	1.00

AQUIFER SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Particle diameter	cm	CONSTANT	-999.	-999.	-999.	-999.
Aquifer porosity	--	CONSTANT	0.300	-999.	-999.	-999.
Bulk density	g/cc	CONSTANT	1.86	-999.	-999.	-999.
Aquifer thickness	m	CONSTANT	6.10	-999.	-999.	-999.
Source thickness (mixing zone depth)	m	DERIVED	-999.	-999.	-999.	-999.
Conductivity (hydraulic)	m/yr	CONSTANT	315.	-999.	-999.	-999.
Gradient (hydraulic)		CONSTANT	0.300E-02	-999.	-999.	-999.
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	-999.	-999.
Retardation coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Longitudinal dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Transverse dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Vertical dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Temperature of aquifer	C	CONSTANT	20.0	-999.	-999.	-999.
pH	--	CONSTANT	7.00	-999.	-999.	-999.
Organic carbon content (fraction)		CONSTANT	0.000	-999.	-999.	-999.
Well distance from site	m	CONSTANT	1.00	-999.	-999.	-999.
Angle off center	degree	CONSTANT	0.000	-999.	-999.	-999.
Well vertical distance	m	CONSTANT	0.000	-999.	-999.	-999.

MAXIMUM WELL CONCENTRATION IS 136.4 AT 101 YEARS

**Chloride Concentration at the Receptor Well
(Proximate to Pumping Unit, No Liner)**
COG Operating, LLC
Showstopper 19 Fed Com #004H-005H



U. S. ENVIRONMENTAL PROTECTION AGENCY

EXPOSURE ASSESSMENT

MULTIMEDIA MODEL

MULTIMED (Version 1.50, 2005)

1
Run options

CG Operating, LLC
Slowstopper 19 Fed Com #004H-005H

Chemical simulated is Chloride

Option Chosen Saturated and unsaturated zone models
Run was DETERMIN
Infiltration Specified By User: 3.048E-02 m/yr
Run was transient
Well Times: Find Maximum Concentration
Reject runs if Y coordinate outside plume
Reject runs if Z coordinate outside plume
Gaussian source used in saturated zone model

1
1

UNSATURATED ZONE FLOW MODEL PARAMETERS
(input parameter description and value)
NP - Total number of nodal points 240
NMAT - Number of different porous materials 1
KPROP - Van Genuchten or Brooks and Corey 1
IMSHGN - Spatial discretization option 1
NVFLAYR - Number of layers in flow model 1

OPTIONS CHOSEN

Van Genuchten functional coefficients
User defined coordinate system

1

Layer information

LAYER NO. LAYER THICKNESS MATERIAL PROPERTY

1 4.88 1

VADOSE ZONE MATERIAL VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Saturated hydraulic conductivity	cm/hr	CONSTANT	4.17	-999.	-999.	-999.
Unsaturated zone porosity	--	CONSTANT	0.130	-999.	-999.	-999.
Air entry pressure head	m	CONSTANT	0.700	-999.	-999.	-999.
Depth of the unsaturated zone	m	CONSTANT	4.88	0.000	0.000	0.000

DATA FOR MATERIAL 1

VADOSE ZONE FUNCTION VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Residual water content	--	CONSTANT	0.116	-999.	-999.	-999.
Brook and Corey exponent, EN	--	CONSTANT	-999.	-999.	-999.	-999.
ALFA coefficient	1/cm	CONSTANT	0.500E-02	-999.	-999.	-999.
Van Genuchten exponent, ENN	--	CONSTANT	1.09	-999.	-999.	-999.

UNSATURATED ZONE TRANSPORT MODEL PARAMETERS

NLAY - Number of different layers used 1
 NTSTPS - Number of time values concentration calc 40
 DUMMY - Not presently used 1
 ISOL - Type of scheme used in unsaturated zone 2
 N - Stehfest terms or number of increments 18
 NTEL - Points in Lagrangian interpolation 3
 NGPTS - Number of Gauss points 104
 NIT - Convolution integral segments 2
 IBOUND - Type of boundary condition 3
 ITSGEN - Time values generated or input 1
 TMAX - Max simulation time -- 0.0
 WTFUN - Weighting factor -- 1.2

OPTIONS CHOSEN

 Convolution integral approach
 Exponentially decaying continuous source
 Computer generated times for computing concentrations

DATA FOR LAYER 1

VADOSE TRANSPORT VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Thickness of layer	m	CONSTANT	4.88	-999.	-999.	-999.
Longitudinal dispersivity of layer	m	DERIVED	-999.	-999.	-999.	-999.
Percent organic matter	--	CONSTANT	0.000	-999.	-999.	-999.
Bulk density of soil for layer	g/cc	CONSTANT	1.99	-999.	-999.	-999.
Biological decay coefficient	1/yr	CONSTANT	0.000	-999.	-999.	-999.

CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Solid phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Dissolved phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Overall chemical decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Acid catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Base catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Reference temperature	C	CONSTANT	25.0	-999.	-999.	-999.
Normalized distribution coefficient	ml/g	CONSTANT	0.000	-999.	-999.	-999.
Distribution coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Air diffusion coefficient	cm ² /s	CONSTANT	-999.	-999.	-999.	-999.
Reference temperature for air diffusion	C	CONSTANT	-999.	-999.	-999.	-999.
Molecular weight	g/M	CONSTANT	-999.	-999.	-999.	-999.
Mole fraction of solute	--	CONSTANT	-999.	-999.	-999.	-999.
Vapor pressure of solute	mm Hg	CONSTANT	-999.	-999.	-999.	-999.
Henry's law constant	atm-m ³ /M	CONSTANT	-999.	-999.	-999.	-999.
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000	0.000	0.000	1.00
Not currently used		CONSTANT	0.000	0.000	0.000	0.000
Not currently used		CONSTANT	0.000	0.000	0.000	0.000

SOURCE SPECIFIC VARIABLES

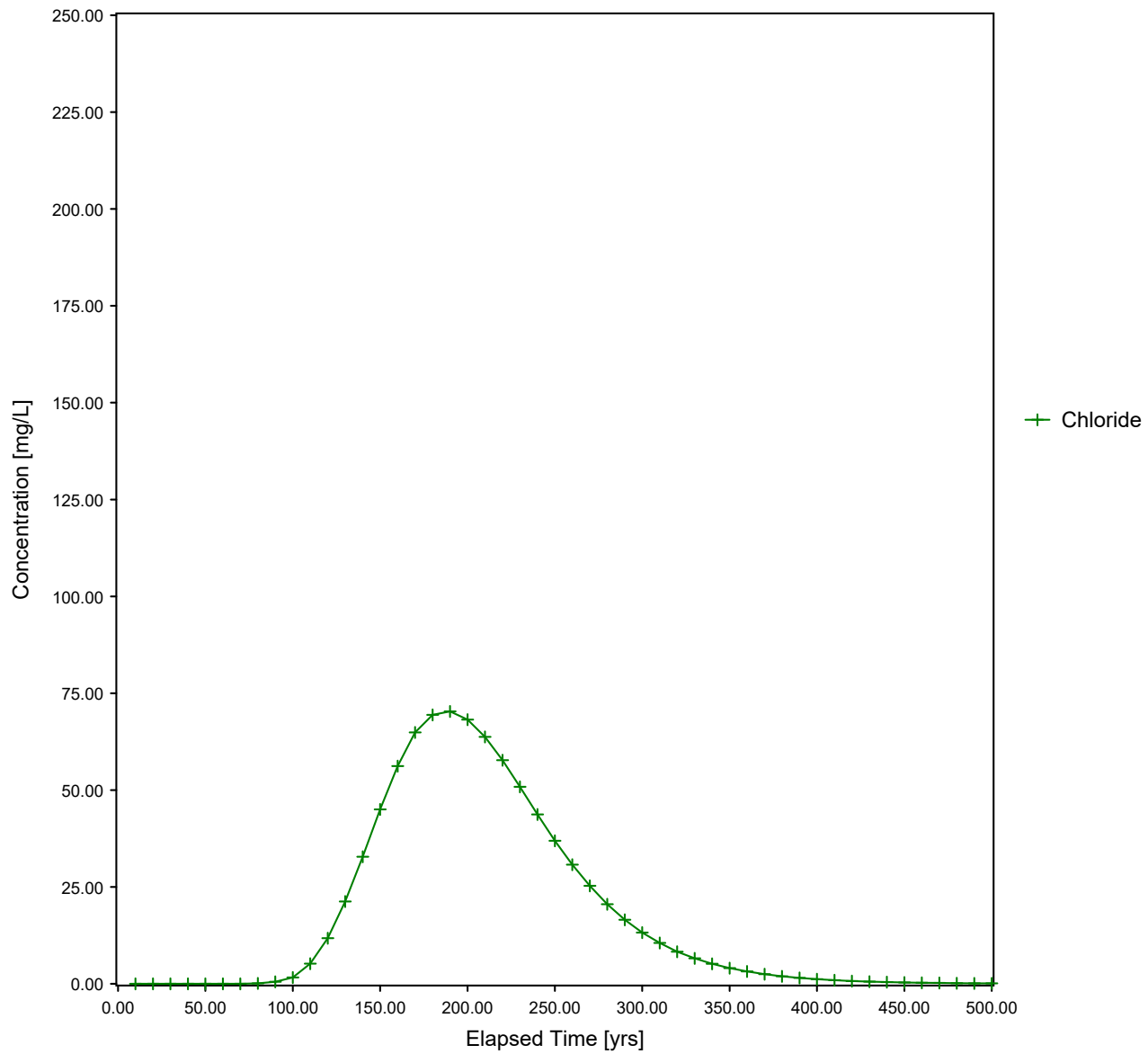
VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Infiltration rate	m/yr	CONSTANT	0.305E-01	-999.	-999.	-999.
Area of waste disposal unit	m ²	CONSTANT	186.	-999.	-999.	-999.
Duration of pulse	yr	DERIVED	0.100E-08	-999.	-999.	-999.
Spread of contaminant source	m	DERIVED	-999.	-999.	-999.	-999.
Recharge rate	m/yr	CONSTANT	0.000	-999.	-999.	-999.
Source decay constant	1/yr	CONSTANT	0.250E-01	0.000	0.000	0.000
Initial concentration at landfill	mg/l	CONSTANT	0.168E+04	-999.	-999.	-999.
Length scale of facility	m	DERIVED	-999.	-999.	-999.	-999.
Width scale of facility	m	DERIVED	-999.	-999.	-999.	-999.
Near field dilution		DERIVED	1.00	0.000	0.000	1.00

AQUIFER SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Particle diameter	cm	CONSTANT	-999.	-999.	-999.	-999.
Aquifer porosity	--	CONSTANT	0.300	-999.	-999.	-999.
Bulk density	g/cc	CONSTANT	1.86	-999.	-999.	-999.
Aquifer thickness	m	CONSTANT	6.10	-999.	-999.	-999.
Source thickness (mixing zone depth)	m	DERIVED	-999.	-999.	-999.	-999.
Conductivity (hydraulic)	m/yr	CONSTANT	315.	-999.	-999.	-999.
Gradient (hydraulic)		CONSTANT	0.300E-02	-999.	-999.	-999.
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	-999.	-999.
Retardation coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Longitudinal dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Transverse dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Vertical dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Temperature of aquifer	C	CONSTANT	20.0	-999.	-999.	-999.
pH	--	CONSTANT	7.00	-999.	-999.	-999.
Organic carbon content (fraction)		CONSTANT	0.000	-999.	-999.	-999.
Well distance from site	m	CONSTANT	1.00	-999.	-999.	-999.
Angle off center	degree	CONSTANT	0.000	-999.	-999.	-999.
Well vertical distance	m	CONSTANT	0.000	-999.	-999.	-999.

MAXIMUM WELL CONCENTRATION IS 714.1 AT 28.3 YEARS

**Chloride Concentration at the Receptor Well
(Lined Containment Area)**
COG Operating, LLC
Showstopper 19 Fed Com #004H-005H



U. S. ENVIRONMENTAL PROTECTION AGENCY

EXPOSURE ASSESSMENT

MULTIMEDIA MODEL

MULTIMED (Version 1.50, 2005)

1
Run options

CG Operating, LLC

Slowstopper 19 Fed Com #004H-005H
Chemical simulated is Chloride

Option Chosen Saturated and unsaturated zone models
Run was DETERMIN
Infiltration Specified By User: 7.620E-03 m/yr
Run was transient
Well Times: Find Maximum Concentration
Reject runs if Y coordinate outside plume
Reject runs if Z coordinate outside plume
Gaussian source used in saturated zone model

1
1

UNSATURATED ZONE FLOW MODEL PARAMETERS
(input parameter description and value)
NP - Total number of nodal points 240
NMAT - Number of different porous materials 1
KPROP - Van Genuchten or Brooks and Corey 1
IMSHGN - Spatial discretization option 1
NVFLAYR - Number of layers in flow model 1

OPTIONS CHOSEN

Van Genuchten functional coefficients
User defined coordinate system

1

Layer information

LAYER NO.	LAYER THICKNESS	MATERIAL PROPERTY
1	10.06	1

VADOSE ZONE MATERIAL VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Saturated hydraulic conductivity	cm/hr	CONSTANT	4.17	-999.	-999.	-999.
Unsaturated zone porosity	--	CONSTANT	0.130	-999.	-999.	-999.
Air entry pressure head	m	CONSTANT	0.700	-999.	-999.	-999.
Depth of the unsaturated zone	m	CONSTANT	10.1	0.000	0.000	0.000

DATA FOR MATERIAL 1

VADOSE ZONE FUNCTION VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Residual water content	--	CONSTANT	0.116	-999.	-999.	-999.
Brook and Corey exponent, EN	--	CONSTANT	-999.	-999.	-999.	-999.
ALFA coefficient	1/cm	CONSTANT	0.500E-02	-999.	-999.	-999.
Van Genuchten exponent, ENN	--	CONSTANT	1.09	-999.	-999.	-999.

UNSATURATED ZONE TRANSPORT MODEL PARAMETERS

NLAY - Number of different layers used 1
 NTSTPS - Number of time values concentration calc 40
 DUMMY - Not presently used 1
 ISOL - Type of scheme used in unsaturated zone 2
 N - Stehfest terms or number of increments 18
 NTEL - Points in Lagrangian interpolation 3
 NGPTS - Number of Gauss points 104
 NIT - Convolution integral segments 2
 IBOUND - Type of boundary condition 3
 ITSGEN - Time values generated or input 1
 TMAX - Max simulation time -- 0.0
 WTFUN - Weighting factor -- 1.2

OPTIONS CHOSEN

 Convolution integral approach
 Exponentially decaying continuous source
 Computer generated times for computing concentrations

DATA FOR LAYER 1

VADOSE TRANSPORT VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Thickness of layer	m	CONSTANT	10.1	-999.	-999.	-999.
Longitudinal dispersivity of layer	m	DERIVED	-999.	-999.	-999.	-999.
Percent organic matter	--	CONSTANT	0.000	-999.	-999.	-999.
Bulk density of soil for layer	g/cc	CONSTANT	1.99	-999.	-999.	-999.
Biological decay coefficient	1/yr	CONSTANT	0.000	-999.	-999.	-999.

CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Solid phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Dissolved phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Overall chemical decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Acid catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Base catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Reference temperature	C	CONSTANT	25.0	-999.	-999.	-999.
Normalized distribution coefficient	ml/g	CONSTANT	0.000	-999.	-999.	-999.
Distribution coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Air diffusion coefficient	cm ² /s	CONSTANT	-999.	-999.	-999.	-999.
Reference temperature for air diffusion	C	CONSTANT	-999.	-999.	-999.	-999.
Molecular weight	g/M	CONSTANT	-999.	-999.	-999.	-999.
Mole fraction of solute	--	CONSTANT	-999.	-999.	-999.	-999.
Vapor pressure of solute	mm Hg	CONSTANT	-999.	-999.	-999.	-999.
Henry's law constant	atm-m ³ /M	CONSTANT	-999.	-999.	-999.	-999.
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000	0.000	0.000	1.00
Not currently used		CONSTANT	0.000	0.000	0.000	0.000
Not currently used		CONSTANT	0.000	0.000	0.000	0.000

SOURCE SPECIFIC VARIABLES

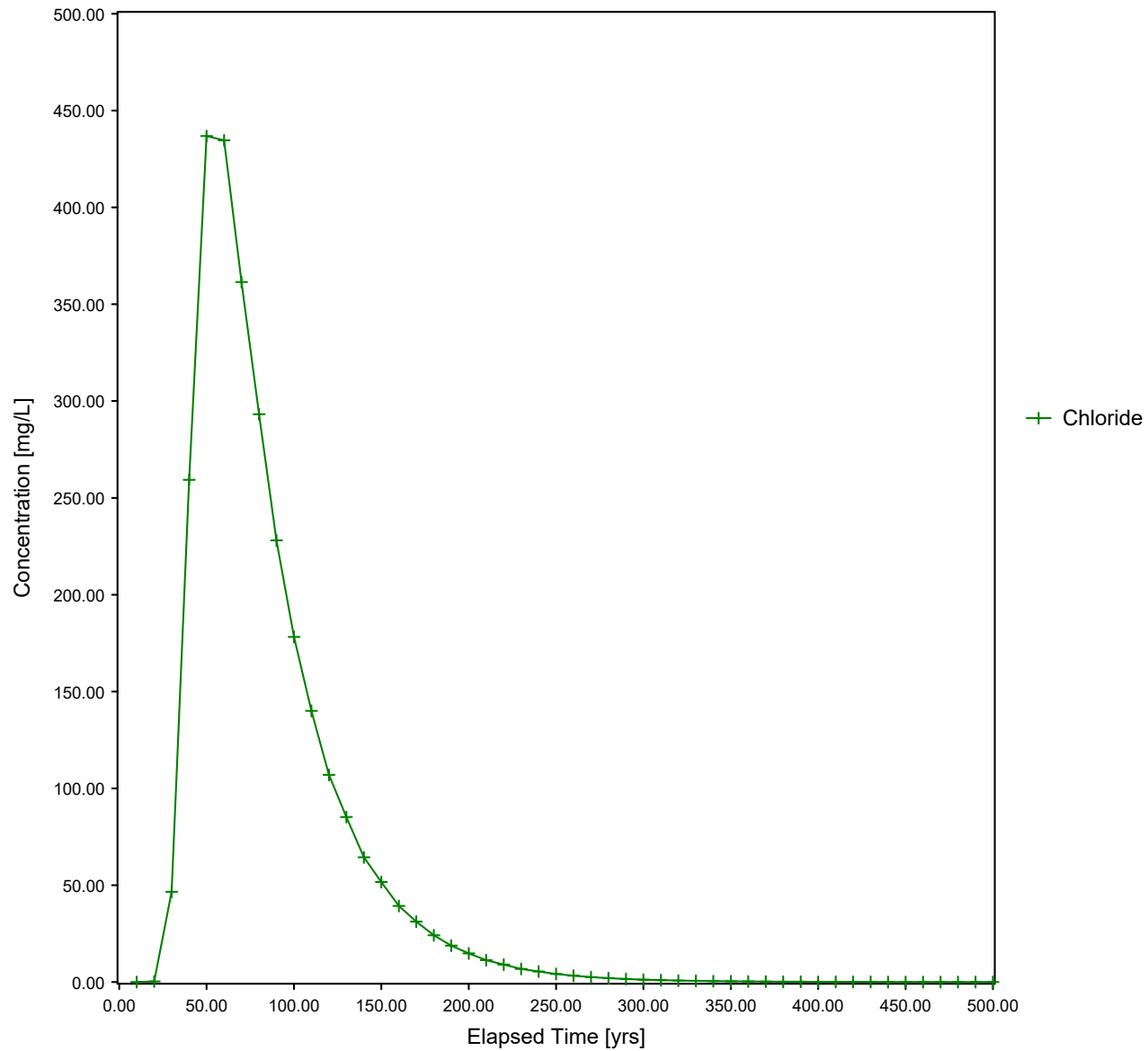
VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Infiltration rate	m/yr	CONSTANT	0.762E-02	-999.	-999.	-999.
Area of waste disposal unit	m ²	CONSTANT	92.9	-999.	-999.	-999.
Duration of pulse	yr	DERIVED	0.100E-08	-999.	-999.	-999.
Spread of contaminant source	m	DERIVED	-999.	-999.	-999.	-999.
Recharge rate	m/yr	CONSTANT	0.000	-999.	-999.	-999.
Source decay constant	1/yr	CONSTANT	0.250E-01	0.000	0.000	0.000
Initial concentration at landfill	mg/l	CONSTANT	0.128E+04	-999.	-999.	-999.
Length scale of facility	m	DERIVED	-999.	-999.	-999.	-999.
Width scale of facility	m	DERIVED	-999.	-999.	-999.	-999.
Near field dilution		DERIVED	1.00	0.000	0.000	1.00

AQUIFER SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Particle diameter	cm	CONSTANT	-999.	-999.	-999.	-999.
Aquifer porosity	--	CONSTANT	0.300	-999.	-999.	-999.
Bulk density	g/cc	CONSTANT	1.86	-999.	-999.	-999.
Aquifer thickness	m	CONSTANT	6.10	-999.	-999.	-999.
Source thickness (mixing zone depth)	m	DERIVED	-999.	-999.	-999.	-999.
Conductivity (hydraulic)	m/yr	CONSTANT	315.	-999.	-999.	-999.
Gradient (hydraulic)		CONSTANT	0.300E-02	-999.	-999.	-999.
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	-999.	-999.
Retardation coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Longitudinal dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Transverse dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Vertical dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Temperature of aquifer	C	CONSTANT	20.0	-999.	-999.	-999.
pH	--	CONSTANT	7.00	-999.	-999.	-999.
Organic carbon content (fraction)		CONSTANT	0.000	-999.	-999.	-999.
Well distance from site	m	CONSTANT	1.00	-999.	-999.	-999.
Angle off center	degree	CONSTANT	0.000	-999.	-999.	-999.
Well vertical distance	m	CONSTANT	0.000	-999.	-999.	-999.

MAXIMUM WELL CONCENTRATION IS 70.39 AT 193 YEARS

**Chloride Concentration At The Receptor Well
(Unlined Containment Area)**
COG Operating, LLC
Showstopper 19 Fed Com #004H-005H



U. S. ENVIRONMENTAL PROTECTION AGENCY

EXPOSURE ASSESSMENT

MULTIMEDIA MODEL

MULTIMED (Version 1.50, 2005)

1
Run options

CG Operating, LLC

Slowstopper 19 Fed Com #004H-005H
Chemical simulated is Chloride

Option Chosen Saturated and unsaturated zone models
Run was DETERMIN
Infiltration Specified By User: 3.048E-02 m/yr
Run was transient
Well Times: Find Maximum Concentration
Reject runs if Y coordinate outside plume
Reject runs if Z coordinate outside plume
Gaussian source used in saturated zone model

1
1

UNSATURATED ZONE FLOW MODEL PARAMETERS
(input parameter description and value)
NP - Total number of nodal points 240
NMAT - Number of different porous materials 1
KPROP - Van Genuchten or Brooks and Corey 1
IMSHGN - Spatial discretization option 1
NVFLAYR - Number of layers in flow model 1

OPTIONS CHOSEN

Van Genuchten functional coefficients
User defined coordinate system

1

Layer information

LAYER NO.	LAYER THICKNESS	MATERIAL PROPERTY
1	10.06	1

VADOSE ZONE MATERIAL VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Saturated hydraulic conductivity	cm/hr	CONSTANT	4.17	-999.	-999.	-999.
Unsaturated zone porosity	--	CONSTANT	0.130	-999.	-999.	-999.
Air entry pressure head	m	CONSTANT	0.700	-999.	-999.	-999.
Depth of the unsaturated zone	m	CONSTANT	10.1	0.000	0.000	0.000

DATA FOR MATERIAL 1

VADOSE ZONE FUNCTION VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Residual water content	--	CONSTANT	0.116	-999.	-999.	-999.
Brook and Corey exponent, EN	--	CONSTANT	-999.	-999.	-999.	-999.
ALFA coefficient	1/cm	CONSTANT	0.500E-02	-999.	-999.	-999.
Van Genuchten exponent, ENN	--	CONSTANT	1.09	-999.	-999.	-999.

UNSATURATED ZONE TRANSPORT MODEL PARAMETERS

NLAY - Number of different layers used 1
 NTSTPS - Number of time values concentration calc 40
 DUMMY - Not presently used 1
 ISOL - Type of scheme used in unsaturated zone 2
 N - Stehfest terms or number of increments 18
 NTEL - Points in Lagrangian interpolation 3
 NGPTS - Number of Gauss points 104
 NIT - Convolution integral segments 2
 IBOUND - Type of boundary condition 3
 ITSGEN - Time values generated or input 1
 TMAX - Max simulation time -- 0.0
 WTFUN - Weighting factor -- 1.2

OPTIONS CHOSEN

 Convolution integral approach
 Exponentially decaying continuous source
 Computer generated times for computing concentrations

DATA FOR LAYER 1

VADOSE TRANSPORT VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Thickness of layer	m	CONSTANT	10.1	-999.	-999.	-999.
Longitudinal dispersivity of layer	m	DERIVED	-999.	-999.	-999.	-999.
Percent organic matter	--	CONSTANT	0.000	-999.	-999.	-999.
Bulk density of soil for layer	g/cc	CONSTANT	1.99	-999.	-999.	-999.
Biological decay coefficient	1/yr	CONSTANT	0.000	-999.	-999.	-999.

CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Solid phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Dissolved phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Overall chemical decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Acid catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Base catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Reference temperature	C	CONSTANT	25.0	-999.	-999.	-999.
Normalized distribution coefficient	ml/g	CONSTANT	0.000	-999.	-999.	-999.
Distribution coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Air diffusion coefficient	cm ² /s	CONSTANT	-999.	-999.	-999.	-999.
Reference temperature for air diffusion	C	CONSTANT	-999.	-999.	-999.	-999.
Molecular weight	g/M	CONSTANT	-999.	-999.	-999.	-999.
Mole fraction of solute	--	CONSTANT	-999.	-999.	-999.	-999.
Vapor pressure of solute	mm Hg	CONSTANT	-999.	-999.	-999.	-999.
Henry's law constant	atm-m ³ /M	CONSTANT	-999.	-999.	-999.	-999.
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000	0.000	0.000	1.00
Not currently used		CONSTANT	0.000	0.000	0.000	0.000
Not currently used		CONSTANT	0.000	0.000	0.000	0.000

SOURCE SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Infiltration rate	m/yr	CONSTANT	0.305E-01	-999.	-999.	-999.
Area of waste disposal unit	m ²	CONSTANT	92.9	-999.	-999.	-999.
Duration of pulse	yr	DERIVED	0.100E-08	-999.	-999.	-999.
Spread of contaminant source	m	DERIVED	-999.	-999.	-999.	-999.
Recharge rate	m/yr	CONSTANT	0.000	-999.	-999.	-999.
Source decay constant	1/yr	CONSTANT	0.250E-01	0.000	0.000	0.000
Initial concentration at landfill	mg/l	CONSTANT	0.128E+04	-999.	-999.	-999.
Length scale of facility	m	DERIVED	-999.	-999.	-999.	-999.
Width scale of facility	m	DERIVED	-999.	-999.	-999.	-999.
Near field dilution		DERIVED	1.00	0.000	0.000	1.00

AQUIFER SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Particle diameter	cm	CONSTANT	-999.	-999.	-999.	-999.
Aquifer porosity	--	CONSTANT	0.300	-999.	-999.	-999.
Bulk density	g/cc	CONSTANT	1.86	-999.	-999.	-999.
Aquifer thickness	m	CONSTANT	6.10	-999.	-999.	-999.
Source thickness (mixing zone depth)	m	DERIVED	-999.	-999.	-999.	-999.
Conductivity (hydraulic)	m/yr	CONSTANT	315.	-999.	-999.	-999.
Gradient (hydraulic)		CONSTANT	0.300E-02	-999.	-999.	-999.
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	-999.	-999.
Retardation coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Longitudinal dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Transverse dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Vertical dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Temperature of aquifer	C	CONSTANT	20.0	-999.	-999.	-999.
pH	--	CONSTANT	7.00	-999.	-999.	-999.
Organic carbon content (fraction)		CONSTANT	0.000	-999.	-999.	-999.
Well distance from site	m	CONSTANT	1.00	-999.	-999.	-999.
Angle off center	degree	CONSTANT	0.000	-999.	-999.	-999.
Well vertical distance	m	CONSTANT	0.000	-999.	-999.	-999.

MAXIMUM WELL CONCENTRATION IS 453.2 AT 54.3 YEARS

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 18908

CONDITIONS OF APPROVAL

Operator:	COG OPERATING LLC	600 W Illinois Ave	Midland, TX79701	OGRID:	229137	Action Number:	18908	Action Type:	C-141
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OCD Reviewer	Condition
chensley	While the Oil Conservation Division (OCD) appreciates your efforts to date regarding this incident, we do have some concerns:
chensley	With groundwater at a nominal six (35) feet below ground surface, the OCD feels it is incumbent upon us as environmental regulators, to ensure that ground water will not be impacted.
chensley	Sample(s) NSW 4, 5 & 6 please remove as much of the contaminated soil with shovels and a hydrovac. If you believe a certain area will require a deferral, please make sure that it has been fully delineated and include a picture of the area to validate the request.
chensley	OCD reserves the right to approve / deny liner installations. Installing a liner prior to OCD approval puts the operator at risk. OCD request the operator to excavate area of trench only, leaving in place the liner minus the entry point to the trench.
chensley	Sample(s) ID "BH-16D/17D & FL-25" are all over the limit for chloride. Please excavate soil samples BH-16D / 17D to 19 feet bgs or 600mg/kg Chloride, which ever come first and FL-25 to a closure criterion of 600mg/kg Chloride.