



November 9, 2022

Mr. Jacob Evans  
Crestone Peak Resources Operating, LLC. (Civitas Resources)  
1801 California Street Suite 2500  
Denver, Colorado 80202

**Groundwater Assessment and Monitoring Report**  
**Libsack 4-8-27**  
**Vent Line Release**  
**40.276553 / -104.644507**  
**SW<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> SEC.27 T4N R65W 6PM**  
**Weld County, Colorado**  
**Location ID 310312**  
**Remediation # 23926**

Dear Mr. Evans,

Eagle Environmental Consulting, Inc. (EAGLE) is pleased to present this Groundwater Assessment and Monitoring Report to Crestone Peak Resources Operating, LLC. (Crestone) for the above referenced site.

## **1.0 SITE BACKGROUND**

In July 2022, Crestone requested EAGLE to perform subsurface assessment activities at the site in response to potential petroleum hydrocarbon impacts associated with an unintentional vent line release at the Libsack 4-8-27 site (site). In July 2022 and September 2022, EAGLE collected a grab groundwater sample and confirmation soil samples from the excavation. Based on groundwater analytical results, the grab groundwater sample (GW-01) contained a benzene concentration exceeding Colorado Oil and Gas Conservation Commission (COGCC) Table 915-1 regulatory limits. Confirmation soil samples collected from the excavation were in compliance with applicable COGCC Table 915-1 regulatory limits.

The following narrative details groundwater assessment and monitoring activities completed at the site.

## **2.0 SITE DESCRIPTION**

The Libsack 4-8-27 site is located within the southwest quarter of the southeast quarter of Section 27, Township 4 North, Range 65 West, of the 6<sup>th</sup> Prime Meridian, in Weld County, Colorado. The vent line release was located at latitude: 40.276553 and longitude: -104.644507. A topographic site location map is presented as Figure 1. An aerial site location map is presented as Figure 2.

### **2.1 Site Hydrogeology**

The soil lithology observed beneath the release location consists of clayey sand from the ground surface to approximately 12 feet below ground surface (bgs). Groundwater during initial assessment/excavation activities was observed at approximately 4 feet bgs. Groundwater during well installation and subsequent sampling activities was observed at approximately 2 to 4 feet bgs. A detailed description of the subsurface lithology beneath the site is presented in the boring logs included in Attachment A.

### **3.0 MONITORING WELL INSTALLATION ACTIVITIES**

To assess the extents dissolved petroleum hydrocarbon impacts associated with the vent line release, six (6) initial monitoring wells (MW-01 through MW-06) were proposed for installation. Following approval, EAGLE scheduled soil boring advancement activities.

#### **3.1 Field Work Preparation and Planning**

The Utility Notification Center of Colorado (UNCC) was called at least 48 hours in advance of drilling activities to confirm that no unmarked utilities or other obstacles were present within the proposed drilling locations.

#### **3.2 Soil Boring Advancement/Monitoring Well Completion Activities**

On October 13, 2022, six (6) soil borings (MW-01 through MW-06) were advanced around the release area. Following advancement activities, each soil boring was completed as a 1-inch, groundwater monitoring well to define the extents of dissolved petroleum hydrocarbon impacts beneath the site. Soil boring advancement/monitoring well installation activities were completed by EAGLE using a 7822DT Series Geoprobe track rig.

Each location was logged in the field according to soil description, soil classification, moisture content, staining, and VOC concentrations. Monitoring wells, MW-01 through MW-06, were completed with 1-inch, schedule 40, poly vinyl chloride (PVC) pipe, each to a total depth of approximately 12 feet bgs. Approximately 11-feet of 0.010 slot, 1-inch, PVC screen was placed at the bottom of each boring followed by 1-foot of PVC riser. The well annulus of each monitoring well was backfilled with 10/20 silica sand to the top of screen, followed by a hydrated bentonite seal to the surface. All monitoring wells were completed at the surface with 8-inch, traffic-rated steel flush mounts. Following monitoring well completions, each well was developed through purging the location a minimum of six well volumes using disposable PVC bailers.

EAGLE recorded spatial locations of each boring using a Trimble GeoXT 6000 series instrument. Soil boring logs/monitoring well completion diagrams are included in Attachment A. Soil boring/monitoring well locations are presented in Figure 3. A geological cross section is included as Figure 4.

#### **3.3 Soil Sampling Procedures**

During soil boring advancement/monitoring well installation activities, soil samples were collected continuously within 5-foot, plastic sample liners, where applicable. The samples within the plastic liners were separated in 2.5-foot intervals for soil identification and analysis, where applicable. A portion from each 2.5-foot interval, where applicable, was placed in a sealable plastic bag, for volatile organic compound (VOC) headspace analysis utilizing a field-calibrated photoionization detector (PID). Another portion of the soil sample was placed in a 4-ounce glass jar and packed in an iced cooler. PID readings for select soil samples are summarized in Table 1.

Based on field observations, select soil samples (MW-01@2.5-5', MW-02@2.5-5', MW-03@2.5-5', MW-04@2.5-5', MW-05@2.5-5', and MW-06@2.5-5') were submitted to Summit Scientific (Summit), located in Golden, Colorado, following standard chain-of-custody (COC) procedures, for laboratory analysis. Each soil sample was analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX), 1,2,4-trimethylbenzene (1,2,4-TMB), 1,3,5-trimethylbenzene (1,3,5-TMB), and total petroleum hydrocarbons – gasoline range organics (TPH-GRO) following modified Environmental Protection Agency (EPA)

Method 8260D, total petroleum hydrocarbons – diesel range organics (TPH-DRO) and total petroleum hydrocarbons – residual range organics (TPH-RRO) following modified EPA Method 8015D, and Polycyclic Aromatic Hydrocarbons (PAHs) following modified EPA Method 8270D SIM

### **3.3.1 Soil Analytical Results**

Based on laboratory analytical results:

- Soil samples MW-01@2.5-5', MW-02@2.5-5', MW-03@2.5-5', MW-04@2.5-5', MW-05@2.5-5', and MW-06@2.5-5' did not contain concentrations of BTEX, 1,2,4-TMB, 1,3,5-TMB, total petroleum hydrocarbons (TPH), or PAHs exceeding applicable COGCC Table 915-1 regulatory limits.

Monitoring well soil analytical results are summarized in Table 2 and presented in Figure 3. Monitoring well PAH analytical results are summarized in Table 3 and presented in Figure 5. The soil laboratory analytical report is included in Attachment B.

## **3.5 Groundwater Sampling Procedures**

Groundwater samples were collected from monitoring wells MW-01 through MW-06 on October 20, 2022 and October 21, 2022. Prior to sample collection, depth to groundwater data was collected using a decontaminated interface probe capable of measuring the depth to groundwater or light non-aqueous phase liquid (LNAPL) to an accuracy of 0.01 feet, and each well was purged a minimum of three well volumes.

Groundwater elevation data for all monitoring wells were collected on October 20, 2022. Relative groundwater elevations within each monitoring well ranged from 97.56 (MW-05) to 98.21 (MW-03). The groundwater flow direction beneath the site during the October 2022 sampling event was predominantly to the south-southwest, with an average hydraulic gradient of 0.011 feet per foot (ft/ft) across the site (measured from MW-03 to MW-05). Groundwater elevation data are summarized in Table 4 and presented in Figure 6.

Groundwater samples were collected from each monitoring well in 40 milliliter (mL) amber vials and submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-TMB, and 1,3,5-TMB following EPA Method 8260D. Additional samples were collected for inorganic groundwater parameters of Chloride and Sulfate following Method 300.0, and Total Dissolved Solids (TDS) following Method 2540C. The samples were transported in an iced cooler under standard COC procedures to Summit, and were received within the required holding time.

### **3.5.1 Groundwater Analytical Results**

Based on laboratory analytical results:

- Groundwater samples collected from monitoring wells MW-01 through MW-06 did not contain concentrations of BTEX, 1,2,4-TMB, 1,3,5-TMB, or naphthalene exceeding applicable COGCC Table 915-1 regulatory limits.
- Inorganic groundwater parameters collected from monitoring wells MW-01 through MW-06 did not exceed applicable COGCC Table 915-1 regulatory limits and/or local background.

Groundwater analytical results are summarized in Table 5 and presented in Figure 7. Inorganic groundwater parameters are summarized in Table 6 and presented in Figure 8. The groundwater laboratory analytical reports are included in Attachment B.

#### 4.0 CONCLUSIONS

Based on the information collected during groundwater assessment activities completed at the site from October 13, 2022 through October 21, 2022, EAGLE concludes the following:

- On October 13, 2022, EAGLE advanced six (6) soil borings (MW-01 through MW-06) to delineate dissolved petroleum hydrocarbon impacts at the site.
- Soil samples MW-01@2.5-5', MW-02@2.5-5', MW-03@2.5-5', MW-04@2.5-5', MW-05@2.5-5' and MW-06@2.5-5' did not contain concentrations of BTEX, 1,2,4-TMB, 1,3,5-TMB, TPH, or PAHs exceeding applicable COGCC Table 915-1 regulatory limits
- Groundwater samples collected from monitoring wells MW-01 through MW-06 on October 20, 2022 did not contain concentrations of BTEX, 1,2,4-TMB, 1,3,5-TMB, or naphthalene exceeding applicable COGCC Table 915-1 regulatory limits.
- Inorganic groundwater parameters collected from monitoring wells MW-01 through MW-06 on October 21, 2022 did not exceed applicable COGCC Table 915-1 regulatory limits and/or local background.

#### 5.0 RECOMMENDATIONS

Based on the information presented in this report, EAGLE recommends the following:

- Continue monitoring natural attenuation at the site in monitoring wells MW-01 through MW-06.

EAGLE sincerely appreciates the opportunity to provide our services. If you have any questions or require further information, please contact us at (303) 433-0479.

Sincerely,

**EAGLE ENVIRONMENTAL CONSULTING, INC.**



Trevor Copple  
Staff Geologist



Andrew Newberry  
Project Geologist

## **FIGURES**

**Figure 1: Topographic Site Location Map**

**Figure 2: Aerial Site Location Map**

**Figure 3: Monitoring Well Soil Analytical Map**

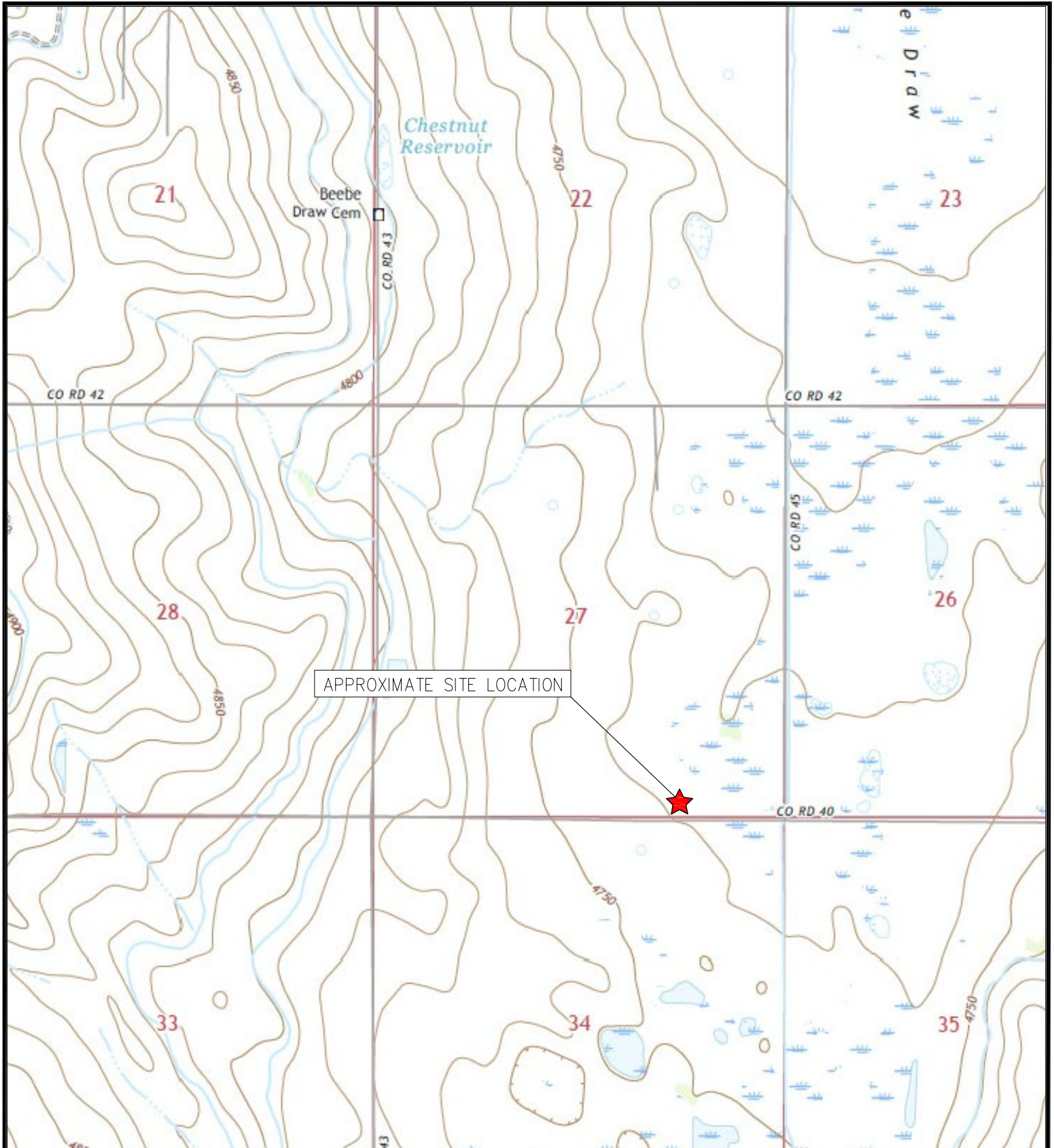
**Figure 4: Geologic Cross-Section (A-A')**

**Figure 5: Monitoring Well Polycyclic Aromatic Hydrocarbons Map**

**Figure 6: Groundwater Elevation Map (10/20/22)**

**Figure 7: Groundwater Analytical Map (10/20/22)**

**Figure 8: Inorganic Groundwater Parameters Map (10/21/22)**



TOPOGRAPHIC SITE LOCATION MAP  
 LIBSACK 4-8-27  
 VENT LINE RELEASE  
 40.276553 / -104.644507  
 SW¼ SEC.27 T4N R65W 6PM  
 WELD COUNTY, COLORADO  
 LOCATION ID 310312  
 REMEDIATION # 23926



**EAGLE**  
 ENVIRONMENTAL  
 CONSULTING, INC.

8000 W 44th Ave, Wheat Ridge, CO 80033  
 Ph: 303-433-0479 • F: 303-325-5449

SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP,  
 LA SALLE, CO QUADRANGLE 2022

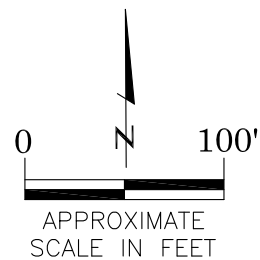
FIGURE 1





# LEGEND

- APPROXIMATE FACILITY BOUNDARIES
- APPROXIMATE RELEASE LOCATION



## AERIAL SITE LOCATION MAP

LIBSACK 4-8-27  
VENT LINE RELEASE  
40.276553 / -104.644507  
SW¼ SE¼ SEC.27 T4N R65W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 310312  
REMEDIAL # 23926

DATE:

09/30/22

FIG. NO.

2

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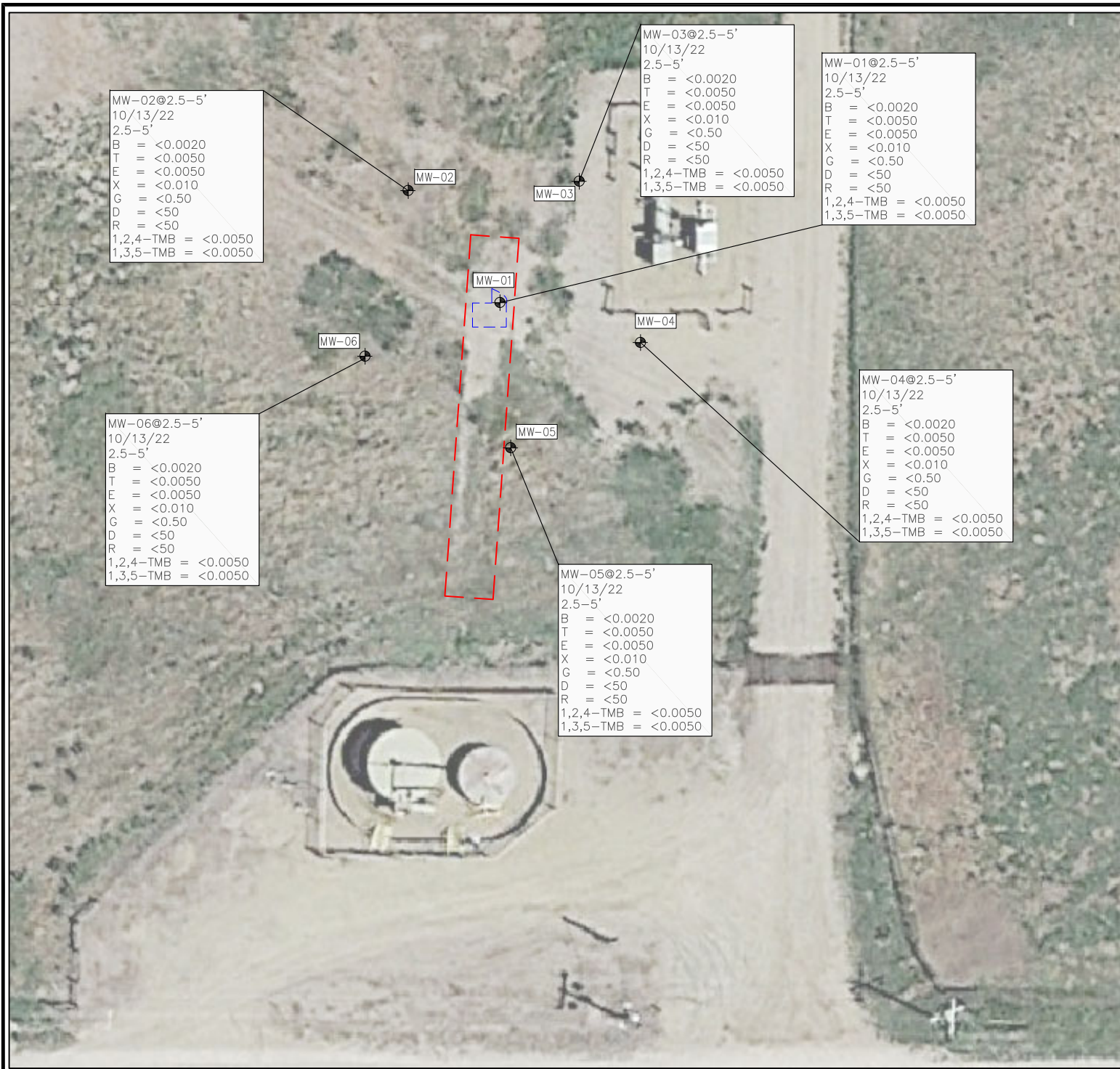
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#### LEGEND

- INITIAL ASSESSMENT EXTENTS
- APPROXIMATE EXCAVATION EXTENTS
- ⊕ APPROXIMATE MONITORING WELL LOCATIONS

#### PARAMETERS

SAMPLE LOCATION  
DATE  
DEPTH (FEET)  
B = BENZENE (mg/kg)  
T = TOLUENE (mg/kg)  
E = ETHYLBENZENE (mg/kg)  
X = TOTAL XYLENES (mg/kg)  
G = TPH-GRO (mg/kg)  
D = TPH-DRO (mg/kg)  
R = TPH-RRO (mg/kg)  
1,2,4-TMB = 1,2,4 TRIMETHYLBENZENE (mg/kg)  
1,3,5-TMB = 1,3,5 TRIMETHYLBENZENE (mg/kg)

mg/kg = MILLIGRAMS PER KILOGRAM

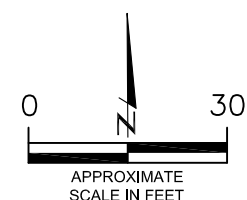
TPH-GRO = TOTAL PETROLEUM HYDROCARBONS - GASOLINE RANGE ORGANICS  
TPH-DRO = TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE ORGANICS  
TPH-RRO = TOTAL PETROLEUM HYDROCARBONS - RESIDUAL RANGE ORGANICS

#### NOTES:

VALUES PRESENTED WITH A LESS THAN SYMBOL (<) DID NOT CONTAIN CONCENTRATIONS AT OR ABOVE LABORATORY DETECTION LIMITS.

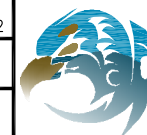
VALUES PRESENTED IN **BOLD** EXCEED COGCC TABLE 915-1 REGULATORY LIMITS.

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION



MONITORING WELL SOIL ANALYTICAL MAP  
LIBSACK 4-8-27  
VENT LINE RELEASE  
40.276553 / -104.644507  
SW¼ SE¼ SEC.27 T4N R65W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 310312  
REMIATION # 23926

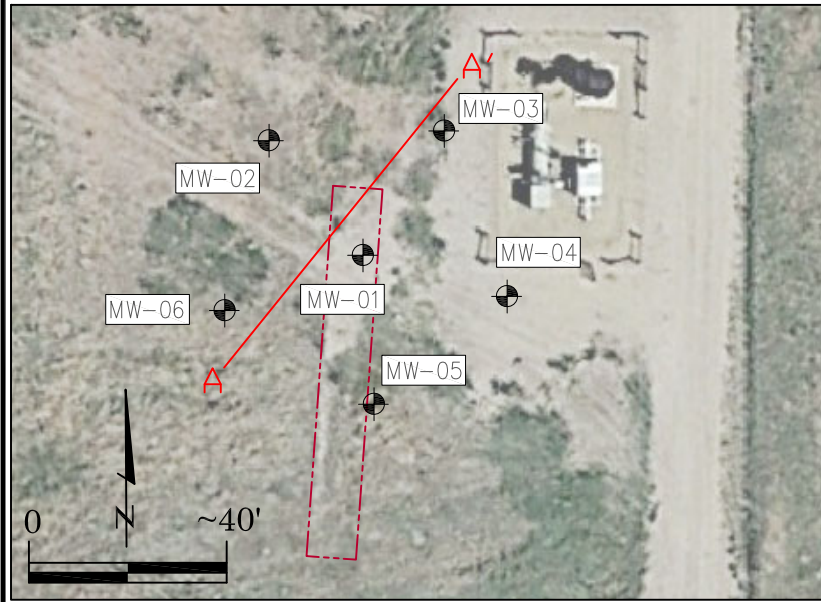
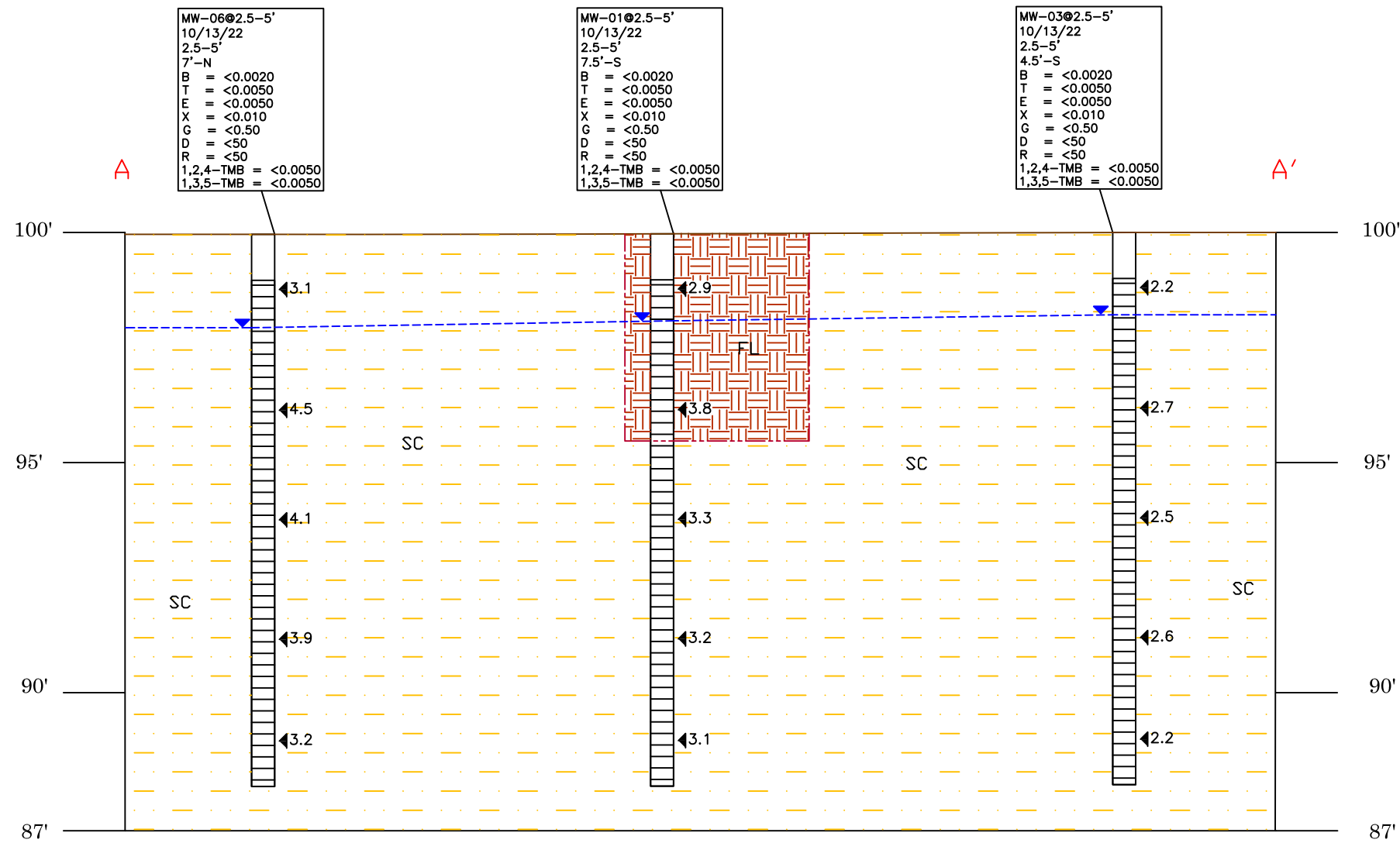
DATE:  
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GEOLOGIC CROSS SECTION A-A'



**LEGEND**

**FL** FILL/SANDY CLAY

**SC** CLAYEY SAND

GROUND SURFACE

EXCAVATION BOUNDARIES

OBSERVED GROUNDWATER (10/20/22)

**A—A'** LINE OF CROSS SECTION

**PARAMETERS**

**SAMPLE LOCATION**  
DATE  
DEPTH (FEET)  
OFFSET FROM A-A' (FEET-DIRECTION)  
B = BENZENE (mg/kg)  
T = TOLUENE (mg/kg)  
E = ETHYLBENZENE (mg/kg)  
X = TOTAL XYLENES (mg/kg)  
G = TPH-GRO (mg/kg)  
D = TPH-DRO (mg/kg)  
R = TPH-RRO (mg/kg)  
1,2,4-TMB = 1,2,4 TRIMETHYLBENZENE (mg/kg)  
1,3,5-TMB = 1,3,5 TRIMETHYLBENZENE (mg/kg)

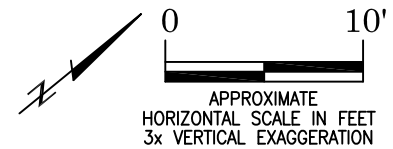
mg/kg = MILLIGRAMS PER KILOGRAM

PVC RISER

PID (ppm-v)

SLOTTED SCREEN

ppm-v = PARTS PER MILLION BY VOLUME



**GEOLOGIC CROSS SECTION (A-A')**  
LIBSACK 4-8-27  
VENT LINE RELEASE  
40.276553 / -104.644507  
SW¼ SE¼ SEC.27 T4N R65W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 310312  
REMEDATION # 23926



MW-02@2.5-5'  
10/13/22  
2.5-5'

1-Methylnaphthalene = <0.00500  
2-Methylnaphthalene = <0.00500  
Acenaphthene = <0.00500  
Anthracene = <0.00500  
Benzo(a)anthracene = <0.00500  
Benzo(a)pyrene = <0.00500  
Benzo(b)fluoranthene = <0.00500  
Benzo(k)fluoranthene = <0.00500  
Chrysene = <0.00500  
Dibenzo(a,h)anthracene = <0.00500  
Fluoranthene = <0.00500  
Fluorene = <0.00500  
Indeno(1,2,3-CD)pyrene = <0.00500  
Naphthalene = <0.0038  
Pyrene = <0.00500

MW-02

MW-03

MW-01

MW-04

MW-06

MW-05

MW-06@2.5-5'  
10/13/22  
2.5-5'

1-Methylnaphthalene = <0.00500  
2-Methylnaphthalene = <0.00500  
Acenaphthene = <0.00500  
Anthracene = <0.00500  
Benzo(a)anthracene = <0.00500  
Benzo(a)pyrene = <0.00500  
Benzo(b)fluoranthene = <0.00500  
Benzo(k)fluoranthene = <0.00500  
Chrysene = <0.00500  
Dibenzo(a,h)anthracene = <0.00500  
Fluoranthene = <0.00500  
Fluorene = <0.00500  
Indeno(1,2,3-CD)pyrene = <0.00500  
Naphthalene = <0.0038  
Pyrene = <0.00500

MW-01@2.5-5'  
10/13/22  
2.5-5'

1-Methylnaphthalene = <0.00500  
2-Methylnaphthalene = <0.00500  
Acenaphthene = <0.00500  
Anthracene = <0.00500  
Benzo(a)anthracene = <0.00500  
Benzo(a)pyrene = <0.00500  
Benzo(b)fluoranthene = <0.00500  
Benzo(k)fluoranthene = <0.00500  
Chrysene = <0.00500  
Dibenzo(a,h)anthracene = <0.00500  
Fluoranthene = <0.00500  
Fluorene = <0.00500  
Indeno(1,2,3-CD)pyrene = <0.00500  
Naphthalene = <0.0038  
Pyrene = <0.00500

MW-05@2.5-5'  
10/13/22  
2.5-5'

1-Methylnaphthalene = <0.00500  
2-Methylnaphthalene = <0.00500  
Acenaphthene = <0.00500  
Anthracene = <0.00500  
Benzo(a)anthracene = <0.00500  
Benzo(a)pyrene = <0.00500  
Benzo(b)fluoranthene = <0.00500  
Benzo(k)fluoranthene = <0.00500  
Chrysene = <0.00500  
Dibenzo(a,h)anthracene = <0.00500  
Fluoranthene = <0.00500  
Fluorene = <0.00500  
Indeno(1,2,3-CD)pyrene = <0.00500  
Naphthalene = <0.0038  
Pyrene = <0.00500

MW-03@2.5-5'  
10/13/22  
2.5-5'

1-Methylnaphthalene = <0.00500  
2-Methylnaphthalene = <0.00500  
Acenaphthene = <0.00500  
Anthracene = <0.00500  
Benzo(a)anthracene = <0.00500  
Benzo(a)pyrene = <0.00500  
Benzo(b)fluoranthene = <0.00500  
Benzo(k)fluoranthene = <0.00500  
Chrysene = <0.00500  
Dibenzo(a,h)anthracene = <0.00500  
Fluoranthene = <0.00500  
Fluorene = <0.00500  
Indeno(1,2,3-CD)pyrene = <0.00500  
Naphthalene = <0.0038  
Pyrene = <0.00500

MW-04@2.5-5'  
10/13/22  
2.5-5'

1-Methylnaphthalene = <0.00500  
2-Methylnaphthalene = <0.00500  
Acenaphthene = <0.00500  
Anthracene = <0.00500  
Benzo(a)anthracene = <0.00500  
Benzo(a)pyrene = <0.00500  
Benzo(b)fluoranthene = <0.00500  
Benzo(k)fluoranthene = <0.00500  
Chrysene = <0.00500  
Dibenzo(a,h)anthracene = <0.00500  
Fluoranthene = <0.00500  
Fluorene = <0.00500  
Indeno(1,2,3-CD)pyrene = <0.00500  
Naphthalene = <0.0038  
Pyrene = <0.00500

## LEGEND

- INITIAL ASSESSMENT EXTENTS
- APPROXIMATE EXCAVATION EXTENTS
- ⊕ APPROXIMATE MONITORING WELL LOCATIONS

## PARAMETERS

SAMPLE LOCATION  
DATE SAMPLE COLLECTED  
APPROXIMATE DEPTH

POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (mg/kg)

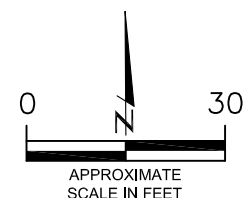
mg/kg = MILLIGRAMS PER KILOGRAM

## NOTES:

VALUES PRESENTED WITH A LESS THAN SYMBOL (<) DID NOT CONTAIN CONCENTRATIONS AT OR ABOVE LABORATORY DETECTION LIMITS.

VALUES PRESENTED IN **BOLD** EXCEED COGCC TABLE 915-1 REGULATORY LIMITS.

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION



## MONITORING WELL POLYCYCLIC AROMATIC HYDROCARBONS MAP

LIBSACK 4-8-27  
VENT LINE RELEASE  
40.276553 / -104.644507  
SW¼ SEC.27 T4N R65W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 310312  
REMIEDIATION # 23926

DATE:  
11/07/22

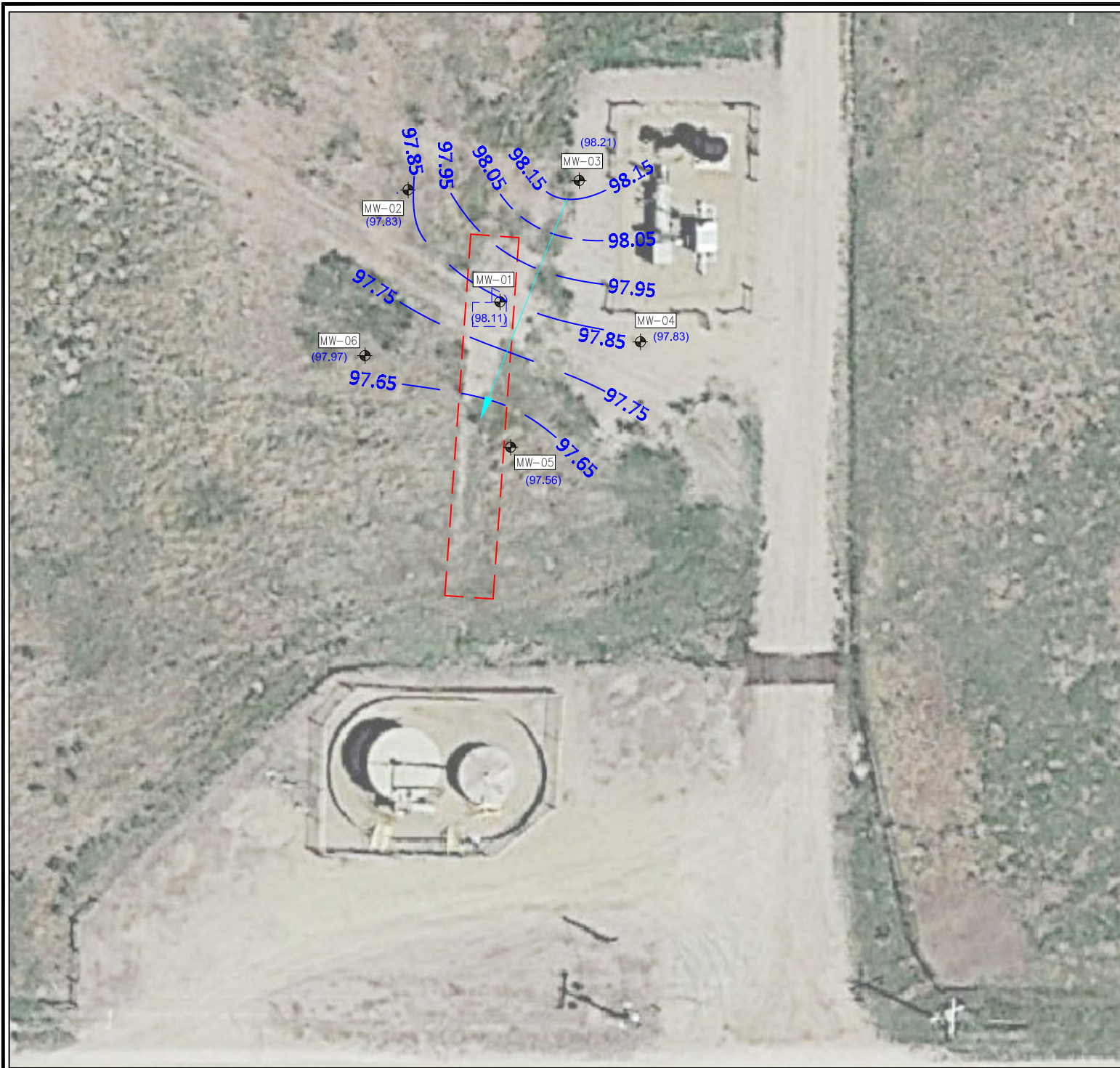
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# **LEGEND**

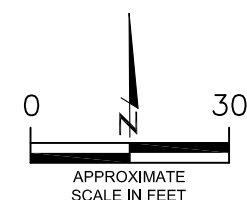
- INITIAL ASSESSMENT EXTENTS
- APPROXIMATE EXCAVATION EXTENTS
- ⊕ APPROXIMATE MONITORING WELL LOCATIONS
- (91.45) RELATIVE GROUNDWATER ELEVATION (FT.)
- INFERRED GROUNDWATER ELEVATION CONTOUR (FT.)
- APPROXIMATE GROUNDWATER FLOW DIRECTION

FT. = FEET

NOTE: GROUNDWATER ELEVATION DATA COLLECTED ON 10/20/22.

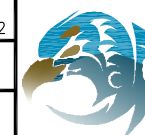
GROUNDWATER ELEVATION DATA COLLECTED FROM MW-01 AND MW-06 WAS NOT USED IN THE CONSTRUCTION OF INFERRED GROUNDWATER ELEVATION CONTOURS

HYDRAULIC GRADIENT (MW-03 TO MW-05): 0.011 FT./FT



GROUNDWATER ELEVATION MAP  
(10/20/22)  
LIBSACK 4-8-27  
VENT LINE RELEASE  
40.276553 / -104.644507  
SW¼ SE¼ SEC.27 T4N R65W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 310312  
REMEDIATION # 23926

DATE:  
11/07/22  
DRAWN BY:  
TC  
FIG.  
NO. 6



**EAGLE**  
ENVIRONMENTAL  
CONSULTING, INC.  
8000 W 44th Ave, Wheat Ridge, CO 80033  
Ph: 303-433-0479 • F: 303-325-5449





# LEGEND

- INITIAL ASSESSMENT EXTENTS
- APPROXIMATE EXCAVATION EXTENTS
- ⊕ APPROXIMATE MONITORING WELL LOCATIONS

## PARAMETERS

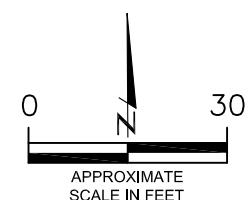
GROUNDWATER SAMPLE LOCATION  
DATE  
B = BENZENE (µg/L)  
T = TOLUENE (µg/L)  
E = ETHYLBENZENE (µg/L)  
X = TOTAL XYLENES (µg/L)  
N = NAPHTHALENE (µg/L)  
1,2,4-TMB = 1,2,4-TRIMETHYLBENZENE (µg/L)  
1,3,5-TMB = 1,3,5-TRIMETHYLBENZENE (µg/L)

µg/L = MICROGRAMS PER LITER

NOTES:  
VALUES PRESENTED WITH A LESS THAN SYMBOL (<) DID NOT CONTAIN CONCENTRATIONS AT OR ABOVE THE LABORATORY REPORTING LIMIT

VALUES PRESENTED IN **BOLD** EXCEED THE COGCC TABLE 915-1 REGULATORY LIMITS FOR THAT COMPOUND

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION



## GROUNDWATER ANALYTICAL MAP

(10/20/22)  
LIBSACK 4-8-27  
VENT LINE RELEASE  
40.276553 / -104.644507  
SW¼ SE¼ SEC.27 T4N R65W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 310312  
REMEDIATION # 23926

DATE:  
11/07/22

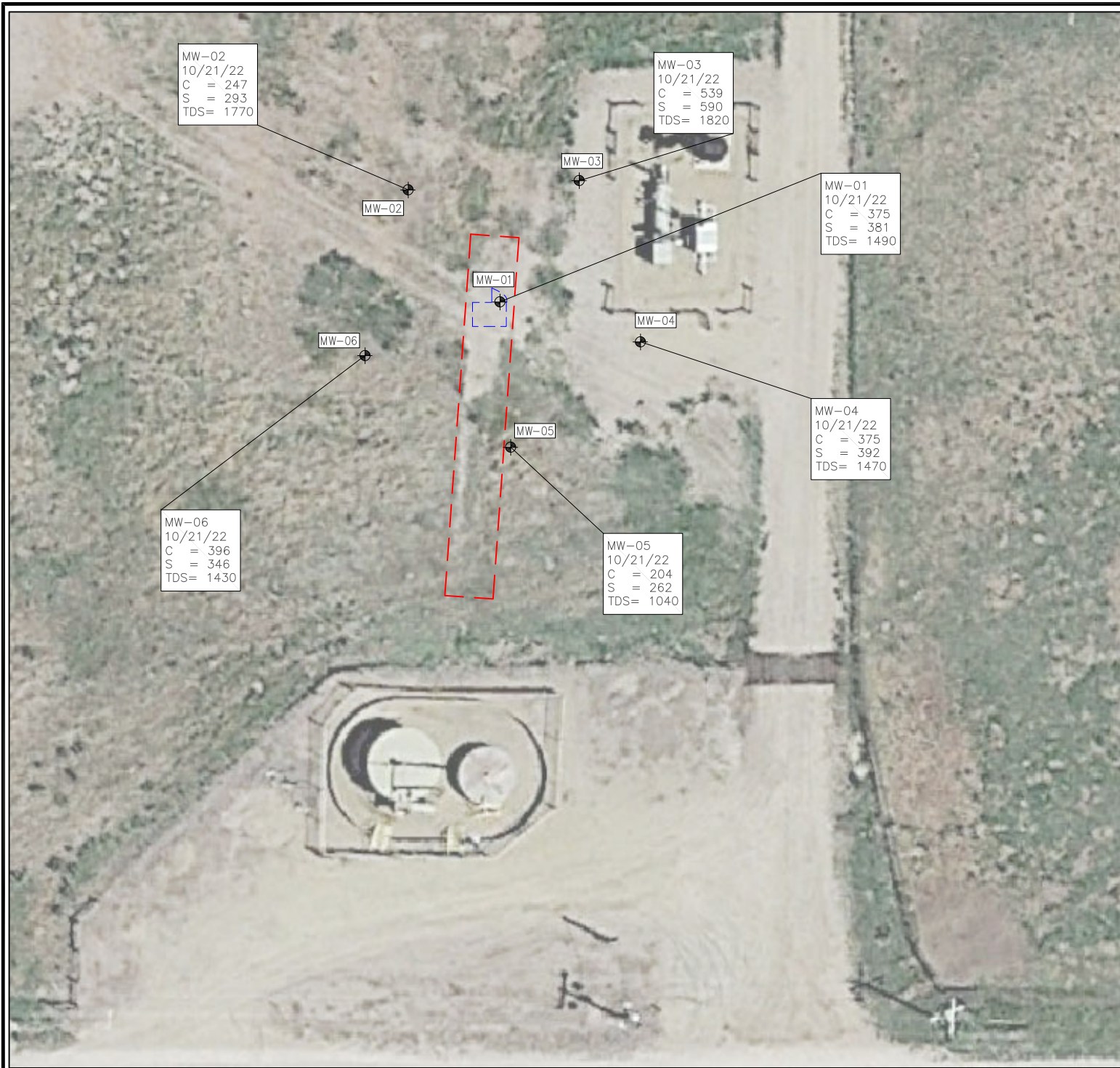
DRAWN BY:  
TC

FIG.  
NO. 7



**EAGLE**  
ENVIRONMENTAL  
CONSULTING, INC.  
8000 W 44th Ave, Wheat Ridge, CO 80033  
Ph: 303-433-0479 • F: 303-325-5449





#### LEGEND

- INITIAL ASSESSMENT EXTENTS
- APPROXIMATE EXCAVATION EXTENTS
- ⊕ APPROXIMATE MONITORING WELL LOCATIONS

#### PARAMETERS

SAMPLE LOCATION  
DATE  
C = CHLORIDE (mg/L)  
S = SULFATE (mg/L)  
TDS = TOTAL DISSOLVED SOLIDS (mg/L)

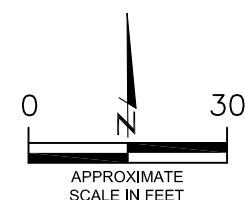
mg/L = MILLIGRAMS PER LITER

NOTES:  
INORGANIC GROUNDWATER SAMPLES WERE COLLECTED  
10/21/22.

THE INORGANIC GROUNDWATER PARAMETERS IN MW-03 WERE  
USED IN THE DETERMINATION OF LOCAL BACKGROUND LEVELS  
AT THE SITE.

VALUES PRESENTED IN **BOLD** EXCEED THE COGCC TABLE  
915-1 REGULATORY LIMITS FOR THAT COMPOUND

BACKGROUND: GOOGLE EARTH AERIAL IMAGERY JUNE 2021



#### INORGANIC GROUNDWATER PARAMETERS MAP

(10/21/22)  
LIBSACK 4-8-27  
VENT LINE RELEASE  
40.276553 / -104.644507  
SW¼ SEC.27 T4N R65W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 310312  
REMIEDIATION # 23926

DATE:  
11/07/22

DRAWN BY:  
TC

FIG.  
NO. 8



**EAGLE**  
ENVIRONMENTAL  
CONSULTING, INC.  
8000 W 44th Ave, Wheat Ridge, CO 80033  
Ph: 303-433-0479 • F: 303-325-5449

## **TABLES**

**Table 1: Photoionization Detector Reading Summary**

**Table 2: Soil Analytical Results Summary**

**Table 3: Polycyclic Aromatic Hydrocarbons Analytical Results Summary**

**Table 4: Groundwater Elevation Summary**

**Table 5: Groundwater Analytical Results Summary**

**Table 6: Inorganic Groundwater Parameters Summary**



TABLE 1  
 PHOTOIONIZATION DETECTOR READING SUMMARY  
 LIBSACK 4-8-27  
 VENT LINE RELEASE  
 40.276553 / -104.644507  
 SW1/4 SE1/4 SEC.27 T4N R65W 6PM  
 WELD COUNTY, COLORADO  
 LOCATION ID 310312  
 REMEDIATION # 23926

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
CS-SS-01 @ 3' (40.276590834 / -104.644498753)	09/06/22	3	1.2	Y
CS-SS-02 @ 3' (40.276548441 / -104.644479747)	09/06/22	3	0.6	Y
CS-SS-03 @ 3' (40.276489889 / -104.644494336)	09/06/22	3	0.9	Y
CS-SS-04 @ 3' (40.276447728 / -104.644498323)	09/06/22	3	0.7	Y
CS-SS-05 @ 3' (40.276412384 / -104.644504591)	09/06/22	3	0.4	Y
CS-SS-06 @ 3' (40.276380688 / -104.644529958)	09/06/22	3	0.3	Y
CS-SS-07 @ 3' (40.276416738 / -104.644535368)	09/06/22	3	0.3	Y
CS-SS-08 @ 3' (40.276462218 / -104.644529497)	09/06/22	3	0.6	Y
CS-SS-09 @ 3' (40.276506134 / -104.644527382)	09/06/22	3	0.8	Y
CS-SS-10 @ 3' (40.276553842 / -104.644522154)	09/06/22	3	1.0	Y
CS-FS-01 @ 4' (40.479546118 / -104.644508298)	09/06/22	4	0.8	Y
CS-FS-02 @ 4' (40.276492639 / -104.644519006)	09/06/22	4	0.7	Y
CS-FS-03 @ 4' (40.276450050 / -104.644526314)	09/06/22	4	0.8	Y
CS-FS-04 @ 4' (40.276405385 / -104.644529102)	09/06/22	4	0.4	Y
MW-01 @ 2.5-5' (40.276562117 / -104.644501207)	10/13/22	2.5-5	3.8	Y
MW-02 @ 2.5-5' (40.276628485 / -104.644572364)	10/13/22	2.5-5	2.4	Y
MW-03 @ 2.5-5' (40.276630801 / -104.644441206)	10/13/22	2.5-5	2.7	Y
MW-04 @ 2.5-5' (40.276541392 / -104.644401104)	10/13/22	2.5-5	3.7	Y
MW-05 @ 2.5-5' (40.276482328 / -104.644504078)	10/13/22	2.5-5	3.4	Y
MW-06 @ 2.5-5' (40.276530662 / -104.655607801)	10/13/22	2.5-5	4.5	Y
(Y/N) = Yes or No ppm-v = parts per million by volume PID = Photoionization Detector				

TABLE 2  
SOIL ANALYTICAL RESULTS SUMMARY  
LIBSACK 4-8-27  
VENT LINE RELEASE  
40.276553 / -104.644507  
SW1/4 SE1/4 SEC.27 T4N R65W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 310312  
REMEDATION # 23926

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-RRO (mg/kg)	1,2,4- Trimethylbenzene (mg/kg)	1,3,5- Trimethylbenzene (mg/kg)
<b>COGCC Table 915-1 Residential Screening Levels</b>				<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>500</b>			<b>30</b>	<b>27</b>
<b>COGCC Table 915-1 Protection of Groundwater Soil Screening Levels</b>				<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>--</b>			<b>0.0081</b>	<b>0.0087</b>
CS-SS-01 @ 3' (40.276590834 / -104.644498753)	09/06/22	3	1.2	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-SS-02 @ 3' (40.276548441 / -104.644479747)	09/06/22	3	0.6	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-SS-03 @ 3' (40.276489889 / -104.644494336)	09/06/22	3	0.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-SS-04 @ 3' (40.276447728 / -104.644498323)	09/06/22	3	0.7	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-SS-05 @ 3' (40.276412384 / -104.644504591)	09/06/22	3	0.4	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-SS-06 @ 3' (40.276380688 / -104.644529958)	09/06/22	3	0.3	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-SS-07 @ 3' (40.276416738 / -104.644535368)	09/06/22	3	0.3	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-SS-08 @ 3' (40.276462218 / -104.644529497)	09/06/22	3	0.6	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-SS-09 @ 3' (40.276506134 / -104.644527382)	09/06/22	3	0.8	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-SS-10 @ 3' (40.276553842 / -104.644522154)	09/06/22	3	1.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-FS-01 @ 4' (40.479546118 / -104.644508298)	09/06/22	4	0.8	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-FS-02 @ 4' (40.276492639 / -104.644519006)	09/06/22	4	0.7	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-FS-03 @ 4' (40.276450050 / -104.644526314)	09/06/22	4	0.8	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
CS-FS-04 @ 4' (40.276405385 / -104.644529102)	09/06/22	4	0.4	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200
MW-01 @ 2.5-5' (40.276562117 / -104.644501207)	10/13/22	2.5-5	3.8	<0.0020	<0.0050	<0.0050	<0.010	<0.50	<50	<50	<0.0050	<0.0050
MW-02 @ 2.5-5' (40.276628485 / -104.644572364)	10/13/22	2.5-5	2.4	<0.0020	<0.0050	<0.0050	<0.010	<0.50	<50	<50	<0.0050	<0.0050
MW-03 @ 2.5-5' (40.276630801 / -104.644441206)	10/13/22	2.5-5	2.7	<0.0020	<0.0050	<0.0050	<0.010	<0.50	<50	<50	<0.0050	<0.0050
MW-04 @ 2.5-5' (40.276541392 / -104.644401104)	10/13/22	2.5-5	3.7	<0.0020	<0.0050	<0.0050	<0.010	<0.50	<50	<50	<0.0050	<0.0050

TABLE 2  
SOIL ANALYTICAL RESULTS SUMMARY  
LIBSACK 4-8-27  
VENT LINE RELEASE  
40.276553 / -104.644507  
SW1/4 SE1/4 SEC.27 T4N R65W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 310312  
REMEDATION # 23926

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-RRO (mg/kg)	1,2,4- Trimethylbenzene (mg/kg)	1,3,5- Trimethylbenzene (mg/kg)
<b>COGCC Table 915-1 Residential Screening Levels</b>				<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>500</b>			<b>30</b>	<b>27</b>
<b>COGCC Table 915-1 Protection of Groundwater Soil Screening Levels</b>				<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>--</b>			<b>0.0081</b>	<b>0.0087</b>
MW-05 @ 2.5-5' (40.276482328 / -104.644504078)	10/13/22	2.5-5	3.4	<0.0020	<0.0050	<0.0050	<0.010	<0.50	<50	<50	<0.0050	<0.0050
MW-06 @ 2.5-5' (40.276530662 / -104.655607801)	10/13/22	2.5-5	4.5	<0.0020	<0.0050	<0.0050	<0.010	<0.50	<50	<50	<0.0050	<0.0050
COGCC = Colorado Oil and Gas Conservation Commission mg/kg = milligrams per kilogram      TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics ppm-v = parts per million by volume      TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics PID = Photoionization Detector      TPH-RRO = Total Petroleum Hydrocarbons - Residual Range Organics  Notes: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory reporting limit. Values presented in <b>BOLD</b> exceed applicable COGCC Table 915-1 Regulatory Limits Values presented in <b>BOLD+ asterisk (*)</b> exceed COGCC Table 915-1 Protection of Groundwater Soil Screening Levels												



TABLE 3  
PAHS ANALYTICAL RESULTS SUMMARY  
LIBSACK 4-8-27  
VENT LINE RELEASE  
40.27653 / -104.644507  
SW1/4 SE1/4 SEC.27 T4N R6SW 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 310312  
REMEDATION # 23926

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	1-Methyl- naphthalene (mg/kg)	2-Methyl- naphthalene (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo(a)-anthracene (mg/kg)	Benzo(a)- pyrene (mg/kg)	Benzo(b)- fluoranthene (mg/kg)	Benzo(k)- fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo(a,h)- anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Ideno(1,2,3- cd)-pyrene (mg/kg)	Naphthalene (mg/kg)	Pyrene (mg/kg)
<b>COGCC Table 915-1 Residential Screening Levels</b>				18	24	360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	2	180
<b>COGCC Table 915-1 Protection of Groundwater Soil Screening Levels</b>				0.006	0.019	0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	0.0038	1.3
CS-SS-01 @ 3' (40.276590834 / -104.644498753)	09/06/22	3	1.2	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	0.00081	0.000606	<0.00067	<0.00067	<0.00067	0.000522	<0.00067	<0.00067	<0.00067	0.000712
CS-SS-02 @ 3' (40.276548441 / -104.644479747)	09/06/22	3	0.6	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067
CS-SS-03 @ 3' (40.276489889 / -104.644494336)	09/06/22	3	0.9	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	0.00123	0.000651	0.00091	0.000975	<0.00067	0.000764	<0.00067	<0.00067	<0.00067	0.000881
CS-SS-04 @ 3' (40.276447728 / -104.644498323)	09/06/22	3	0.7	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067
CS-SS-05 @ 3' (40.276412384 / -104.644504591)	09/06/22	3	0.4	<0.00067	<0.00067	<0.00067	<0.00067	0.00118	0.00193	0.0012	0.00143	0.00228	<0.00067	0.00202	<0.00067	0.00112	<0.00067	0.00366
CS-SS-06 @ 3' (40.276380688 / -104.644529958)	09/06/22	3	0.3	<0.00067	<0.00067	<0.00067	<0.00067	0.000938	0.00177	0.000887	0.00139	0.00187	<0.00067	0.00167	<0.00067	0.000742	<0.00067	0.0024
CS-SS-07 @ 3' (40.276416738 / -104.644535368)	09/06/22	3	0.3	<0.00067	<0.00067	<0.00067	<0.00067	0.000539	0.00133	0.000847	0.000983	0.00124	<0.00067	0.00105	<0.00067	<0.00067	<0.00067	0.00136
CS-SS-08 @ 3' (40.276462218 / -104.644529497)	09/06/22	3	0.6	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067
CS-SS-09 @ 3' (40.276506134 / -104.644527382)	09/06/22	3	0.8	<0.00067	<0.00067	<0.00067	<0.00067	0.000501	0.00171	0.000993	0.0011	0.00134	<0.00067	0.00111	<0.00067	0.000892	<0.00067	0.00134
CS-SS-10 @ 3' (40.276553842 / -104.644522154)	09/06/22	3	1.0	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335
CS-FS-01 @ 4' (40.479546118 / -104.644508298)	09/06/22	4	0.8	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067
CS-FS-02 @ 4' (40.276492639 / -104.644519006)	09/06/22	4	0.7	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	0.00238	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335
CS-FS-03 @ 4' (40.276450050 / -104.644526314)	09/06/22	4	0.8	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067
CS-FS-04 @ 4' (40.276405385 / -104.644529102)	09/06/22	4	0.4	<0.00067	<0.00067	<0.00067	<0.00067	0.000828	0.00234	0.00118	0.00155	0.00207	<0.00067	0.0017	<0.00067	0.0014	<0.00067	0.0022
MW-01 @ 2.5-5' (40.276562117 / -104.644501207)	10/13/22	2.5-5	3.8	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0038	<0.00500
MW-02 @ 2.5-5' (40.276628485 / -104.644572364)	10/13/22	2.5-5	2.4	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0038	<0.00500
MW-03 @ 2.5-5' (40.276630801 / -104.644441206)	10/13/22	2.5-5	2.7	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0038	<0.00500
MW-04 @ 2.5-5' (40.276541392 / -104.644401104)	10/13/22	2.5-5	3.7	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0038	<0.00500
MW-05 @ 2.5-5' (40.276482328 / -104.644504078)	10/13/22	2.5-5	3.4	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0038	<0.00500
MW-06 @ 2.5-5' (40.276530662 / -104.655607801)	10/13/22	2.5-5	4.5	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0038	<0.00500
COGCC = Colorado Oil and Gas Conservation Commission mg/kg = milligrams per kilogram ppm-v = parts per million by volume PID = Photoionization Detector Notes: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory reporting limit. Values presented in <b>BOLD</b> exceed applicable COGCC Table 915-1 Regulatory Limits Values presented in <b>BOLD</b> + asterisk (*) exceed COGCC Table 915-1 Protection of Groundwater Soil Screening Levels																		

**TABLE 4**  
**GROUNDWATER ELEVATION SUMMARY**  
**LIBSACK 4-8-27**  
**VENT LINE RELEASE**  
**40.276553 / -104.644507**  
**SW1/4 SE1/4 SEC.27 T4N R65W 6PM**  
**WELD COUNTY, COLORADO**  
**LOCATION ID 310312**  
**REMEDATION # 23926**

Sample Location (Latitude/Longitude)	Date	Relative Top of Casing Elevation (feet)	Depth to Groundwater from TOC (feet)	Relative Groundwater Elevation (feet)
MW-01 (40.276562117 / -104.644501207)	10/20/22	99.97	1.86	98.11
MW-02 (40.276628485 / -104.644572364)	10/20/22	99.93	2.10	97.83
MW-03 (40.276630801 / -104.644441206)	10/20/22	100	1.79	98.21
MW-04 (40.276541392 / -104.644401104)	10/20/22	99.94	2.11	97.83
MW-05 (40.276482328 / -104.644504078)	10/20/22	99.88	2.32	97.56
MW-06 (40.276530662 / -104.655607801)	10/20/22	99.96	1.99	97.97
NOTES: TOC - top of casing				

TABLE 5  
GROUNDWATER ANALYTICAL RESULTS SUMMARY  
LIBSACK 4-8-27  
VENT LINE RELEASE  
40.276553 / -104.644507  
SW1/4 SE1/4 SEC.27 T4N R65W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 310312  
REMEDATION # 23926

Sample Location (Latitude/Longitude)	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4- Trimethylbenzene (µg/L)	1,3,5 - Trimethylbenzene (µg/L)
<b>COGCC Table 915-1 Regulatory Limits (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1400</b>	<b>140</b>	<b>67</b>	<b>67</b>
GW-01 (40.276553 / -104.644507)	07/06/22	<b>49.1</b>	116	<1.00	309	<2.00	7.70	25.7
MW-01 (40.276562117 / -104.644501207)	10/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
MW-02 (40.276628485 / -104.644572364)	10/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
MW-03 (40.276630801 / -104.644441206)	10/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
MW-04 (40.276541392 / -104.644401104)	10/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
MW-05 (40.276482328 / -104.644504078)	10/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
MW-06 (40.276530662 / -104.655607801)	10/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
COGCC = Colorado Oil and Gas Conservation Commission µg/L - micrograms per liter Note: Values presented with a less than symbol (<) indicate concentrations were not observed at or above the laboratory reporting limit. Values presented in <b>bold</b> typeface exceed their respective COGCC - Regulatory Limits (Table 915-1).								

TABLE 6  
INORGANIC GROUNDWATER PARAMETERS SUMMARY  
LIBSACK 4-8-27  
VENT LINE RELEASE  
40.276553 / -104.644507  
SW1/4 SE1/4 SEC.27 T4N R65W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 310312  
REMEDATION # 23926

Sample Location (Latitude/Longitude)	Date	Chloride (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
<b>COGCC Table 915-1 Regulatory Limits (mg/L)</b>		<b>&lt;1.25xLocal Background (674)</b>	<b>&lt;1.25xLocal Background (738)</b>	<b>&lt;1.25xLocal Background (2275)</b>
MW-01 (40.276562117 / -104.644501207)	10/21/22	375	381	1490
MW-02 (40.276628485 / -104.644572364)	10/21/22	247	293	1770
MW-03 (40.276630801 / -104.644441206)	10/21/22	539	590	1820
MW-04 (40.276541392 / -104.644401104)	10/21/22	375	392	1470
MW-05 (40.276482328 / -104.644504078)	10/21/22	204	262	1040
MW-06 (40.276530662 / -104.655607801)	10/21/22	396	346	1430
<p>Notes:</p> <p>COGCC - Colorado Oil and Gas Conservation Commission      mg/L = milligrams per liter</p> <p>Note: The Inorganic Groundwater Parameters in monitoring wells MW-03 were used in the determination of "local background" levels at the site. Local "regulatory limit" (1.25*local background) presented (in parentheses).</p> <p>Values presented in <b>bold</b> typeface exceed their respective COGCC - Regulatory Limits (Table 915-1).</p>				

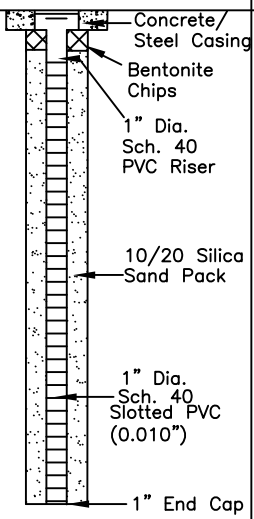


## **ATTACHMENT A**

### **Soil Boring Logs / Well Completion Diagrams**

# Boring Log/Well Completion Diagram: MW-01

PAGE 1 OF 1

DEPTH (FT)	LITHOLOGY	SAMPLE				OVM/OVA (PPM)	BLOW COUNT (per 0.5 FT)	DEPTH (FT)	WELL CONSTRUCTION DETAIL	COMMENTS
	DESCRIPTION	GRAPHIC LOG	TYPE	NUMBER	RECOVERY %					
0	(0-4') BACKFILL / sandy CLAY - brown, dry to moist, soft, N/O, N/S	CL	HA	1	100	2.9	N/A		 <p>Concrete/ Steel Casing</p> <p>Bentonite Chips</p> <p>1" Dia. Sch. 40 PVC Riser</p> <p>10/20 Silica Sand Pack</p> <p>1" Dia. Sch. 40 Slotted PVC (0.010")</p> <p>1" End Cap</p>	
	(4-12') clayey SAND - brown, moist to wet, loose, poorly-graded with ~20% clay, N/O, N/S @ ~4' - wet					3.8				
5		SC	DP	1	95	3.3	N/A	5		
						3.2				
10			DP	2	100	3.1	N/A	10		
	BoB @ 12'									
15								15		
20								20		
25								25		
30										

DP - Direct Push  
HC - Hydrocarbon  
BoB - Bottom of Boring  
N/O - no odor  
N/S - no staining  
TOC - top of casing  
bgs - below ground surface

START/COMPLETION DATE: 10-13-22

SAND PACK INTERVAL (FEET): 1-12

PROJECT: LIBSACK 4-8-27

BENTONITE/GROUT INTERVAL (FEET): 0.5-1

LOGGED BY: TC

WELL SCREEN INTERVAL (FEET): 1-12

DRILLING COMPANY/EQUIPMENT: EAGLE/GEOPROBE

WELL DIAMETER (INCHES): 1

BORING DEPTH (FEET): 12

WELL DEPTH (FEET): 12

PID INSTRUMENT: MiniREA 3000

TIME STARTED/COMPLETED: 1135/1156

SAMPLE COLLECTION DEPTH (FT.)/TIME: 2.5-5/1141



**EAGLE**  
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CONSULTING, INC.

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Ph: 303-433-0479 • F: 303-325-5449

PAGE 1 OF 1

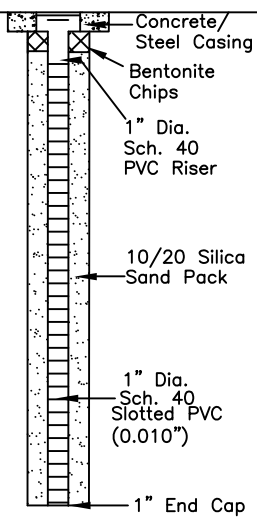
DP - Direct Push  
HC - Hydrocarbon  
BoB - Bottom of Boring  
N/O - no odor  
N/S - no staining  
TOC - top of casing  
bgs - below ground  
surface

**EAGLE**  
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# Boring Log/Well Completion Diagram: MW-03

PAGE 1 OF 1

DEPTH (FT)	LITHOLOGY	SAMPLE				OVM/OVA (PPM)	BLOW COUNT (per 0.5 FT)	DEPTH (FT)	WELL CONSTRUCTION DETAIL	COMMENTS	
	DESCRIPTION	GRAPHIC LOG	TYPE	NUMBER	RECOVERY %						
0	(0-12') clayey SAND - brown, moist to wet, loose, poorly-graded with ~25% clay, N/O, N/S  Wet @ 4'	SC	HA	1	100	2.2	N/A				
						2.7					
5			DP	1	95	2.5	N/A				
						2.6					
10			DP	2	100	2.2	N/A				
15			BoB @ 12'								
20											
25											
30											

DP - Direct Push

HC - Hydrocarbon

BoB - Bottom of Boring

N/O - no odor

N/S - no staining

TOC - top of casing

bgs - below ground surface

START/COMPLETION DATE: 10-13-22

SAND PACK INTERVAL (FEET): 1-12

PROJECT: LIBSACK 4-8-27

BENTONITE/GROUT INTERVAL (FEET): 0.5-1

LOGGED BY: TC

WELL SCREEN INTERVAL (FEET): 1-12

DRILLING COMPANY/EQUIPMENT: EAGLE/GEOPROBE

WELL DIAMETER (INCHES): 1

BORING DEPTH (FEET): 12

WELL DEPTH (FEET): 12

PID INSTRUMENT: MiniREA 3000

TIME STARTED/COMPLETED: 1317/1338

SAMPLE COLLECTION DEPTH (FT.)/TIME: 2.5-5/1321



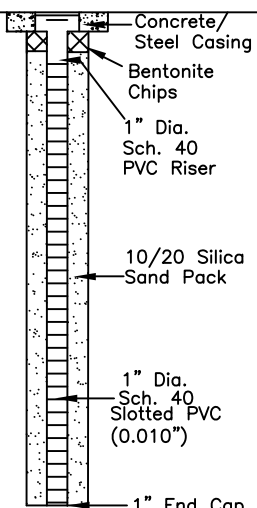
**EAGLE**  
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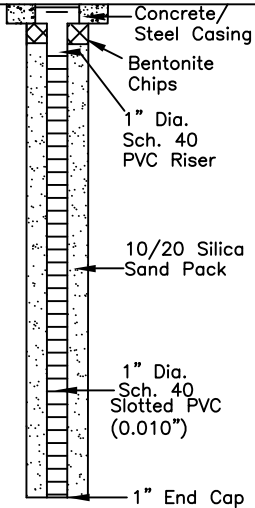
# Boring Log/Well Completion Diagram: MW-04

PAGE 1 OF 1

DEPTH (FT)	LITHOLOGY	SAMPLE				OVM/OVA (PPM)	BLOW COUNT (per 0.5 FT)	DEPTH (FT)	WELL CONSTRUCTION DETAIL	COMMENTS	
	DESCRIPTION	GRAPHIC LOG	TYPE	NUMBER	RECOVERY %						
0	(0-12') clayey SAND - brown, moist to wet, loose, poorly-graded with ~30% clay, N/O, N/S  Wet @ 4'	SC	HA	1	100	2.3	N/A				
						3.7					
5			DP	1	85	3.3	N/A	5			
						2.9					
10			DP	2	100	2.5	N/A	10			
15			BoB @ 12'								15
20							20				

# Boring Log/Well Completion Diagram: MW-05

PAGE 1 OF 1

DEPTH (FT)	LITHOLOGY	SAMPLE				OVM/OVA (PPM)	BLOW COUNT (per 0.5 FT)	DEPTH (FT)	WELL CONSTRUCTION DETAIL	COMMENTS
	DESCRIPTION	GRAPHIC LOG	TYPE	NUMBER	RECOVERY %					
0	(0-12') clayey SAND - brown, moist to wet, loose, poorly-graded with ~30% clay, N/O, N/S	SC	HA	1	100	1.8	N/A		 <p>Concrete/ Steel Casing</p> <p>Bentonite Chips</p> <p>1" Dia. Sch. 40 PVC Riser</p> <p>10/20 Silica Sand Pack</p> <p>1" Dia. Sch. 40 Slotted PVC (0.010")</p> <p>1" End Cap</p>	
						3.4				
5	Wet @ 4'		DP	1	100	2.5	N/A	5		
						2.8				
10		SC	DP	2	100	2.2	N/A	10		
	BoB @ 12'									
15								15		
20								20		
25								25		
30								30		

DP - Direct Push  
HC - Hydrocarbon  
BoB - Bottom of Boring  
N/O - no odor  
N/S - no staining  
TOC - top of casing  
bgs - below ground  
surface

START/COMPLETION DATE: 10-13-22

SAND PACK INTERVAL (FEET): 1-12

PROJECT: LIBSACK 4-8-27

BENTONITE/GROUT INTERVAL (FEET): 0.5-1

LOGGED BY: TC

WELL SCREEN INTERVAL (FEET): 1-12

DRILLING COMPANY/EQUIPMENT: EAGLE/GEOPROBE

WELL DIAMETER (INCHES): 1

BORING DEPTH (FEET): 12

WELL DEPTH (FEET): 12

PID INSTRUMENT: MiniREA 3000

TIME STARTED/COMPLETED: 1019/1039

SAMPLE COLLECTION DEPTH (FT.)/TIME: 2.5-5/1024

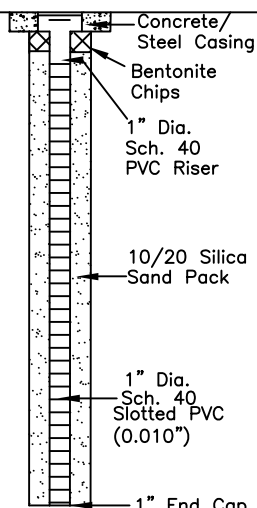


**EAGLE**  
ENVIRONMENTAL  
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# Boring Log/Well Completion Diagram: MW-06

PAGE 1 OF 1

DEPTH (FT)	LITHOLOGY	SAMPLE				OVM/OVA (PPM)	BLOW COUNT (per 0.5 FT)	DEPTH (FT)	WELL CONSTRUCTION DETAIL	COMMENTS
	DESCRIPTION	GRAPHIC LOG	TYPE	NUMBER	RECOVERY %					
0	(0-12') clayey SAND - brown, moist to wet, loose, poorly-graded with ~40% clay, N/O, N/S	SC	HA	1	100	3.1	N/A			
Wet @ 4'						4.5				
5			DP	1	100	4.1	N/A			
						3.9				
10			DP	2	100	3.2	N/A			
BoB @ 12'										
15										
20										
25										
30										

DP - Direct Push  
HC - Hydrocarbon  
BoB - Bottom of Boring  
N/O - no odor  
N/S - no staining  
TOC - top of casing  
bgs - below ground surface

START/COMPLETION DATE: 10-13-22

SAND PACK INTERVAL (FEET): 1-12

PROJECT: LIBSACK 4-8-27

BENTONITE/GROUT INTERVAL (FEET): 0.5-1

LOGGED BY: TC

WELL SCREEN INTERVAL (FEET): 1-12

DRILLING COMPANY/EQUIPMENT: EAGLE/GEOPROBE

WELL DIAMETER (INCHES): 1

BORING DEPTH (FEET): 12

WELL DEPTH (FEET): 12

PID INSTRUMENT: MiniREA 3000

TIME STARTED/COMPLETED: 1202/1223

SAMPLE COLLECTION DEPTH (FT.)/TIME: 2.5-5/1211



**EAGLE**  
ENVIRONMENTAL  
CONSULTING, INC.

8000 W 44th Ave., Wheat Ridge, CO 80033  
Ph: 303-433-0479 • F: 303-325-5449

## **ATTACHMENT B**

### **Laboratory Analytical Reports**



# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 20, 2022

Martin Eckart III  
Civitas Resources  
650 Southgate Drive  
Windsor, CO 80550

RE: Libsack 4-8-27

Work Order #2210206

Enclosed are the results of analyses for samples received by Summit Scientific on 10/13/22 16:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Mikayla Axtell For Paul Shrewsbury  
President



Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-01@2.5-5'	2210206-01	Soil	10/13/22 11:41	10/13/22 16:20
MW-02@2.5-5'	2210206-02	Soil	10/13/22 12:52	10/13/22 16:20
MW-03@2.5-5'	2210206-03	Soil	10/13/22 13:21	10/13/22 16:20
MW-04@2.5-5'	2210206-04	Soil	10/13/22 10:50	10/13/22 16:20
MW-05@2.5-5'	2210206-05	Soil	10/13/22 10:24	10/13/22 16:20
MW-06@2.5-5'	2210206-06	Soil	10/13/22 12:11	10/13/22 16:20

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

## 52

303-277-9310

Page 1 of

Project Number:

Ⓐ Civitas

S<sub>2</sub>

2210206

## Sample Receipt Checklist

S2 Work Order# \_\_\_\_\_

Client: Eagle Environmental Consulting Client Project ID: Libsack 4-8-27Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: \_\_\_\_\_

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 1.6Thermometer # 2

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	o-i-c
If custody seals are present, are they intact? <sup>(1)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Custodian Printed Name

Date/Time

Smo

10/13/22





Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**MW-01@2.5-5'**  
**2210206-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/13/22 11:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFJ0372	10/14/22	10/15/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/13/22 11:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		98.9 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/13/22 11:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFJ0373	10/14/22	10/16/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/13/22 11:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		95.2 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**MW-01@2.5-5'**  
**2210206-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/13/22 11:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0388	10/17/22	10/18/22	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/13/22 11:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		64.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		56.5 %	40-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**MW-02@2.5-5'**  
**2210206-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/13/22 12:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFJ0372	10/14/22	10/15/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/13/22 12:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		110 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		99.9 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/13/22 12:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFJ0373	10/14/22	10/16/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/13/22 12:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		96.2 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**MW-02@2.5-5'**  
**2210206-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/13/22 12:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0388	10/17/22	10/18/22	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/13/22 12:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		81.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		72.7 %	40-150		"	"	"	"	

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**MW-03@2.5-5'**  
**2210206-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/13/22 13:21**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFJ0372	10/14/22	10/15/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/13/22 13:21**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		109 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/13/22 13:21**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFJ0373	10/14/22	10/16/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/13/22 13:21**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		97.3 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**MW-03@2.5-5'**  
**2210206-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/13/22 13:21**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0388	10/17/22	10/18/22	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/13/22 13:21**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		76.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		70.0 %	40-150		"	"	"	"	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**MW-04@2.5-5'**  
**2210206-04 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/13/22 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFJ0372	10/14/22	10/15/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/13/22 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		111 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/13/22 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFJ0373	10/14/22	10/16/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/13/22 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		95.1 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**MW-04@2.5-5'**  
**2210206-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/13/22 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0388	10/17/22	10/18/22	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/13/22 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		69.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		58.6 %	40-150		"	"	"	"	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**MW-05@2.5-5'**

**2210206-05 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/13/22 10:24**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFJ0372	10/14/22	10/15/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/13/22 10:24**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/13/22 10:24**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFJ0373	10/14/22	10/16/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/13/22 10:24**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**MW-05@2.5-5'**  
**2210206-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/13/22 10:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0388	10/17/22	10/18/22	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/13/22 10:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		68.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		59.5 %	40-150		"	"	"	"	

Summit Scientific

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650 Southgate Drive  
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Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**MW-06@2.5-5'**

**2210206-06 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/13/22 12:11**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFJ0372	10/14/22	10/15/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/13/22 12:11**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		111 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		98.5 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/13/22 12:11**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFJ0373	10/14/22	10/16/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/13/22 12:11**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		96.1 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**MW-06@2.5-5'**  
**2210206-06 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/13/22 12:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0388	10/17/22	10/18/22	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/13/22 12:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		69.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		54.3 %	40-150		"	"	"	"	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BFJ0372 - EPA 5030 Soil MS

##### Blank (BFJ0372-BLK1)

Prepared: 10/14/22 Analyzed: 10/15/22

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0417		"	0.0400		104	50-150			
Surrogate: Toluene-d8	0.0395		"	0.0400		98.7	50-150			
Surrogate: 4-Bromofluorobenzene	0.0410		"	0.0400		103	50-150			

##### LCS (BFJ0372-BS1)

Prepared: 10/14/22 Analyzed: 10/15/22

Benzene	0.148	0.0020	mg/kg	0.150		98.7	70-130			
Toluene	0.146	0.0050	"	0.150		97.5	70-130			
Ethylbenzene	0.143	0.0050	"	0.150		95.3	70-130			
m,p-Xylene	0.282	0.010	"	0.300		93.9	70-130			
o-Xylene	0.142	0.0050	"	0.150		94.7	70-130			
1,2,4-Trimethylbenzene	0.146	0.0050	"	0.150		97.3	70-130			
1,3,5-Trimethylbenzene	0.143	0.0050	"	0.150		95.3	70-130			
Naphthalene	0.155	0.0038	"	0.150		103	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0403		"	0.0400		101	50-150			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.6	50-150			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		96.9	50-150			

##### Matrix Spike (BFJ0372-MS1)

Source: 2210156-01

Prepared: 10/14/22 Analyzed: 10/15/22

Benzene	0.126	0.0020	mg/kg	0.150	ND	83.8	70-130			
Toluene	0.122	0.0050	"	0.150	ND	81.0	70-130			
Ethylbenzene	0.117	0.0050	"	0.150	ND	78.1	70-130			
m,p-Xylene	0.217	0.010	"	0.300	ND	72.3	70-130			
o-Xylene	0.116	0.0050	"	0.150	ND	77.4	70-130			
1,2,4-Trimethylbenzene	0.134	0.0050	"	0.150	ND	89.2	70-130			
1,3,5-Trimethylbenzene	0.112	0.0050	"	0.150	ND	75.0	70-130			
Naphthalene	0.131	0.0038	"	0.150	ND	87.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0386		"	0.0400		96.4	50-150			
Surrogate: Toluene-d8	0.0396		"	0.0400		99.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	50-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BFJ0372 - EPA 5030 Soil MS

Matrix Spike Dup (BFJ0372-MSD1)	Source: 2210156-01			Prepared: 10/14/22 Analyzed: 10/15/22						
Benzene	0.124	0.0020	mg/kg	0.150	ND	82.7	70-130	1.32	30	
Toluene	0.121	0.0050	"	0.150	ND	80.6	70-130	0.520	30	
Ethylbenzene	0.117	0.0050	"	0.150	ND	77.8	70-130	0.462	30	
m,p-Xylene	0.221	0.010	"	0.300	ND	73.6	70-130	1.82	30	
o-Xylene	0.114	0.0050	"	0.150	ND	76.0	70-130	1.80	30	
1,2,4-Trimethylbenzene	0.134	0.0050	"	0.150	ND	89.6	70-130	0.470	30	
1,3,5-Trimethylbenzene	0.110	0.0050	"	0.150	ND	73.3	70-130	2.21	30	
Naphthalene	0.107	0.0038	"	0.150	ND	71.7	70-130	20.0	30	
Surrogate: 1,2-Dichloroethane-d4	0.0392		"	0.0400		98.0	50-150			
Surrogate: Toluene-d8	0.0402		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	50-150			

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0373 - EPA 3550A**

**Blank (BFJ0373-BLK1)**

Prepared: 10/14/22 Analyzed: 10/15/22

C10-C28 (DRO)	ND	50	mg/kg
C28-C36 (ORO)	ND	50	"

**LCS (BFJ0373-BS1)**

Prepared: 10/14/22 Analyzed: 10/15/22

C10-C28 (DRO)	622	50	mg/kg	500	124	70-130
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**Matrix Spike (BFJ0373-MS1)**

Source: 2210156-01

Prepared: 10/14/22 Analyzed: 10/15/22

C10-C28 (DRO)	647	50	mg/kg	500	ND	129	70-130
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**Matrix Spike Dup (BFJ0373-MSD1)**

Source: 2210156-01

Prepared: 10/14/22 Analyzed: 10/15/22

C10-C28 (DRO)	629	50	mg/kg	500	ND	126	70-130	2.94	20
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Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BFJ0388 - EPA 5030 Soil MS

##### Blank (BFJ0388-BLK1)

Prepared: 10/17/22 Analyzed: 10/18/22

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0309		"	0.0333		92.7	40-150			
Surrogate: Fluoranthene-d10	0.0275		"	0.0333		82.5	40-150			

##### LCS (BFJ0388-BS1)

Prepared: 10/17/22 Analyzed: 10/18/22

Acenaphthene	0.0306	0.00500	mg/kg	0.0333	91.8	31-137
Anthracene	0.0345	0.00500	"	0.0333	104	30-120
Benzo (a) anthracene	0.0302	0.00500	"	0.0333	90.5	30-120
Benzo (a) pyrene	0.0280	0.00500	"	0.0333	84.1	30-120
Benzo (b) fluoranthene	0.0304	0.00500	"	0.0333	91.1	30-120
Benzo (k) fluoranthene	0.0344	0.00500	"	0.0333	103	30-120
Chrysene	0.0306	0.00500	"	0.0333	91.9	30-120
Dibenz (a,h) anthracene	0.0273	0.00500	"	0.0333	82.0	30-120
Fluoranthene	0.0356	0.00500	"	0.0333	107	30-120
Fluorene	0.0354	0.00500	"	0.0333	106	30-120
Indeno (1,2,3-cd) pyrene	0.0278	0.00500	"	0.0333	83.3	30-120
Pyrene	0.0293	0.00500	"	0.0333	87.9	35-142
1-Methylnaphthalene	0.0354	0.00500	"	0.0333	106	35-142
2-Methylnaphthalene	0.0361	0.00500	"	0.0333	108	35-142
Surrogate: 2-Methylnaphthalene-d10	0.0351		"	0.0333	105	40-150
Surrogate: Fluoranthene-d10	0.0358		"	0.0333	107	40-150

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BFJ0388 - EPA 5030 Soil MS

Matrix Spike (BFJ0388-MS1)			Source: 2210206-01		Prepared: 10/17/22 Analyzed: 10/18/22					
Acenaphthene	0.0162	0.00500	mg/kg	0.0333	ND	48.5	31-137			
Anthracene	0.0200	0.00500	"	0.0333	ND	59.9	30-120			
Benzo (a) anthracene	0.0186	0.00500	"	0.0333	ND	55.9	30-120			
Benzo (a) pyrene	0.0166	0.00500	"	0.0333	ND	49.8	30-120			
Benzo (b) fluoranthene	0.0173	0.00500	"	0.0333	ND	51.8	30-120			
Benzo (k) fluoranthene	0.0204	0.00500	"	0.0333	ND	61.3	30-120			
Chrysene	0.0185	0.00500	"	0.0333	ND	55.6	30-120			
Dibenz (a,h) anthracene	0.0158	0.00500	"	0.0333	ND	47.5	30-120			
Fluoranthene	0.0204	0.00500	"	0.0333	ND	61.1	30-120			
Fluorene	0.0190	0.00500	"	0.0333	ND	57.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0177	0.00500	"	0.0333	ND	53.0	30-120			
Pyrene	0.0199	0.00500	"	0.0333	ND	59.8	35-142			
1-Methylnaphthalene	0.0183	0.00500	"	0.0333	ND	54.8	15-130			
2-Methylnaphthalene	0.0198	0.00500	"	0.0333	ND	59.3	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0188		"	0.0333		56.3	40-150			
Surrogate: Fluoranthene-d10	0.0212		"	0.0333		63.7	40-150			

Matrix Spike Dup (BFJ0388-MSD1)			Source: 2210206-01		Prepared: 10/17/22 Analyzed: 10/18/22					
Acenaphthene	0.0187	0.00500	mg/kg	0.0333	ND	56.1	31-137	14.4	30	
Anthracene	0.0205	0.00500	"	0.0333	ND	61.5	30-120	2.53	30	
Benzo (a) anthracene	0.0193	0.00500	"	0.0333	ND	57.9	30-120	3.52	30	
Benzo (a) pyrene	0.0173	0.00500	"	0.0333	ND	51.9	30-120	4.13	30	
Benzo (b) fluoranthene	0.0184	0.00500	"	0.0333	ND	55.1	30-120	6.11	30	
Benzo (k) fluoranthene	0.0210	0.00500	"	0.0333	ND	62.9	30-120	2.51	30	
Chrysene	0.0190	0.00500	"	0.0333	ND	57.0	30-120	2.52	30	
Dibenz (a,h) anthracene	0.0190	0.00500	"	0.0333	ND	57.0	30-120	18.2	30	
Fluoranthene	0.0204	0.00500	"	0.0333	ND	61.3	30-120	0.444	30	
Fluorene	0.0191	0.00500	"	0.0333	ND	57.3	30-120	0.395	30	
Indeno (1,2,3-cd) pyrene	0.0193	0.00500	"	0.0333	ND	57.8	30-120	8.64	30	
Pyrene	0.0193	0.00500	"	0.0333	ND	57.9	35-142	3.11	30	
1-Methylnaphthalene	0.0199	0.00500	"	0.0333	ND	59.7	15-130	8.58	50	
2-Methylnaphthalene	0.0210	0.00500	"	0.0333	ND	63.0	15-130	6.08	50	
Surrogate: 2-Methylnaphthalene-d10	0.0202		"	0.0333		60.6	40-150			
Surrogate: Fluoranthene-d10	0.0213		"	0.0333		63.9	40-150			

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/20/22 11:12

### Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference



# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80401

303.277.9310

October 27, 2022

Martin Eckart III  
Civitas Resources  
650 Southgate Drive  
Windsor, CO 80550  
RE: Libsack 4-8-27

Enclosed are the results of analyses for samples received by Summit Scientific on 10/21/22 13:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Mikayla Axtell". The signature is fluid and cursive, with the first name "Mikayla" and last name "Axtell" clearly distinguishable.

Mikayla Axtell For Paul Shrewsbury  
President



Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/27/22 12:35

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-01	2210377-01	Water	10/20/22 09:15	10/21/22 13:35
MW-02	2210377-02	Water	10/20/22 08:35	10/21/22 13:35
MW-03	2210377-03	Water	10/20/22 08:45	10/21/22 13:35
MW-04	2210377-04	Water	10/20/22 08:55	10/21/22 13:35
MW-05	2210377-05	Water	10/20/22 09:25	10/21/22 13:35
MW-06	2210377-06	Water	10/20/22 09:05	10/21/22 13:35

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

## 57

303-277-9310

Page 1 of

Project Manager: Martha Eckert III / Invoice: Jacob

E-Mail: mce3@eagle-cnviro.com

Project Name: Libsack 4-8-27

Project Number:

Project Number:

www.s2scientific.com

S<sub>2</sub>

2210377

## Sample Receipt Checklist

S2 Work Order# \_\_\_\_\_

Client: E954 Client Project ID: C. Vi Libsack 4-8-22Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: \_\_\_\_\_
☒ ☐ ☐ ☐ ☐
Matrix (Check all that apply) Air ☐ Soil/Solid ☐ Water ☒ Other ☐Temp (°C) 3.4 Thermometer # 02

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? <sup>(1)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	HCC
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

Custodian Printed Name

Date/Time

10-21-22 1335



Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/27/22 12:35

**MW-01**  
**2210377-01 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/20/22 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	1.0	0.043	ug/l	1	BFJ0690	10/25/22	10/25/22	EPA 8260B	
Toluene	ND	1.0	0.061	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	0.068	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	0.14	"	"	"	"	"	"	
Naphthalene	ND	1.0	0.10	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	0.068	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	0.069	"	"	"	"	"	"	

Date Sampled: **10/20/22 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		79.4 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		99.9 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		78.3 %		21-167		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/27/22 12:35

**MW-02**  
**2210377-02 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/20/22 08:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	1.0	0.043	ug/l	1	BFJ0690	10/25/22	10/25/22	EPA 8260B	
Toluene	ND	1.0	0.061	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	0.068	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	0.14	"	"	"	"	"	"	
Naphthalene	ND	1.0	0.10	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	0.068	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	0.069	"	"	"	"	"	"	

Date Sampled: **10/20/22 08:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		89.7 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		71.3 %		21-167		"	"	"	"	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/27/22 12:35

**MW-03**  
**2210377-03 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/20/22 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	1.0	0.043	ug/l	1	BFJ0690	10/25/22	10/25/22	EPA 8260B	
Toluene	ND	1.0	0.061	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	0.068	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	0.14	"	"	"	"	"	"	
Naphthalene	ND	1.0	0.10	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	0.068	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	0.069	"	"	"	"	"	"	

Date Sampled: **10/20/22 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		82.7 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		83.9 %		21-167		"	"	"	"	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/27/22 12:35

**MW-04**  
**2210377-04 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/20/22 08:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	1.0	0.043	ug/l	1	BFJ0690	10/25/22	10/26/22	EPA 8260B	
Toluene	ND	1.0	0.061	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	0.068	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	0.14	"	"	"	"	"	"	
Naphthalene	ND	1.0	0.10	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	0.068	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	0.069	"	"	"	"	"	"	

Date Sampled: **10/20/22 08:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		87.1 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		98.3 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		72.0 %		21-167		"	"	"	"	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/27/22 12:35

**MW-05**  
**2210377-05 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/20/22 09:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	1.0	0.043	ug/l	1	BFJ0690	10/25/22	10/26/22	EPA 8260B	
Toluene	ND	1.0	0.061	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	0.068	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	0.14	"	"	"	"	"	"	
Naphthalene	ND	1.0	0.10	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	0.068	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	0.069	"	"	"	"	"	"	

Date Sampled: **10/20/22 09:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		83.5 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		70.9 %		21-167		"	"	"	"	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/27/22 12:35

**MW-06**  
**2210377-06 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/20/22 09:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	1.0	0.043	ug/l	1	BFJ0690	10/25/22	10/26/22	EPA 8260B	
Toluene	ND	1.0	0.061	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	0.068	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	0.14	"	"	"	"	"	"	
Naphthalene	ND	1.0	0.10	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	0.068	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	0.069	"	"	"	"	"	"	

Date Sampled: **10/20/22 09:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		92.1 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		80.0 %		21-167		"	"	"	"	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/27/22 12:35

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BFJ0690 - EPA 5030 Water MS

##### Blank (BFJ0690-BLK1)

Prepared: 10/25/22 Analyzed: 10/26/22

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Naphthalene	ND	1.0	"							
1,2,4-Trimethylbenzene	ND	1.0	"							
1,3,5-Trimethylbenzene	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.0		"	13.3		97.7	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		98.6	20-170			
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3		106	21-167			

##### LCS (BFJ0690-BS1)

Prepared: 10/25/22 Analyzed: 10/26/22

Benzene	44.6	1.0	ug/l	50.0		89.2	51-132			
Toluene	56.8	1.0	"	50.0		114	51-138			
Ethylbenzene	52.9	1.0	"	50.0		106	58-146			
m,p-Xylene	106	2.0	"	100		106	57-144			
o-Xylene	50.9	1.0	"	50.0		102	53-146			
Naphthalene	51.2	1.0	"	50.0		102	70-130			
1,2,4-Trimethylbenzene	52.4	1.0	"	50.0		105	70-130			
1,3,5-Trimethylbenzene	52.8	1.0	"	50.0		106	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.8		"	13.3		111	23-173			
Surrogate: Toluene-d8	18.8		"	13.3		141	20-170			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100	21-167			

##### Matrix Spike (BFJ0690-MS1)

Source: 2210354-01

Prepared: 10/25/22 Analyzed: 10/26/22

Benzene	44.7	1.0	ug/l	50.0	ND	89.5	34-141			
Toluene	53.0	1.0	"	50.0	ND	106	27-151			
Ethylbenzene	54.5	1.0	"	50.0	ND	109	29-160			
m,p-Xylene	110	2.0	"	100	ND	110	20-166			
o-Xylene	52.1	1.0	"	50.0	ND	104	33-159			
Naphthalene	48.3	1.0	"	50.0	ND	96.6	70-130			
1,2,4-Trimethylbenzene	56.8	1.0	"	50.0	ND	114	70-130			
1,3,5-Trimethylbenzene	56.8	1.0	"	50.0	ND	114	70-130			
Surrogate: 1,2-Dichloroethane-d4	11.4		"	13.3		85.5	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.4	20-170			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		97.1	21-167			

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

Reported:

10/27/22 12:35

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BFJ0690 - EPA 5030 Water MS

Matrix Spike Dup (BFJ0690-MSD1)		Source: 2210354-01			Prepared: 10/25/22 Analyzed: 10/26/22					
Benzene	43.5	1.0	ug/l	50.0	ND	87.1	34-141	2.72	30	
Toluene	57.4	1.0	"	50.0	ND	115	27-151	8.08	30	
Ethylbenzene	57.3	1.0	"	50.0	ND	115	29-160	5.08	30	
m,p-Xylene	115	2.0	"	100	ND	115	20-166	4.55	30	
o-Xylene	53.7	1.0	"	50.0	ND	107	33-159	3.02	30	
Naphthalene	51.9	1.0	"	50.0	ND	104	70-130	7.28	30	
1,2,4-Trimethylbenzene	57.0	1.0	"	50.0	ND	114	70-130	0.316	30	
1,3,5-Trimethylbenzene	57.2	1.0	"	50.0	ND	114	70-130	0.684	30	
<hr/>										
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.3		100	23-173			
Surrogate: Toluene-d8	14.2		"	13.3		106	20-170			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.9	21-167			

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/27/22 12:35

### Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 26, 2022

Martin Eckart III  
Civitas Resources  
650 Southgate Drive  
Windsor, CO 80550

RE: Libsack 4-8-27

Work Order #2210378

Enclosed are the results of analyses for samples received by Summit Scientific on 10/21/22 13:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Mikayla Axtell".

Mikayla Axtell For Paul Shrewsbury  
President



Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/26/22 13:53

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-01	2210378-01	Water	10/21/22 11:25	10/21/22 13:35
MW-02	2210378-02	Water	10/21/22 11:35	10/21/22 13:35
MW-03	2210378-03	Water	10/21/22 10:55	10/21/22 13:35
MW-04	2210378-04	Water	10/21/22 10:45	10/21/22 13:35
MW-05	2210378-05	Water	10/21/22 11:05	10/21/22 13:35
MW-06	2210378-06	Water	10/21/22 11:15	10/21/22 13:35

Summit Scientific

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$S_2$ 

303-277-9310

Page 1 of 1

Project Number:

www.s2scientific.com

S<sub>2</sub>

2210378

## Sample Receipt Checklist

S2 Work Order#

Client: Egla Client Project ID: Civil. L. Lysack 4-8-27Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: ☐
☒ ☐ ☐ ☐ ☐
Matrix (Check all that apply) Air ☐ Soil/Solid ☐ Water ☒ Other ☐Temp (°C) 3.4Thermometer # 02

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? <sup>(1)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Custodian Printed Name

Date/Time

10-31-22 1335





Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/26/22 13:53

**MW-01**  
**2210378-01 (Water)**

**Summit Scientific**

**Anions by EPA Method 300.0**

Date Sampled: **10/21/22 11:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>375</b>	12.0		mg/L	200	BFJ0634	10/23/22	10/25/22	EPA 300.0	
Sulfate	<b>381</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/21/22 11:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	<b>1490</b>	10.0		mg/L	1	BFJ0624	10/23/22	10/24/22	SM2540C	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/26/22 13:53

**MW-02**  
**2210378-02 (Water)**

**Summit Scientific**

**Anions by EPA Method 300.0**

Date Sampled: **10/21/22 11:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Chloride</b>	<b>247</b>	12.0		mg/L	200	BFJ0634	10/23/22	10/25/22	EPA 300.0	
<b>Sulfate</b>	<b>293</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/21/22 11:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>1770</b>	10.0		mg/L	1	BFJ0624	10/23/22	10/24/22	SM2540C	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/26/22 13:53

**MW-03**  
**2210378-03 (Water)**

**Summit Scientific**

**Anions by EPA Method 300.0**

Date Sampled: **10/21/22 10:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Chloride</b>	<b>539</b>	12.0		mg/L	200	BFJ0634	10/23/22	10/25/22	EPA 300.0	
<b>Sulfate</b>	<b>590</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/21/22 10:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>1820</b>	10.0		mg/L	1	BFJ0624	10/23/22	10/24/22	SM2540C	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/26/22 13:53

**MW-04**  
**2210378-04 (Water)**

**Summit Scientific**

**Anions by EPA Method 300.0**

Date Sampled: **10/21/22 10:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Chloride</b>	<b>375</b>	12.0		mg/L	200	BFJ0634	10/23/22	10/25/22	EPA 300.0	
<b>Sulfate</b>	<b>392</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/21/22 10:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>1470</b>	10.0		mg/L	1	BFJ0624	10/23/22	10/24/22	SM2540C	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/26/22 13:53

**MW-05**  
**2210378-05 (Water)**

**Summit Scientific**

**Anions by EPA Method 300.0**

Date Sampled: **10/21/22 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Chloride</b>	<b>204</b>	12.0		mg/L	200	BFJ0634	10/23/22	10/25/22	EPA 300.0	
<b>Sulfate</b>	<b>262</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/21/22 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>1040</b>	10.0		mg/L	1	BFJ0624	10/23/22	10/24/22	SM2540C	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/26/22 13:53

**MW-06**  
**2210378-06 (Water)**

**Summit Scientific**

**Anions by EPA Method 300.0**

Date Sampled: **10/21/22 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Chloride</b>	<b>396</b>	12.0		mg/L	200	BFJ0634	10/23/22	10/25/22	EPA 300.0	
<b>Sulfate</b>	<b>346</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/21/22 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>1430</b>	10.0		mg/L	1	BFJ0624	10/23/22	10/24/22	SM2540C	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/26/22 13:53

### Anions by EPA Method 300.0 - Quality Control

#### Summit Scientific

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

#### Batch BFJ0634 - General Preparation

##### Blank (BFJ0634-BLK1)

Prepared: 10/23/22 Analyzed: 10/25/22

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

##### LCS (BFJ0634-BS1)

Prepared: 10/23/22 Analyzed: 10/25/22

Chloride	3.14	0.0600	mg/L	3.00	105	90-110
Sulfate	14.8	0.300	"	15.0	98.6	90-110

##### Duplicate (BFJ0634-DUP1)

Source: 2210332-01

Prepared: 10/23/22 Analyzed: 10/25/22

Chloride	9.60	12.0	mg/L	10.4	8.00	20
Sulfate	1380	60.0	"	1210	12.9	20

##### Matrix Spike (BFJ0634-MS1)

Source: 2210332-01

Prepared: 10/23/22 Analyzed: 10/25/22

Chloride	627	12.0	mg/L	600	10.4	103	80-120
Sulfate	4460	60.0	"	3000	1210	108	80-120

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]

Project Manager: Martin Eckart III

**Reported:**  
10/26/22 13:53

### Total Dissolved Solids by SM2540C - Quality Control

#### Summit Scientific

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

#### Batch BFJ0624 - General Preparation

##### Blank (BFJ0624-BLK1)

Prepared: 10/23/22 Analyzed: 10/24/22

Total Dissolved Solids ND 10.0 mg/L

##### Duplicate (BFJ0624-DUP1)

Source: 2210369-01

Prepared: 10/23/22 Analyzed: 10/24/22

Total Dissolved Solids 725 10.0 mg/L 712 1.85 20

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Libsack 4-8-27

Project Number: [none]  
Project Manager: Martin Eckart III

**Reported:**  
10/26/22 13:53

### Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference