

# **Harsch 42-27**

NWNE Sec. 27-T2N-R69W

**Remediation Project #: 21354**

Fourth Quarter 2022 Quarterly Report

November 2022

Prepared by Tasman, Inc.



On behalf of Crestone Peak Resources Operating, LLC



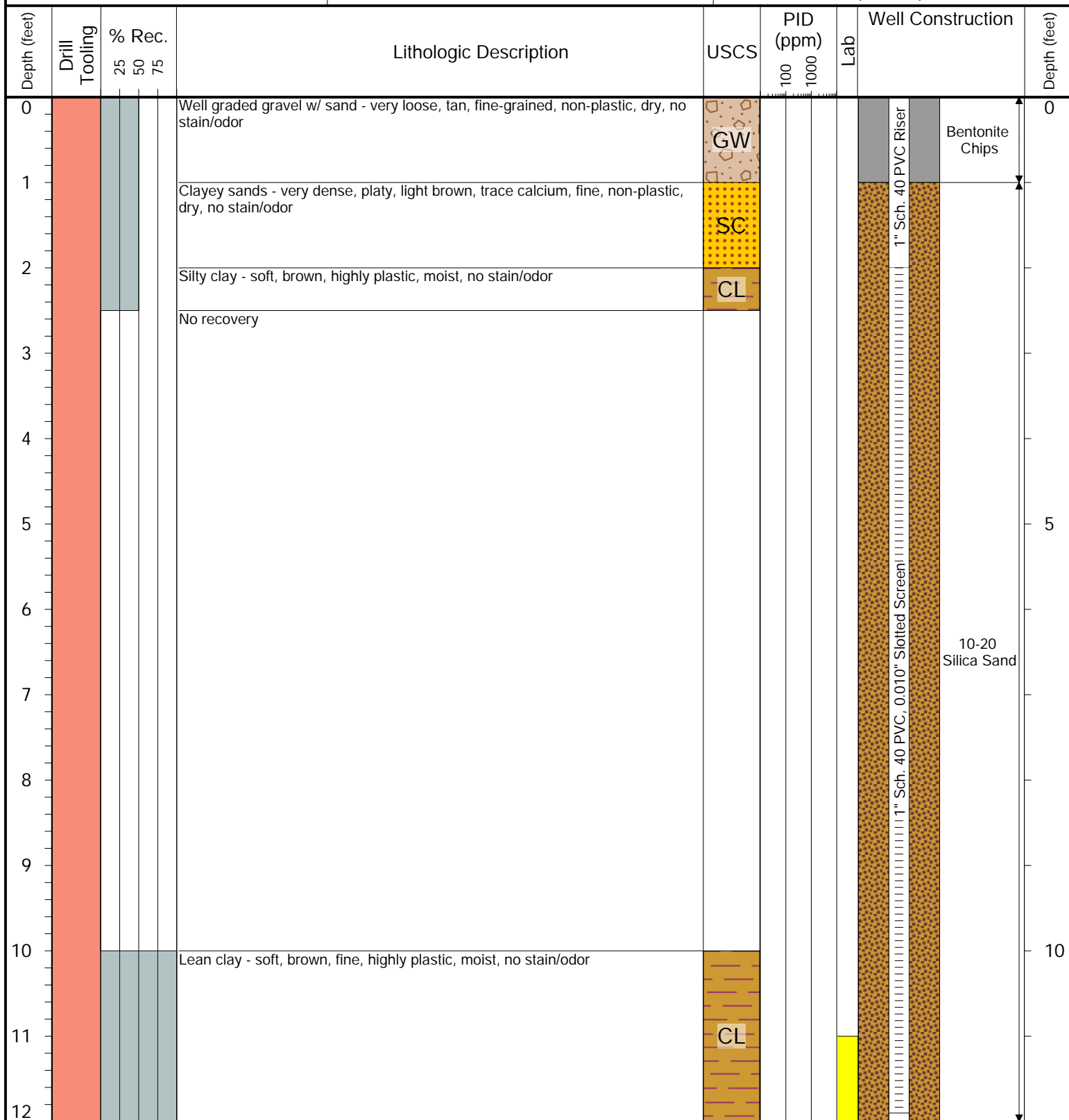
## **Boring Logs**



# TASMAN

6855 W. 119th Ave  
Broomfield, CO 80020

<b>CLIENT:</b> Crestone Peak Resources Operating, LLC	<b>SITE NAME:</b> Harsch 42-27 Remediation Project #: 21354
<b>LOGGED BY:</b> Sierra Kirylo	<b>SOIL BORING ID:</b> MW01
<b>PROJECT MANAGER:</b> Sam Vogt	<b>LOCATION:</b> SWNE Sec. 27-T2N-R69W
<b>DRILLING CONTRACTOR:</b> Tasman, Inc.	<b>LATITUDE (WGS 84):</b> 40.112892686
<b>DRILLING EQUIPMENT:</b> AMS Power Probe 9580-VTR	<b>LONGITUDE (WGS 84):</b> -105.101423793
<b>DRILL BIT SIZE (INCHES):</b> 2"	<b>TOTAL WELL DEPTH (FT. BGS):</b> 12
<b>DATE STARTED - COMPLETED:</b> 10/27/22 - 10/27/22	<b>DEPTH TO WATER (FT. BGS):</b> Not Encountered ▼



**Drilling / Sample Method:**

Direct Push Technology  
 Grab Sample  
 Hydrovac  
 Hand Auger

**Laboratory Sample Types:**

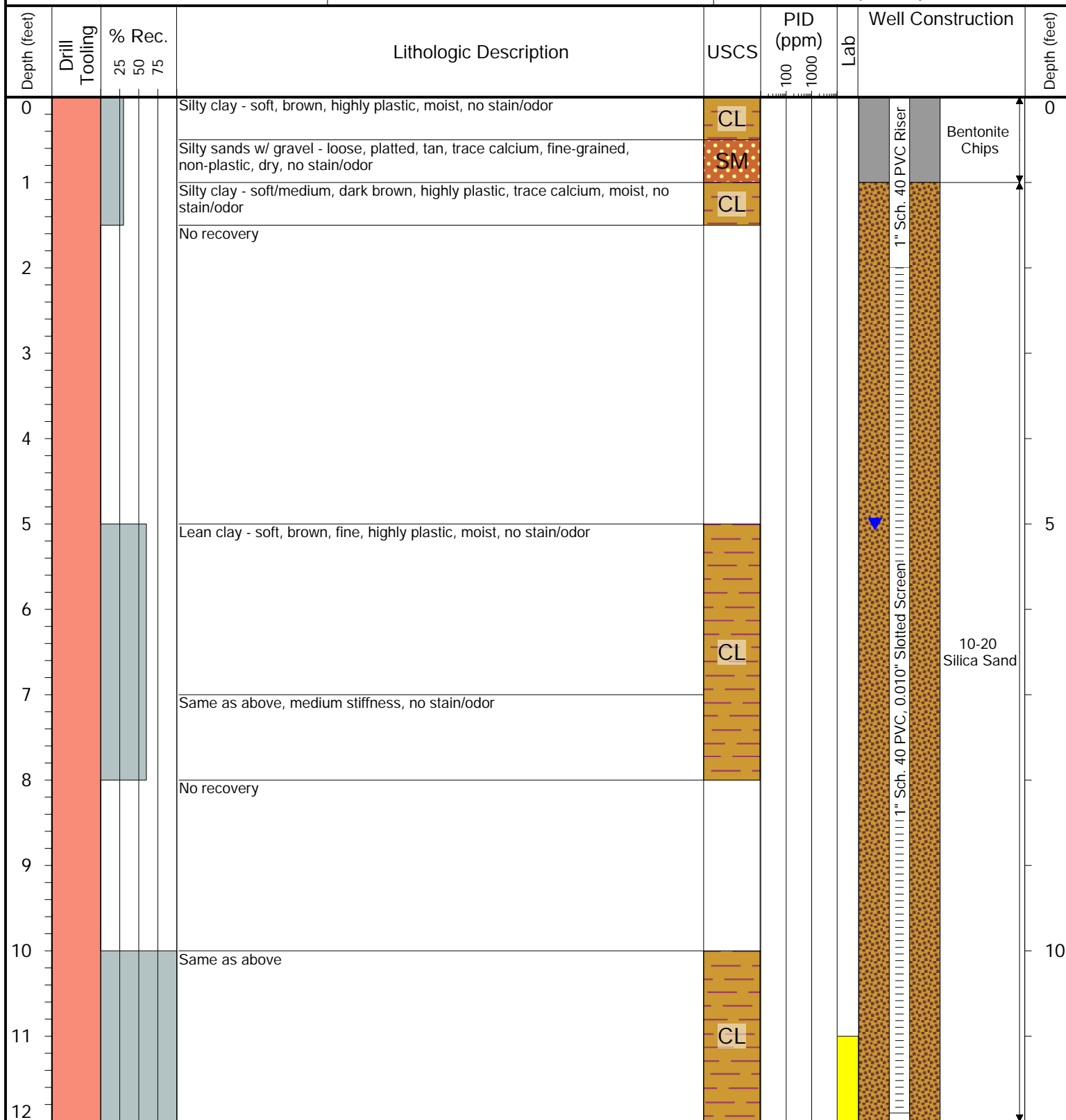
Geotechnical Lab  
 Analytical Chemistry Lab  
 Geotechnical & Analytical Chemistry Lab



# TASMAN

6855 W. 119th Ave  
Broomfield, CO 80020

<b>CLIENT:</b> Crestone Peak Resources Operating, LLC	<b>SITE NAME:</b> Harsch 42-27 Remediation Project #: 21354
<b>LOGGED BY:</b> Sierra Kirylo	<b>SOIL BORING ID:</b> MW02
<b>PROJECT MANAGER:</b> Sam Vogt	<b>LOCATION:</b> SWNE Sec. 27-T2N-R69W
<b>DRILLING CONTRACTOR:</b> Tasman, Inc.	<b>LATITUDE (WGS 84):</b> 40.112738888
<b>DRILLING EQUIPMENT:</b> AMS Power Probe 9580-VTR	<b>LONGITUDE (WGS 84):</b> -105.10165706
<b>DRILL BIT SIZE (INCHES):</b> 2"	<b>TOTAL WELL DEPTH (FT. BGS):</b> 12
<b>DATE STARTED - COMPLETED:</b> 10/27/22 - 10/27/22	<b>DEPTH TO WATER (FT. BGS):</b> 5' ▼



**Drilling / Sample Method:**

Direct Push Technology  
 Grab Sample  
 Hydrovac  
 Hand Auger

**Laboratory Sample Types:**

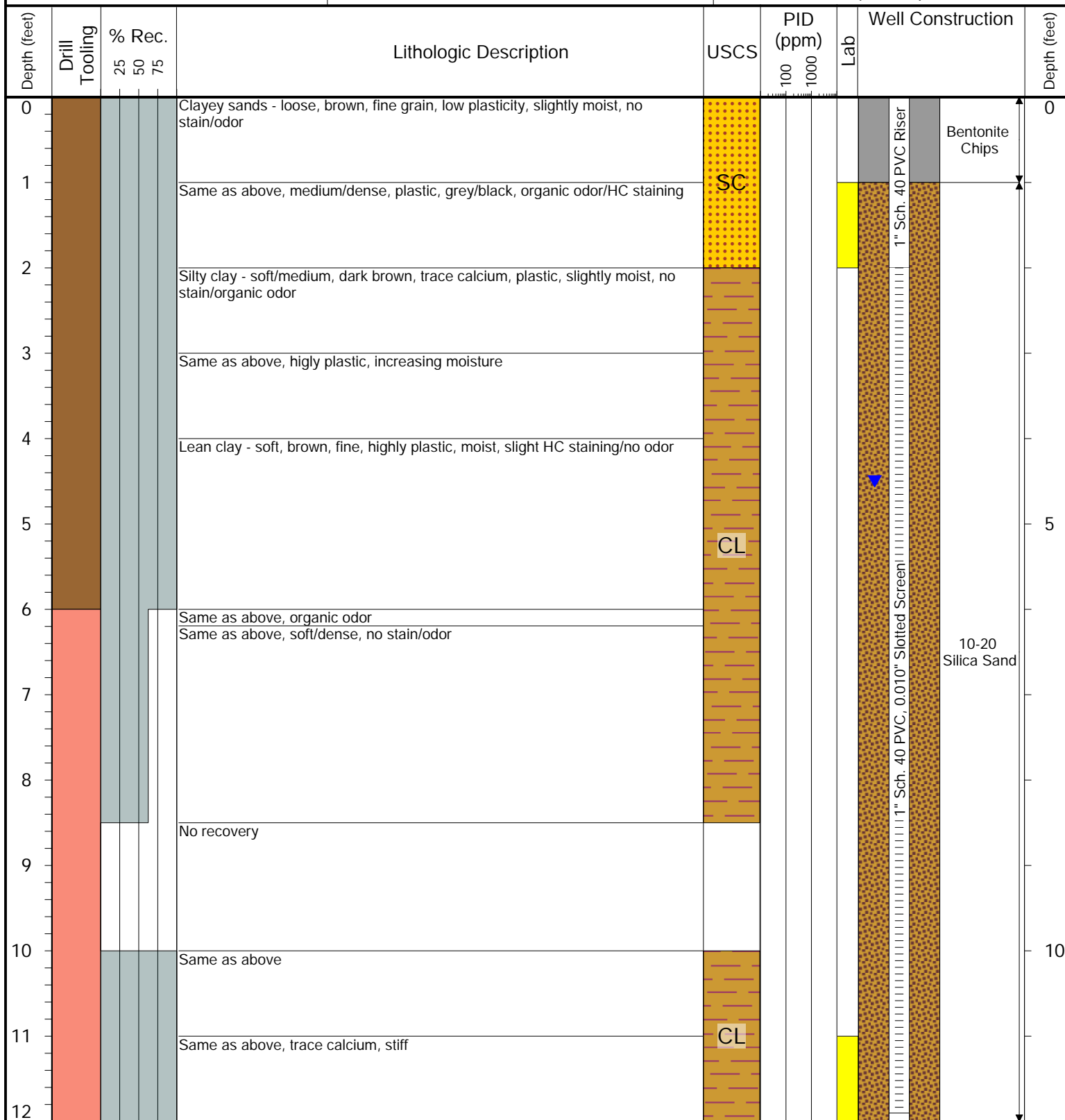
Geotechnical Lab  
 Analytical Chemistry Lab  
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# TASMAN

6855 W. 119th Ave  
Broomfield, CO 80020

<b>CLIENT:</b> Crestone Peak Resources Operating, LLC	<b>SITE NAME:</b> Harsch 42-27 Remediation Project #: 21354
<b>LOGGED BY:</b> Sierra Kirylo	<b>SOIL BORING ID:</b> MW03
<b>PROJECT MANAGER:</b> Sam Vogt	<b>LOCATION:</b> SWNE Sec. 27-T2N-R69W
<b>DRILLING CONTRACTOR:</b> Tasman, Inc.	<b>LATITUDE (WGS 84):</b> 40.112763802
<b>DRILLING EQUIPMENT:</b> Hand Auger / AMS Power Probe 9580-VTR	<b>LONGITUDE (WGS 84):</b> -105.1014173
<b>DRILL BIT SIZE (INCHES):</b> 2"	<b>TOTAL WELL DEPTH (FT. BGS):</b> 12
<b>DATE STARTED - COMPLETED:</b> 10/27/22 - 10/27/22	<b>DEPTH TO WATER (FT. BGS):</b> 4.5' ▼



#### Drilling / Sample Method:

Direct Push Technology  
 Grab Sample  
 Hydrovac  
 Hand Auger

#### Laboratory Sample Types:

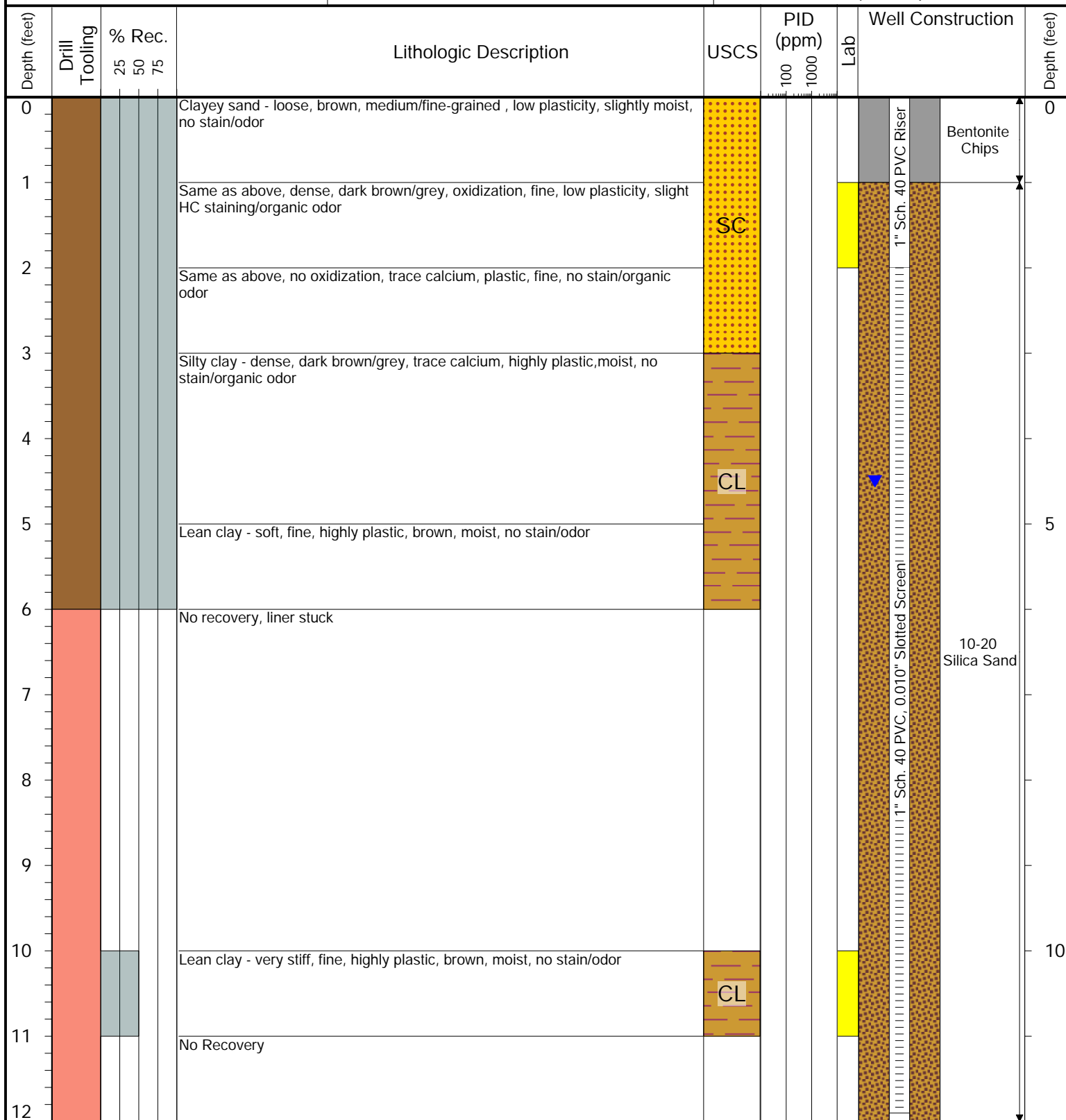
Geotechnical Lab  
 Analytical Chemistry Lab  
 Geotechnical & Analytical Chemistry Lab



# TASMAN

6855 W. 119th Ave  
Broomfield, CO 80020

<b>CLIENT:</b> Crestone Peak Resources Operating, LLC	<b>SITE NAME:</b> Harsch 42-27 Remediation Project #: 21354
<b>LOGGED BY:</b> Sierra Kirylo	<b>SOIL BORING ID:</b> MW04
<b>PROJECT MANAGER:</b> Sam Vogt	<b>LOCATION:</b> SWNE Sec. 27-T2N-R69W
<b>DRILLING CONTRACTOR:</b> Tasman, Inc.	<b>LATITUDE (WGS 84):</b> 40.112768459
<b>DRILLING EQUIPMENT:</b> Hand Auger / AMS Power Probe 9580-VTR	<b>LONGITUDE (WGS 84):</b> -105.10133984
<b>DRILL BIT SIZE (INCHES):</b> 2"	<b>TOTAL WELL DEPTH (FT. BGS):</b> 12
<b>DATE STARTED - COMPLETED:</b> 10/27/22 - 10/27/22	<b>DEPTH TO WATER (FT. BGS):</b> 4.5' ▼



#### Drilling / Sample Method:

Direct Push Technology  
 Grab Sample  
 Hydrovac  
 Hand Auger

#### Laboratory Sample Types:

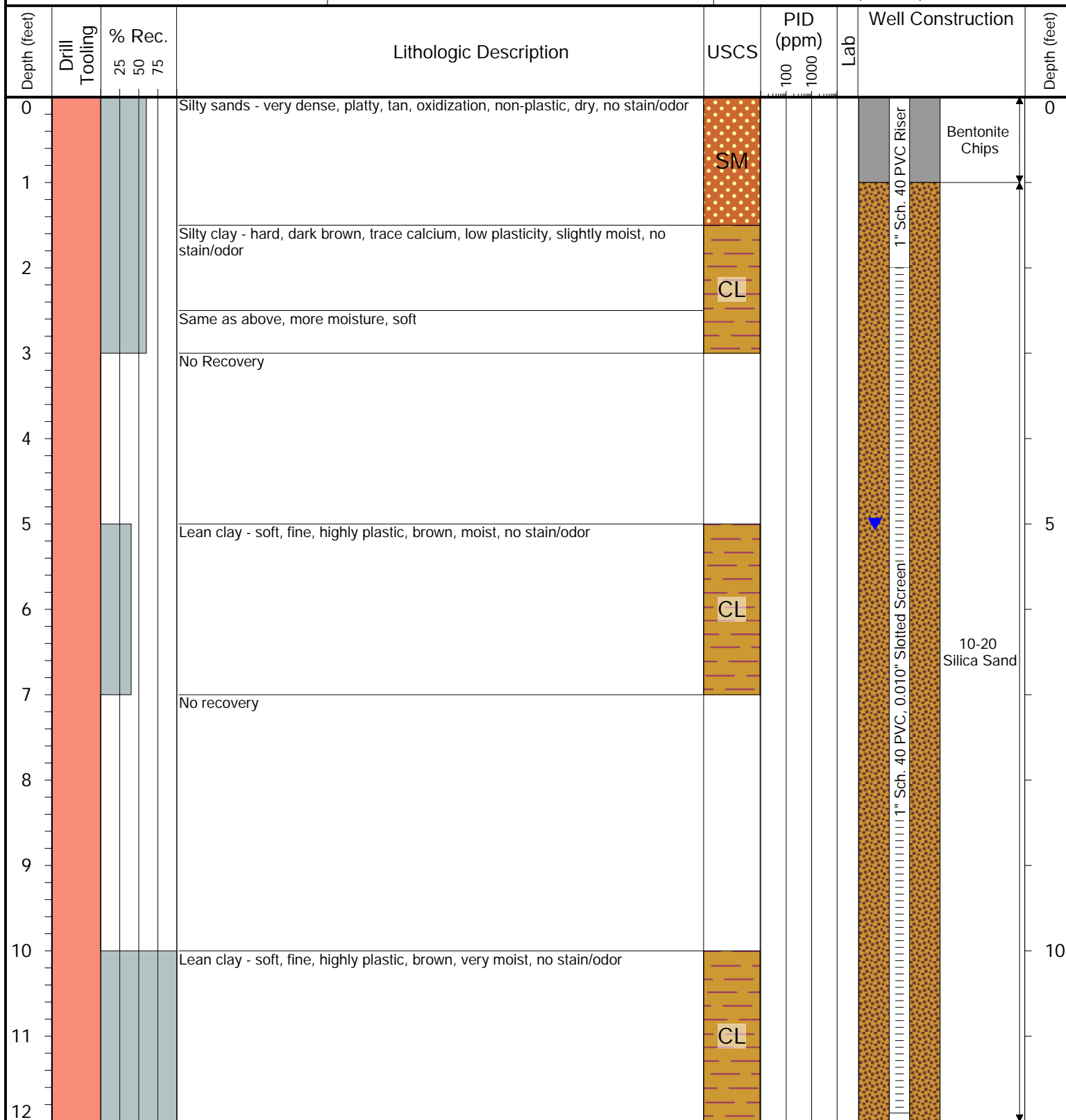
Geotechnical Lab  
 Analytical Chemistry Lab  
 Geotechnical & Analytical Chemistry Lab



# TASMAN

6855 W. 119th Ave  
Broomfield, CO 80020

<b>CLIENT:</b> Crestone Peak Resources Operating, LLC	<b>SITE NAME:</b> Harsch 42-27 Remediation Project #: 21354
<b>LOGGED BY:</b> Sierra Kirylo	<b>SOIL BORING ID:</b> MW05
<b>PROJECT MANAGER:</b> Sam Vogt	<b>LOCATION:</b> SWNE Sec. 27-T2N-R69W
<b>DRILLING CONTRACTOR:</b> Tasman, Inc.	<b>LATITUDE (WGS 84):</b> 40.112633762
<b>DRILLING EQUIPMENT:</b> AMS Power Probe 9580-VTR	<b>LONGITUDE (WGS 84):</b> -105.101102471
<b>DRILL BIT SIZE (INCHES):</b> 2"	<b>TOTAL WELL DEPTH (FT. BGS):</b> 12
<b>DATE STARTED - COMPLETED:</b> 10/27/22 - 10/27/22	<b>DEPTH TO WATER (FT. BGS):</b> 5'



**Drilling / Sample Method:**

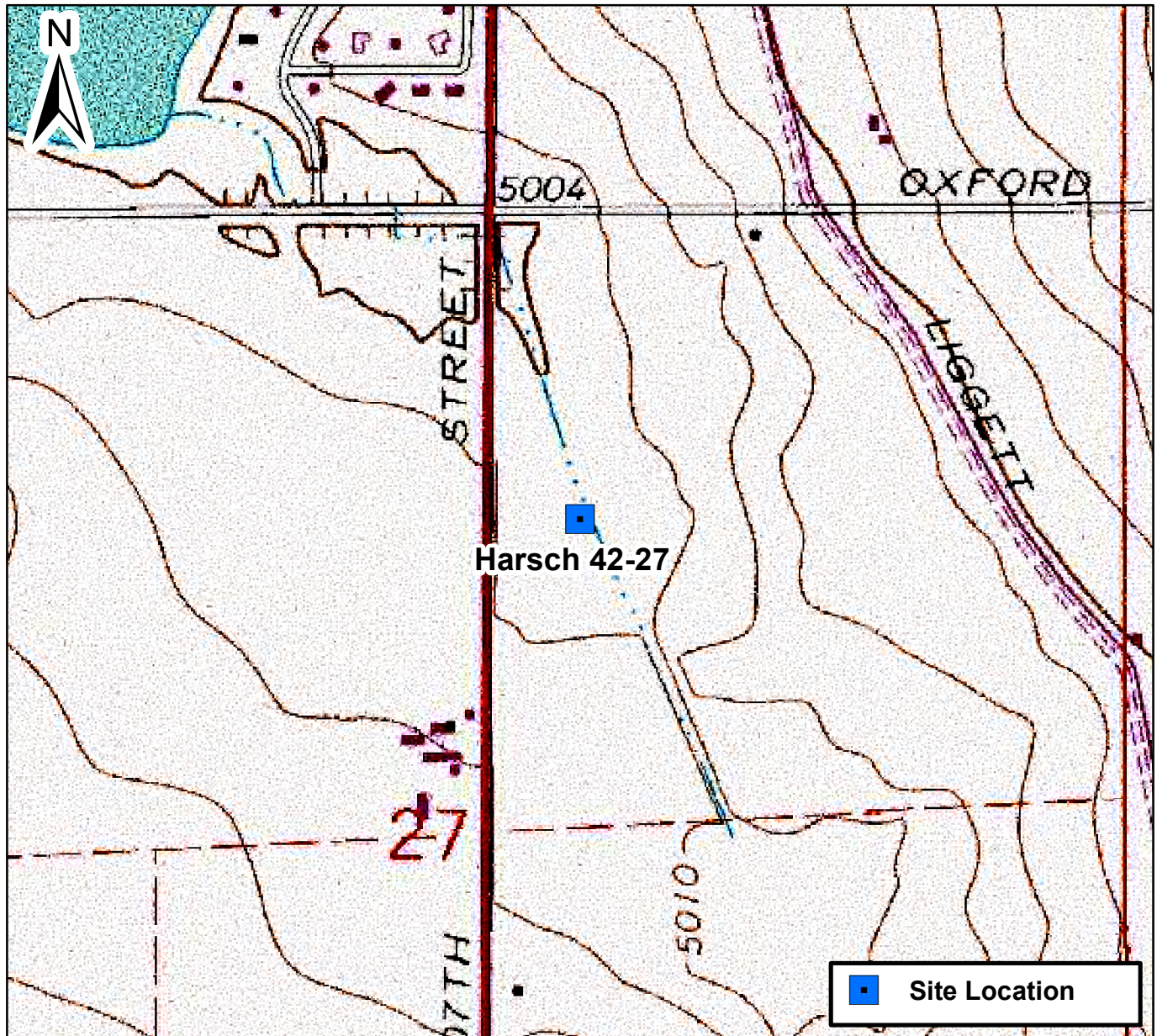
Direct Push Technology  
 Grab Sample  
 Hydrovac  
 Hand Auger

**Laboratory Sample Types:**

Geotechnical Lab  
 Analytical Chemistry Lab  
 Geotechnical & Analytical Chemistry Lab

## FIGURES





0 1,050 2,100 Feet


## Figure 1

Site Location Map  
Harsch 42-27  
NWNE Sec. 27-T2N-R69W  
Boulder, Colorado

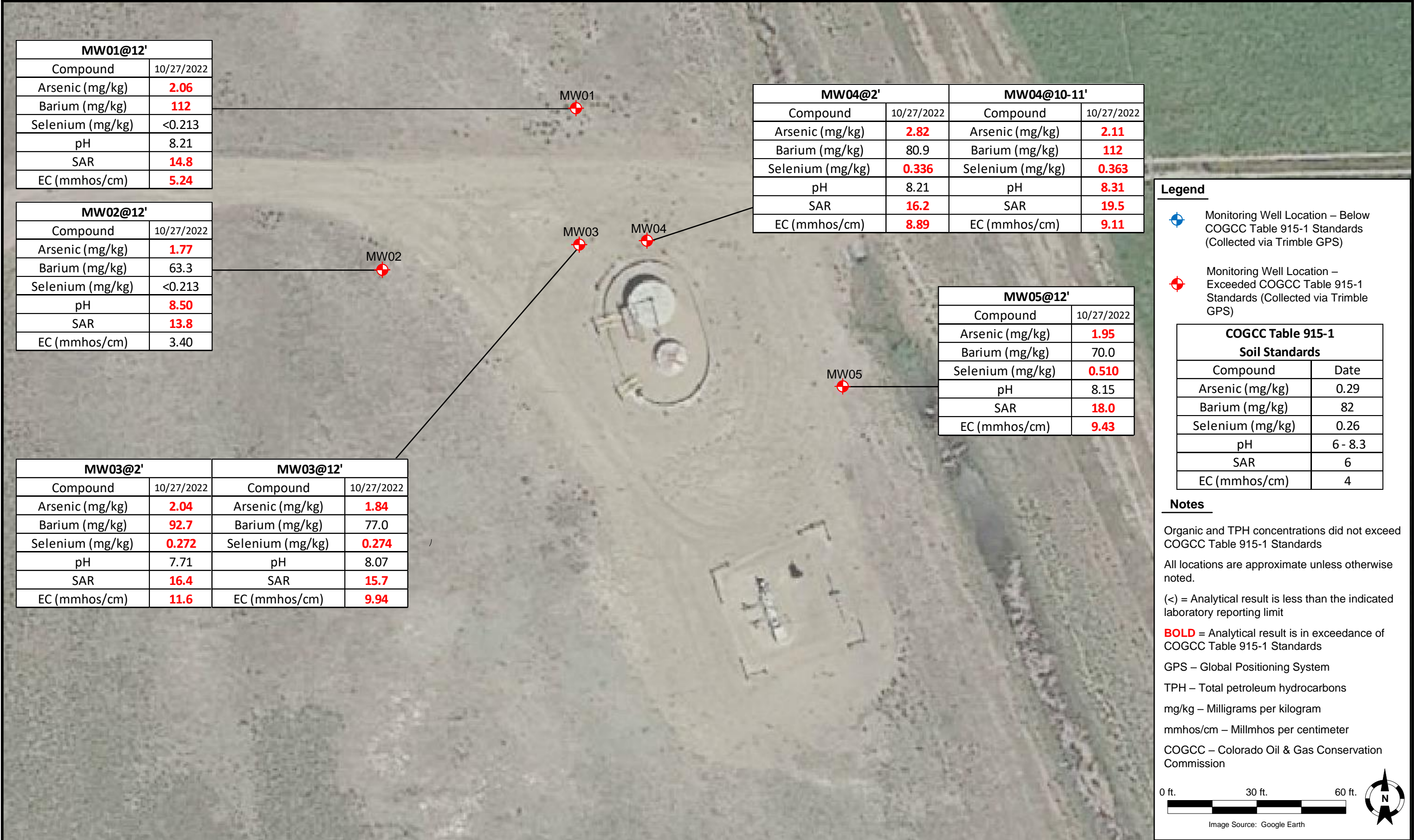




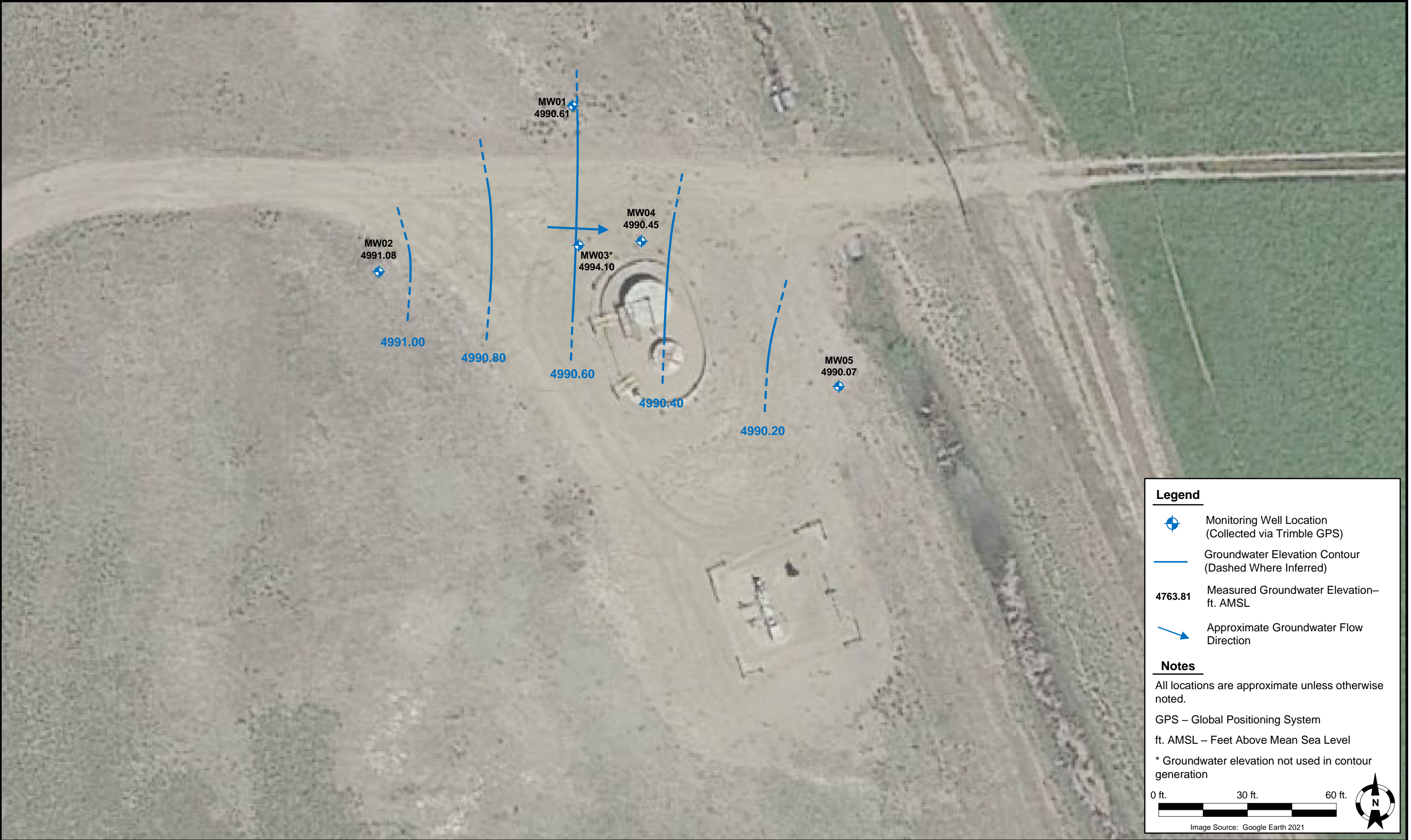



DATE: January 30, 2023	 <b>Tasman, Inc.</b> 6855 W. 119th Avenue Broomfield, Colorado 80020	<b>Crestone Peak Resources Operating, LLC</b> <b>Harsch 42-27</b> NWNE Sec. 27-T2N-R69W Boulder County, Colorado	Site Overview Map	FIGURE 2
DESIGNED BY: S. Vogt				
DRAWN BY: S. Kirylo				









DATE: January 26, 2023	 <b>Tasman, Inc.</b> 6855 W. 119th Avenue Broomfield, Colorado 80020	<b>Crestone Peak Resources Operating, LLC</b> <b>Harsch 42-27</b> NWNE Sec. 27-T2N-R69W Boulder County, Colorado	Groundwater Potentiometric Surface Contour Map (11/23/2022)	FIGURE 4
DESIGNED BY: S. Vogt				
DRAWN BY: L. Reed				



MW01	
Compound	11/23/2022
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<2.0
Naphthalene (µg/L)	<1.0
1,2,4-Trimethylbenzene (µg/L)	<1.0
1,3,5-Trimethylbenzene (µg/L)	<1.0
Chloride (mg/L)	1,350
Sulfate (mg/L)	11,700
Total Dissolved Solids (mg/L)	13,100

MW02	
Compound	11/23/2022
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<2.0
Naphthalene (µg/L)	<1.0
1,2,4-Trimethylbenzene (µg/L)	<1.0
1,3,5-Trimethylbenzene (µg/L)	<1.0
Chloride (mg/L)	NA
Sulfate (mg/L)	NA
Total Dissolved Solids (mg/L)	NA

MW03	
Compound	11/23/2022
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<2.0
Naphthalene (µg/L)	<1.0
1,2,4-Trimethylbenzene (µg/L)	<1.0
1,3,5-Trimethylbenzene (µg/L)	<1.0
Chloride (mg/L)	2,580
Sulfate (mg/L)	13,500
Total Dissolved Solids (mg/L)	16,300

MW05	
Compound	11/23/2022
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<2.0
Naphthalene (µg/L)	<1.0
1,2,4-Trimethylbenzene (µg/L)	<1.0
1,3,5-Trimethylbenzene (µg/L)	<1.0
Chloride (mg/L)	NA
Sulfate (mg/L)	NA
Total Dissolved Solids (mg/L)	NA

MW04	
Compound	11/23/2022
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<2.0
Naphthalene (µg/L)	<1.0
1,2,4-Trimethylbenzene (µg/L)	<1.0
1,3,5-Trimethylbenzene (µg/L)	<1.0
Chloride (mg/L)	1,740
Sulfate (mg/L)	16,600
Total Dissolved Solids (mg/L)	18,700

Legend



Monitoring Well Location – Below  
COGCC Table 915-1 Standards  
(Collected via Trimble GPS)

COGCC Table 915-1 Groundwater Standards	
Compound	Date
Benzene (µg/L)	5
Toluene (µg/L)	560
Ethylbenzene (µg/L)	700
Total Xylenes (µg/L)	1,400
Naphthalene (µg/L)	140
1,2,4-Trimethylbenzene (µg/L)	67
1,3,5-Trimethylbenzene (µg/L)	67
Chloride (mg/L)	250 / 1.25 x Local Background
Sulfate (mg/L)	250 / 1.25 x Local Background
Total Dissolved Solids (mg/L)	1.25 x Local Background

Notes

All locations are approximate unless otherwise noted.

GPS – Global Positioning System

µg/L – micrograms per liter

mg/L – milligrams per liter

COGCC – Colorado Oil & Gas Conservation Commission

NA – Not Analyzed

0 ft. 30 ft. 60 ft.



Image Source: Google Earth



DATE: January 30, 2023

DESIGNED BY: S. Vogt

DRAWN BY: S. Kirylo



Tasman, Inc.  
6855 W. 119th Avenue  
Broomfield, Colorado 80020

Crestone Peak Resources Operating, LLC  
Harsch 42-27  
NWNE Sec. 27-T2N-R69W  
Boulder County, Colorado

Groundwater Analytical Exceedance Map  
(11/23/2022)

FIGURE  
5

# TABLES

**TABLE 1**  
**HARSCH 42-27**  
**SOIL SAMPLE LOCATIONS**  
**CRESTONE PEAK RESOURCES OPERATING, LLC**



Soil Sample Location	Date	PID Reading (ppm)	Latitude	Longitude	GPS PDOP Value	Lab (Y/N)
SB01@5-6	10/08/2021	7.4	40.112769	-105.101412	-	Y
SB02@4-5	10/08/2021	3.2	40.112755	-105.101507	-	Y
SB03@3-4	10/08/2021	2.6	40.112654	-105.101487	-	Y
SB03@4-5	10/08/2021	2.7	40.112654	-105.101487	-	Y
SB04@4-5	10/08/2021	1.6	40.112556	-105.101382	-	Y
BKG01@4-5	10/08/2021	-	40.112693	-105.101568	-	Y
SB01_GW	10/08/2021	-	40.112789	-105.101409	-	Y
BKG01_GW	10/08/2021	-	40.112693	-105.101568	-	Y
MW01@12'	10/27/2022	0.0	40.112893	-105.101424	-	Y
MW02@12'	10/27/2022	0.0	40.112739	-105.101657	-	Y
MW03@2'	10/27/2022	2.5	40.112764	-105.101417	-	Y
MW03@12'	10/27/2022	0.0	40.112764	-105.101417	-	Y
MW04@2'	10/27/2022	3.5	40.112768	-105.101340	-	Y
MW04@10'-11'	10/27/2022	0.0	40.112768	-105.101340	-	Y
MW05@12'	10/27/2022	0.0	40.112634	-105.101102	-	Y

**Notes:**

PID = Photoionization Detector

ppm = parts per million

HC = Hydrocarbon

GPS = Global Positioning System

PDOP = Position Dilution of Precision

- = Not Applicable

10/29/20 [date] = Data collected by 3rd-party consultant(s)

**TABLE 2**  
**HARSCH 42-27**  
**SOIL ANALYTICAL DATA - VOCs**  
**CRESTONE PEAK RESOURCES OPERATING, LLC**

Soil Sample Location	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TVPH-GRO (mg/kg)	TEPH-DRO (mg/kg)	TEPH-ORO (mg/kg)	1,2,4-TMB (mg/kg)	1,3,5-TMB (mg/kg)
<b>COGCC Organic Compounds in Soils <sup>(1)</sup></b>		<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>0.0038</b>	<b>500</b>			<b>0.0081</b>	<b>0.0087</b>
<b>COGCC Organic Compounds in Soils <sup>(2)</sup></b>		<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>2</b>	<b>500</b>			<b>30</b>	<b>27</b>
SB01@5-6	10/08/2021	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50			<0.0050	<0.0050
SB02@4-5	10/08/2021	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50			<0.0050	<0.0050
SB03@3-4	10/08/2021	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50			<0.0050	<0.0050
SB03@4-5	10/08/2021	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50			<0.0050	<0.0050
SB04@4-5	10/08/2021	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50			<0.0050	<0.0050
MW01@12'	10/27/2022	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
MW02@12'	10/27/2022	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
MW03@12'	10/27/2022	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
MW03@2'	10/27/2022	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
MW04@10-11'	10/27/2022	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
MW04@2'	10/27/2022	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
MW05@12'	10/27/2022	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050

**Notes:**

VOCs = Volatile Organic Compounds

(1) Standards for soil are taken from COGCC Table 915-1: Organic Compounds in Soils - Protection of Groundwater Soil Screening Level Concentrations (Effective January 15, 2021)

(2) Standards for soil are taken from COGCC Table 915-1: Organic Compounds in Soils - Residential Soil Screening Level Concentrations (Effective January 15, 2021)

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit

mg/kg = milligrams per kilogram

TVPH - GRO = Total Volatile Petroleum Hydrocarbons - Gasoline Range Organics

TEPH - DRO = Total Extractable Petroleum Hydrocarbons - Diesel Range Organics

TEPH - ORO = Total Extractable Petroleum Hydrocarbons - Oil Range Organics

1,2,4 - TMB = 1,2,4 - Trimethylbenzene

1,3,5 - TMB = 1,3,5 - Trimethylbenzene

**BOLD** = Analytical result is in exceedance of COGCC Table 915-1: Organic Compounds in Soils - Protection of Groundwater Soil Screening Level Concentrations

**BOLD** = Analytical result is in exceedance of COGCC Table 915-1: Organic Compounds in Soils - Residential Soil Screening Level Concentrations

- = Constituent not analyzed

10/29/20 [date] = Data collected by 3rd-party consultant(s)



**TABLE 3**  
**HARSCH 42-27**  
**SOIL ANALYTICAL DATA - PAHs**  
**CRESTONE PEAK RESOURCES OPERATING, LLC**

Soil Sample Location	Date	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo(a)A (mg/kg)	Benzo(b)F (mg/kg)	Benzo(k)F (mg/kg)	Benzo(a)P (mg/kg)	Chrysene (mg/kg)	D (a,h) A (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	1-M (mg/kg)	2-M (mg/kg)	Pyrene (mg/kg)
COGCC Organic Compounds in Soils <sup>(1)</sup>		0.55	5.8	0.011	0.3	2.9	0.24	9	0.96	8.9	0.54	0.98	0.006	0.019	1.3
COGCC Organic Compounds in Soils <sup>(2)</sup>		360	1,800	1.1	1.1	11	0.11	110	0.11	240	240	1.1	18	24	180
SB01@5-6	10/08/2021	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
SB02@4-5	10/08/2021	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
SB03@3-4	10/08/2021	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
SB03@4-5	10/08/2021	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
SB04@4-5	10/08/2021	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
MW01@12'	10/27/2022	<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	<0.00500
MW02@12'	10/27/2022	<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	<0.00500
MW03@12'	10/27/2022	<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	<0.00500
MW03@2'	10/27/2022	<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	<0.00500
MW04@10-11'	10/27/2022	<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	<0.00500
MW04@2'	10/27/2022	<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	<0.00500
MW05@12'	10/27/2022	<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	<0.00500

**Notes:**

PAHs = Polycyclic Aromatic Hydrocarbons

(1) Standards for soil are taken from COGCC Table 915-1: Organic Compounds in Soils - Protection of Groundwater Soil Screening Level Concentrations (Effective January 15, 2021)

(2) Standards for soil are taken from COGCC Table 915-1: Organic Compounds in Soils - Residential Soil Screening Level Concentrations (Effective January 15, 2021)

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit

mg/kg = milligrams per kilogram

Benzo(a)A = Benzo(a)Anthracene

Benzo(b)F = Benzo(b)Fluoranthene

Benzo(k)F = Benzo(k)Fluoranthene

Benzo(a)P = Benzo(a)Pyrene

D (a,h) A = Dibenz(a,h)Anthracene

1,2,3-CD = Indeno(1,2,3-cd)Pyrene

1-M = 1-Methylnaphthalene

2-M = 2-Methylnaphthalene

**BOLD** = Analytical result is in exceedance of COGCC Table 915-1: Organic Compounds in Soils - Protection of Groundwater Soil Screening Level Concentrations

**BOLD** = Analytical result is in exceedance of COGCC Table 915-1: Organic Compounds in Soils - Residential Soil Screening Level Concentrations

- = Constituent not analyzed

**TABLE 3**  
**HARSCH 42-27**  
**SOIL ANALYTICAL DATA - PAHs**  
**CRESTONE PEAK RESOURCES OPERATING, LLC**

Soil Sample Location	Date	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo(a)A (mg/kg)	Benzo(b)F (mg/kg)	Benzo(k)F (mg/kg)	Benzo(a)P (mg/kg)	Chrysene (mg/kg)	D (a,h) A (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	1-M (mg/kg)	2-M (mg/kg)	Pyrene (mg/kg)
COGCC Organic Compounds in Soils <sup>(1)</sup>		0.55	5.8	0.011	0.3	2.9	0.24	9	0.96	8.9	0.54	0.98	0.006	0.019	1.3
COGCC Organic Compounds in Soils <sup>(2)</sup>		360	1,800	1.1	1.1	11	0.11	110	0.11	240	240	1.1	18	24	180

10/29/20 [date] = Data collected by 3rd-party consultant(s)

**TABLE 4**  
**HARSCH 42-27**  
**SOIL ANALYTICAL DATA - METALS**  
**CRESTONE PEAK RESOURCES OPERATING, LLC**

Soil Sample Location	Date	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
COGCC Metals in Soils <sup>(1)</sup>		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
COGCC Metals in Soils <sup>(2)</sup>		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
SB01@5-6	10/08/2021	3.53*	117*	0.299	<0.30	18.8	14.5*	18.8	1.32	0.109	78.6
SB02@4-5	10/08/2021	5.07*	116*	0.254	<0.30	18.3	16.7*	16.1	1.40	0.101	74.6
SB03@3-4	10/08/2021	5.73*	65.7	0.284	<0.30	16.7	15.8*	18.0	0.988*	0.106	74.6
SB03@4-5	10/08/2021	6.81*	75.6	0.280	<0.30	17.9	14.6*	18.5	1.05*	0.0986	83.0
SB04@4-5	10/08/2021	6.41*	101*	0.288	<0.30	18.9	15.2*	18.9	1.37	0.102	90.6
MW01@12'	10/27/2022	2.06	112	0.309	<0.30	10.6	12.4	10.7	<0.213	0.0677	40.8
MW02@12'	10/27/2022	1.77	63.3	0.282	<0.30	9.90	11.5	10.7	<0.213	0.0708	38.1
MW03@12'	10/27/2022	1.84	77.0	0.307	<0.30	10.5	11.7	10.3	0.274	0.0668	42.6
MW03@2'	10/27/2022	2.04	92.7	0.333	<0.30	9.35	10.4	8.86	0.272	0.0718	32.9
MW04@10-11'	10/27/2022	2.11	112	0.330	<0.30	11.3	12.3	11.3	0.363	0.0686	43.4
MW04@2'	10/27/2022	2.82	80.9	0.262	<0.30	9.87	10.8	8.79	0.336	0.0692	32.2
MW05@12'	10/27/2022	1.95	70.0	0.334	<0.30	11.0	12.2	10.8	0.510	0.0932	42.8
BACKGROUND											
BKG01@4-5	10/08/2021	5.61	94.9	<0.251	<0.30	16.3	13.4	16.9	1.04	0.0725	71.2

**Notes:**

(1) Standards for soil are taken from COGCC Table 915-1: Metals in Soils - Protection of Groundwater Soil Screening Level Concentrations (Effective January 15, 2021)

(2) Standards for soil are taken from COGCC Table 915-1: Metals in Soils - Residential Soil Screening Level Concentrations (Effective January 15, 2021)

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory minimum detection limit

mg/kg = milligrams per kilogram

**BOLD** = Analytical result is in exceedance of COGCC Table 915-1: Metals in Soils - Protection of Groundwater Soil Screening Level Concentrations

**BOLD** = Analytical result is in exceedance of COGCC Table 915-1: Metals in Soils - Residential Soil Screening Level Concentrations

*Italics* = Laboratory minimum detection limit exceeds the COGCC Table 915-1 Standard

\* Result exceeded the COGCC Table 915-1 standard, but was within site-specific 1.25x background multiplier levels

- = Constituent not analyzed

10/29/20 [date] = Data collected by 3rd-party consultant(s)

TABLE 5  
HARSCH 42-27



SOIL ANALYTICAL DATA - SOIL RECLAMATION  
CRESTONE PEAK RESOURCES OPERATING, LLC

Soil Sample Location	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
COGCC Soil Suitability for Reclamation <sup>(1)</sup>		6 - 8.3	< 6	< 4	2
SB01@5-6	10/08/2021	8.34	12.1*	4.21*	0.499
SB02@4-5	10/08/2021	8.16	11.9*	7.96*	0.209
SB03@3-4	10/08/2021	8.27	13.8*	11.5	0.357
SB03@4-5	10/08/2021	8.25	13.8*	10.8	0.335
SB04@4-5	10/08/2021	8.25	13.3*	10.3	0.284
MW01@12'	10/27/2022	8.21	14.8	5.24	0.817
MW02@12'	10/27/2022	8.50	13.8	3.40	1.47
MW03@12'	10/27/2022	8.07	15.7	9.94	1.37
MW03@2'	10/27/2022	7.71	16.4	11.6	0.567
MW04@10-11'	10/27/2022	8.31	19.5	9.11	1.29
MW04@2'	10/27/2022	8.21	16.2	8.89	0.493
MW05@12'	10/27/2022	8.15	18.0	9.43	1.33
BACKGROUND					
BKG01@4-5	10/08/2021	8.29	15.5	8.58	0.325

**Notes:**

(1) Standards for soil are taken from COGCC Table 915-1: Soil Suitability for Reclamation (Effective January 15, 2021)

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit

mmhos/cm = millimhos per centimeter

mg/L = milligrams per liter

pH = Potential of Hydrogen

SAR = Sodium Adsorption Ratio

EC = Electrical Conductivity

**BOLD** = Analytical result is in exceedance of COGCC Table 915-1: Soil Suitability for Reclamation Concentrations

\* Result exceeded the COGCC Table 915-1 standard, but was within site-specific background concentrations

- = Constituent not analyzed

10/29/20 [date] = Data collected by 3rd-party consultant(s)

**TABLE 6**  
**HARSCH 42-27**  
**GROUNDWATER ANALYTICAL DATA**  
**CRESTONE PEAK RESOURCES OPERATING, LLC**

Groundwater Sample ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ehtylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
<b>COGCC Organic Compounds in Groundwater and Groundwater Inorganic Parameters <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	<b>140</b>	<b>67</b>	<b>67</b>	<b>250 or &lt;1.25 x Background</b>	<b>250 or &lt;1.25 x Background</b>	<b>&lt;1.25 x Background</b>
SB01_GW	10/08/2021	88	27	2.1	42	<1.0	5.3	4	14,800	1,180	10,400
BKG01_GW	10/08/2021	-	-	-	-	-	-	-	27,900	1,760	17,800
MW01	11/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1,350	11,700	13,100
MW02	11/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	-	-	-
MW03	11/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2,580	13,500	16,300
MW04	11/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1,740	16,600	18,700
MW05	11/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	-	-	-

**Notes:**

(1) Standards for groundwater are taken from COGCC Table 915-1: Organic Compounds in Groundwater and Groundwater Inorganic Parameters (Effective January 15, 2021)

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit

µg/L = micrograms per liter

1,2,4-TMB = 1,2,4-Trimethylbenzene

1,3,5-TMB = 1,3,5-Trimethylbenzene

TDS = Total Dissolved Solids

**BOLD** = Analytical result is in exceedance of COGCC Table 915-1: Organic Compounds in Groundwater and Groundwater Inorganic Parameters

\* Result exceeded the COGCC Table 915-1 standard, but was within site-specific background concentrations

- = Constituent not analyzed

10/29/20 [date] = Data collected by 3rd-party consultant(s)

**TABLE 7  
HARSCH 42-27**



**GROUNDWATER ELEVATION DATA  
CRESTONE PEAK RESOURCES OPERATING, LLC**

Groundwater Sample ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft.)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
MW01	11/23/2022	4,998.50	10.45	7.89	ND	ND	4,990.61
MW02	11/23/2022	4,998.65	11.10	7.57	ND	ND	4,991.08
MW03	11/23/2022	4,999.83	10.15	5.73	ND	ND	4,994.10
MW04	11/23/2022	4,999.70	11.34	9.25	ND	ND	4,990.45
MW05	11/23/2022	5,000.69	11.14	10.62	ND	ND	4,990.07

**Notes:**

\* Groundwater elevation was corrected for product thickness (when present) using the following calculation:  
Groundwater elevation = (TOC Elevation - Measured Depth to Water)+(LNAPL Thickness in Well x LNAPL Relative Density)  
LNAPL relative density was estimated to be approximately 0.75

**Definitions:**

ft. = feet

AMSL = Above Mean Sea Level

LNAPL = Light Non-Aqueous Phase Liquid

10/29/20 [date] = Data collected by 3rd-party consultant(s)

ND = Not detected

## **LABORATORY ANALYTICAL DATA**

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 07, 2022

Sam Vogt

Civitas Resources

650 Southgate Drive

Windsor, CO 80550

RE: Harsch 42-27

Work Order #2210530

Enclosed are the results of analyses for samples received by Summit Scientific on 10/27/22 17:30. 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: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW03@2'	2210530-01	Soil	10/27/22 10:00	10/27/22 17:30
MW04@2'	2210530-02	Soil	10/27/22 10:20	10/27/22 17:30
MW04@10-11'	2210530-03	Soil	10/27/22 13:55	10/27/22 17:30
MW03@12'	2210530-04	Soil	10/27/22 14:35	10/27/22 17:30
MW01@12'	2210530-05	Soil	10/27/22 15:20	10/27/22 17:30
MW02@12'	2210530-06	Soil	10/27/22 15:55	10/27/22 17:30
MW05@12'	2210530-07	Soil	10/27/22 16:25	10/27/22 17:30

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.*

# Summit Scientific

2210530

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 1

Client: CIVITAS/Tasman  
Address: 6855 W. 119th St  
City/State/Zip: Broomfield, CO 80020  
Phone: 610-405-9078 Fax:   
Sampler Name: Sierra Kinyo

Project Manager: Sam Vogt, Jacob Evans  
E-Mail: SVogt@tasman-geo.com, j.evans@ecivresources.com  
Project Name: Harsch 42-27  
Project Number:

				Preservative				Matrix			Analyze For: Table 915										Special Instructions
Sample Description	Date Sampled	Time Sampled	Number of Containers	HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)										
MW03e2'	10-27-22	1000	2			X			X			Full Table 915									
MW04e2'	↓	1020	↓			↓			↓												
MW04e10'-11'	↓	1355	↓			↓			↓												
MW03e12'	↓	1435	↓			↓			↓												
MW01e12'	↓	1520	↓			↓			↓												
MW02e12'	↓	1555	↓			↓			↓												
MW05e12'	↓	1625	↓			↓			↓												

Relinquished by: <u>SLK</u>	Date/Time: <u>10-27-22 1730</u>	Received by: <u>[Signature]</u>	Date/Time: <u>10-27-22 1730</u>	Turn Around Time (Check) Same Day <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/>	72 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/>	Notes: Methods: pH, EC, SAR → sat. paste Boron → hot water
Relinquished by: <u>Tasman LockBox</u>	Date/Time: <u>10-27-22 1730</u>	Received by: <u>[Signature]</u>	Date/Time: <u>10-27-22 1730</u>	Sample Integrity: Temperature Upon Receipt: <u>8.6</u>		
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	Intact: Yes <input type="checkbox"/> No <input type="checkbox"/>		

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2210530Client: Civilas/Tasman Client Project ID: Harsch 42-27


Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other \_\_\_\_\_ Airbill #: \_\_\_\_\_

	✓			
--	---	--	--	--

Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 8.6Thermometer # 1

	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.	✓			on ice
If custody seals are present, are they intact? <sup>(1)</sup>	✓			
Are samples due within 48 hours present?		✓		
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			✓	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>				
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	✓			
Were all samples received intact? <sup>(1)</sup>	✓			
Was adequate sample volume provided? <sup>(1)</sup>	✓			
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	✓			
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	✓			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			✓	
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.			✓	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	

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

10/27/22 1730  
 Date/Time



Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW03@2'**  
**2210530-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFK0053	11/02/22	11/02/22	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: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.8 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		108 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0054	"	11/03/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		38.3 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW03@2'**  
**2210530-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		82.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		60.3 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.567</b>	0.0100	mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW03@2'**  
**2210530-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	2.04	0.254	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B
Barium	92.7	0.509	"	"	"	"	"	"
Cadmium	0.333	0.254	"	"	"	"	"	"
Copper	9.35	0.509	"	"	"	"	"	"
Lead	10.4	0.254	"	"	"	"	"	"
Nickel	8.86	0.509	"	"	"	"	"	"
Selenium	ND	0.331	"	"	"	"	"	"
Silver	0.0718	0.0254	"	"	"	"	"	"
Zinc	32.9	0.509	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	237	0.0636	mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	930	0.0636	"	"	"	"	"	"	
Sodium	2510	0.0636	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	16.4	0.00100	units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW03@2'**  
**2210530-01 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	78.6	%	1	BFJ0796	10/28/22	10/28/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	11.6	0.0100	mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.71		pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

Summit Scientific

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650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW04@2'**  
**2210530-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFK0053	11/02/22	11/02/22	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: **10/27/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.3 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		109 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0054	"	11/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		95.8 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW04@2'**  
**2210530-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		64.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		42.5 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.493</b>	0.0100	mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW04@2'**  
**2210530-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	2.82	0.234	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B
Barium	80.9	0.468	"	"	"	"	"	"
Cadmium	0.262	0.234	"	"	"	"	"	"
Copper	9.87	0.468	"	"	"	"	"	"
Lead	10.8	0.234	"	"	"	"	"	"
Nickel	8.79	0.468	"	"	"	"	"	"
Selenium	0.336	0.304	"	"	"	"	"	"
Silver	0.0692	0.0234	"	"	"	"	"	"
Zinc	32.2	0.468	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 10/27/22 10:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: 10/27/22 10:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	84.2	0.0585	mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	586	0.0585	"	"	"	"	"	"	
Sodium	1910	0.0585	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 10/27/22 10:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	16.2	0.00100	units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: 10/27/22 10:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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650 Southgate Drive  
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Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW04@2'**  
**2210530-02 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	85.5	%	1	BFJ0797	10/28/22	10/28/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	8.89	0.0100	mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.21		pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

Summit Scientific

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Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW04@10-11'**  
**2210530-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFK0053	11/02/22	11/02/22	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: **10/27/22 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		94.5 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		107 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0054	"	11/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		95.4 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW04@10-11'**  
**2210530-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		79.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		58.3 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.29</b>	0.0100	mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW04@10-11'**  
**2210530-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	2.11	0.249	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B
Barium	112	0.497	"	"	"	"	"	"
Cadmium	0.330	0.249	"	"	"	"	"	"
Copper	11.3	0.497	"	"	"	"	"	"
Lead	12.3	0.249	"	"	"	"	"	"
Nickel	11.3	0.497	"	"	"	"	"	"
Selenium	0.363	0.323	"	"	"	"	"	"
Silver	0.0686	0.0249	"	"	"	"	"	"
Zinc	43.4	0.497	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 10/27/22 13:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: 10/27/22 13:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	67.5	0.0622	mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	531	0.0622	"	"	"	"	"	"	
Sodium	2180	0.0622	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 10/27/22 13:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	19.5	0.00100	units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: 10/27/22 13:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW04@10-11'**  
**2210530-03 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	80.4	%	1	BFJ0797	10/28/22	10/28/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	9.11	0.0100	mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.31		pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

Summit Scientific

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650 Southgate Drive  
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Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW03@12'**  
**2210530-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFK0053	11/02/22	11/02/22	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: **10/27/22 14:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		100 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		107 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0054	"	11/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/27/22 14:35**

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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650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW03@12'**  
**2210530-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		91.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		69.0 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.37</b>	0.0100	mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW03@12'**  
**2210530-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	1.84	0.249	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B
Barium	77.0	0.498	"	"	"	"	"	"
Cadmium	0.307	0.249	"	"	"	"	"	"
Copper	10.5	0.498	"	"	"	"	"	"
Lead	11.7	0.249	"	"	"	"	"	"
Nickel	10.3	0.498	"	"	"	"	"	"
Selenium	ND	0.324	"	"	"	"	"	"
Silver	0.0668	0.0249	"	"	"	"	"	"
Zinc	42.6	0.498	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 10/27/22 14:35

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: 10/27/22 14:35

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	330	0.0623	mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	665	0.0623	"	"	"	"	"	"	
Sodium	2150	0.0623	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 10/27/22 14:35

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	15.7	0.00100	units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: 10/27/22 14:35

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW03@12'**  
**2210530-04 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	80.3	%	1	BFJ0797	10/28/22	10/28/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	9.94	0.0100	mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.07		pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW01@12'**  
**2210530-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFK0053	11/02/22	11/02/22	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: **10/27/22 15:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		108 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		107 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0054	"	11/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		100 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW01@12'**  
**2210530-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		84.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		55.1 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.817</b>	0.0100	mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW01@12'**  
**2210530-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	2.06	0.243	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B
Barium	112	0.487	"	"	"	"	"	"
Cadmium	0.309	0.243	"	"	"	"	"	"
Copper	10.6	0.487	"	"	"	"	"	"
Lead	12.4	0.243	"	"	"	"	"	"
Nickel	10.7	0.487	"	"	"	"	"	"
Selenium	ND	0.316	"	"	"	"	"	"
Silver	0.0677	0.0243	"	"	"	"	"	"
Zinc	40.8	0.487	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	88.1	0.0608	mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	213	0.0608	"	"	"	"	"	"	
Sodium	1130	0.0608	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	14.8	0.00100	units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW01@12'**  
**2210530-05 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	82.2	%	1	BFJ0797	10/28/22	10/28/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	5.24	0.0100	mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.21		pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

Summit Scientific

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Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW02@12'**  
**2210530-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFK0053	11/02/22	11/02/22	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: **10/27/22 15:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		97.1 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		107 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0054	"	11/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW02@12'**  
**2210530-06 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 15:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		81.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		60.3 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.47</b>	0.0100	mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW02@12'**  
**2210530-06 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	1.77	0.241	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B
Barium	63.3	0.482	"	"	"	"	"	"
Cadmium	0.282	0.241	"	"	"	"	"	"
Copper	9.90	0.482	"	"	"	"	"	"
Lead	11.5	0.241	"	"	"	"	"	"
Nickel	10.7	0.482	"	"	"	"	"	"
Selenium	ND	0.313	"	"	"	"	"	"
Silver	0.0708	0.0241	"	"	"	"	"	"
Zinc	38.1	0.482	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	28.7	0.0602	mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	117	0.0602	"	"	"	"	"	"	
Sodium	747	0.0602	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	13.8	0.00100	units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW02@12'**  
**2210530-06 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	83.0	%	1	BFJ0797	10/28/22	10/28/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.40	0.0100	mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.50		pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW05@12'**  
**2210530-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFK0053	11/02/22	11/03/22	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: **10/27/22 16:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		99.2 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		109 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0054	"	11/03/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		75.2 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW05@12'**  
**2210530-07 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		77.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		58.9 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.33</b>	0.0100	mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW05@12'**  
**2210530-07 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	1.95	0.248	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B
Barium	70.0	0.496	"	"	"	"	"	"
Cadmium	0.334	0.248	"	"	"	"	"	"
Copper	11.0	0.496	"	"	"	"	"	"
Lead	12.2	0.248	"	"	"	"	"	"
Nickel	10.8	0.496	"	"	"	"	"	"
Selenium	0.510	0.322	"	"	"	"	"	"
Silver	0.0932	0.0248	"	"	"	"	"	"
Zinc	42.8	0.496	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	75.4	0.0619	mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	618	0.0619	"	"	"	"	"	"	
Sodium	2160	0.0619	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	18.0	0.00100	units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**MW05@12'**  
**2210530-07 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	80.7	%	1	BFJ0797	10/28/22	10/28/22	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	9.43	0.0100	mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.15		pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

## 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 BFK0053 - EPA 5030 Soil MS

##### Blank (BFK0053-BLK1)

Prepared & Analyzed: 11/02/22

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	0.0349		"	0.0400		87.3	50-150			
Surrogate: Toluene-d8	0.0445		"	0.0400		111	50-150			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	50-150			

##### LCS (BFK0053-BS1)

Prepared & Analyzed: 11/02/22

Benzene	0.0721	0.0020	mg/kg	0.100		72.1	70-130			
Toluene	0.0707	0.0050	"	0.100		70.7	70-130			
Ethylbenzene	0.0728	0.0050	"	0.100		72.8	70-130			
m,p-Xylene	0.147	0.010	"	0.200		73.5	70-130			
o-Xylene	0.0760	0.0050	"	0.100		76.0	70-130			
1,2,4-Trimethylbenzene	0.0822	0.0050	"	0.100		82.2	70-130			
1,3,5-Trimethylbenzene	0.0824	0.0050	"	0.100		82.4	70-130			
Naphthalene	0.112	0.0038	"	0.100		112	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0342		"	0.0400		85.4	50-150			
Surrogate: Toluene-d8	0.0445		"	0.0400		111	50-150			
Surrogate: 4-Bromofluorobenzene	0.0413		"	0.0400		103	50-150			

##### Matrix Spike (BFK0053-MS1)

Source: 2210530-01

Prepared & Analyzed: 11/02/22

Benzene	0.0711	0.0020	mg/kg	0.100	ND	71.1	70-130			
Toluene	0.0733	0.0050	"	0.100	ND	73.3	70-130			
Ethylbenzene	0.0736	0.0050	"	0.100	ND	73.6	70-130			
m,p-Xylene	0.170	0.010	"	0.200	ND	84.8	70-130			
o-Xylene	0.0751	0.0050	"	0.100	ND	75.1	70-130			
1,2,4-Trimethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130			
1,3,5-Trimethylbenzene	0.100	0.0050	"	0.100	ND	100	70-130			
Naphthalene	0.116	0.0038	"	0.100	ND	116	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0344		"	0.0400		86.1	50-150			
Surrogate: Toluene-d8	0.0417		"	0.0400		104	50-150			
Surrogate: 4-Bromofluorobenzene	0.0424		"	0.0400		106	50-150			

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650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**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 BFK0053 - EPA 5030 Soil MS**

Matrix Spike Dup (BFK0053-MSD1)	Source: 2210530-01			Prepared & Analyzed: 11/02/22						
Benzene	0.0736	0.0020	mg/kg	0.100	ND	73.6	70-130	3.48	30	
Toluene	0.0781	0.0050	"	0.100	ND	78.1	70-130	6.30	30	
Ethylbenzene	0.0759	0.0050	"	0.100	ND	75.9	70-130	3.05	30	
m,p-Xylene	0.185	0.010	"	0.200	ND	92.5	70-130	8.65	30	
o-Xylene	0.0745	0.0050	"	0.100	ND	74.5	70-130	0.762	30	
1,2,4-Trimethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130	4.26	30	
1,3,5-Trimethylbenzene	0.108	0.0050	"	0.100	ND	108	70-130	7.83	30	
Naphthalene	0.106	0.0038	"	0.100	ND	106	70-130	9.08	30	
Surrogate: 1,2-Dichloroethane-d4	0.0378		"	0.0400		94.4	50-150			
Surrogate: Toluene-d8	0.0442		"	0.0400		111	50-150			
Surrogate: 4-Bromofluorobenzene	0.0437		"	0.0400		109	50-150			

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

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

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

**Batch BFK0054 - EPA 3550A**

**Blank (BFK0054-BLK1)**

Prepared & Analyzed: 11/02/22

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	13.4		"	12.5		108	30-150			

**LCS (BFK0054-BS1)**

Prepared & Analyzed: 11/02/22

C10-C28 (DRO)	457	50	mg/kg	500		91.5	70-130			
Surrogate: o-Terphenyl	12.4		"	12.5		99.0	30-150			

**Matrix Spike (BFK0054-MS1)**

Source: 2210516-01

Prepared & Analyzed: 11/02/22

C10-C28 (DRO)	483	50	mg/kg	500	44.4	87.7	70-130			
Surrogate: o-Terphenyl	13.0		"	12.5		104	30-150			

**Matrix Spike Dup (BFK0054-MSD1)**

Source: 2210516-01

Prepared & Analyzed: 11/02/22

C10-C28 (DRO)	429	50	mg/kg	500	44.4	76.9	70-130	11.9	20	
Surrogate: o-Terphenyl	12.3		"	12.5		98.7	30-150			

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

## 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 BFJ0787 - EPA 5030 Soil MS

##### Blank (BFJ0787-BLK1)

Prepared & Analyzed: 10/31/22

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	0.0360		"	0.0333		108	40-150			
Surrogate: Fluoranthene-d10	0.0304		"	0.0333		91.2	40-150			

##### LCS (BFJ0787-BS1)

Prepared & Analyzed: 10/31/22

Acenaphthene	0.0362	0.00500	mg/kg	0.0333		109	31-137			
Anthracene	0.0369	0.00500	"	0.0333		111	30-120			
Benzo (a) anthracene	0.0315	0.00500	"	0.0333		94.6	30-120			
Benzo (a) pyrene	0.0336	0.00500	"	0.0333		101	30-120			
Benzo (b) fluoranthene	0.0347	0.00500	"	0.0333		104	30-120			
Benzo (k) fluoranthene	0.0380	0.00500	"	0.0333		114	30-120			
Chrysene	0.0331	0.00500	"	0.0333		99.2	30-120			
Dibenz (a,h) anthracene	0.0334	0.00500	"	0.0333		100	30-120			
Fluoranthene	0.0391	0.00500	"	0.0333		117	30-120			
Fluorene	0.0367	0.00500	"	0.0333		110	30-120			
Indeno (1,2,3-cd) pyrene	0.0290	0.00500	"	0.0333		87.1	30-120			
Pyrene	0.0330	0.00500	"	0.0333		99.1	35-142			
1-Methylnaphthalene	0.0340	0.00500	"	0.0333		102	35-142			
2-Methylnaphthalene	0.0365	0.00500	"	0.0333		109	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0338		"	0.0333		101	40-150			
Surrogate: Fluoranthene-d10	0.0400		"	0.0333		120	40-150			

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

## 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 BFJ0787 - EPA 5030 Soil MS

Matrix Spike (BFJ0787-MS1)			Source: 2210321-03		Prepared: 10/31/22 Analyzed: 11/01/22					
Acenaphthene	0.0195	0.00500	mg/kg	0.0333	ND	58.4	31-137			
Anthracene	0.0171	0.00500	"	0.0333	ND	51.2	30-120			
Benzo (a) anthracene	0.0190	0.00500	"	0.0333	ND	56.9	30-120			
Benzo (a) pyrene	0.0190	0.00500	"	0.0333	ND	56.9	30-120			
Benzo (b) fluoranthene	0.0234	0.00500	"	0.0333	ND	70.2	30-120			
Benzo (k) fluoranthene	0.0214	0.00500	"	0.0333	ND	64.2	30-120			
Chrysene	0.0165	0.00500	"	0.0333	ND	49.6	30-120			
Dibenz (a,h) anthracene	0.0134	0.00500	"	0.0333	ND	40.1	30-120			
Fluoranthene	0.0179	0.00500	"	0.0333	ND	53.8	30-120			
Fluorene	0.0189	0.00500	"	0.0333	ND	56.7	30-120			
Indeno (1,2,3-cd) pyrene	0.0135	0.00500	"	0.0333	ND	40.6	30-120			
Pyrene	0.0187	0.00500	"	0.0333	ND	56.2	35-142			
1-Methylnaphthalene	0.0165	0.00500	"	0.0333	ND	49.4	15-130			
2-Methylnaphthalene	0.0162	0.00500	"	0.0333	ND	48.7	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0167		"	0.0333		50.2	40-150			
Surrogate: Fluoranthene-d10	0.0183		"	0.0333		54.8	40-150			

Matrix Spike Dup (BFJ0787-MSD1)			Source: 2210321-03		Prepared: 10/31/22 Analyzed: 11/01/22					
Acenaphthene	0.0242	0.00500	mg/kg	0.0333	ND	72.7	31-137	21.8	30	
Anthracene	0.0229	0.00500	"	0.0333	ND	68.6	30-120	28.9	30	
Benzo (a) anthracene	0.0241	0.00500	"	0.0333	ND	72.4	30-120	24.0	30	
Benzo (a) pyrene	0.0258	0.00500	"	0.0333	ND	77.4	30-120	30.5	30	QR-02
Benzo (b) fluoranthene	0.0301	0.00500	"	0.0333	ND	90.2	30-120	25.0	30	
Benzo (k) fluoranthene	0.0265	0.00500	"	0.0333	ND	79.6	30-120	21.5	30	
Chrysene	0.0214	0.00500	"	0.0333	ND	64.1	30-120	25.6	30	
Dibenz (a,h) anthracene	0.0182	0.00500	"	0.0333	ND	54.6	30-120	30.5	30	QR-02
Fluoranthene	0.0222	0.00500	"	0.0333	ND	66.7	30-120	21.4	30	
Fluorene	0.0243	0.00500	"	0.0333	ND	72.9	30-120	24.9	30	
Indeno (1,2,3-cd) pyrene	0.0156	0.00500	"	0.0333	ND	46.9	30-120	14.4	30	
Pyrene	0.0225	0.00500	"	0.0333	ND	67.6	35-142	18.3	30	
1-Methylnaphthalene	0.0237	0.00500	"	0.0333	ND	71.2	15-130	36.2	50	
2-Methylnaphthalene	0.0211	0.00500	"	0.0333	ND	63.3	15-130	26.1	50	
Surrogate: 2-Methylnaphthalene-d10	0.0237		"	0.0333		71.0	40-150			
Surrogate: Fluoranthene-d10	0.0235		"	0.0333		70.6	40-150			

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0794 - EPA 3050B**

**Blank (BFJ0794-BLK1)**

Prepared: 10/28/22 Analyzed: 10/29/22

Boron ND 0.0100 mg/L

**LCS (BFJ0794-BS1)**

Prepared: 10/28/22 Analyzed: 10/29/22

Boron 5.52 0.0100 mg/L 5.00 110 80-120

**Duplicate (BFJ0794-DUP1)**

**Source: 2210442-06**

Prepared: 10/28/22 Analyzed: 10/29/22

Boron 0.0575 0.0100 mg/L 0.0663 14.2 20

**Matrix Spike (BFJ0794-MS1)**

**Source: 2210442-06**

Prepared: 10/28/22 Analyzed: 10/29/22

Boron 5.75 0.0100 mg/L 5.00 0.0663 114 75-125

**Matrix Spike Dup (BFJ0794-MSD1)**

**Source: 2210442-06**

Prepared: 10/28/22 Analyzed: 10/29/22

Boron 5.56 0.0100 mg/L 5.00 0.0663 110 75-125 3.36 25

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

### Total Metals by EPA 6020B - Quality Control

#### Summit Scientific

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

#### Batch BFJ0790 - EPA 3050B

##### Blank (BFJ0790-BLK1)

Prepared & Analyzed: 10/28/22

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Selenium	ND	0.260	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"

##### LCS (BFJ0790-BS1)

Prepared & Analyzed: 10/28/22

Arsenic	36.5	0.200	mg/kg wet	40.0	91.3	80-120
Barium	38.3	0.400	"	40.0	95.8	80-120
Cadmium	1.96	0.200	"	2.00	97.9	80-120
Copper	39.5	0.400	"	40.0	98.8	80-120
Lead	19.6	0.200	"	20.0	97.9	80-120
Nickel	37.9	0.400	"	40.0	94.9	80-120
Selenium	3.27	0.260	"	4.00	81.8	80-120
Silver	1.66	0.0200	"	2.00	83.2	80-120
Zinc	38.0	0.400	"	40.0	94.9	80-120

##### Duplicate (BFJ0790-DUP1)

Source: 2210521-01

Prepared & Analyzed: 10/28/22

Arsenic	2.39	0.265	mg/kg dry	2.38	0.645	20
Barium	127	0.530	"	127	0.0571	20
Cadmium	0.311	0.265	"	0.263	16.6	20
Copper	6.55	0.530	"	6.37	2.80	20
Lead	10.6	0.265	"	10.6	0.310	20
Nickel	4.48	0.530	"	4.33	3.40	20
Selenium	0.246	0.345	"	0.240	2.62	20
Silver	0.0371	0.0265	"	0.0302	20.5	20
Zinc	21.3	0.530	"	20.6	3.34	20

QR-01

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: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0790 - EPA 3050B**

Matrix Spike (BFJ0790-MS1)			Source: 2210521-01		Prepared & Analyzed: 10/28/22					
Arsenic	15.6	0.265	mg/kg dry	53.0	2.38	25.0	75-125			QM-05
Barium	178	0.530	"	53.0	127	96.4	75-125			
Cadmium	2.29	0.265	"	2.65	0.263	76.3	75-125			
Copper	41.2	0.530	"	53.0	6.37	65.7	75-125			QM-05
Lead	30.3	0.265	"	26.5	10.6	74.2	75-125			QM-05
Nickel	37.2	0.530	"	53.0	4.33	61.9	75-125			QM-05
Selenium	4.35	0.345	"	5.30	0.240	77.6	75-125			
Silver	2.05	0.0265	"	2.65	0.0302	76.4	75-125			
Zinc	57.4	0.530	"	53.0	20.6	69.3	75-125			QM-05

Matrix Spike Dup (BFJ0790-MSD1)			Source: 2210521-01		Prepared & Analyzed: 10/28/22					
Arsenic	15.6	0.265	mg/kg dry	53.0	2.38	25.0	75-125	0.0780	25	QM-05
Barium	176	0.530	"	53.0	127	93.0	75-125	1.04	25	
Cadmium	2.26	0.265	"	2.65	0.263	75.4	75-125	1.14	25	
Copper	41.0	0.530	"	53.0	6.37	65.3	75-125	0.613	25	QM-05
Lead	29.8	0.265	"	26.5	10.6	72.3	75-125	1.66	25	QM-05
Nickel	37.1	0.530	"	53.0	4.33	61.9	75-125	0.0656	25	QM-05
Selenium	4.37	0.345	"	5.30	0.240	78.0	75-125	0.535	25	
Silver	2.03	0.0265	"	2.65	0.0302	75.5	75-125	1.12	25	
Zinc	56.8	0.530	"	53.0	20.6	68.3	75-125	0.915	25	QM-05

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0800 - 3060A Mod**

**Blank (BFJ0800-BLK1)**

Prepared & Analyzed: 10/28/22

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BFJ0800-BS1)**

Prepared & Analyzed: 10/28/22

Chromium, Hexavalent 25.2 0.30 mg/kg wet 25.0 101 80-120

**Duplicate (BFJ0800-DUP1)**

**Source: 2210530-01**

Prepared & Analyzed: 10/28/22

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BFJ0800-MS1)**

**Source: 2210530-01**

Prepared & Analyzed: 10/28/22

Chromium, Hexavalent 30.4 0.30 mg/kg dry 31.8 ND 95.6 75-125

**Matrix Spike Dup (BFJ0800-MSD1)**

**Source: 2210530-01**

Prepared & Analyzed: 10/28/22

Chromium, Hexavalent 30.8 0.30 mg/kg dry 31.8 ND 96.8 75-125 1.25 20

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0818 - General Preparation**

**Blank (BFJ0818-BLK1)**

Prepared: 10/28/22 Analyzed: 10/31/22

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

**LCS (BFJ0818-BS1)**

Prepared: 10/28/22 Analyzed: 10/31/22

Calcium	5.00	0.0500	mg/L wet	5.00	100	70-130
Magnesium	5.54	0.0500	"	5.00	111	70-130
Sodium	5.55	0.0500	"	5.00	111	70-130

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**

**Summit Scientific**

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

**Batch BFJ0796 - General Preparation**

<b>Duplicate (BFJ0796-DUP1)</b>		<b>Source: 2210448-08</b>			Prepared & Analyzed: 10/28/22						
% Solids	88.2		%		88.1			0.101		20	

**Batch BFJ0797 - General Preparation**

<b>Duplicate (BFJ0797-DUP1)</b>		<b>Source: 2210497-01</b>			Prepared & Analyzed: 10/28/22						
% Solids	96.4		%		95.3			1.22		20	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0827 - General Preparation**

**Blank (BFJ0827-BLK1)**

Prepared: 10/28/22 Analyzed: 10/31/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BFJ0827-BS1)**

Prepared: 10/28/22 Analyzed: 10/31/22

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 103 95-105

**Duplicate (BFJ0827-DUP1)**

**Source: 2210478-01**

Prepared: 10/28/22 Analyzed: 10/31/22

Specific Conductance (EC) 0.809 0.0100 mmhos/cm 0.834 3.13 20

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0826 - General Preparation**

**LCS (BFJ0826-BS1)**

Prepared: 10/28/22 Analyzed: 10/31/22

pH	9.03	pH Units	9.18	98.4	95-105
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**Duplicate (BFJ0826-DUP1)**

Source: 2210478-01

Prepared: 10/28/22 Analyzed: 10/31/22

pH	8.34	pH Units	8.28	0.722	20
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Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
11/07/22 09:28

### Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QR-01	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
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

December 01, 2022

Sam Vogt

Civitas Resources

650 Southgate Drive

Windsor, CO 80550

RE: Harsch 42-27

Work Order #2211444

Enclosed are the results of analyses for samples received by Summit Scientific on 11/23/22 17:13. 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: Harsch 42-27  
Project Number: AFE# COC40773  
Project Manager: Sam Vogt

**Reported:**  
12/01/22 12:29

# **ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	2211444-01	Water	11/23/22 14:57	11/23/22 17:13
MW02	2211444-02	Water	11/23/22 14:58	11/23/22 17:13
MW03	2211444-03	Water	11/23/22 15:09	11/23/22 17:13
MW04	2211444-04	Water	11/23/22 15:14	11/23/22 17:13
MW05	2211444-05	Water	11/23/22 15:20	11/23/22 17:13

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.*

# Summit Scientific

2211444

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

Client: Civitas / Tasman Geosciences

Project Manager: Sam Vogt, Jacob Evans

Page 1 of 1

Address: 6855 W. 119th Ave.

E-Mail: svogt@tasman-geo.com, jevans@civresources.com

City/State/Zip: Broomfield / CO/ 80020

Phone: 303-277-9310 DL 610-405-9078

Project Name: Harsch 42-27

Sampler Name: OH & DM

Project Number: Map 14 AFE# COC 40773

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEX	Naphthalene	1,2,4-TMB	1,3,5-TMB	TDS	Chloride	Sulfate	
1	MW01	11.23.22	14:57	4	3				X					X	X	X	X	X	X	
2	MW02		14:58	3	3				X					X	X	X	X	X		
3	MW03		15:09	4	3				X					X	X	X	X	X		
4	MW04		15:14	4	3				X					X	X	X	X	X		
5	MW05		15:20	3	3				X					X	X	X	X			
6																				
7																				
8																				
9																				
10																				

Relinquished by: <u>[Signature]</u>	Date/Time: <u>11.23.22 16:15</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time: <u>11.23.22 16:15</u>	<b>Turn Around Time</b> (Check) ___ Same Day ___ 24 hours ___ 48 hours <input checked="" type="checkbox"/> <b>Standard</b>	<b>Notes:</b>
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time: <u>11.23.22 17:13</u>	Received by: <u>[Signature]</u>	Date/Time: <u>11.23.22 17:13</u>		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

<b>Sample Integrity:</b> " <u>8.3</u> " <b>Temperature Upon Receipt:</b> <u>8.3</u> <b>Samples Intact:</b> <input checked="" type="radio"/> Yes <input type="radio"/> No
--



S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order#

2211444

Client: Civitas/TasmanClient Project ID: Harsch 42-27

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #:

☐ ☐ ☐ ☐ ☐

Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☒

Other

☐

Temp (°C)

8.3

Thermometer #

1

	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"/>	on ice
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 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? If yes, contact client and note in narrative.	<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 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

11-23-22



Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27  
Project Number: AFE# COC40773  
Project Manager: Sam Vogt

**Reported:**  
12/01/22 12:29

**MW01**  
**2211444-01 (Water)**

**Summit Scientific**

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

Date Sampled: **11/23/22 14:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BFK0680	11/29/22	11/30/22	EPA 8260B	
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	"	"	"	"	"	"	

Date Sampled: **11/23/22 14:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		119 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **11/23/22 14:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	<b>1350</b>	12.0	mg/L	200	BFK0618	11/27/22	11/28/22	EPA 300.0	
Sulfate	<b>11700</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **11/23/22 14:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	<b>13100</b>	10.0	mg/L	1	BFK0620	11/27/22	11/27/22	SM2540C	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27  
Project Number: AFE# COC40773  
Project Manager: Sam Vogt

**Reported:**  
12/01/22 12:29

**MW02**  
**2211444-02 (Water)**

**Summit Scientific**

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

Date Sampled: **11/23/22 14:58**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFK0680	11/29/22	11/30/22	EPA 8260B	
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	"	"	"	"	"	"	

Date Sampled: **11/23/22 14:58**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	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: Harsch 42-27  
Project Number: AFE# COC40773  
Project Manager: Sam Vogt

**Reported:**  
12/01/22 12:29

**MW03**  
**2211444-03 (Water)**

**Summit Scientific**

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

Date Sampled: **11/23/22 15:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFK0680	11/29/22	11/30/22	EPA 8260B	
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		"	"	"	"	"	"	

Date Sampled: **11/23/22 15:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		120 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		99.1 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **11/23/22 15:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>2580</b>	12.0		mg/L	200	BFK0618	11/27/22	11/28/22	EPA 300.0	
Sulfate	<b>13500</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **11/23/22 15:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	<b>16300</b>	10.0		mg/L	1	BFK0620	11/27/22	11/27/22	SM2540C	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27  
Project Number: AFE# COC40773  
Project Manager: Sam Vogt

**Reported:**  
12/01/22 12:29

**MW04**  
**2211444-04 (Water)**

**Summit Scientific**

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

Date Sampled: **11/23/22 15:14**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFK0680	11/29/22	11/30/22	EPA 8260B	
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		"	"	"	"	"	"	

Date Sampled: **11/23/22 15:14**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		122 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		98.9 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **11/23/22 15:14**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>1740</b>	24.0		mg/L	400	BFK0618	11/27/22	11/28/22	EPA 300.0	
Sulfate	<b>16600</b>	120		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **11/23/22 15:14**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	<b>18700</b>	10.0		mg/L	1	BFK0620	11/27/22	11/27/22	SM2540C	

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: Harsch 42-27  
Project Number: AFE# COC40773  
Project Manager: Sam Vogt

**Reported:**  
12/01/22 12:29

**MW05**  
**2211444-05 (Water)**

**Summit Scientific**

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

Date Sampled: **11/23/22 15:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFK0680	11/29/22	11/30/22	EPA 8260B	
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	"	"	"	"	"	"	

Date Sampled: **11/23/22 15:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		121 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27  
Project Number: AFE# COC40773  
Project Manager: Sam Vogt

**Reported:**  
12/01/22 12:29

## 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 BFK0680 - EPA 5030 Water MS

##### Blank (BFK0680-BLK1)

Prepared: 11/29/22 Analyzed: 11/30/22

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	14.6		"	13.3		109	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		99.1	20-170			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	21-167			

##### LCS (BFK0680-BS1)

Prepared: 11/29/22 Analyzed: 11/30/22

Benzene	43.0	1.0	ug/l	41.7		103	51-132			
Toluene	42.3	1.0	"	41.7		102	51-138			
Ethylbenzene	42.7	1.0	"	41.7		102	58-146			
m,p-Xylene	83.7	2.0	"	83.3		100	57-144			
o-Xylene	41.5	1.0	"	41.7		99.6	53-146			
Naphthalene	36.2	1.0	"	41.7		86.8	70-130			
1,2,4-Trimethylbenzene	42.9	1.0	"	41.7		103	70-130			
1,3,5-Trimethylbenzene	42.6	1.0	"	41.7		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.5		"	13.3		109	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		99.4	20-170			
Surrogate: 4-Bromofluorobenzene	13.7		"	13.3		103	21-167			

##### Matrix Spike (BFK0680-MS1)

Source: 2211459-01

Prepared: 11/29/22 Analyzed: 11/30/22

Benzene	49.8	1.0	ug/l	41.7	ND	120	34-141			
Toluene	42.3	1.0	"	41.7	ND	102	27-151			
Ethylbenzene	43.5	1.0	"	41.7	ND	104	29-160			
m,p-Xylene	85.2	2.0	"	83.3	ND	102	20-166			
o-Xylene	42.0	1.0	"	41.7	ND	101	33-159			
Naphthalene	47.7	1.0	"	41.7	ND	114	70-130			
1,2,4-Trimethylbenzene	43.3	1.0	"	41.7	ND	104	70-130			
1,3,5-Trimethylbenzene	44.7	1.0	"	41.7	ND	107	70-130			
Surrogate: 1,2-Dichloroethane-d4	16.3		"	13.3		122	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.0	20-170			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		103	21-167			

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27  
Project Number: AFE# COC40773  
Project Manager: Sam Vogt

**Reported:**  
12/01/22 12:29

**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 BFK0680 - EPA 5030 Water MS**

Matrix Spike Dup (BFK0680-MSD1)	Source: 2211459-01			Prepared: 11/29/22 Analyzed: 11/30/22						
Benzene	50.3	1.0	ug/l	41.7	ND	121	34-141	0.899	30	
Toluene	42.2	1.0	"	41.7	ND	101	27-151	0.237	30	
Ethylbenzene	43.3	1.0	"	41.7	ND	104	29-160	0.484	30	
m,p-Xylene	85.3	2.0	"	83.3	ND	102	20-166	0.164	30	
o-Xylene	42.1	1.0	"	41.7	ND	101	33-159	0.214	30	
Naphthalene	46.6	1.0	"	41.7	ND	112	70-130	2.23	30	
1,2,4-Trimethylbenzene	43.6	1.0	"	41.7	ND	105	70-130	0.897	30	
1,3,5-Trimethylbenzene	44.8	1.0	"	41.7	ND	108	70-130	0.201	30	
Surrogate: 1,2-Dichloroethane-d4	15.8		"	13.3		119	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.3	20-170			
Surrogate: 4-Bromofluorobenzene	13.7		"	13.3		103	21-167			

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27  
Project Number: AFE# COC40773  
Project Manager: Sam Vogt

**Reported:**  
12/01/22 12:29

**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 BFK0618 - General Preparation**

**Blank (BFK0618-BLK1)**

Prepared: 11/27/22 Analyzed: 11/28/22

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

**LCS (BFK0618-BS1)**

Prepared: 11/27/22 Analyzed: 11/28/22

Chloride	3.29	0.0600	mg/L	3.00	110	90-110
Sulfate	13.6	0.300	"	15.0	90.3	90-110

**Duplicate (BFK0618-DUP1)**

Source: 2211431-01

Prepared: 11/27/22 Analyzed: 11/28/22

Chloride	240	12.0	mg/L	244	1.66	20
Sulfate	372	60.0	"	369	0.701	20

**Matrix Spike (BFK0618-MS1)**

Source: 2211431-01

Prepared: 11/27/22 Analyzed: 11/28/22

Chloride	870	12.0	mg/L	600	244	104	80-120
Sulfate	2950	60.0	"	3000	369	86.0	80-120

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27  
Project Number: AFE# COC40773  
Project Manager: Sam Vogt

**Reported:**  
12/01/22 12:29

**Total Dissolved Solids by SM2540C - Quality Control**  
**Summit Scientific**

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

**Batch BFK0620 - General Preparation**

**Blank (BFK0620-BLK1)**

Prepared & Analyzed: 11/27/22

Total Dissolved Solids ND 10.0 mg/L

**Duplicate (BFK0620-DUP1)**

Source: 2211431-01

Prepared & Analyzed: 11/27/22

Total Dissolved Solids 1090 10.0 mg/L 1050 4.01 20

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: AFE# COC40773  
Project Manager: Sam Vogt

**Reported:**  
12/01/22 12:29

### 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

January 31, 2023

Sam Vogt

Civitas Resources

650 Southgate Drive

Windsor, CO 80550

RE: Harsch 42-27

Work Order # 2210530

Enclosed are the results of analyses for samples received by Summit Scientific on 10/27/22 17:30. 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: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW03@2'	2210530-01	Soil	10/27/22 10:00	10/27/22 17:30
MW04@2'	2210530-02	Soil	10/27/22 10:20	10/27/22 17:30
MW04@10-11'	2210530-03	Soil	10/27/22 13:55	10/27/22 17:30
MW03@12'	2210530-04	Soil	10/27/22 14:35	10/27/22 17:30
MW01@12'	2210530-05	Soil	10/27/22 15:20	10/27/22 17:30
MW02@12'	2210530-06	Soil	10/27/22 15:55	10/27/22 17:30
MW05@12'	2210530-07	Soil	10/27/22 16:25	10/27/22 17:30

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.*

# Summit Scientific

2210530

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 1

Client: CIVITAS/Tasman  
Address: 6855 W. 119th St  
City/State/Zip: Broomfield, CO 80020  
Phone: 610-405-9078 Fax:   
Sampler Name: Sierra Kinylo

Project Manager: Sam Vogt, Jacob Evans  
E-Mail: SVogt@tasman-geo.com, j.evans@ecirresources.com  
Project Name: Harsch 42-27  
Project Number:

				Preservative				Matrix			Analyze For: Table 915											Special Instructions			
Sample Description	Date Sampled	Time Sampled	Number of Containers	HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	Full Table													
MW0302'	10-27-22	1000	2			X			X			X													
MW0402'	↓	1020	↓			↓			↓			↓													
MW04010'-11'	↓	1355	↓			↓			↓			↓													
MW03012'	↓	1435	↓			↓			↓			↓													
MW01012'	↓	1520	↓			↓			↓			↓													
MW02012'	↓	1555	↓			↓			↓			↓													
MW05012'	↓	1625	↓			↓			↓			↓													

Relinquished by: <u>SLK</u>	Date/Time: <u>10-27-22 1730</u>	Received by: <u>[Signature]</u>	Date/Time: <u>10-27-22 1730</u>	Turn Around Time (Check) Same Day <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/>	72 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/>	Notes: Methods: pH, EC, SAR → sat. paste Boron → hot water
Relinquished by: <u>Tasman LockBox</u>	Date/Time: <u>10-27-22 1730</u>	Received by: <u>[Signature]</u>	Date/Time: <u>10-27-22 1730</u>	Sample Integrity: Temperature Upon Receipt: <u>8.6</u>		
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	Intact: Yes <input type="checkbox"/> No <input type="checkbox"/>		

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2210530Client: Civilas/Tasman Client Project ID: Harsch 42-27


Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other \_\_\_\_\_ Airbill #: \_\_\_\_\_

	✓			
--	---	--	--	--

Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 8.6Thermometer # 1

	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.	✓			on ice
If custody seals are present, are they intact? <sup>(1)</sup>	✓			
Are samples due within 48 hours present?		✓		
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			✓	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>				
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	✓			
Were all samples received intact? <sup>(1)</sup>	✓			
Was adequate sample volume provided? <sup>(1)</sup>	✓			
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	✓			
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	✓			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			✓	
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.			✓	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	

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

10/27/22 1730  
 Date/Time



Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW03@2'**  
**2210530-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Benzene	ND	0.0020			mg/kg	1	BFK0053	11/02/22	11/02/22	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: **10/27/22 10:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Surrogate: 1,2-Dichloroethane-d4		97.8 %			50-150		"	"	"	"	
Surrogate: Toluene-d8		108 %			50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %			50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
C10-C28 (DRO)	ND	50			mg/kg	1	BFK0054	"	11/03/22	EPA 8015M	
C28-C36 (ORO)	ND	50			"	"	"	"	"	"	

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Surrogate: o-Terphenyl		38.3 %			30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW03@2'**  
**2210530-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 10:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		82.4 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		60.3 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.567</b>	0.0100		mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW03@2'**  
**2210530-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Selenium	0.272	0.331	0.223	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B
Arsenic	2.04	0.254	0.214	"	"	"	"	"	"
Barium	92.7	0.509	0.402	"	"	"	"	"	"
Cadmium	0.333	0.254	0.00916	"	"	"	"	"	"
Copper	9.35	0.509	0.0266	"	"	"	"	"	"
Lead	10.4	0.254	0.0699	"	"	"	"	"	"
Nickel	8.86	0.509	0.0776	"	"	"	"	"	"
Silver	0.0718	0.0254	0.00340	"	"	"	"	"	"
Zinc	32.9	0.509	0.338	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	237	0.0636		mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	930	0.0636		"	"	"	"	"	"	
Sodium	2510	0.0636		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	16.4	0.00100		units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

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: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW03@2'**  
**2210530-01 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	78.6			%	1	BFJ0796	10/28/22	10/28/22	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	11.6	0.0100		mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 10:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.71			pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW04@2'**  
**2210530-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BFK0053	11/02/22	11/02/22	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: **10/27/22 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		91.3 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		109 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BFK0054	"	11/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		95.8 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW04@2'**  
**2210530-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 10:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		64.2 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		42.5 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.493</b>	0.0100		mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW04@2'**  
**2210530-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Selenium	0.336	0.304	0.205	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B	
Arsenic	2.82	0.234	0.197	"	"	"	"	"	"	
Barium	80.9	0.468	0.370	"	"	"	"	"	"	
Cadmium	0.262	0.234	0.00842	"	"	"	"	"	"	
Copper	9.87	0.468	0.0244	"	"	"	"	"	"	
Lead	10.8	0.234	0.0643	"	"	"	"	"	"	
Nickel	8.79	0.468	0.0713	"	"	"	"	"	"	
Silver	0.0692	0.0234	0.00312	"	"	"	"	"	"	
Zinc	32.2	0.468	0.311	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 10/27/22 10:20

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: 10/27/22 10:20

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	84.2	0.0585		mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	586	0.0585		"	"	"	"	"	"	
Sodium	1910	0.0585		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 10/27/22 10:20

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	16.2	0.00100		units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

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: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW04@2'**  
**2210530-02 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	85.5			%	1	BFJ0797	10/28/22	10/28/22	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	8.89	0.0100		mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.21			pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW04@10-11'**  
**2210530-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BFK0053	11/02/22	11/02/22	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: **10/27/22 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		94.5 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		107 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BFK0054	"	11/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		95.4 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW04@10-11'**  
**2210530-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 13:55**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		79.1 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		58.3 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.29</b>	0.0100		mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW04@10-11'**  
**2210530-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Selenium	0.363	0.323	0.218	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B
Arsenic	2.11	0.249	0.209	"	"	"	"	"	"
Barium	112	0.497	0.393	"	"	"	"	"	"
Cadmium	0.330	0.249	0.00895	"	"	"	"	"	"
Copper	11.3	0.497	0.0260	"	"	"	"	"	"
Lead	12.3	0.249	0.0683	"	"	"	"	"	"
Nickel	11.3	0.497	0.0758	"	"	"	"	"	"
Silver	0.0686	0.0249	0.00332	"	"	"	"	"	"
Zinc	43.4	0.497	0.331	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 10/27/22 13:55

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: 10/27/22 13:55

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	67.5	0.0622		mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	531	0.0622		"	"	"	"	"	"	
Sodium	2180	0.0622		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 10/27/22 13:55

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	19.5	0.00100		units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

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: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW04@10-11'**  
**2210530-03 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	80.4			%	1	BFJ0797	10/28/22	10/28/22	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	9.11	0.0100		mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 13:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.31			pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW03@12'**  
**2210530-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BFK0053	11/02/22	11/02/22	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: **10/27/22 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		100 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		107 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BFK0054	"	11/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
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: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW03@12'**  
**2210530-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 14:35**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		91.5 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		69.0 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.37</b>	0.0100		mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW03@12'**  
**2210530-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Selenium	0.274	0.324	0.218	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B
Arsenic	1.84	0.249	0.210	"	"	"	"	"	"
Barium	77.0	0.498	0.394	"	"	"	"	"	"
Cadmium	0.307	0.249	0.00897	"	"	"	"	"	"
Copper	10.5	0.498	0.0260	"	"	"	"	"	"
Lead	11.7	0.249	0.0685	"	"	"	"	"	"
Nickel	10.3	0.498	0.0760	"	"	"	"	"	"
Silver	0.0668	0.0249	0.00333	"	"	"	"	"	"
Zinc	42.6	0.498	0.331	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 10/27/22 14:35

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: 10/27/22 14:35

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	330	0.0623		mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	665	0.0623		"	"	"	"	"	"	
Sodium	2150	0.0623		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 10/27/22 14:35

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	15.7	0.00100		units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW03@12'**  
**2210530-04 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	80.3			%	1	BFJ0797	10/28/22	10/28/22	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	9.94	0.0100		mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.07			pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW01@12'**  
**2210530-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BFK0053	11/02/22	11/02/22	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: **10/27/22 15:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		108 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		107 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BFK0054	"	11/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		100 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW01@12'**  
**2210530-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 15:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		84.6 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		55.1 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.817</b>	0.0100		mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW01@12'**  
**2210530-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Selenium	ND	0.316	0.213	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B	
Arsenic	2.06	0.243	0.205	"	"	"	"	"	"	
Barium	112	0.487	0.385	"	"	"	"	"	"	
Cadmium	0.309	0.243	0.00876	"	"	"	"	"	"	
Copper	10.6	0.487	0.0254	"	"	"	"	"	"	
Lead	12.4	0.243	0.0669	"	"	"	"	"	"	
Nickel	10.7	0.487	0.0742	"	"	"	"	"	"	
Silver	0.0677	0.0243	0.00325	"	"	"	"	"	"	
Zinc	40.8	0.487	0.324	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 10/27/22 15:20

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: 10/27/22 15:20

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	88.1	0.0608		mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	213	0.0608		"	"	"	"	"	"	
Sodium	1130	0.0608		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 10/27/22 15:20

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	14.8	0.00100		units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW01@12'**  
**2210530-05 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	82.2			%	1	BFJ0797	10/28/22	10/28/22	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	5.24	0.0100		mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 15:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.21			pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW02@12'**  
**2210530-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BFK0053	11/02/22	11/02/22	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: **10/27/22 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		97.1 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		107 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BFK0054	"	11/04/22	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		103 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW02@12'**  
**2210530-06 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Acenaphthene	ND	0.00500		mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 2-Methylnaphthalene-d10		81.9 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		60.3 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Boron	1.47	0.0100		mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW02@12'**  
**2210530-06 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Selenium	ND	0.313	0.211	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B	
Arsenic	1.77	0.241	0.203	"	"	"	"	"	"	
Barium	63.3	0.482	0.380	"	"	"	"	"	"	
Cadmium	0.282	0.241	0.00867	"	"	"	"	"	"	
Copper	9.90	0.482	0.0252	"	"	"	"	"	"	
Lead	11.5	0.241	0.0662	"	"	"	"	"	"	
Nickel	10.7	0.482	0.0735	"	"	"	"	"	"	
Silver	0.0708	0.0241	0.00321	"	"	"	"	"	"	
Zinc	38.1	0.482	0.320	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 10/27/22 15:55

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: 10/27/22 15:55

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	28.7	0.0602		mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	117	0.0602		"	"	"	"	"	"	
Sodium	747	0.0602		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 10/27/22 15:55

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	13.8	0.00100		units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW02@12'**  
**2210530-06 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	83.0			%	1	BFJ0797	10/28/22	10/28/22	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	3.40	0.0100		mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.50			pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW05@12'**  
**2210530-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BFK0053	11/02/22	11/03/22	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: **10/27/22 16:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		99.2 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		109 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BFK0054	"	11/03/22	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		75.2 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW05@12'**  
**2210530-07 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BFJ0787	10/31/22	11/01/22	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: **10/27/22 16:25**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		77.4 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		58.9 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.33</b>	0.0100		mg/L	1	BFJ0794	10/28/22	10/29/22	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW05@12'**  
**2210530-07 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Selenium	0.510	0.322	0.217	mg/kg dry	1	BFJ0790	10/28/22	10/28/22	EPA 6020B	
Arsenic	1.95	0.248	0.209	"	"	"	"	"	"	
Barium	70.0	0.496	0.391	"	"	"	"	"	"	
Cadmium	0.334	0.248	0.00892	"	"	"	"	"	"	
Copper	11.0	0.496	0.0259	"	"	"	"	"	"	
Lead	12.2	0.248	0.0681	"	"	"	"	"	"	
Nickel	10.8	0.496	0.0756	"	"	"	"	"	"	
Silver	0.0932	0.0248	0.00331	"	"	"	"	"	"	
Zinc	42.8	0.496	0.330	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 10/27/22 16:25

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BFJ0800	10/28/22	10/28/22	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: 10/27/22 16:25

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	75.4	0.0619		mg/L dry	1	BFJ0818	10/28/22	10/31/22	EPA 6020B	
Magnesium	618	0.0619		"	"	"	"	"	"	
Sodium	2160	0.0619		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 10/27/22 16:25

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	18.0	0.00100		units	1	BFK0012	11/01/22	11/01/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**MW05@12'**  
**2210530-07 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	80.7			%	1	BFJ0797	10/28/22	10/28/22	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	9.43	0.0100		mmhos/cm	1	BFJ0827	10/28/22	10/31/22	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **10/27/22 16:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.15			pH Units	1	BFJ0826	10/28/22	10/31/22	EPA 9045D	

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650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

## 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 BFK0053 - EPA 5030 Soil MS

##### Blank (BFK0053-BLK1)

Prepared & Analyzed: 11/02/22

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	0.0349		"	0.0400		87.3	50-150			
Surrogate: Toluene-d8	0.0445		"	0.0400		111	50-150			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	50-150			

##### LCS (BFK0053-BS1)

Prepared & Analyzed: 11/02/22

Benzene	0.0721	0.0020	mg/kg	0.100		72.1	70-130			
Toluene	0.0707	0.0050	"	0.100		70.7	70-130			
Ethylbenzene	0.0728	0.0050	"	0.100		72.8	70-130			
m,p-Xylene	0.147	0.010	"	0.200		73.5	70-130			
o-Xylene	0.0760	0.0050	"	0.100		76.0	70-130			
1,2,4-Trimethylbenzene	0.0822	0.0050	"	0.100		82.2	70-130			
1,3,5-Trimethylbenzene	0.0824	0.0050	"	0.100		82.4	70-130			
Naphthalene	0.112	0.0038	"	0.100		112	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0342		"	0.0400		85.4	50-150			
Surrogate: Toluene-d8	0.0445		"	0.0400		111	50-150			
Surrogate: 4-Bromofluorobenzene	0.0413		"	0.0400		103	50-150			

##### Matrix Spike (BFK0053-MS1)

Source: 2210530-01

Prepared & Analyzed: 11/02/22

Benzene	0.0711	0.0020	mg/kg	0.100	ND	71.1	70-130			
Toluene	0.0733	0.0050	"	0.100	ND	73.3	70-130			
Ethylbenzene	0.0736	0.0050	"	0.100	ND	73.6	70-130			
m,p-Xylene	0.170	0.010	"	0.200	ND	84.8	70-130			
o-Xylene	0.0751	0.0050	"	0.100	ND	75.1	70-130			
1,2,4-Trimethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130			
1,3,5-Trimethylbenzene	0.100	0.0050	"	0.100	ND	100	70-130			
Naphthalene	0.116	0.0038	"	0.100	ND	116	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0344		"	0.0400		86.1	50-150			
Surrogate: Toluene-d8	0.0417		"	0.0400		104	50-150			
Surrogate: 4-Bromofluorobenzene	0.0424		"	0.0400		106	50-150			

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650 Southgate Drive  
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Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**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 BFK0053 - EPA 5030 Soil MS**

Matrix Spike Dup (BFK0053-MSD1)		Source: 2210530-01			Prepared & Analyzed: 11/02/22					
Benzene	0.0736	0.0020	mg/kg	0.100	ND	73.6	70-130	3.48	30	
Toluene	0.0781	0.0050	"	0.100	ND	78.1	70-130	6.30	30	
Ethylbenzene	0.0759	0.0050	"	0.100	ND	75.9	70-130	3.05	30	
m,p-Xylene	0.185	0.010	"	0.200	ND	92.5	70-130	8.65	30	
o-Xylene	0.0745	0.0050	"	0.100	ND	74.5	70-130	0.762	30	
1,2,4-Trimethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130	4.26	30	
1,3,5-Trimethylbenzene	0.108	0.0050	"	0.100	ND	108	70-130	7.83	30	
Naphthalene	0.106	0.0038	"	0.100	ND	106	70-130	9.08	30	
Surrogate: 1,2-Dichloroethane-d4		0.0378	"	0.0400		94.4	50-150			
Surrogate: Toluene-d8		0.0442	"	0.0400		111	50-150			
Surrogate: 4-Bromofluorobenzene		0.0437	"	0.0400		109	50-150			

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

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

### Summit Scientific

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

#### Batch BFJ0787 - EPA 5030 Soil MS

##### Blank (BFJ0787-BLK1)

Prepared & Analyzed: 10/31/22

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	0.0360		"	0.0333		108		40-150			
Surrogate: Fluoranthene-d10	0.0304		"	0.0333		91.2		40-150			

##### LCS (BFJ0787-BS1)

Prepared & Analyzed: 10/31/22

Acenaphthene	0.0362	0.00500	mg/kg	0.0333		109		31-137			
Anthracene	0.0369	0.00500	"	0.0333		111		30-120			
Benzo (a) anthracene	0.0315	0.00500	"	0.0333		94.6		30-120			
Benzo (a) pyrene	0.0336	0.00500	"	0.0333		101		30-120			
Benzo (b) fluoranthene	0.0347	0.00500	"	0.0333		104		30-120			
Benzo (k) fluoranthene	0.0380	0.00500	"	0.0333		114		30-120			
Chrysene	0.0331	0.00500	"	0.0333		99.2		30-120			
Dibenz (a,h) anthracene	0.0334	0.00500	"	0.0333		100		30-120			
Fluoranthene	0.0391	0.00500	"	0.0333		117		30-120			
Fluorene	0.0367	0.00500	"	0.0333		110		30-120			
Indeno (1,2,3-cd) pyrene	0.0290	0.00500	"	0.0333		87.1		30-120			
Pyrene	0.0330	0.00500	"	0.0333		99.1		35-142			
1-Methylnaphthalene	0.0340	0.00500	"	0.0333		102		35-142			
2-Methylnaphthalene	0.0365	0.00500	"	0.0333		109		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0338		"	0.0333		101		40-150			
Surrogate: Fluoranthene-d10	0.0400		"	0.0333		120		40-150			

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

## 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 BFJ0787 - EPA 5030 Soil MS

Matrix Spike (BFJ0787-MS1)			Source: 2210321-03		Prepared: 10/31/22 Analyzed: 11/01/22					
Acenaphthene	0.0195	0.00500	mg/kg	0.0333	ND	58.4	31-137			
Anthracene	0.0171	0.00500	"	0.0333	ND	51.2	30-120			
Benzo (a) anthracene	0.0190	0.00500	"	0.0333	ND	56.9	30-120			
Benzo (a) pyrene	0.0190	0.00500	"	0.0333	ND	56.9	30-120			
Benzo (b) fluoranthene	0.0234	0.00500	"	0.0333	ND	70.2	30-120			
Benzo (k) fluoranthene	0.0214	0.00500	"	0.0333	ND	64.2	30-120			
Chrysene	0.0165	0.00500	"	0.0333	ND	49.6	30-120			
Dibenz (a,h) anthracene	0.0134	0.00500	"	0.0333	ND	40.1	30-120			
Fluoranthene	0.0179	0.00500	"	0.0333	ND	53.8	30-120			
Fluorene	0.0189	0.00500	"	0.0333	ND	56.7	30-120			
Indeno (1,2,3-cd) pyrene	0.0135	0.00500	"	0.0333	ND	40.6	30-120			
Pyrene	0.0187	0.00500	"	0.0333	ND	56.2	35-142			
1-Methylnaphthalene	0.0165	0.00500	"	0.0333	ND	49.4	15-130			
2-Methylnaphthalene	0.0162	0.00500	"	0.0333	ND	48.7	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0167		"	0.0333		50.2	40-150			
Surrogate: Fluoranthene-d10	0.0183		"	0.0333		54.8	40-150			

Matrix Spike Dup (BFJ0787-MSD1)			Source: 2210321-03		Prepared: 10/31/22 Analyzed: 11/01/22					
Acenaphthene	0.0242	0.00500	mg/kg	0.0333	ND	72.7	31-137	21.8	30	
Anthracene	0.0229	0.00500	"	0.0333	ND	68.6	30-120	28.9	30	
Benzo (a) anthracene	0.0241	0.00500	"	0.0333	ND	72.4	30-120	24.0	30	
Benzo (a) pyrene	0.0258	0.00500	"	0.0333	ND	77.4	30-120	30.5	30	QR-02
Benzo (b) fluoranthene	0.0301	0.00500	"	0.0333	ND	90.2	30-120	25.0	30	
Benzo (k) fluoranthene	0.0265	0.00500	"	0.0333	ND	79.6	30-120	21.5	30	
Chrysene	0.0214	0.00500	"	0.0333	ND	64.1	30-120	25.6	30	
Dibenz (a,h) anthracene	0.0182	0.00500	"	0.0333	ND	54.6	30-120	30.5	30	QR-02
Fluoranthene	0.0222	0.00500	"	0.0333	ND	66.7	30-120	21.4	30	
Fluorene	0.0243	0.00500	"	0.0333	ND	72.9	30-120	24.9	30	
Indeno (1,2,3-cd) pyrene	0.0156	0.00500	"	0.0333	ND	46.9	30-120	14.4	30	
Pyrene	0.0225	0.00500	"	0.0333	ND	67.6	35-142	18.3	30	
1-Methylnaphthalene	0.0237	0.00500	"	0.0333	ND	71.2	15-130	36.2	50	
2-Methylnaphthalene	0.0211	0.00500	"	0.0333	ND	63.3	15-130	26.1	50	
Surrogate: 2-Methylnaphthalene-d10	0.0237		"	0.0333		71.0	40-150			
Surrogate: Fluoranthene-d10	0.0235		"	0.0333		70.6	40-150			

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0794 - EPA 3050B**

**Blank (BFJ0794-BLK1)**

Prepared: 10/28/22 Analyzed: 10/29/22

Boron ND 0.0100 mg/L

**LCS (BFJ0794-BS1)**

Prepared: 10/28/22 Analyzed: 10/29/22

Boron 5.52 0.0100 mg/L 5.00 110 80-120

**Duplicate (BFJ0794-DUP1)**

**Source: 2210442-06**

Prepared: 10/28/22 Analyzed: 10/29/22

Boron 0.0575 0.0100 mg/L 0.0663 14.2 20

**Matrix Spike (BFJ0794-MS1)**

**Source: 2210442-06**

Prepared: 10/28/22 Analyzed: 10/29/22

Boron 5.75 0.0100 mg/L 5.00 0.0663 114 75-125

**Matrix Spike Dup (BFJ0794-MSD1)**

**Source: 2210442-06**

Prepared: 10/28/22 Analyzed: 10/29/22

Boron 5.56 0.0100 mg/L 5.00 0.0663 110 75-125 3.36 25

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0790 - EPA 3050B**

**Blank (BFJ0790-BLK1)**

Prepared & Analyzed: 10/28/22

Selenium	ND	0.260	mg/kg wet
Arsenic	ND	0.200	"
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"

**LCS (BFJ0790-BS1)**

Prepared & Analyzed: 10/28/22

Selenium	3.27	0.260	mg/kg wet	4.00	81.8	80-120
Arsenic	36.5	0.200	"	40.0	91.3	80-120
Barium	38.3	0.400	"	40.0	95.8	80-120
Cadmium	1.96	0.200	"	2.00	97.9	80-120
Copper	39.5	0.400	"	40.0	98.8	80-120
Lead	19.6	0.200	"	20.0	97.9	80-120
Nickel	37.9	0.400	"	40.0	94.9	80-120
Silver	1.66	0.0200	"	2.00	83.2	80-120
Zinc	38.0	0.400	"	40.0	94.9	80-120

**Duplicate (BFJ0790-DUP1)**

Source: 2210521-01

Prepared & Analyzed: 10/28/22

Selenium	0.246	0.345	mg/kg dry	0.240	2.62	20
Arsenic	2.39	0.265	"	2.38	0.645	20
Barium	127	0.530	"	127	0.0571	20
Cadmium	0.311	0.265	"	0.263	16.6	20
Copper	6.55	0.530	"	6.37	2.80	20
Lead	10.6	0.265	"	10.6	0.310	20
Nickel	4.48	0.530	"	4.33	3.40	20
Silver	0.0371	0.0265	"	0.0302	20.5	20
Zinc	21.3	0.530	"	20.6	3.34	20

QR-01

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0790 - EPA 3050B**

Matrix Spike (BFJ0790-MS1)		Source: 2210521-01			Prepared & Analyzed: 10/28/22					
Selenium	4.35	0.345	mg/kg dry	5.30	0.240	77.6	75-125			
Arsenic	15.6	0.265	"	53.0	2.38	25.0	75-125			QM-05
Barium	178	0.530	"	53.0	127	96.4	75-125			
Cadmium	2.29	0.265	"	2.65	0.263	76.3	75-125			
Copper	41.2	0.530	"	53.0	6.37	65.7	75-125			QM-05
Lead	30.3	0.265	"	26.5	10.6	74.2	75-125			QM-05
Nickel	37.2	0.530	"	53.0	4.33	61.9	75-125			QM-05
Silver	2.05	0.0265	"	2.65	0.0302	76.4	75-125			
Zinc	57.4	0.530	"	53.0	20.6	69.3	75-125			QM-05

Matrix Spike Dup (BFJ0790-MSD1)		Source: 2210521-01			Prepared & Analyzed: 10/28/22					
Selenium	4.37	0.345	mg/kg dry	5.30	0.240	78.0	75-125	0.535	25	
Arsenic	15.6	0.265	"	53.0	2.38	25.0	75-125	0.0780	25	QM-05
Barium	176	0.530	"	53.0	127	93.0	75-125	1.04	25	
Cadmium	2.26	0.265	"	2.65	0.263	75.4	75-125	1.14	25	
Copper	41.0	0.530	"	53.0	6.37	65.3	75-125	0.613	25	QM-05
Lead	29.8	0.265	"	26.5	10.6	72.3	75-125	1.66	25	QM-05
Nickel	37.1	0.530	"	53.0	4.33	61.9	75-125	0.0656	25	QM-05
Silver	2.03	0.0265	"	2.65	0.0302	75.5	75-125	1.12	25	
Zinc	56.8	0.530	"	53.0	20.6	68.3	75-125	0.915	25	QM-05

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0800 - 3060A Mod**

**Blank (BFJ0800-BLK1)**

Prepared & Analyzed: 10/28/22

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BFJ0800-BS1)**

Prepared & Analyzed: 10/28/22

Chromium, Hexavalent 25.2 0.30 mg/kg wet 25.0 101 80-120

**Duplicate (BFJ0800-DUP1)**

**Source: 2210530-01**

Prepared & Analyzed: 10/28/22

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BFJ0800-MS1)**

**Source: 2210530-01**

Prepared & Analyzed: 10/28/22

Chromium, Hexavalent 30.4 0.30 mg/kg dry 31.8 ND 95.6 75-125

**Matrix Spike Dup (BFJ0800-MSD1)**

**Source: 2210530-01**

Prepared & Analyzed: 10/28/22

Chromium, Hexavalent 30.8 0.30 mg/kg dry 31.8 ND 96.8 75-125 1.25 20

Summit Scientific

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650 Southgate Drive  
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Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0818 - General Preparation**

**Blank (BFJ0818-BLK1)**

Prepared: 10/28/22 Analyzed: 10/31/22

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

**LCS (BFJ0818-BS1)**

Prepared: 10/28/22 Analyzed: 10/31/22

Calcium	5.00	0.0500	mg/L wet	5.00	100	70-130
Magnesium	5.54	0.0500	"	5.00	111	70-130
Sodium	5.55	0.0500	"	5.00	111	70-130

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0796 - General Preparation**

<b>Duplicate (BFJ0796-DUP1)</b>		<b>Source: 2210448-08</b>			Prepared & Analyzed: 10/28/22						
% Solids	88.2		%		88.1			0.101		20	

**Batch BFJ0797 - General Preparation**

<b>Duplicate (BFJ0797-DUP1)</b>		<b>Source: 2210497-01</b>			Prepared & Analyzed: 10/28/22						
% Solids	96.4		%		95.3			1.22		20	

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0827 - General Preparation**

**Blank (BFJ0827-BLK1)**

Prepared: 10/28/22 Analyzed: 10/31/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BFJ0827-BS1)**

Prepared: 10/28/22 Analyzed: 10/31/22

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 103 95-105

**Duplicate (BFJ0827-DUP1)**

**Source: 2210478-01**

Prepared: 10/28/22 Analyzed: 10/31/22

Specific Conductance (EC) 0.809 0.0100 mmhos/cm 0.834 3.13 20

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
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Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control**  
**Summit Scientific**

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

**Batch BFJ0826 - General Preparation**

**LCS (BFJ0826-BS1)**

Prepared: 10/28/22 Analyzed: 10/31/22

pH	9.03	pH Units	9.18	98.4	95-105
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**Duplicate (BFJ0826-DUP1)**

Source: 2210478-01

Prepared: 10/28/22 Analyzed: 10/31/22

pH	8.34	pH Units	8.28	0.722	20
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Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Harsch 42-27

Project Number: [none]  
Project Manager: Sam Vogt

**Reported:**  
01/31/23 08:48

### Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QR-01	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
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