

# **HSR Ackard 5-2**

SWNW Sec. 2-T2S-R66W

API #: 001-09254

Facility ID: 320411

Remediation Project #: 36698

Wellhead, Flowline and Facility Decommissioning Package

October 2024

Prepared by Tasman, Inc.



On behalf of Extraction Oil & Gas, Inc.



## **FIELD NOTES AND PHOTO LOG**

Civitas Decommissioning Form



SITE NAME: HSR ACKARD 5-2								DATE: 10/15/2024	REM. PROJECT #: 36698	WEATHER: Sunny, 70(F)	
SITE DIRECTIONS: E 120th Ave & Piccadilly Rd - W 0.58 mi, S 0.38 mi, W 0.24 mi INTO								CLIENT: Extraction Oil & Gas, Inc.			
LEGALS AND LAT/LONG: 39.908989, -104.750064								TASMAN PERSONNEL: Sean Clarke			
SOIL TYPES: SM - silty sand								SURFACE GRADIENT: West			
SURROUNDING LAND USE: Rangeland								CROP:			
SOIL SAMPLING								FACILITY INFRASTRUCTURE			
Date/Time	Soil Sample ID	PID (ppm)	Visual	Olfactory	Photo? (Y/N)	USCS	Lab (Y/N)	EQUIPMENT	Quantity		
								Above Ground Storage Tank (AST)	1		
10/15/2024 11:00	SEP-B01@3"	0.5	No Staining	No Odor	Y	SM	Y	Produced Water Vessel (PWV)	1		
10/15/2024 11:02	SEP-B02@3'	1.1	No Staining	No Odor	Y	SM	Y	Separator (SEP)	1		
10/15/2024 11:04	WH-B01@6'	0.0	No Staining	No Odor	Y	SM	Y	Emission Control Device (ECD)	1		
10/15/2024 11:06	WH-N01@5'	0.0	No Staining	No Odor	Y	SM	N	Dump Line (DL)	2		
10/15/2024 11:08	WH-S01@5'	0.0	No Staining	No Odor	Y	SM	N	Wellhead (WH)	1		
10/15/2024 11:10	WH-E01@5'	0.0	No Staining	No Odor	Y	SM	N	Flowline (FL)	1		
10/15/2024 11:12	WH-W01@5'	0.0	No Staining	No Odor	Y	SM	N	FL Method of Closure	Abandoned in Place		
10/15/2024 11:14	FL-B01@4'	0.0	No Staining	No Odor	Y	SM	Y	FL Footage Removed			
10/15/2024 11:16	FL-B02@3'	0.0	No Staining	No Odor	Y	SM	Y	Footaged Abandoned in Place	75		
10/15/2024 11:18	AST-B01@6"	0.0	No Staining	No Odor	Y	SM	Y	Other:			
10/15/2024 11:20	PW-B01@5'	0.6	No Staining	No Odor	Y	SM	Y	Soil Loads Removed			
10/15/2024 11:22	PW-N01@4'	0.0	No Staining	No Odor	Y	SM	N	IMPACTED SOIL IDENTIFIED? No			
10/15/2024 11:24	PW-S01@4'	60.8	No Staining	Slight HC Od	Y	SM	Y	ESTIMATED VOLUME OF IMPACTS:			
10/15/2024 11:26	PW-E01@4'	0.6	No Staining	No Odor	Y	SM	N	Date	Number	CY	
10/15/2024 11:28	PW-W01@4'	38.4	No Staining	Slight HC Od	Y	SM	N				
10/15/2024 11:30	DL1-B01@3'	1.1	No Staining	No Odor	Y	SM	Y				
10/15/2024 11:32	DL1-B02@4'	197.0	No Staining	No Odor	Y	SM	Y				
10/15/2024 11:34	DL1-B03@3'	7.4	No Staining	No Odor	Y	SM	Y				
10/15/2024 11:36	DL2-B01@3'	0.7	No Staining	No Odor	Y	SM	Y	Total Removed	0	0	
10/15/2024 11:38	DL2-B02@4'	0.3	No Staining	No Odor	Y	SM	Y	Disposal Facility:			
10/15/2024 11:40	SP-CS01	0.1	No Staining	No Odor	Y	SM	Y	Groundwater Recovery			
10/15/2024 11:42	SP-CS02	0.1	No Staining	No Odor	Y	SM	Y	DATE GW ENCOUNTERED: N/A	DEPTH:		
10/15/2024 11:44	SP-CS03	0.2	No Staining	No Odor	Y	SM	Y	GROUNDWATER IN CONTACT WITH IMPACTED SOIL?			
10/15/2024 11:46	ECD-B01@3"	0.0	No Staining	No Odor	Y	SM	N				
10/24/2024 09:00	BG01@6"	1.0	No Staining	No Odor	Y	SM	Y	LNAPL OR SHEEN OBSERVED ON GW?			
GROUNDWATER SAMPLING								Date	BBLs		
Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?					
								Total Removed	0		
								Disposal Facility:			



Civitas Decommissioning Form



SOIL SAMPLING								Soil Loads Removed			
Date/Time	Soil Sample ID	PID (ppm)	Visual	Olfactory	Photo? (Y/N)	USCS	Lab (Y/N)	Date	Number	CY	
10/24/2024 09:05	BG01@4'	1.9	No Staining	No Odor	Y	SM	Y				
10/24/2024 09:10	BG01@6'	2.0	No Staining	No Odor	Y	SM	Y				
10/24/2024 09:15	BG02@6"	2.1	No Staining	No Odor	Y	SM	Y				
10/24/2024 09:20	BG02@4'	3.2	No Staining	No Odor	Y	SM	Y				
10/24/2024 09:25	BG02@6'	2.7	No Staining	No Odor	Y	SM	Y				
10/24/2024 09:30	BG03@6"	0.6	No Staining	No Odor	Y	SM	Y				
10/24/2024 09:35	BG03@4'	2.6	No Staining	No Odor	Y	SM	Y				
10/24/2024 09:40	BG03@6'	1.4	No Staining	No Odor	Y	SM	Y				
10/24/2024 09:45	BG04@6"	3.1	No Staining	No Odor	Y	SM	Y				
10/24/2024 09:50	BG04@4'	2.8	No Staining	No Odor	Y	SM	Y				
10/24/2024 09:55	BG04@6'	2.0	No Staining	No Odor	Y	SM	Y				
10/24/2024 10:00	BG05@6"	2.2	No Staining	No Odor	Y	SM	Y				
10/24/2024 10:05	BG05@4'	3.1	No Staining	No Odor	Y	SM	Y				
10/24/2024 10:10	BG05@6'	1.8	No Staining	No Odor	Y	SM	Y				
10/31/2024 15:40	AST-B01R@6"	1.2	No Staining	No Odor	Y	SM	Y				
10/31/2024 15:50	SP-CS02@4'	1.9	No Staining	No Odor	Y	SM	Y	Total Removed	0	0	
10/31/2024 16:00	BG06@6"	0.9	No Staining	No Odor	Y	SM	Y	Disposal Facility:			
10/31/2024 16:05	BG06@4'	0.9	No Staining	No Odor	Y	SM	Y	Groundwater Recovery			
10/31/2024 16:10	BG06@6'	1.0	No Staining	No Odor	Y	SM	Y				
10/31/2024 16:15	BG07@6"	1.3	No Staining	No Odor	Y	SM	Y				
10/31/2024 16:20	BG07@4'	0.7	No Staining	No Odor	Y	SM	Y				
10/31/2024 16:25	BG07@6'	0.9	No Staining	No Odor	Y	SM	Y				
GROUNDWATER SAMPLING											
Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?					
								Total Removed	0		
								Disposal Facility:			



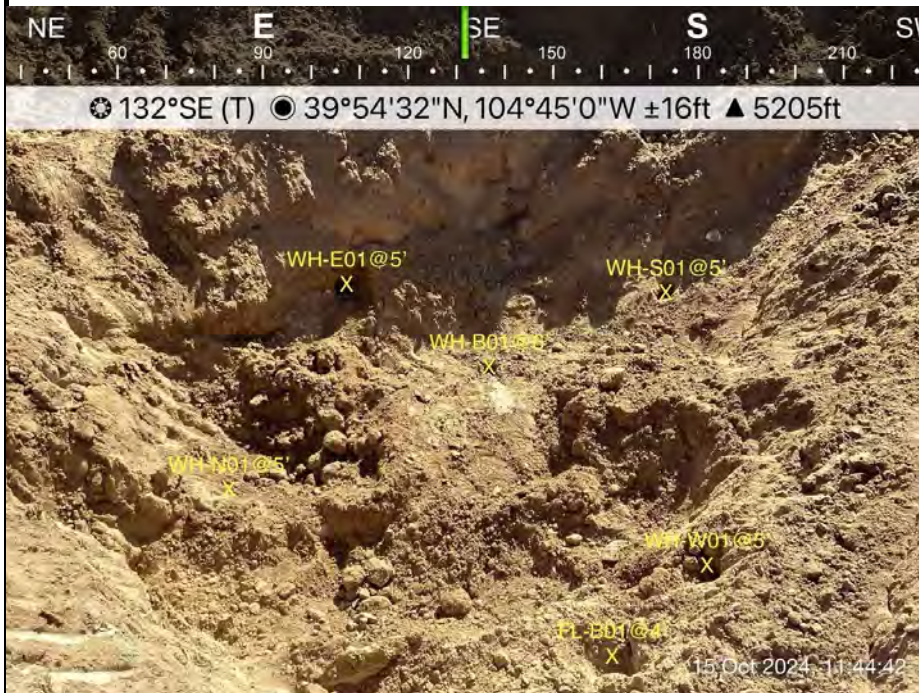
## Photographic Log

							
Equipment ID:		Equipment Type:		Equipment ID:		Equipment Type:	
Material:	Volume:	Contents:		Material:	Volume:	Contents:	
Notes/Conditions: Soil sampling location.				Notes/Conditions: Soil sampling location.			





					
<b>Equipment ID:</b>			<b>Equipment Type:</b>		
<b>Material:</b>		<b>Volume:</b>		<b>Contents:</b>	
<b>Notes/Conditions:</b> Soil sampling location.					




							
Equipment ID:		Equipment Type:		Equipment ID:		Equipment Type:	
Material:		Volume:		Material:		Volume:	
Contents:				Contents:			
Notes/Conditions: Soil sampling and screening locations.				Notes/Conditions: Soil sampling location.			







					
<p> <span>☉ 112°E (T) ☉ 39°54'32"N, 104°44'58"W ±16ft ▲ 5205ft</span> </p>			<p> <span>☉ 99°E (T) ☉ 39°54'32"N, 104°44'58"W ±16ft ▲ 5204ft</span> </p>		
<p>15 Oct 2024, 11:48:50</p>			<p>15 Oct 2024, 11:49:26</p>		
<p><b>Equipment ID:</b></p>			<p><b>Equipment ID:</b></p>		
<p><b>Equipment Type:</b></p>			<p><b>Equipment Type:</b></p>		
<p><b>Material:</b></p>	<p><b>Volume:</b></p>	<p><b>Contents:</b></p>	<p><b>Material:</b></p>	<p><b>Volume:</b></p>	<p><b>Contents:</b></p>
<p><b>Notes/Conditions:</b> Soil sampling location.</p>			<p><b>Notes/Conditions:</b> Soil sampling location.</p>		



							
						<p> <span>70°E (T) ● 39°54'32"N, 104°44'59"W ±16ft ▲ 5204ft</span> <span>134°SE (T) ● 39°54'32"N, 104°44'58"W ±16ft ▲ 5205ft</span> </p>	
Equipment ID:		Equipment Type:		Equipment ID:		Equipment Type:	
Material:		Volume:		Material:		Volume:	
Contents:				Contents:			
Notes/Conditions: Soil sampling and screening locations.				Notes/Conditions: Soil sampling location.			




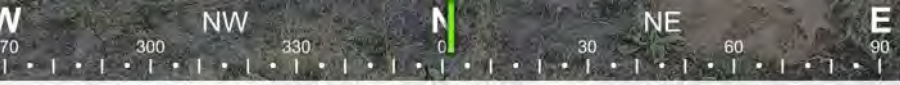


 <p>☀ 67°NE (T) ● 39°54'33"N, 104°44'59"W ±16ft ▲ 5202ft</p>  <p>15 Oct 2024, 13:53:34</p>			 <p>☀ 0°N (T) ● 39°54'33"N, 104°44'59"W ±16ft ▲ 5202ft</p>  <p>15 Oct 2024, 13:58:59</p>				
Equipment ID:		Equipment Type:		Equipment ID:		Equipment Type:	
Material:	Volume:	Contents:		Material:	Volume:	Contents:	
Notes/Conditions: Soil screening location.				Notes/Conditions: Surrounding land use.			



					
☼ 275°W (T)   ● 39°54'33"N, 104°45'0"W ±16ft   ▲ 5203ft			☼ 177°S (T)   ● 39°54'32"N, 104°45'0"W ±16ft   ▲ 5200ft		
					
15 Oct 2024, 13:59:31			15 Oct 2024, 14:00:32		
<b>Equipment ID:</b>		<b>Equipment Type:</b>		<b>Equipment ID:</b>	
<b>Material:</b>		<b>Volume:</b>		<b>Equipment Type:</b>	
				<b>Material:</b>	
				<b>Volume:</b>	
				<b>Contents:</b>	
<b>Notes/Conditions:</b> Surrounding land use.			<b>Notes/Conditions:</b> Surrounding land use.		

 <p>15 Oct 2024, 14:01:05</p>			 <p>24 Oct 2024, 09:22:30</p>		
<p> <span>☼ 60°NE (T) ● 39°54'31"N, 104°44'59"W ±16ft ▲ 5194ft</span> </p>			<p> <span>☼ 2°N (T) ● 39°54'33"N, 104°45'1"W ±16ft ▲ 5201ft</span> </p>		
<p>Equipment ID:</p>			<p>Equipment ID:</p>		
<p>Equipment Type:</p>			<p>Equipment Type:</p>		
<p>Material:</p>		<p>Volume:</p>	<p>Contents:</p>		
<p>Notes/Conditions: Surrounding land use.</p>			<p>Notes/Conditions: Background soil sampling location</p>		





					
☼ 12°N (T) ● 39°54'33"N, 104°44'58"W ±16ft ▲ 5205ft			☼ 2°N (T) ● 39°54'32"N, 104°45'2"W ±16ft ▲ 5201ft		
					
<b>Equipment ID:</b>		<b>Equipment Type:</b>		<b>Equipment ID:</b>	
<b>Material:</b>		<b>Volume:</b>		<b>Equipment Type:</b>	
		<b>Contents:</b>		<b>Material:</b>	
				<b>Volume:</b>	
				<b>Contents:</b>	
<b>Notes/Conditions:</b> Background soil sampling location			<b>Notes/Conditions:</b> Background soil sampling location		





					
346°N (T) 39°54'31"N, 104°45'1"W ±16ft ▲ 5201ft			75°E (T) 39°54'31"N, 104°44'58"W ±16ft ▲ 5206ft		
					
Equipment ID:			Equipment Type:		
Material:	Volume:	Contents:	Equipment ID:	Equipment Type:	Contents:
Notes/Conditions: Background soil sampling location			Notes/Conditions: Background soil sampling location		



											
<b>Equipment ID:</b>		<b>Equipment Type:</b>		<b>Equipment ID:</b>		<b>Equipment Type:</b>					
<b>Material:</b>		<b>Volume:</b>		<b>Contents:</b>		<b>Material:</b>		<b>Volume:</b>		<b>Contents:</b>	
<b>Notes/Conditions:</b> Background soil sampling lithology						<b>Notes/Conditions:</b> Background soil sampling lithology					







## Photographic Log

								
Equipment ID:		Equipment Type:		Equipment ID:		Equipment Type:		
Material:	Volume:	Contents:	Material:	Volume:	Contents:	Material:	Volume:	Contents:
Notes/Conditions: Background soil sampling lithology			Notes/Conditions: Soil Sample Location					




## Photographic Log

 <p> <span>☼ 359°N (T) ● 39°54'32"N, 104°45'0"W ±26ft ▲ 5210ft</span> </p>			 <p> <span>☼ 322°NW (T) ● 39°54'34"N, 104°45'1"W ±19ft ▲ 5205ft</span> </p>				
 <p>31 Oct 2024 16:18:02</p>			 <p>31 Oct 2024 16:20:32</p>				
<b>Equipment ID:</b>		<b>Equipment Type:</b>		<b>Equipment ID:</b>		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b> Soil Sample Location				<b>Notes/Conditions:</b> Background Soil Sample Location			



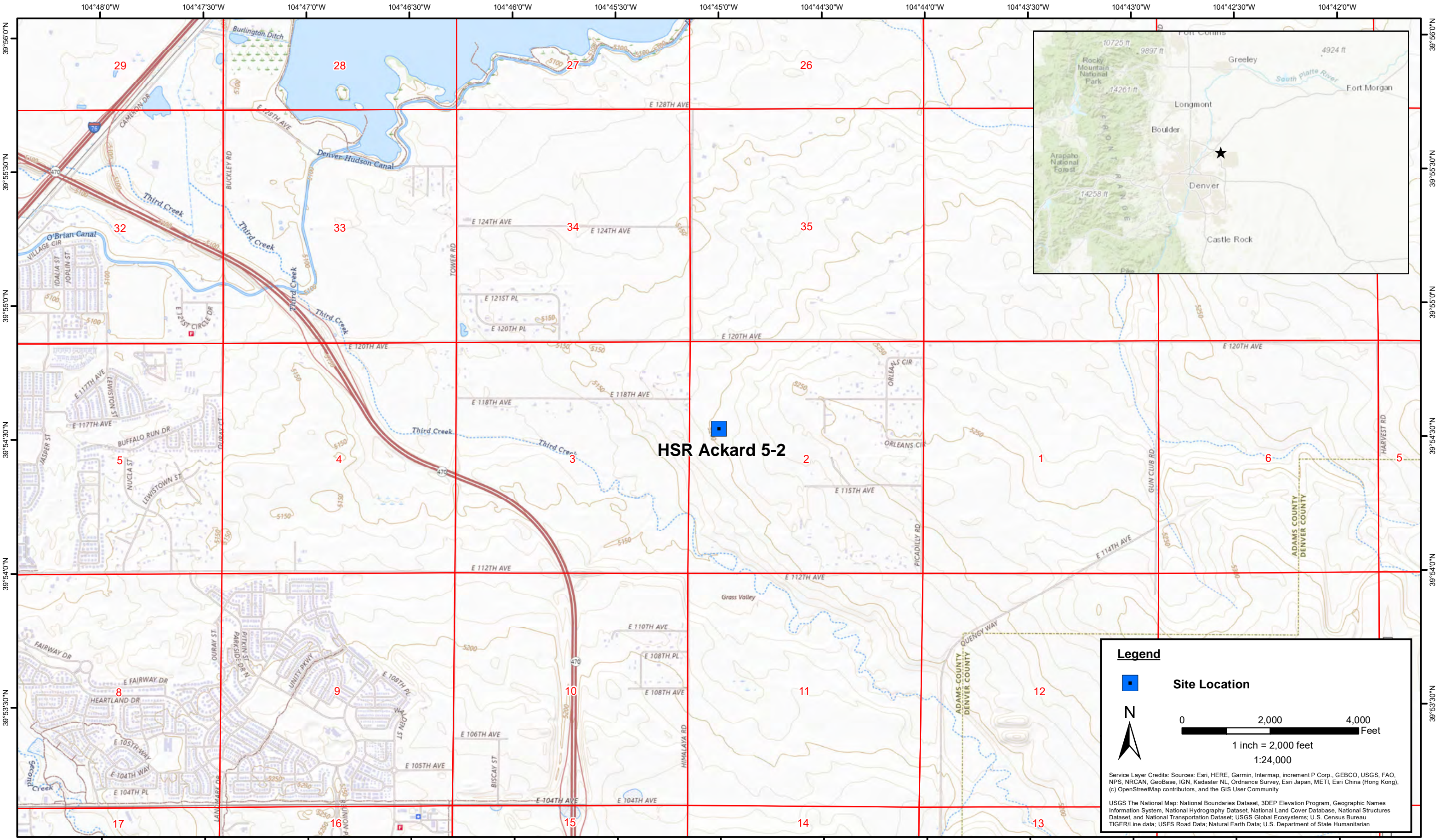
## Photographic Log

									
						Equipment ID:		Equipment Type:	
						Material:	Volume:	Contents:	
						Notes/Conditions: Background Soil Sample Location			
			Equipment ID:		Equipment Type:				
Material:		Volume:	Contents:						
Notes/Conditions:									



## **FIGURES**





DATE:	November 2024
DESIGNED BY:	S. Vogt
DRAWN BY:	J. Woffinden



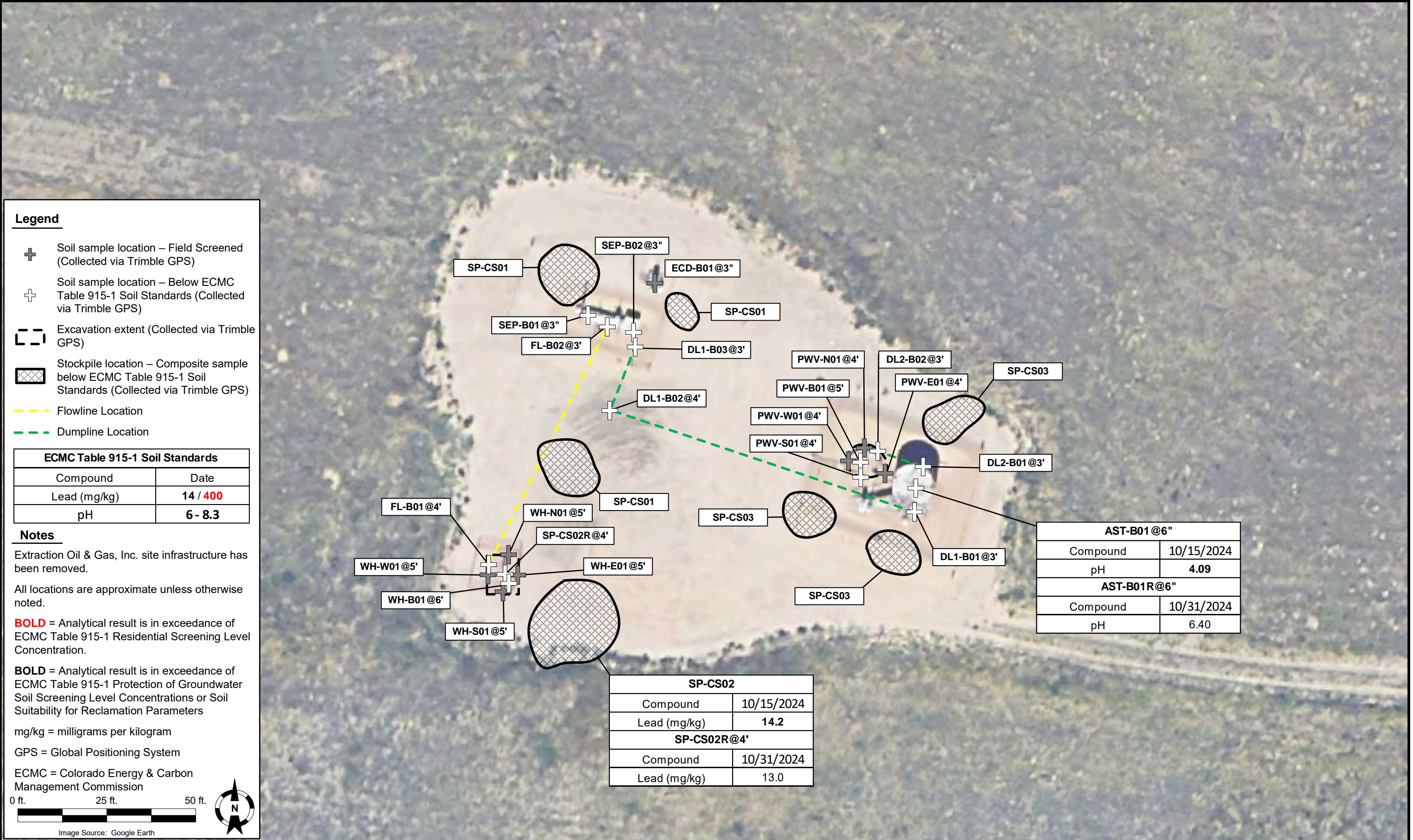
Tasman, Inc.  
6855 W. 119th Ave  
Broomfield, CO 80020

Extraction Oil & Gas, Inc.  
HSR Ackard 5-2  
SWNW Sec. 2-T2S-R66W  
Adams County, Colorado

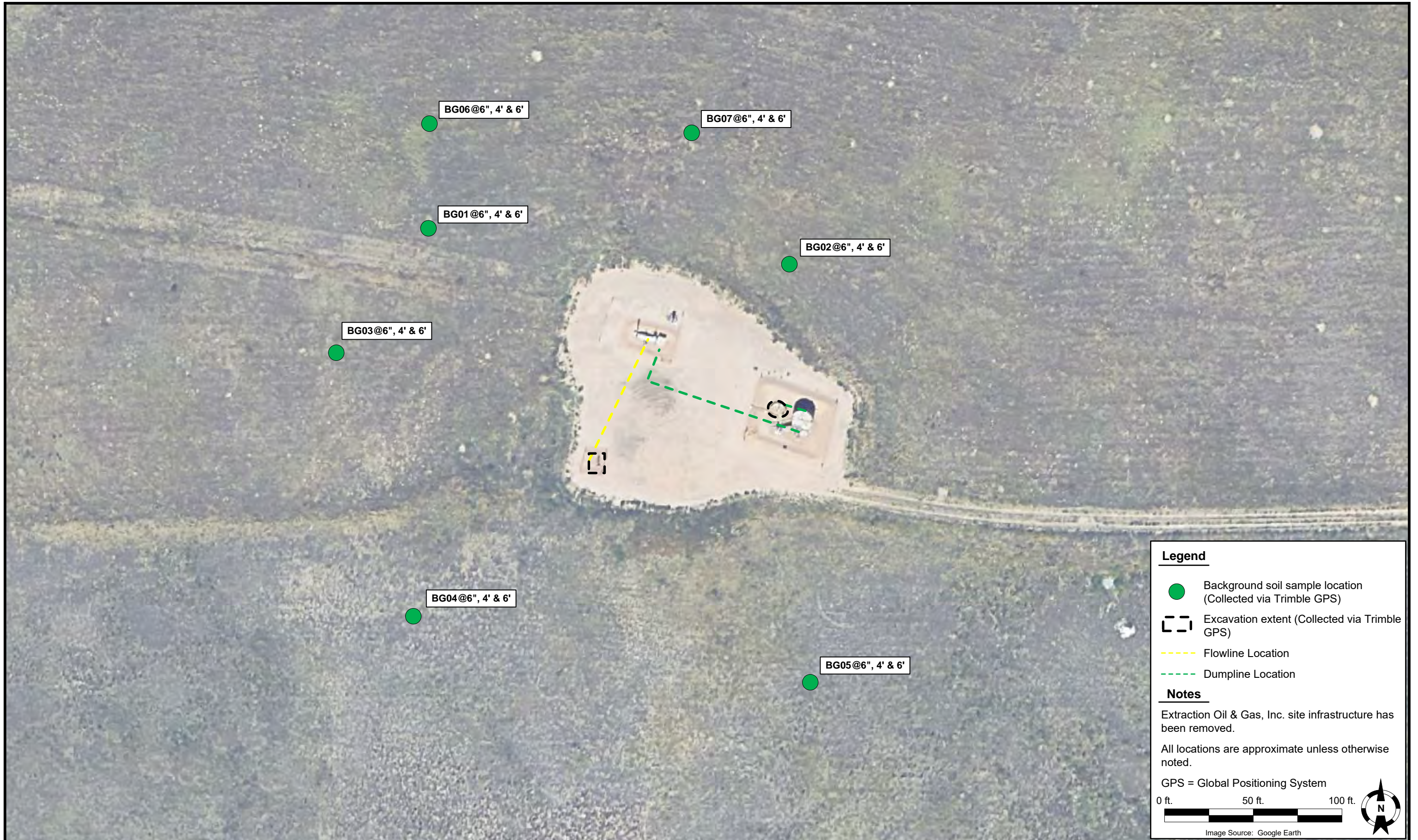
Site Location Map

Figure  
1









**Legend**

- Background soil sample location (Collected via Trimble GPS)
- Excavation extent (Collected via Trimble GPS)
- Flowline Location
- Dumpline Location

**Notes**

Extraction Oil & Gas, Inc. site infrastructure has been removed.

All locations are approximate unless otherwise noted.

GPS = Global Positioning System

0 ft. 50 ft. 100 ft.

Image Source: Google Earth

N

DATE:	November 8, 2024	 <b>Tasman, Inc.</b> 6855 W119th Ave. Broomfield, CO 80020	<b>Extraction Oil &amp; Gas, Inc.</b> HSR Ackard 5-2 SWNW Sec. 2-T2S-R66W Adams County, Colorado	Background Soil Sample Location Map (10/24/2024 & 10/31/2024)	Figure 3
DESIGNED BY:	S. Vogt				
DRAWN BY:	L. Bakel				



# TABLES

**TABLE 1**  
**HSR ACKARD 5-2**  
**SOIL SAMPLE LOCATIONS**  
**EXTRACTION OIL & GAS, INC.**



Soil Sample Location	Depth	Date	PID Reading (ppm)	Latitude	Longitude	GPS PDOP Value	Lab (Y/N)
SEP-B01@3"	3"	10/15/2024	0.5	39.909179	-104.749984	1.0	Y
SEP-B02@3'	3'	10/15/2024	1.1	39.909164	-104.749940	1.6	Y
WH-B01@6'	6'	10/15/2024	0.0	39.908974	-104.750066	0.9	Y
WH-N01@5'	5'	10/15/2024	0.0	39.908992	-104.750065	1.0	N
WH-S01@5'	5'	10/15/2024	0.0	39.908963	-104.750070	1.3	N
WH-E01@5'	5'	10/15/2024	0.0	39.908978	-104.750056	0.9	N
WH-W01@5'	5'	10/15/2024	0.0	39.908979	-104.750085	1.3	N
FL-B01@4'	4'	10/15/2024	0.0	39.908986	-104.750084	1.4	Y
FL-B02@3'	3'	10/15/2024	0.0	39.909169	-104.749965	0.9	Y
AST-B01@6"		10/15/2024	0.0	39.909043	-104.749656	0.8	Y
PW-B01@5'	6"	10/15/2024	0.6	39.909064	-104.749712	0.8	Y
PW-N01@4'	4'	10/15/2024	0.0	39.909074	-104.749707	1.0	N
PW-S01@4'	4'	10/15/2024	60.8	39.909055	-104.749714	0.9	Y
PW-E01@4'	4'	10/15/2024	0.6	39.909057	-104.749687	0.9	N
PW-W01@4'	4'	10/15/2024	38.4	39.909065	-104.749724	1.0	N
DL1-B01@3'	3'	10/15/2024	1.1	39.909025	-104.749658	0.9	Y
DL1-B02@4'	4'	10/15/2024	197.0	39.909026	-104.749651	0.8	Y
DL1-B03@3'	3'	10/15/2024	7.4	39.909103	-104.749962	0.8	Y
DL2-B01@3'	3'	10/15/2024	0.7	39.909060	-104.749648	0.7	Y
DL2-B02@4'	4'	10/15/2024	0.3	39.909076	-104.749699	1.0	Y
SP-CS01	-	10/15/2024	0.1	-	-	-	Y
SP-CS02	-	10/15/2024	0.1	-	-	-	Y
SP-CS03	-	10/15/2024	0.2	-	-	-	Y
ECD-B01@3"	3"	10/15/2024	0.0	39.909203	-104.749917	0.9	N
AST-B01R@6"	6"	10/31/2024	1.2	39.909045	-104.749656	0.8	Y
SP-CS02R@4'	4'	10/31/2024	1.9	39.908974	-104.750066	0.8	Y
<b>BACKGROUND</b>							
BG01@6"	6"	10/24/2024	1.0	39.909352	-104.750416	0.8	Y
BG01@4'	4'	10/24/2024	1.9	39.909352	-104.750416	0.8	Y
BG01@6'	6'	10/24/2024	2.0	39.909352	-104.750416	0.8	Y
BG02@6"	6"	10/24/2024	2.1	39.909352	-104.750416	0.8	Y
BG02@4'	4'	10/24/2024	3.2	39.909352	-104.750416	0.8	Y
BG02@6'	6'	10/24/2024	2.7	39.909352	-104.750416	0.8	Y
BG03@6"	6"	10/24/2024	0.6	39.909158	-104.750603	0.8	Y
BG03@4'	4'	10/24/2024	2.6	39.909158	-104.750603	0.8	Y



**TABLE 1**  
**HSR ACKARD 5-2**  
**SOIL SAMPLE LOCATIONS**  
**EXTRACTION OIL & GAS, INC.**



Soil Sample Location	Depth	Date	PID Reading (ppm)	Latitude	Longitude	GPS PDOP Value	Lab (Y/N)
BG03@6'	6'	10/24/2024	1.4	39.909158	-104.750603	0.8	Y
BG04@6"	6"	10/24/2024	3.1	39.908753	-104.750451	0.8	Y
BG04@4'	4'	10/24/2024	2.8	39.908753	-104.750451	0.8	Y
BG04@6'	6'	10/24/2024	2.0	39.908753	-104.750451	0.8	Y
BG05@6"	6"	10/24/2024	2.2	39.908646	-104.749650	0.8	Y
BG05@4'	4'	10/24/2024	3.1	39.908646	-104.749650	0.8	Y
BG05@6'	6'	10/24/2024	1.8	39.908646	-104.749650	0.8	Y
BG06@6"	6"	10/31/2024	0.9	39.909508	-104.750405	0.9	Y
BG06@4'	4'	10/31/2024	0.9	39.909508	-104.750405	0.9	Y
BG06@6'	6'	10/31/2024	1.0	39.909508	-104.750405	0.9	Y
BG07@6"	6"	10/31/2024	1.3	39.909494	-104.749883	0.8	Y
BG07@4'	4'	10/31/2024	0.7	39.909494	-104.749883	0.8	Y
BG07@6'	6'	10/31/2024	0.9	39.909494	-104.749883	0.8	Y

**Notes:**

PID = Photoionization Detector

ppm = parts per million

GPS = Global Positioning System

PDOP = Position Dilution of Precision

- = Not Applicable

**TABLE 2**  
**HSR ACKARD 5-2**  
**SOIL ANALYTICAL DATA - VOCs**  
**EXTRACTION OIL & GAS, INC.**

Soil Sample Location	Depth	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)
ECMC Organic Compounds in Soils - GSSL <sup>(1)</sup>			0.0026	0.69	0.78	9.9	0.0038	500			0.0081	0.0087
ECMC Organic Compounds in Soils - RSL <sup>(2)</sup>			1.2	490	5.8	58	2	500			30	27
SEP-B01@3"	3"	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
SEP-B02@3"	3"	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
WH-B01@6'	6'	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
FL-B01@4'	4'	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
FL-B02@3'	3'	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
AST-B01@6"	6"	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
PW-B01@5'	5'	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
PW-S01@4'	4'	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
DL1-B01@3'	3'	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
DL1-B02@4'	4'	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
DL1-B03@3'	3'	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
DL2-B01@3'	3'	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
DL2-B02@4'	4'	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
SP-CS01	-	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
SP-CS02	-	10/15/2024	<0.0020	<0.0050	<0.0050	<0.010	<0.0038	<0.50	<50	<50	<0.0050	<0.0050
SP-CS03	-	10/15/2024	<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 ECMC 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 ECMC Table 915-1: Organic Compounds in Soils - Residential Soil Screening Level Concentrations (Effective January 15, 2021)

ECMC = Colorado Energy & Carbon Management Commission

GSSL = Protection of Groundwater Screening Level

RSL = Residential Soil Screening Level

(<) = 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



**TABLE 2**  
**HSR ACKARD 5-2**  
**SOIL ANALYTICAL DATA - VOCs**  
**EXTRACTION OIL & GAS, INC.**

Soil Sample Location	Depth	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)
ECMC Organic Compounds in Soils - GSSL <sup>(1)</sup>			0.0026	0.69	0.78	9.9	0.0038	500			0.0081	0.0087
ECMC Organic Compounds in Soils - RSL <sup>(2)</sup>			1.2	490	5.8	58	2	500			30	27

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 ECMC Table 915-1: Organic Compounds in Soils - Protection of Groundwater Soil Screening Level Concentrations

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

**TABLE 3**  
**HSR ACKARD 5-2**  
**SOIL ANALYTICAL DATA - PAHs**  
**EXTRACTION OIL & GAS, INC.**

Soil Sample Location	Depth	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)
ECMC Organic Compounds in Soils - GSSL <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
ECMC Organic Compounds in Soils - RSL <sup>(2)</sup>			360	1,800	1.1	1.1	11	0.11	110	0.11	240	240	1.1	18	24	180
SEP-B01@3"	3"	10/15/2024	<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
SEP-B02@3"	3"	10/15/2024	<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
WH-B01@6'	6'	10/15/2024	<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
FL-B01@4'	4'	10/15/2024	<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
FL-B02@3'	3'	10/15/2024	<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
AST-B01@6"	6"	10/15/2024	<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
PW-B01@5'	5'	10/15/2024	<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
PW-S01@4'	4'	10/15/2024	<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
DL1-B01@3'	3'	10/15/2024	<0.00500	<0.00500	<0.00500	0.00603	<0.00500	<0.00500	0.00543	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00516
DL1-B02@4'	4'	10/15/2024	<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
DL1-B03@3'	3'	10/15/2024	<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
DL2-B01@3'	3'	10/15/2024	<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
DL2-B02@4'	4'	10/15/2024	<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
SP-CS01	-	10/15/2024	<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
SP-CS02	-	10/15/2024	<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
SP-CS03	-	10/15/2024	<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 ECMC 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 ECMC Table 915-1: Organic Compounds in Soils - Residential Soil Screening Level Concentrations (Effective January 15, 2021)

ECMC = Colorado Energy & Carbon Management Commission

GSSL = Protection of Groundwater Screening Level

RSL = Residential Soil Screening Level

(<) = 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



**TABLE 3**  
**HSR ACKARD 5-2**  
**SOIL ANALYTICAL DATA - PAHs**  
**EXTRACTION OIL & GAS, INC.**

Soil Sample Location	Depth	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)
ECMC Organic Compounds in Soils - GSSL <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
ECMC Organic Compounds in Soils - RSL <sup>(2)</sup>			360	1,800	1.1	1.1	11	0.11	110	0.11	240	240	1.1	18	24	180

Benzo(a)P = Benzo(a)Pyrene

D (a,h) A = Dibenzo(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 ECMC Table 915-1: Organic Compounds in Soils - Protection of Groundwater Soil Screening Level Concentrations

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

**TABLE 4**  
**HSR ACKARD 5-2**  
**SOIL ANALYTICAL DATA - METALS**  
**EXTRACTION OIL & GAS, INC.**



Soil Sample Location	Depth	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)	Confirmation/Resample for Sample Location(s) <sup>(3)</sup>
ECMC Metals in Soils - GSSL <sup>(1)</sup>			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370	-
ECMC Metals in Soils - RSL <sup>(2)</sup>			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000	-
SEP-B01@3"	3"	10/15/2024	1.53*	31.7	<0.200	<0.30	4.28	6.50	3.43	<0.260	<0.0200	13.0	-
SEP-B02@3"	3"	10/15/2024	3.01*	73.7	<0.200	<0.30	7.26	9.75	6.69	<0.260	0.0356	18.4	-
WH-B01@6'	6'	10/15/2024	3.09*	75.3	<0.200	<0.30	7.67	7.26	7.32	<0.260	<0.0200	17.9	-
FL-B01@4'	4'	10/15/2024	3.11*	117*	<0.200	<0.30	8.80	8.49	9.42	<0.260	0.0363	20.6	-
FL-B02@3'	3'	10/15/2024	2.81*	84.1*	<0.200	<0.30	7.03	7.23	6.73	<0.260	0.0311	18.4	-
AST-B01@6"	6"	10/15/2024	1.97*	33.6	<0.200	<0.30	5.27	5.85	3.82	<0.260	0.0205	14.4	-
PW-B01@5'	5'	10/15/2024	3.20*	83.2*	<0.200	<0.30	8.29	8.96	7.90	<0.260	0.0438	20.0	-
PW-S01@4'	4'	10/15/2024	2.56*	62.0	<0.200	<0.30	6.57	7.69	6.36	<0.260	0.0347	18.5	-
DL1-B01@3'	3'	10/15/2024	2.30*	50.8	<0.200	<0.30	7.75	9.37	4.67	<0.260	0.0656	20.5	-
DL1-B02@4'	4'	10/15/2024	2.70*	72.5	<0.200	<0.30	6.67	8.09	6.18	<0.260	0.0245	18.0	-
DL1-B03@3'	3'	10/15/2024	3.09*	69.9	<0.200	<0.30	7.30	9.55	6.82	<0.260	0.0319	18.9	-
DL2-B01@3'	3'	10/15/2024	2.40*	56.2	<0.200	<0.30	6.35	6.75	5.38	<0.260	0.0304	17.1	-
DL2-B02@4'	4'	10/15/2024	2.71*	64.9	0.232	<0.30	10.2	11.7	5.76	<0.260	0.123	24.9	-
SP-CS01	-	10/15/2024	3.27*	73.5	<0.200	<0.30	7.87	10.1	7.47	<0.260	0.0335	20.2	-
SP-CS02	-	10/15/2024	2.94*	80.7	<0.200	<0.30	8.24	14.2	6.96	<0.260	0.0254	19.5	-
SP-CS03	-	10/15/2024	3.13*	73.4	<0.200	<0.30	7.69	8.24	7.31	<0.260	0.0381	20.5	-
SP-CS02R@4'	4'	10/31/2024	-	-	-	-	-	13.0	-	-	-	-	SP-CS02
BACKGROUND													
BG01@6"	6"	10/24/2024	3.22	71.3	<0.200	<0.30	4.82	8.56	4.61	<0.260	0.0303	19.6	-
BG01@4'	4'	10/24/2024	2.48	63.9	<0.200	<0.30	3.92	5.28	3.51	<0.260	<0.0200	14.5	-
BG01@6'	6'	10/24/2024	3.49	118	0.214	<0.30	5.71	9.30	6.03	<0.260	0.0343	22.5	-
BG02@6"	6"	10/24/2024	2.44	47.6	<0.200	<0.30	4.06	7.59	3.34	<0.260	<0.0200	15.7	-
BG02@4'	4'	10/24/2024	2.72	72.1	<0.200	<0.30	4.35	6.78	4.11	<0.260	<0.0200	17.3	-
BG02@6'	6'	10/24/2024	3.68	107	0.235	<0.30	5.73	10.0	5.96	<0.260	0.0385	22.0	-
BG03@6"	6"	10/24/2024	2.24	47.7	<0.200	<0.30	4.00	6.11	3.28	<0.260	<0.0200	14.7	-
BG03@4'	4'	10/24/2024	2.92	118	<0.200	<0.30	4.98	7.83	5.31	<0.260	0.0246	20.2	-
BG03@6'	6'	10/24/2024	2.68	73.7	<0.200	<0.30	4.82	6.60	4.22	<0.260	<0.0200	18.3	-



**TABLE 4**  
**HSR ACKARD 5-2**  
**SOIL ANALYTICAL DATA - METALS**  
**EXTRACTION OIL & GAS, INC.**

Soil Sample Location	Depth	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)	Confirmation/Resample for Sample Location(s) <sup>(3)</sup>
ECMC Metals in Soils - GSSL <sup>(1)</sup>			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370	-
ECMC Metals in Soils - RSL <sup>(2)</sup>			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000	-
BG04@6"	6"	10/24/2024	2.37	47.1	<0.200	<0.30	3.84	5.41	3.29	<0.260	<0.0200	14.6	-
BG04@4'	4'	10/24/2024	2.39	65.9	<0.200	<0.30	4.06	5.44	3.77	<0.260	<0.0200	15.0	-
BG04@6'	6'	10/24/2024	2.67	99.1	<0.200	<0.30	4.72	7.05	4.88	<0.260	0.0203	19.3	-
BG05@6"	6"	10/24/2024	2.15	33.5	<0.200	<0.30	3.63	5.91	2.77	<0.260	<0.0200	14.3	-
BG05@4'	4'	10/24/2024	2.80	87.7	<0.200	<0.30	4.36	6.71	4.36	<0.260	0.0212	16.9	-
BG05@6'	6'	10/24/2024	2.66	80.4	<0.200	<0.30	4.43	6.43	4.20	<0.260	<0.0200	17.1	-
BG06@6"	6"	10/31/2024	2.97	76.0	<0.200	<0.30	4.41	6.18	4.16	<0.260	0.0285	16.7	-
BG06@4'	4'	10/31/2024	2.63	73.9	<0.200	<0.30	4.54	5.92	4.37	<0.260	0.0288	16.7	-
BG06@6'	6'	10/31/2024	3.08	78.4	0.211	<0.30	4.79	8.02	5.09	<0.260	0.0437	21.7	-
BG07@6"	6"	10/31/2024	2.55	71.0	<0.200	<0.30	4.44	6.49	4.33	<0.260	0.0304	17.4	-
BG07@4'	4'	10/31/2024	3.58	101	<b>0.268</b>	<0.30	5.29	8.63	5.60	<0.260	0.0491	20.6	-
BG07@6'	6'	10/31/2024	1.98	36.1	<0.200	<0.30	3.82	6.46	2.80	<0.260	<0.0200	14.2	-
Highest Background @ 6" - 6' x1.25 (SM)			4.60	148	0.335	-	7.16	12.5	7.54	-	0.0614	28.1	-

**Notes:**

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

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

(3) List sample location that exceeded ECMC Table 915-1 Standards that the confirmation/resample sample represents. Sample location resampled to confirm heterogeneous lithology or lab variability. All other sample results were either below Table 915-1 limits or site-specific backgrounds.

ECMC = Colorado Energy & Carbon Management Commission

GSSL = Protection of Groundwater Screening Level

RSL = Residential Soil Screening Level

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

mg/kg = milligrams per kilogram

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

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

**Highest background concentration x1.25**

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

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

- = Not Applicable

**TABLE 5**  
**HSR ACKARD 5-2**



**SOIL ANALYTICAL DATA - SOIL RECLAMATION**  
**EXTRACTION OIL & GAS, INC.**

Soil Sample Location	Depth	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)	Confirmation/Resample for Sample Location(s) <sup>(2)</sup>
<b>ECMC Soil Suitability for Reclamation<sup>(1)</sup></b>			<b>6 - 8.3</b>	<b>&lt; 6</b>	<b>&lt; 4</b>	<b>2</b>	<b>-</b>
SEP-B01@3"	3"	10/15/2024	7.60	0.0724	0.173	<2.00	-
SEP-B02@3"	3"	10/15/2024	8.39*	0.0275	0.143	<2.00	-
WH-B01@6'	6'	10/15/2024	8.75*	1.22	0.250	<2.00	-
FL-B01@4'	4'	10/15/2024	8.32*	0.380	0.282	<2.00	-
FL-B02@3'	3'	10/15/2024	8.35*	0.0756	0.156	<2.00	-
AST-B01@6"	6"	10/15/2024	4.09	0.277	0.349	<2.00	-
PW-B01@5'	5'	10/15/2024	8.34*	0.169	0.190	<2.00	-
PW-S01@4'	4'	10/15/2024	8.18	0.0405	0.209	<2.00	-
DL1-B01@3'	3'	10/15/2024	8.11	0.0714	0.222	<2.00	-
DL1-B02@4'	4'	10/15/2024	8.04	0.764	0.389	<2.00	-
DL1-B03@3'	3'	10/15/2024	8.21	0.355	0.230	<2.00	-
DL2-B01@3'	3'	10/15/2024	8.35*	0.0704	0.152	<2.00	-
DL2-B02@4'	4'	10/15/2024	8.27	0.0312	0.206	<2.00	-
SP-CS01	-	10/15/2024	8.28	0.113	0.189	<2.00	-
SP-CS02	-	10/15/2024	8.20	0.746	0.353	<2.00	-
SP-CS03	-	10/15/2024	8.04	0.126	0.273	<2.00	-
AST-B01R@6"	6"	10/31/2024	6.40	-	-	-	AST-B01@6"
<b>BACKGROUND</b>							
BG01@6"	6"	10/24/2024	7.27	0.0254	0.0684	<2.00	-
BG01@4'	4'	10/24/2024	8.59	0.0548	0.148	<2.00	-
BG01@6'	6'	10/24/2024	8.55	0.491	0.185	<2.00	-
BG02@6"	6"	10/24/2024	7.29	0.00197	0.219	<2.00	-
BG02@4'	4'	10/24/2024	8.41	0.0451	0.160	<2.00	-
BG02@6'	6'	10/24/2024	8.40	0.134	0.173	<2.00	-
BG03@6"	6"	10/24/2024	7.73	0.00287	0.140	<2.00	-
BG03@4'	4'	10/24/2024	8.29	0.0349	0.153	<2.00	-
BG03@6'	6'	10/24/2024	8.62	0.00173	0.141	<2.00	-
BG04@6"	6"	10/24/2024	7.48	0.00690	0.0431	<2.00	-
BG04@4'	4'	10/24/2024	8.84	0.00939	0.0799	<2.00	-
BG04@6'	6'	10/24/2024	8.68	0.0268	0.122	<2.00	-
BG05@6"	6"	10/24/2024	6.50	<0.00100	0.155	<2.00	-
BG05@4'	4'	10/24/2024	8.36	0.0423	0.168	<2.00	-
BG05@6'	6'	10/24/2024	8.79	0.0422	0.114	<2.00	-
BG06@6"	6"	10/31/2024	8.51	0.0829	0.167	<2.00	-
BG06@4'	4'	10/31/2024	8.65	0.0681	0.146	<2.00	-
BG06@6'	6'	10/31/2024	6.93	0.0200	0.0681	<2.00	-
BG07@6"	6"	10/31/2024	8.76	0.683	0.191	<2.00	-
BG07@4'	4'	10/31/2024	8.87	0.622	0.217	<2.00	-
BG07@6'	6'	10/31/2024	6.98	0.0183	0.114	<2.00	-



**TABLE 5**  
**HSR ACKARD 5-2**  
**SOIL ANALYTICAL DATA - SOIL RECLAMATION**  
**EXTRACTION OIL & GAS, INC.**



Soil Sample Location	Depth	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)	Confirmation/Resample for Sample Location(s) <sup>(2)</sup>
ECMC Soil Suitability for Reclamation <sup>(1)</sup>			6 - 8.3	< 6	< 4	2	-
Highest Background @ 6" - 6' (SM)			8.87	0.683	0.219	-	-

**Notes:**

(1) Standards for soil are taken from ECMC Table 915-1: Soil Suitability for Reclamation (Effective January 15, 2021)  
(2) List sample location that exceeded ECMC Table 915-1 Standards that the confirmation/resample sample represents. Sample location resampled to confirm heterogeneous lithology or lab variability. All other sample results were either below Table 915-1 limits or site-specific backgrounds.  
ECMC = Colorado Energy & Carbon Management 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 ECMC Table 915-1: Soil Suitability for Reclamation Concentrations  
**Highest background concentration**

\* Result exceeded the ECMCC Table 915-1 standard, but was within site-specific background concentrations  
- = Not Applicable