

SITE NAME/REM: Sater C13-27D TANK BATTERY / REM 32439							DATE: 2/14/2025	WEATHER: 20S, PARTLY CLOUDY
TYPE OF WORK: FACILITY DECOMMISSIONED/EXCAVATION BACKFILL							CLIENT: CHEVRON	
LAT/LONG: 40.319445, -104.496682							PERSONNEL: RJ & JW	
ESTIMATED DEPTH TO GROUNDWATER: NO GROUNDWATER PRESENT							OTHER OBSERVATIONS:	
SOIL SAMPLING							FACILITY INFRASTRUCTURE	
Date	Soil Sample ID	Soil Type	PID (ppm)	Staining (Y/N)	Odor (Y/N)	Time	EQUIPMENT	Quantity
							Above Ground Storage Tank (AST)	1
2/14/2025	AST01@0-6"	CL	12.7	N	N	10:40	Buried or Partially Buried Vessel	1
2/14/2025	PWV01-N@3'	CL	61.0	N	Y	10:30	Separator	1
2/14/2025	PWV01-E@3'	CL	11.2	N	Y	NA	Emission Control Device (ECD)	2
2/14/2025	PWV01-S@3'	CL	12.8	N	Y	NA	Dump Line	1
2/14/2025	PWV01-W@3'	CL	21.6	N	Y	NA	Wellhead	0
2/14/2025	PWV01@5'	CL	22.1	N	N	10:35	Flowline	1
2/14/2025	ECD01@0-6"	SP	0.1	N	N	NA	Third Party Equipment:	0
2/14/2025	ECD02@0-6"	SP	0.3	N	N	NA	Other:	0
2/14/2025	SEP01-DL@3'	CL	0.6	N	Y	10:20	Soil Loads Removed	
2/14/2025	SEP01-FL@3'	CL	9.7	Y	Y	10:25	IMPACTED SOIL IDENTIFIED? YES	
							ESTIMATED VOLUME OF IMPACTS: 95 CY	
							Date	Number
								CY
							Total Removed	
							Disposal Facility:	
							Groundwater Recovery	
							DATE GW ENCOUNTERED: NO	DEPTH:
							GROUNDWATER IN CONTACT WITH IMPACTED SOIL?	
							LNAPL OR SHEEN OBSERVED ON GW?	
GROUNDWATER SAMPLING							Date	BBLS
Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?		
							Total Removed	
							Disposal Facility:	



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## **Facility Closure Investigation and Environmental Summary**

Sater C13-27D Tank Battery  
ECMC Remediation Project #32439  
Weld County, Colorado

### **Attachments:**

**Figure 1 – Site Location Map**

**Figure 2 – Soil Sample Locations**

**Figure 3 – Supplemental Site Investigation Map**

**Table 1 – Field Data Summary Table**

**Table 2 – Summary of Volatile Organic Soil Chemistry Data**

**Table 3 – Summary of Polycyclic Aromatic Hydrocarbon Soil Chemistry Data**

**Table 4 – Summary of Soil Suitability for Reclamation**

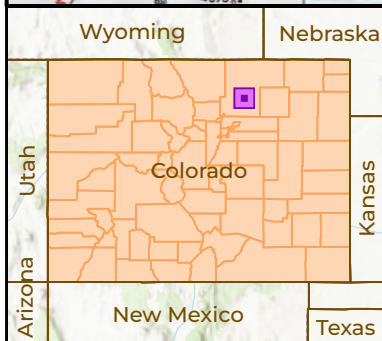
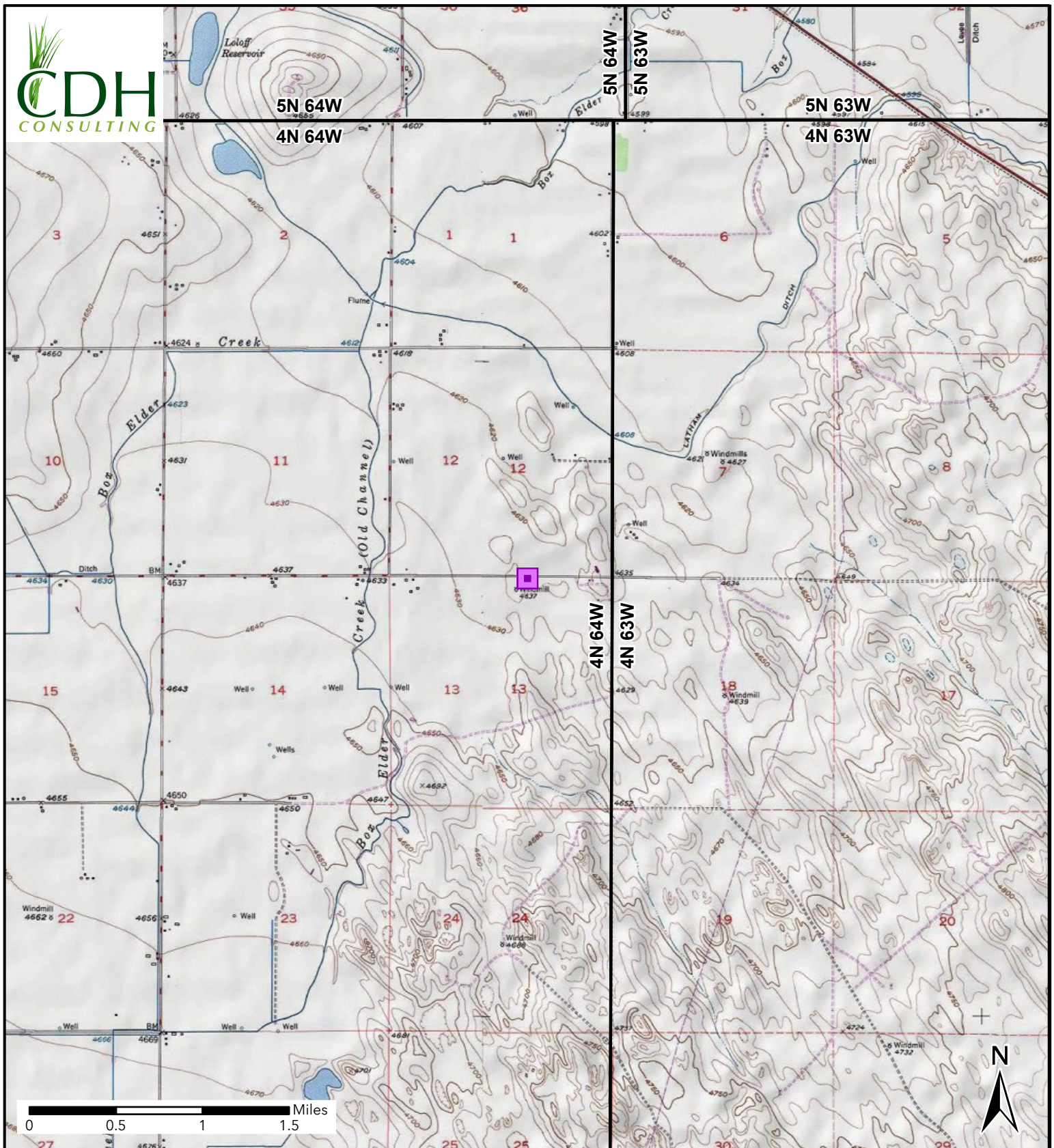
**Table 5 – Summary of Metals in Soil Chemistry Data**

**Attachment A: Photographic Log**



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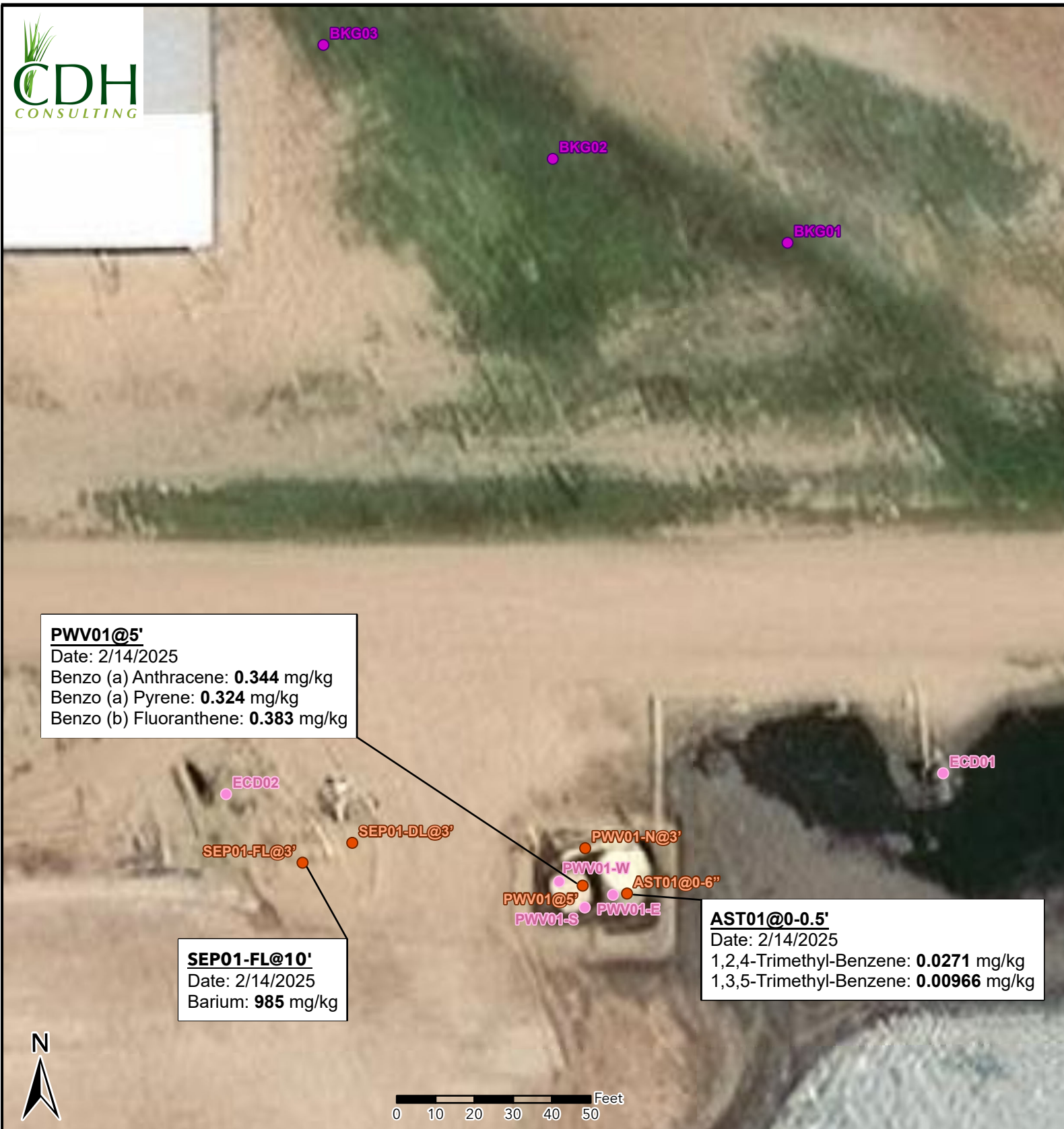
## FIGURES



**Figure 1**  
**Site Location**  
**SATER C13-27D TB**  
 NWNE-SEC 13-T4N-R64W  
 Weld County, Colorado  
 Chevron

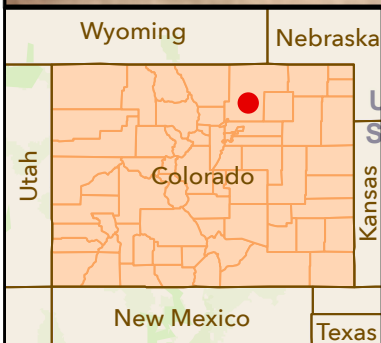
 Site Location





**Figure 2**  
**Sample Locations Map**  
Sater C13-27D TB  
NWNE-SEC 13-T4N-R6W  
Weld County, Colorado  
Chevron

- Soil Sample
- Background Sample
- Screening Point



**Figure 3**  
**Supplemental Site Investigation Map**  
Sater C13-27D TB  
SESW-SEC-10-T4N-R64W  
Weld County, Colorado  
Chevron

- Soil Sample
- Screening Point
- Background Sample
- Proposed Background Sample
- 15' x 15' Proposed Excavation



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## **TABLES**

**TABLE 1**  
**FIELD DATA SUMMARY TABLE**  
**NOBLE 100322**  
**SATER C13-27D, WELD COUNTY, COLORADO**  
**REM # 32439**

Sample ID	Sample Date	Depth (ft)	GPS Data Latitude/Longitude		PDOP Value	VOC Concentration (ppm)
AST01@0-6"	2/14/2025	0-0.5	40.319435	-104.496523	0.867566	12.7
PWV01-N@3'	2/14/2025	3	40.319468	-104.496561	-	61.0
PWV01-E@3'	2/14/2025	3	40.319435	-104.496536	0.979850	11.2
PWV01-S@3'	2/14/2025	3	40.319426	-104.496562	0.928209	12.8
PWV01-W@3'	2/14/2025	3	40/319444	-104.496585	0.928582	21.6
PWV01@5'	2/14/2025	5	40.319435	-104.496554	0.951501	22.1
ECD01@0-6"	2/14/2025	0-0.5	40.319511	-104.496219	0.858299	0.1
ECD02@0-6"	2/14/2025	0-0.5	40.319502	-104.496882	0.866259	0.3
SEP01-DL@3'	2/14/2025	3	40.319467	-104.496766	0.836808	0.6
SEP01-FL@3'	2/14/2025	3	40.319453	-104.496812	0.836416	9.7
PH01@3'	2/14/2025	3	40.318658	-104.497052	0.917159	1.2
BKG01@0-6"	3/3/2025	0-0.5	40.319895	-104.496368	0.832922	0.0
BKG01@3'	3/3/2025	3	40.319895	-104.496368	0.832922	0.0
BKG01@5'	3/3/2025	5	40.319895	-104.496368	0.832922	0.0
BKG02@0-6"	3/3/2025	0-0.5	40.319956	-104.496584	0.807723	0.0
BKG02@3'	3/3/2025	3	40.319956	-104.496584	0.807723	0.0
BKG02@5'	3/3/2025	5	40.319956	-104.496584	0.807723	0.0
BKG03@0-6"	3/3/2025	0-0.5	40.320039	-104.496795	0.850134	0.0
BKG03@3'	3/3/2025	3	40.320039	-104.496795	0.850134	0.0
BKG03@5'	3/3/2025	5	40.320039	-104.496795	0.850134	0.0

1. Global Positioning System (GPS) data is provided in decimal degrees using North American Datum (NAD) 83 UTMZone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

ft = Feet



TABLE 2  
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA  
NOBLE 100322  
SATER C13-27D, WELD COUNTY, COLORADO  
REM # 32439

Sample ID	Sample Date	Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylenes (mg/kg)	1,2,4- Trimethyl- Benzene (mg/kg)	1,3,5- Trimethyl- Benzene (mg/kg)	Naphthalene (mg/kg)	TPH (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500	500**		
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	500**		
PWV01-N@3'	2/14/2025	3	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00183	<125.200	<0.200	<25.0	<100
PWV01@5'	2/14/2025	5	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00371	<125.200	<0.200	<25.0	<100
AST01@0-6"	2/14/2025	0-0.5	<0.00200	0.00344	<0.00200	0.0254	<b>0.0271</b>	<b>0.00966</b>	<0.00919	49.5	<0.200	49.5	<100
SEP01-DL@3'	2/14/2025	3	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00373	<125.200	<0.200	<25.0	<100
SEP01-FL@3'	2/14/2025	3	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00369	<125.200	<0.200	<25.0	<100

1. Bold values exceed the ECMC Table 915-1 limit(s)
  2. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)
  3. \* Indicates laboratory minimum detection limit in excess of SSL
  4. \*\* Summation of GRO+DRO+ORO must be less than 500 mg/kg
- (<) = Analytical result is less than the indicated laboratory reporting limit.  
 TPH-GRO = Total petroleum hydrocarbons - gasoline range organics  
 TPH-DRO = Total petroleum hydrocarbons - diesel range organics  
 TPH-ORO = Total petroleum hydrocarbons - oil range organics  
 mg/kg = Milligrams per kilogram  
 ft = Feet  
 bgs = Below ground surface  
 AP - Analytical pending

TABLE 3  
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA  
NOBLE 100322  
SATER C13-27D, WELD COUNTY, COLORADO  
REM # 32439

Sample ID	Sample Date	Depth (ft)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo (a) Anthracene (mg/kg)	Benzo (a) Pyrene (mg/kg)	Benzo (b) Fluoranthene (mg/kg)	Benzo (k) Fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo (a,h) Anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno (1,2,3- cd) Pyrene (mg/kg)	Pyrene (mg/kg)	1-Methyl - Naphthalene (mg/kg)	2-Methyl- Naphthalene (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			360	1800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
PWV01-N@3'	2/14/2025	3	<0.0402	<0.0402	<0.00531	<0.0402	<0.0402	<0.0402	<0.0402	<0.0402	<0.0402	<0.0402	<0.0402	<0.0402	<0.00289	<0.00723
PWV01@5'	2/14/2025	5	<0.0814	<0.0814	<b>0.344</b>	<b>0.324</b>	<b>0.383</b>	0.114	0.359	<0.0814	0.677	<0.0814	0.138	0.464	<0.00586	<0.0147
AST01@0-6"	2/14/2025	0-0.5	<0.202	<0.202	<0.0266	<0.202	<0.202	<0.202	<0.202	<0.202	<0.202	<0.202	<0.202	<0.202	<0.0145	<0.0363
SEP01-DL@3'	2/14/2025	3	<0.0817	<0.0817	<0.0108	<0.0817	<0.0817	<0.0817	<0.0817	<0.0817	<0.0817	<0.0817	<0.0817	<0.0817	<0.00588	<0.0147
SEP01-FL@3'	2/14/2025	3	<0.0777	<0.0777	<0.0107	<0.0777	<0.0777	<0.0777	<0.0777	<0.0777	<0.0777	<0.0777	<0.0777	<0.0777	<0.00583	<0.0146

1. Bold values exceed the ECMC Table 915-1 limit(s)

2. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)

3. \* Indicates laboratory minimum detection limit in excess of SSL

4. \*\* Summation of GRO+DRO+ORO must be less than 500 mg/kg

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

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

ft = Feet

bgs = Below ground surface

AP - Analytical pending

TABLE 4  
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION  
NOBLE 100322  
SATER C13-27D, WELD COUNTY, COLORADO  
REM # 32439

Sample ID	Sample Date	Depth (ft)	pH (Standard Units)	EC (mmhos/cm)	SAR (Standard Units)	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
PWV01-N@3'	2/14/2025	3	8.00	0.974	0.748	0.479
PWV01@5'	2/14/2025	5	8.08	0.889	0.793	0.453
AST01@0-6"	2/14/2025	0-0.5	7.77	0.690	0.304	0.293
SEP01-DL@3'	2/14/2025	3	7.89	1.49	0.757	0.510
SEP01-FL@3'	2/14/2025	3	8.16	2.47	2.22	0.467
BKG01@0-6"	3/3/2025	0-0.5	7.38	0.469	0.475	0.33
BKG01@3'	3/3/2025	3	8.18	0.238	0.864	0.199
BKG01@5'	3/3/2025	5	8.08	0.141	0.973	0.149
BKG02@0-6"	3/3/2025	0-0.5	7.59	0.507	0.711	0.211
BKG02@3'	3/3/2025	3	8.05	1.94	2.14	0.275
BKG02@5'	3/3/2025	5	8.07	1.36	4.03	0.116
BKG03@0-6"	3/3/2025	0-0.5	7.65	0.617	0.446	1.33
BKG03@3'	3/3/2025	3	8.09	1.34	1.36	0.843
BKG03@5'	3/3/2025	5	7.97	3.97	5.44	0.628
Maximum Background Concentration			8.18	3.97	5.44	1.33

1. **Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within background concentrations.

2. **Bold** faced values exceed the ECMC Table 915-1 limit(s) and native background concentrations.

3. Brown highlighted soil analytical values indicate a regulatory exceedance.

AP - Analytical pending

NA - Not analyzed

TABLE 5  
SUMMARY OF METALS IN SOIL CHEMISTRY DATA  
NOBLE 100322  
SATER C13-27D, WELD COUNTY, COLORADO  
REM # 32439

Sample ID	Sample Date	Depth (ft)	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)
ECMC Table 915-1 Limits (Residential SSL)			0.68	15000	71	0.3	3100	400	1500	390	390	23000
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
PWV01-N@3'	2/14/2025	3	3.65	119	0.201	<0.21 *	14.9	11.3	12.6	0.259	<0.0901	63.8
PWV01@5'	2/14/2025	5	2.86	116	0.115	<0.20 *	10.1	7.46	8.86	<0.253	<0.0974	43.3
AST01@0-6"	2/14/2025	0-0.5	2.4	76.7	0.147	<0.21 *	<9.43	6.99	7.98	<0.245	<0.0943	38.9
SEP01-DL@3'	2/14/2025	3	3.43	132	0.204	<0.20 *	12.8	10.1	10.1	<0.253	<0.0973	52.9
SEP01-FL@3'	2/14/2025	3	2.54	985	0.129	<0.20 *	<9.29	5.79	6.21	<0.241	<0.0929	<34.4
BKG01@0-6"	3/3/2025	0-0.5	1.74	73.1	0.125	<0.165 *	<8.82	6.78	5.66	<0.229	<0.0882	38.6
BKG01@3'	3/3/2025	3	1.75	47.1	<0.0915	<0.153 *	<9.15	4.26	4.29	<0.238	<0.0915	<33.8
BKG01@5'	3/3/2025	5	1.33	40.0	<0.0867	<0.153 *	<8.67	3.72	3.40	<0.226	<0.0867	<32.1
BKG02@0-6"	3/3/2025	0-0.5	1.23	43.1	<0.0993	<0.156 *	<9.93	3.72	3.38	<0.258	<0.0993	<36.8
BKG02@3'	3/3/2025	3	2.54	108	<0.0978	<0.103 *	<9.78	5.91	6.19	<0.254	<0.0978	<36.2
BKG02@5'	3/3/2025	5	1.79	52.3	<0.0900	<0.129 *	<9.00	4.69	4.50	<0.234	<0.0900	<33.3
BKG03@0-6"	3/3/2025	0-0.5	1.18	55.9	0.195	<0.164 *	<9.62	5.44	3.84	<0.250	<0.0962	41.1
BKG03@3'	3/3/2025	3	3.75	156	0.254	<0.154 *	16.4	13.000	14.1	<0.243	<0.0934	72.4
BKG03@5'	3/3/2025	5	3.26	169	0.245	<0.140 *	16.3	12.6	13.7	<0.230	<0.0886	72.5
1.25x Maximum Background Concentration			4.6875	211.25	0.3175	NA	20.5	16.25	17.625	0	NA	90.625

1. **Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within 1.25x background concentrations.
2. **Red** faced values exceed the ECMC Table 915-1 limit(s) and native background concentrations.
3. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL).
4. Non-detect background results accounted for in the highest background concentration by using the reporting limit.

ECMC = Energy & Carbon Management Commission

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

mg/kg = Milligrams per kilogram

ft = Feet

bgs = Below ground surface

\* Indicates laboratory minimum detection limit in excess of SSL

AP - Analytical pending





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## **ATTACHMENT A PHOTOGRAPHIC LOG**

**Attachment A - Photographic Log**

Sater C13-27D Tank Battery

Noble 100322

February 14, 2025



**Photo 1:** AST, impacts observed from the PWV stockpiling, facing north-northeast

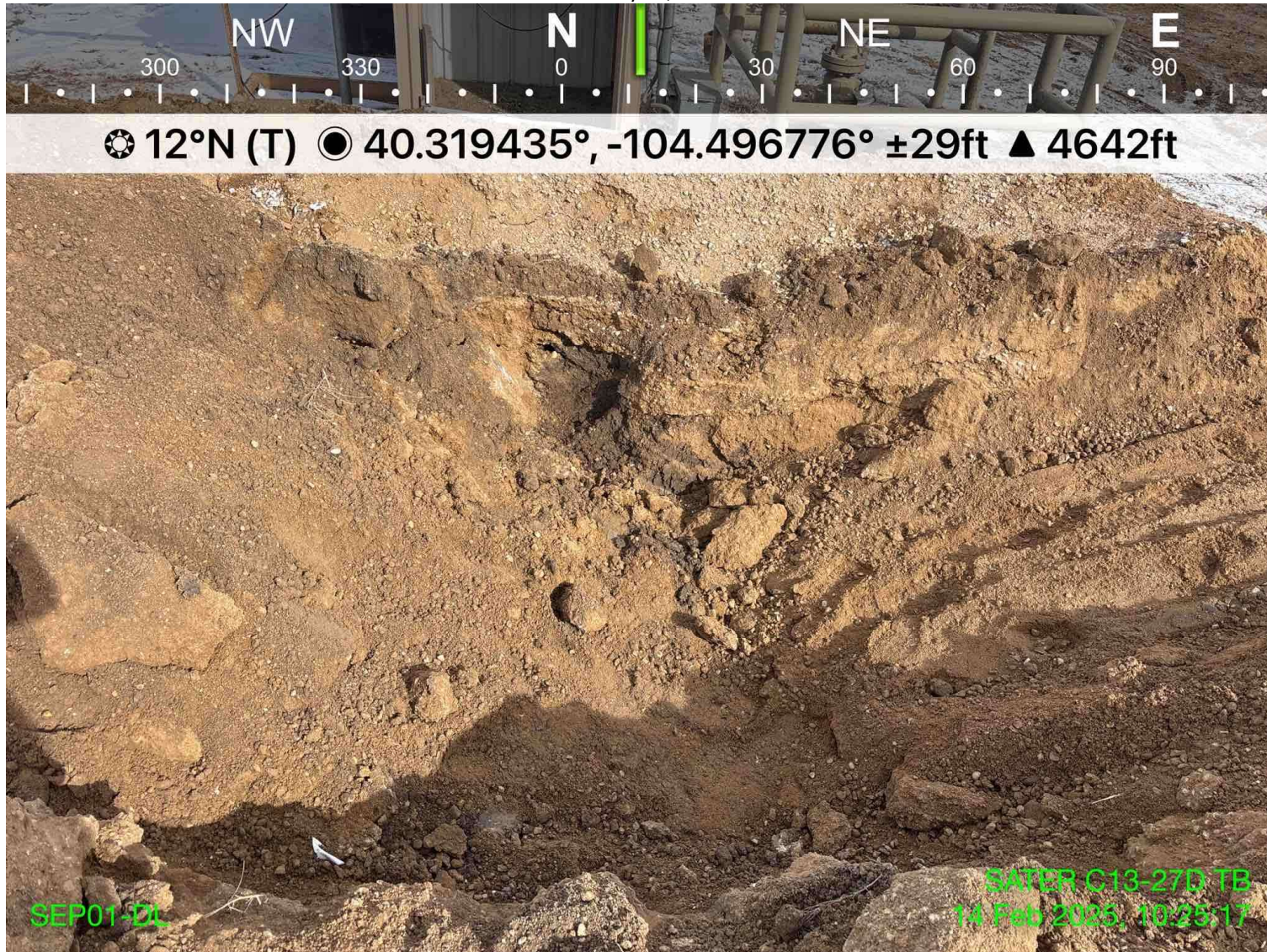


**Attachment A - Photographic Log**

Sater C13-27D Tank Battery

Noble 100322

February 14, 2025



**Photo 2:** SEP01-DL impacts observed, facing north



**Attachment A - Photographic Log**

Sater C13-27D Tank Battery

Noble 100322

February 14, 2025



**Photo 3:** SEP01-FL impacts observed, facing southwest



**Attachment A - Photographic Log**

Sater C13-27D Tank Battery

Noble 100322

February 14, 2025



**Photo 4:** PWV01 impacts observed, facing north



Attachment A - Photographic Log

Sater C13-27D Tank Battery

Noble 100322

February 14, 2025



Photo 5: ECD01, facing south



Attachment A - Photographic Log

Sater C13-27D Tank Battery

Noble 100322

February 14, 2025



Photo 6: ECD02, facing southwest



**Attachment A - Photographic Log**

Sater C13-27D Tank Battery

Noble 100322

February 14, 2025



**Photo 7:** BKG01, facing south



**Attachment A - Photographic Log**

Sater C13-27D Tank Battery

Noble 100322

February 14, 2025



**Photo 8:** BKG02, facing south -southwest



**Attachment A - Photographic Log**

Sater C13-27D Tank Battery

Noble 100322

February 14, 2025



**Photo 9:** BKG03, facing southwest