



CDH Consulting, LLC  
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## **Flowline Closure Investigation and Environmental Summary**

**BORN-SITZMAN 5**

**ECMC Remediation Project #32829**

**Weld County, Colorado**

### **Attachments:**

**Field Form**

**Figure 1 – Site Location Map**

**Figure 2 – Soil Sample and Field Screening Locations Map**

**Figure 3 – Supplemental Source Mass Removal 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**

**Photographic Log**

**Flowline Closure Checklist**

**RBU Checklist**



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## **FIELD FORM**

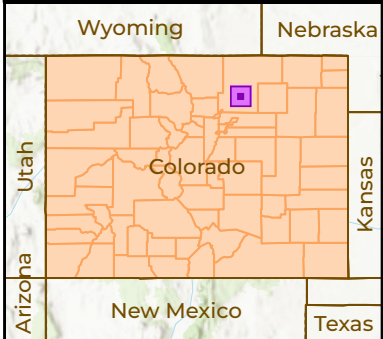
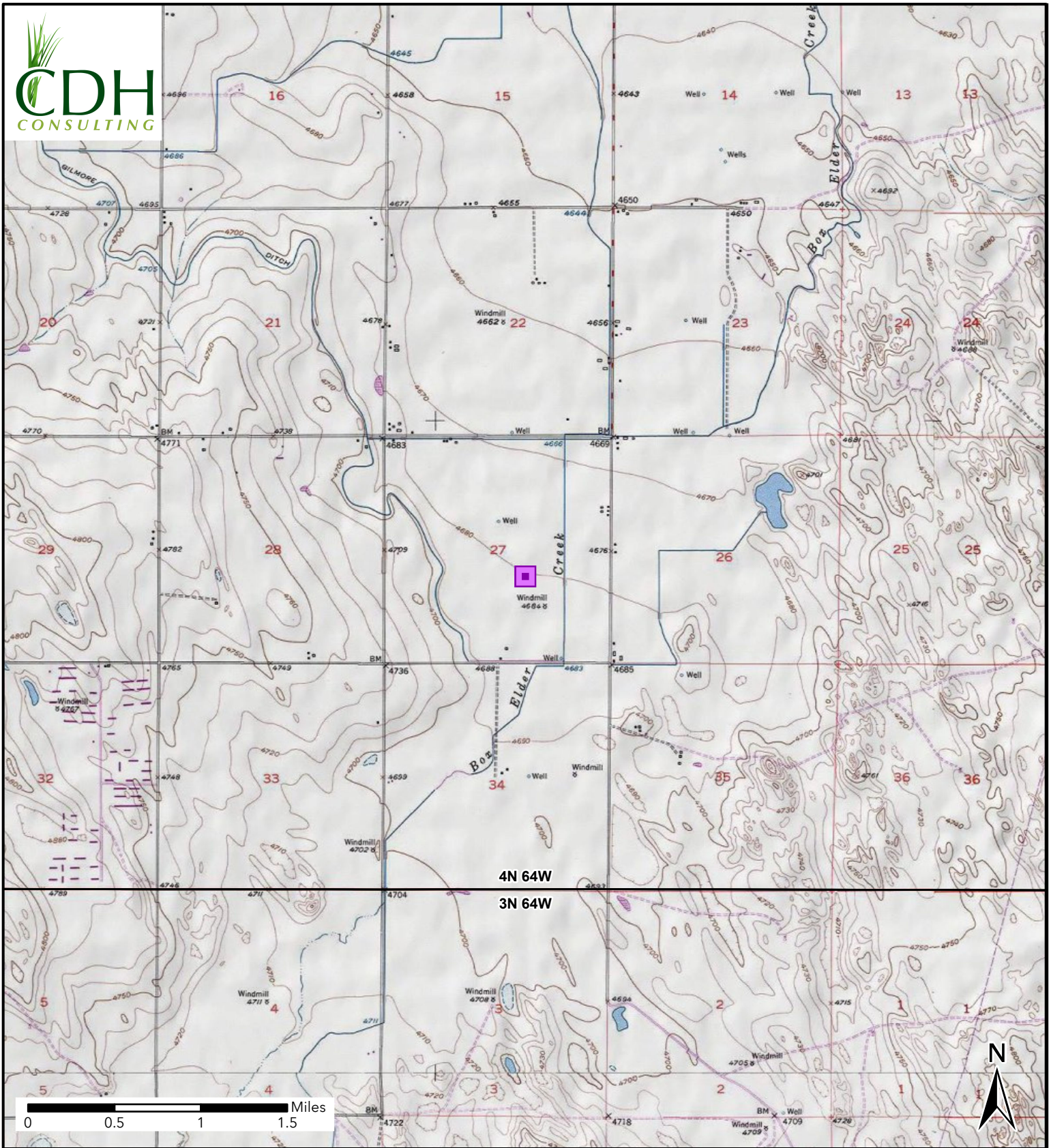
SITE NAME / REM: BORN-SITZMAN 5 FL REM #32829								DATE: 4/18, 5/14/2025	WEATHER: 50s and sunny, 50s and rainy	
TYPE OF WORK: Flowline Decommissioning Work								CLIENT: Noble Energy Inc.		
LAT/LONG: 40.281630, -104.534630								PERSONNEL: JW and SG		
ESTIMATED DEPTH TO GROUNDWATER: No groundwater encountered								OTHER OBSERVATIONS: Common trenched with 7 flowlines. The samples starting with FL03, FL05, FL06, and FL07 could not be assigned to specific flowlines, thus are being reported under BORN-SITZMAN 5		
<b>SOIL SAMPLING</b>								<b>FACILITY INFRASTRUCTURE</b>		
Date	Soil Sample ID	Soil Type	PID (ppm)	Staining (Y/N)	Odor (Y/N)	Time	Sent to lab on Ice? (Y/N)	EQUIPMENT		Quantity
								Above Ground Storage Tank (AST)		-
4/18/2025	FL03-01@3'	SW	1.9	N	N	10:48	Y	Buried or Partially Buried Vessel		-
4/18/2025	FL05-01@3'	SW	1.0	N	N	10:52	Y	Separator		1
4/18/2025	FL06-01@3'	SW	0.6	N	N	10:54	Y	Emission Control Device (ECD)		-
4/18/2025	FL07-01@3'	SW	0.9	N	N	10:56	Y	Dump Line		-
4/18/2025	FL03-02@4'	SW	0.5	N	N	11:12	Y	Wellhead		1
4/18/2025	FL03-03@3'	CL	0.1	N	N	14:20	Y	Flowline		7
4/18/2025	FL05-03@3'	CL	0.1	N	N	14:30	Y	Third Party Equipment:		-
4/18/2025	FL03-04@3'	CL	4.2	N	N	15:30	Y	Other:		-
4/18/2025	FL05-04@3'	CL	3.2	N	N	15:40	Y	<b>Soil Loads Removed</b>		
4/18/2025	FL03-05@3'	SW	0.0	N	N	16:10	Y	IMPACTED SOIL IDENTIFIED? No		
4/18/2025	FL03-06@3'	SW	0.0	N	N	16:20	Y	ESTIMATED VOLUME OF IMPACTS:		
5/14/2025	BKG01@3.5'	SC	0.0	N	N	12:54	Y	Date	Number	CY
5/14/2025	BKG02@3.5'	SC	0.1	N	N	13:02	Y			
5/14/2025	BKG03@3.5'	SC	0.0	N	N	13:13	Y			
								Total Removed		
								Disposal Facility:		
								<b>Groundwater Recovery</b>		
								DATE GW ENCOUNTERED:		DEPTH:
								GROUNDWATER IN CONTACT WITH IMPACTED SOIL?		
								LNAPL OR SHEEN OBSERVED ON GW?		
<b>GROUNDWATER SAMPLING</b>								Date	BBLS	
Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?	Sent to lab on Ice? (Y/N)			
									Total Removed	
								Disposal Facility:		





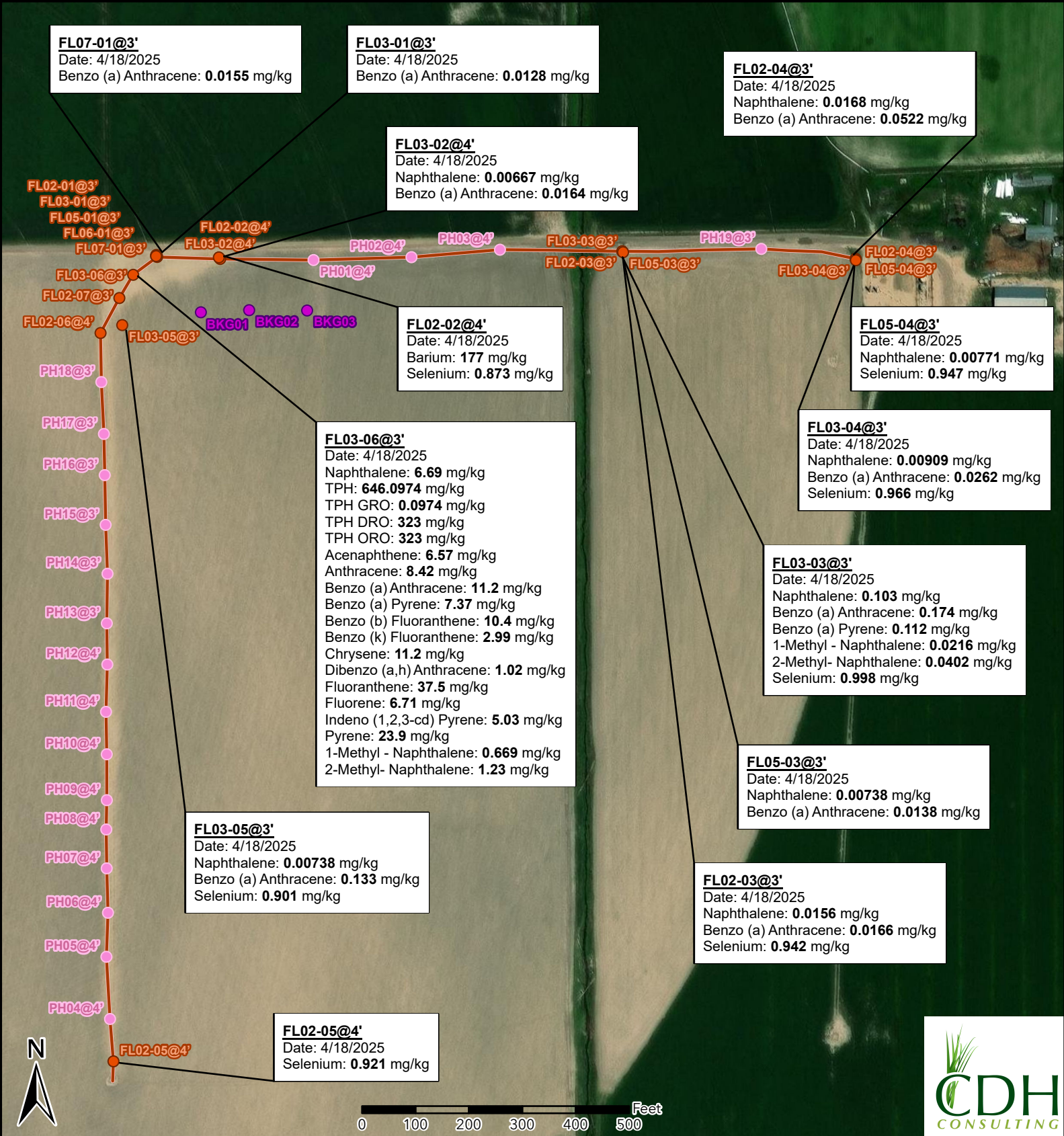
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## FIGURES



**Figure 1**  
**Site Location**  
**BORN-SITZMAN 5**  
NWSE-SEC 27-T4N-R64W  
Weld County, Colorado  
Noble Energy Inc.

 Site Location



**FL07-01@3'**  
Date: 4/18/2025  
Benzo (a) Anthracene: **0.0155** mg/kg

**FL03-01@3'**  
Date: 4/18/2025  
Benzo (a) Anthracene: **0.0128** mg/kg

**FL02-04@3'**  
Date: 4/18/2025  
Naphthalene: **0.0168** mg/kg  
Benzo (a) Anthracene: **0.0522** mg/kg

**FL03-02@4'**  
Date: 4/18/2025  
Naphthalene: **0.00667** mg/kg  
Benzo (a) Anthracene: **0.0164** mg/kg

**FL02-01@3'**  
**FL03-01@3'**  
**FL05-01@3'**  
**FL06-01@3'**  
**FL07-01@3'**

**FL02-02@4'**  
**FL03-02@4'**

**PH02@4'** **PH03@4'**

**FL03-03@3'** **PH13@3'**

**FL02-04@3'** **FL05-04@3'**

**FL03-06@3'**  
**FL02-07@3'**  
**FL02-06@4'**

**FL03-05@3'** **BKG01** **BKG02** **BKG03**

**FL02-02@4'**  
Date: 4/18/2025  
Barium: **177** mg/kg  
Selenium: **0.873** mg/kg

**FL05-04@3'**  
Date: 4/18/2025  
Naphthalene: **0.00771** mg/kg  
Selenium: **0.947** mg/kg

**FL03-06@3'**  
Date: 4/18/2025  
Naphthalene: **6.69** mg/kg  
TPH: **646.0974** mg/kg  
TPH GRO: **0.0974** mg/kg  
TPH DRO: **323** mg/kg  
TPH ORO: **323** mg/kg  
Acenaphthene: **6.57** mg/kg  
Anthracene: **8.42** mg/kg  
Benzo (a) Anthracene: **11.2** mg/kg  
Benzo (a) Pyrene: **7.37** mg/kg  
Benzo (b) Fluoranthene: **10.4** mg/kg  
Benzo (k) Fluoranthene: **2.99** mg/kg  
Chrysene: **11.2** mg/kg  
Dibenzo (a,h) Anthracene: **1.02** mg/kg  
Fluoranthene: **37.5** mg/kg  
Fluorene: **6.71** mg/kg  
Indeno (1,2,3-cd) Pyrene: **5.03** mg/kg  
Pyrene: **23.9** mg/kg  
1-Methyl - Naphthalene: **0.669** mg/kg  
2-Methyl- Naphthalene: **1.23** mg/kg

**FL03-04@3'**  
Date: 4/18/2025  
Naphthalene: **0.00909** mg/kg  
Benzo (a) Anthracene: **0.0262** mg/kg  
Selenium: **0.966** mg/kg

**FL03-03@3'**  
Date: 4/18/2025  
Naphthalene: **0.103** mg/kg  
Benzo (a) Anthracene: **0.174** mg/kg  
Benzo (a) Pyrene: **0.112** mg/kg  
1-Methyl - Naphthalene: **0.0216** mg/kg  
2-Methyl- Naphthalene: **0.0402** mg/kg  
Selenium: **0.998** mg/kg

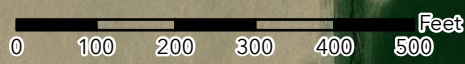
**FL05-03@3'**  
Date: 4/18/2025  
Naphthalene: **0.00738** mg/kg  
Benzo (a) Anthracene: **0.0138** mg/kg

**FL02-03@3'**  
Date: 4/18/2025  
Naphthalene: **0.0156** mg/kg  
Benzo (a) Anthracene: **0.0166** mg/kg  
Selenium: **0.942** mg/kg

**FL03-05@3'**  
Date: 4/18/2025  
Naphthalene: **0.00738** mg/kg  
Benzo (a) Anthracene: **0.133** mg/kg  
Selenium: **0.901** mg/kg

**FL02-05@4'**  
Date: 4/18/2025  
Selenium: **0.921** mg/kg

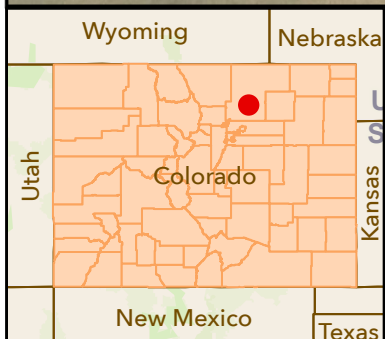
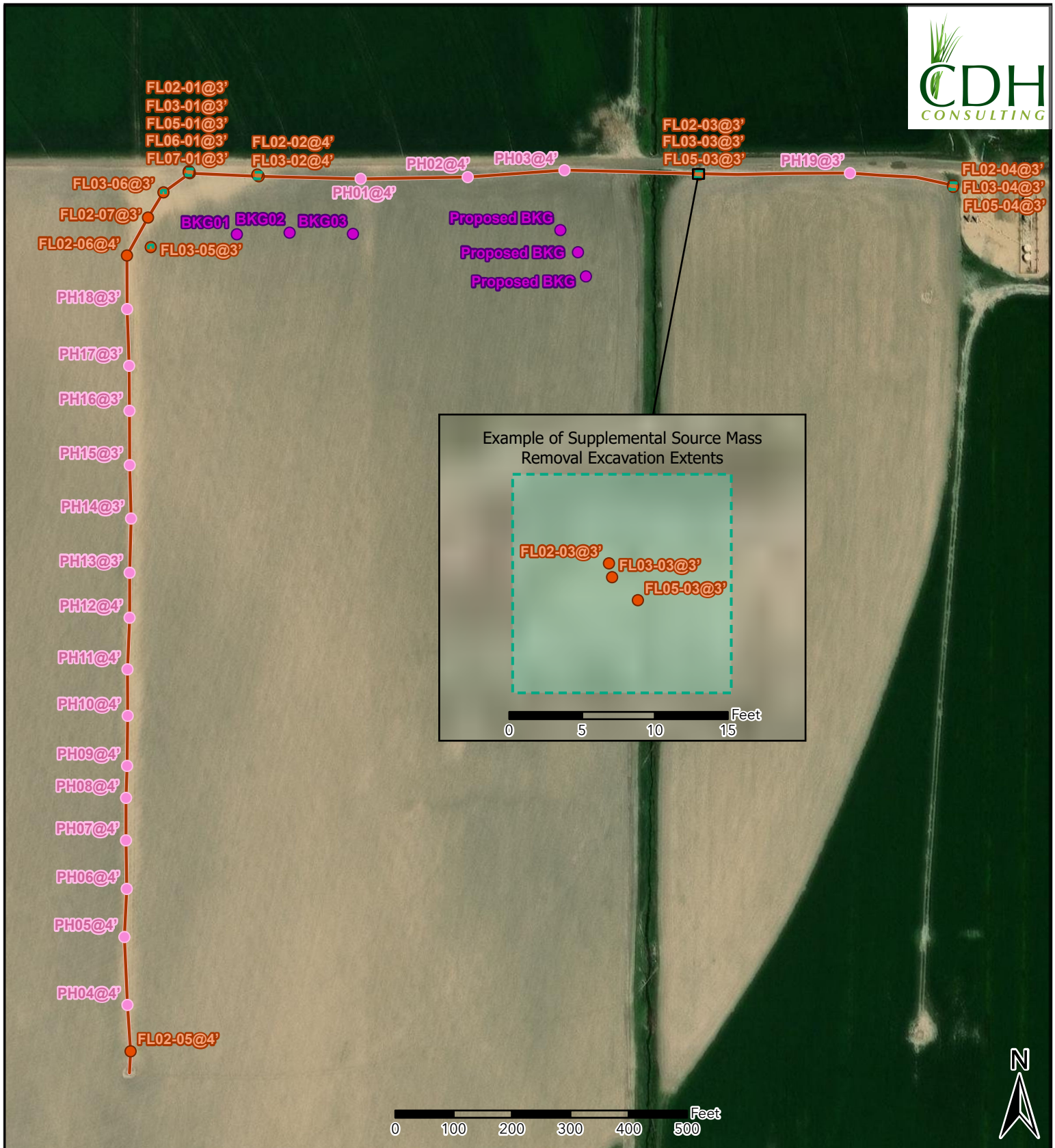
**PH18@3'**  
**PH17@3'**  
**PH16@3'**  
**PH15@3'**  
**PH14@3'**  
**PH13@3'**  
**PH12@4'**  
**PH11@4'**  
**PH10@4'**  
**PH09@4'**  
**PH08@4'**  
**PH07@4'**  
**PH06@4'**  
**PH05@4'**  
**PH04@4'**



**Figure 2**  
**Sample Location Map**  
**BORN SITZMAN 5**  
NWSE-SEC 27-T4N-R64W  
Weld County, Colorado  
Noble Energy Inc.

- Site Location
- Soil Sample
- Screening Point
- Background Sample

NOTE:  
XXXX@X = Sample Name @ Depth in Feet  
**BOLD** - Above ECOM Table 915-1 Standards  
"mg/kg" = milligrams per kilogram



**Figure 3**  
**Supplemental Source Mass Removal Map**

**BORN SITZMAN 5**  
 NWSE-SEC 27-T4N-R64W  
 Weld County, Colorado  
 Noble Energy Inc.

- Soil Sample
- Screening Point
- Background Sample
- Proposed Excavation



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## **TABLES**

TABLE 1  
FIELD DATA SUMMARY TABLE  
NOBLE 100322  
BORN SITZMAN 5, WELD COUNTY, COLORADO  
REM # 32829

Sample ID	Sample Date	Depth (ft)	GPS Data		PDOP Value	VOC Concentration (ppm)
			Latitude	Longitude		
FL02-01@3'	4/18/2025	3	40.285871	-104.534286	1.200000	1.7
FL02-02@4'	4/18/2025	4	40.285858	-104.533862	1.100000	0.7
FL02-03@3'	4/18/2025	3	40.285875	-104.533163	1.300000	0.1
FL02-04@3'	4/18/2025	3	40.285823	-104.529597	1.000000	4.2
FL01-05@3'	4/18/2025	3	40.285865	-104.531158	1.200000	4.8
FL02-06@4'	4/18/2025	4	40.285483	-104.534671	1.200000	0.0
FL02-07@3'	4/18/2025	3	40.285662	-104.534542	1.000000	0.0
PH01@4'	4/18/2025	4	40.285847	-104.533236	1.100000	0.5
PH02@4'	4/18/2025	4	40.285856	-104.532578	1.100000	0.0
PH03@4'	4/18/2025	4	40.285889	-104.531984	0.900000	0.4
PH04@4'	4/18/2025	4	40.281957	-104.534657	1.100000	0.0
PH05@4'	4/18/2025	4	40.282277	-104.534677	1.100000	0.0
PH06@4'	4/18/2025	4	40.282503	-104.534663	1.200000	0.0
PH07@4'	4/18/2025	4	40.282731	-104.534669	1.000000	0.0
PH08@4'	4/18/2025	4	40.283082	-104.534663	0.900000	1.0
PH09@4'	4/18/2025	4	40.283082	-104.534663	0.900000	0.0
PH10@4'	4/18/2025	4	40.283318	-104.534660	1.000000	0.0
PH11@4'	4/18/2025	4	40.283536	-104.534662	1.000000	0.0
PH12@4'	4/18/2025	4	40.283779	-104.534650	1.100000	0.0
PH13@3'	4/18/2025	3	40.283991	-104.534650	1.100000	0.0
PH14@3'	4/18/2025	3	40.284246	-104.534642	1.000000	0.0
PH15@3'	4/18/2025	3	40.284497	-104.534651	1.300000	0.0
PH16@3'	4/18/2025	3	40.284753	-104.534653	1.100000	0.0
PH17@3'	4/18/2025	3	40.284964	-104.534656	1.100000	0.0
PH18@3'	4/18/2025	3	40.285231	-104.534669	1.100000	0.0
PH19@3'	4/18/2025	3	40.285879	-104.530230	1.000000	5.4
FL03-01@3'	4/18/2025	3	40.285877	-104.534287	1.200000	1.9
FL05-01@3'	4/18/2025	3	40.285881	-104.534290	1.200000	1.0
FL06-01@3'	4/18/2025	3	40.285879	-104.534293	1.200000	0.6
FL07-01@3'	4/18/2025	3	40.285876	-104.534292	1.400000	0.9
FL03-02@4'	4/18/2025	4	40.285866	-104.533871	1.000000	0.5
FL03-03@3'	4/18/2025	3	40.285873	-104.533162	1.100000	0.1
FL05-03@3'	4/18/2025	3	40.285869	-104.531158	1.000000	0.1
FL03-04@3'	4/18/2025	3	40.285820	-104.529596	1.000000	4.2
FL05-04@3'	4/18/2025	3	40.285815	-104.529596	1.100000	3.2
FL03-05@3'	4/18/2025	3	40.285523	-104.534525	0.900000	0.0
FL03-06@3'	4/18/2025	3	40.285781	-104.534448	1.000000	0.0
BKG01@3.5'	5/14/2025	3.5	40.285584	-104.533996	0.869191	0.0
BKG02@3.5'	5/14/2025	3.5	40.285593	-104.533672	0.890520	0.1
BKG03@3.5'	5/14/2025	3.5	40.285588	-104.533283	0.863236	0.0

1. Global Positioning System (GPS) data is provided in decimal degrees using North American Datum (NAD) 83 UTM Zone 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  
BORN SITZMAN 5, WELD COUNTY, COLORADO  
REM # 32829

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**		
FL02-01@3'	4/18/2025	3	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.0200	2.87	<0.100	<4.00	2.87
FL03-01@3'	4/18/2025	3	<0.00100	<0.00100	<0.00250	<0.00650	<0.00500	<0.00500	<0.0200	11.27	<0.100	3.83	7.44
FL05-01@3'	4/18/2025	3	<0.00100	<0.00100	<0.00250	<0.00650	<0.00500	<0.00500	<0.0200	8.35	<0.100	1.92	6.43
FL06-01@3'	4/18/2025	3	<0.00100	<0.00100	<0.00250	<0.00650	<0.00500	<0.00500	<0.0200	11.42	<0.100	3.53	7.89
FL07-01@3'	4/18/2025	3	<0.00100	<0.00100	<0.00250	<0.00650	0.00258	<0.00500	<0.0200	6.61	<0.100	1.69	4.92
FL02-02@4'	4/18/2025	4	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.0200	1.44	<0.100	<4.00	1.44
FL03-02@4'	4/18/2025	4	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<b>0.00667</b>	5.99	<0.100	<4.00	5.99
FL02-03@3'	4/18/2025	3	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<b>0.0156</b>	7.9844	0.0344	2.00	5.95
FL03-03@3'	4/18/2025	3	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<b>0.103</b>	6.9643	0.0343	3.33	3.6
FL05-03@3'	4/18/2025	3	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<b>0.00738</b>	7.4793	0.0393	2.97	4.47
FL02-04@3'	4/18/2025	3	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<b>0.0168</b>	31.6499	0.0399	3.61	28.0
FL03-04@3'	4/18/2025	3	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<b>0.00909</b>	33.2403	0.0503	4.29	28.9
FL05-04@3'	4/18/2025	3	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<b>0.00771</b>	33.829	0.829	13.9	19.1
FL02-05@4'	4/18/2025	4	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.0200	0.9299	0.0249	<4.00	0.905
FL03-05@3'	4/18/2025	3	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<b>0.00738</b>	7.4793	0.0393	2.97	4.47
FL02-06@4'	4/18/2025	4	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.0200	4.58	<0.100	<4.00	4.58
FL03-06@3'	4/18/2025	3	0.000575	0.00395	<0.00250	0.00497	<0.00500	<0.00500	<b>6.69</b>	<b>646.0974</b>	<b>0.0974</b>	<b>323</b>	<b>323</b>
FL02-07@3'	4/18/2025	3	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.0200	28.6645	0.0645	10.8	17.8

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

TABLE 3  
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA  
NOBLE 100322  
BORN SITZMAN 5, WELD COUNTY, COLORADO  
REM # 32829

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
FL02-01@3'	4/18/2025	3	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	0.00496	<0.00600	<0.00600	0.00341	<0.0200	<0.0200
FL03-01@3'	4/18/2025	3	0.00651	0.0132	0.0128	0.00916	0.0119	<0.00600	0.0156	<0.00600	0.0448	0.00699	0.00671	0.0293	<0.0200	<0.0200
FL05-01@3'	4/18/2025	3	0.00279	0.00428	0.00596	0.00375	0.00515	<0.00600	0.00679	<0.00600	0.0187	0.00303	0.00236	0.0121	<0.0200	<0.0200
FL06-01@3'	4/18/2025	3	0.00368	0.00716	0.00808	0.00541	0.00726	<0.00213	0.00956	<0.00600	0.0269	0.00394	0.00391	0.0178	<0.0200	<0.0200
FL07-01@3'	4/18/2025	3	0.00643	0.0137	0.0155	0.0113	0.0156	0.0052	0.0173	<0.00600	0.0556	0.00677	0.00904	0.375	<0.0200	<0.0200
FL02-02@4'	4/18/2025	4	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	0.00424	<0.00600	<0.00600	0.00274	<0.0200	<0.0200
FL03-02@4'	4/18/2025	4	0.00957	0.0162	0.0164	0.0103	0.0143	0.00482	0.0169	0.00201	0.0465	0.0117	0.00666	0.0337	<0.0200	<0.0200
FL02-03@3'	4/18/2025	3	0.0135	0.0231	0.0166	0.0116	0.0157	0.00485	0.0177	<0.00600	0.0581	0.0158	0.00789	0.0437	0.00533	0.00819
FL03-03@3'	4/18/2025	3	0.141	0.191	0.174	0.112	0.151	0.582	0.178	0.0199	0.535	0.182	0.0667	0.385	0.0216	0.0402
FL05-03@3'	4/18/2025	3	0.00989	0.0139	0.0138	0.00903	0.0127	0.00423	0.0148	<0.00600	0.0425	0.0123	0.00528	0.0312	<0.0200	<0.0200
FL02-04@3'	4/18/2025	3	0.0258	0.0485	0.0522	0.0339	0.0456	0.0171	0.0546	0.00600	0.115	0.0359	0.0214	0.112	0.00357	0.00657
FL03-04@3'	4/18/2025	3	0.0133	0.0235	0.0262	0.017	0.0223	0.00895	0.0264	0.00306	0.0752	0.0182	0.0106	0.0542	<0.0200	<0.0200
FL05-04@3'	4/18/2025	3	0.00587	0.00855	0.00865	0.00595	0.00873	0.00273	0.00885	<0.00600	0.0256	0.00806	0.0372	0.0184	<0.0200	<0.0200
FL02-05@4'	4/18/2025	4	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.0200	<0.0200
FL03-05@3'	4/18/2025	3	0.0528	0.0745	0.133	0.0891	0.125	0.05	0.133	0.0151	0.424	0.0511	0.0589	0.3323	0.00473	0.00782
FL02-06@4'	4/18/2025	4	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.0200	<0.0200
FL03-06@3'	4/18/2025	3	6.57	8.42	11.2	7.37	10.4	2.99	11.2	1.02	37.5	6.71	5.03	23.9	0.669	1.23
FL02-07@3'	4/18/2025	3	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	0.00223	<0.0200

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
- mg/kg = Milligrams per kilogram  
ft = Feet

TABLE 4  
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION  
NOBLE 100322  
BORN SITZMAN 5, WELD COUNTY, COLORADO  
REM # 32829

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
FL02-01@3'	4/18/2025	3	8.22	1.32	4.22	0.605
FL03-01@3'	4/18/2025	3	8.08	0.817	4.20	0.497
FL05-01@3'	4/18/2025	3	8.14	0.653	4.15	0.382
FL06-01@3'	4/18/2025	3	8.09	0.586	4.17	0.596
FL07-01@3'	4/18/2025	3	8.01	0.767	3.60	0.407
FL02-02@4'	4/18/2025	4	7.91	3.30	4.21	0.513
FL03-02@4'	4/18/2025	4	8.00	0.949	3.54	0.538
FL02-03@3'	4/18/2025	3	8.04	1.40	3.17	0.270
FL03-03@3'	4/18/2025	3	8.30	1.34	4.59	0.398
FL05-03@3'	4/18/2025	3	7.88	1.43	3.18	0.359
FL02-04@3'	4/18/2025	3	7.85	1.14	2.41	1.17
FL03-04@3'	4/18/2025	3	7.94	0.748	2.34	0.709
FL05-04@3'	4/18/2025	3	7.92	1.50	2.78	0.259
FL02-05@4'	4/18/2025	4	7.78	2.91	4.00	1.21
FL03-05@3'	4/18/2025	3	7.90	2.09	3.89	0.524
FL02-06@4'	4/18/2025	4	8.03	0.773	4.18	0.334
FL03-06@3'	4/18/2025	3	8.00	1.08	3.75	0.340
FL02-07@3'	4/18/2025	3	8.03	1.37	5.58	0.554
BKG01@3.5'	5/14/2025	3.5	7.89	0.369	1.56	0.261
BKG02@3.5'	5/14/2025	3.5	7.69	1.47	4.62	0.566
BKG03@3.5'	5/14/2025	3.5	8.14	1.11	<b>6.03</b>	0.833
Maximum Background Concentration			8.14	1.47	6.03	0.833

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.

TABLE 5  
SUMMARY OF METALS IN SOIL CHEMISTRY DATA  
NOBLE 100322  
BORN SITZMAN 5, WELD COUNTY, COLORADO  
REM # 32829

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
FL02-01@3'	4/18/2025	3	3.42	83.5	0.129	<1.00*	9.78	7.58	8.54	0.408	<0.500	40.3
FL03-01@3'	4/18/2025	3	2.84	88.7	0.0895	<1.00*	8.56	7.47	7.63	0.390	<0.500	37.2
FL05-01@3'	4/18/2025	3	2.33	75.1	0.0942	<1.00*	7.04	6.25	6.33	0.323	<0.500	29.1
FL06-01@3'	4/18/2025	3	2.20	75.3	<1.00	<1.00*	6.47	5.91	6.03	0.396	<0.500	29.0
FL07-01@3'	4/18/2025	3	3.02	97.9	0.175	<1.00*	10.3	9.46	8.53	0.784	<0.500	41.3
FL02-02@4'	4/18/2025	4	3.86	177	0.151	<1.00*	12.5	10.9	11.6	0.873	<0.500	49.7
FL03-02@4'	4/18/2025	4	3.23	112	0.115	<1.00*	10.5	9.31	9.92	0.860	<0.500	44.0
FL02-03@3'	4/18/2025	3	3.22	116	0.135	<1.00*	11.2	9.54	8.58	0.942	<0.500	43.4
FL03-03@3'	4/18/2025	3	3.63	118	0.140	<1.00*	10.9	9.58	12.0	0.998	<0.500	45.8
FL05-03@3'	4/18/2025	3	2.64	102	0.0868	<1.00*	7.27	7.72	7.11	0.795	<0.500	29.9
FL02-04@3'	4/18/2025	3	4.37	110	0.169	<1.00 *	12.1	10.7	11.0	0.802	<0.500	53.6
FL03-04@3'	4/18/2025	3	3.56	134	0.175	<1.00 *	12.4	10.4	10.6	0.966	<0.500	52.3
FL05-04@3'	4/18/2025	3	2.78	98.7	0.119	<1.00 *	9.54	7.87	7.59	0.947	<0.500	36.6
FL02-05@4'	4/18/2025	4	3.57	98.3	0.172	<1.00*	15.7	11.6	14.1	0.921	<0.500	61.1
FL03-05@3'	4/18/2025	3	2.93	136	0.148	<1.00*	11.2	9.36	9.85	0.901	<0.500	43.1
FL02-06@4'	4/18/2025	4	2.43	70.8	<1.00	<1.00*	7.55	13.2	6.63	0.656	<0.500	28.7
FL03-06@3'	4/18/2025	3	2.92	55.6	0.118	<1.00*	5.61	6.08	5.27	0.739	<0.500	21.4
FL02-07@3'	4/18/2025	3	2.44	70.7	0.105	<1.00*	6.93	6.74	6.61	0.597	<0.500	28.2
BKG01@3.5'	5/14/2025	3.5	2.40	96.3	0.101	<0.300*	<10.0	<10.0	<10.0	0.506	<0.500	<50.0
BKG02@3.5'	5/14/2025	3.5	3.05	106	0.130	<0.300*	11.4	<10.0	10.6	0.590	<0.500	<50.0
BKG03@3.5'	5/14/2025	3.5	3.92	125	0.155	<0.300*	15.4	11.7	15.6	0.696	<0.500	63.6
1.25x Maximum Background Concentration			4.90	156	0.194	NA	19.3	14.6	19.5	0.870	NA	79.5

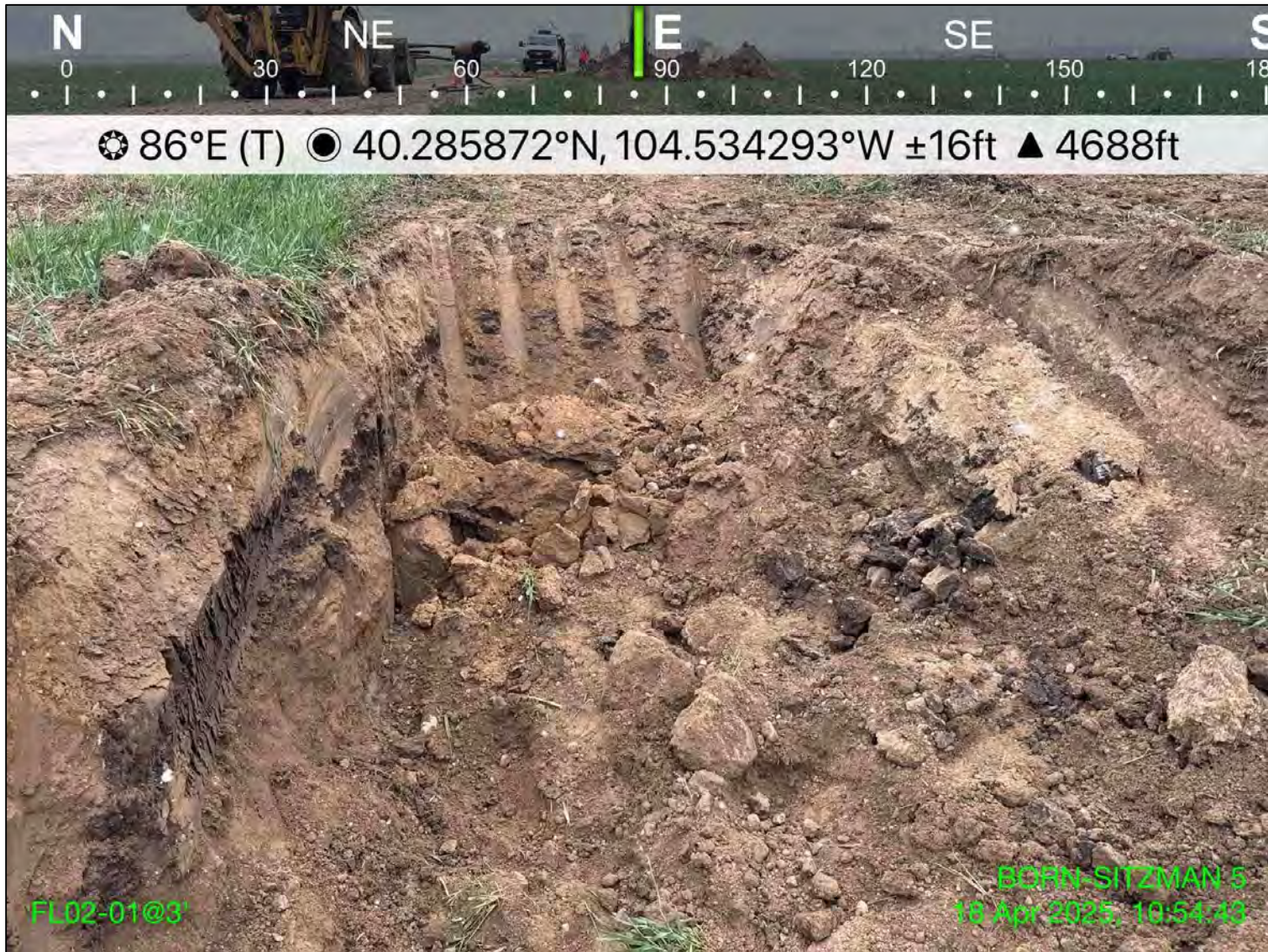
1. **Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within 1.25x background concentrations.
  2. **Bold** faced values exceed the ECMC Table 915-1 limit(s) and native background concentrations.
  3. Red & blue highlighted soil analytical values indicate an exceedance of the referenced 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  
 \* Indicates laboratory minimum detection limit in excess of SSL  
 NA = Not analyzed



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## **PHOTOGRAPHIC LOG**

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 1:** View of FL02-01, FL03-01, FL05-01, FL06-01, and FL07-01 sample locations, facing east

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 2:** View of FL02-02 and FL03-02 sample locations, facing south

Photographic Log  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025

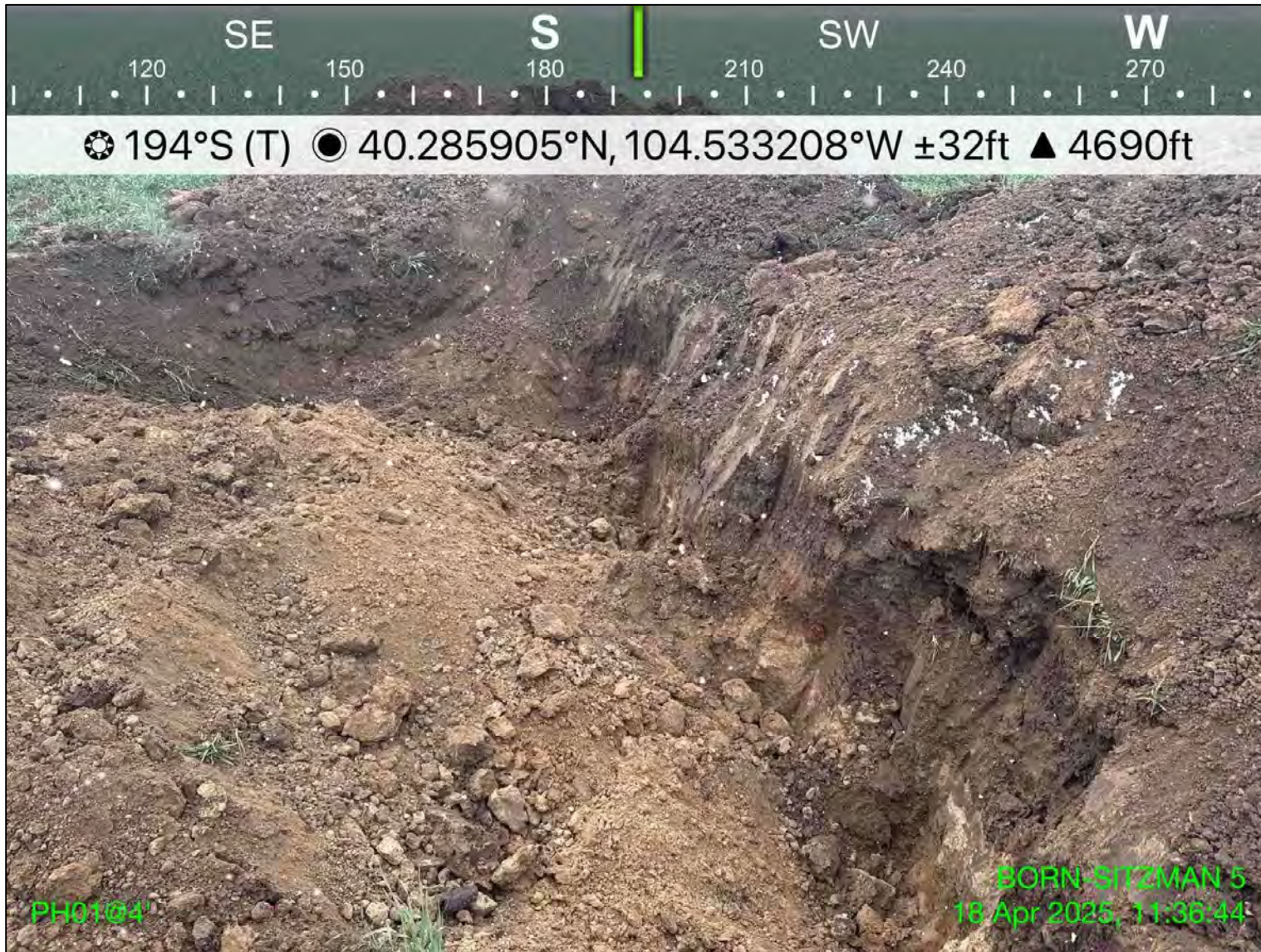


Photo 3: View of PH01 screening location, facing south

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 4:** View of PH02 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 5:** View of PH03 screening location, facing east

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 6:** View of FL02-03, FL03-03, and FL05-03 sampling locations, facing west

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 7:** View of PH19 screening location, facing east

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 8:** View of FL02-06 sampling location, facing west

Photographic Log  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



Photo 9: View of FL02-05 sampling location (photo was incorrectly named), facing southeast

Photographic Log  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



Photo 10: View of PH04 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 11:** View of PH05 screening location, facing southwest

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 12:** View of PH06 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 13:** View of PH07 screening location, facing southwest

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 14:** View of PH08 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 15:** View of PH09 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 16:** View of PH10 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 17:** View of PH11 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 18:** View of PH12 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 19:** View of PH13 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 20:** View of PH14 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 21:** View of PH15 screening location, facing southeast

Photographic Log  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



Photo 22: View of PH16 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 23:** View of PH17 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 24:** View of PH18 screening location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 25:** View of FL02-06 sampling location, facing southeast

Photographic Log  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



Photo 26: View of FL02-07 sampling location, facing southeast

**Photographic Log**  
BORN-SITZMAN 5 – REM #32829  
Noble Energy Inc.  
4/18/2025



**Photo 27:** View of FL03-05 sampling location, facing southwest



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## **FLOWLINE CLOSURE CHECKLIST**

## Flowline Closure Checklist

### COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

<i>Additional Attachments:</i>	<i>Tank Battery Closure</i>	<i>Wellhead Closure</i>	<i>Pit Closure</i>	<i>Partially Buried Vault Closure</i>
<i>Site Name &amp; COGCC Facility Number:</i> BORN-SITZMAN 5, 05-123-12908		<i>Date:</i> 4/18/2025		<i>Remediation Project #:</i> 32829
<i>Associated Wells:</i>		<i>Age of Site:</i> 12/27/1985 - Spud date		<i>Number of Photos Attached:</i> 27
<i>Starting point: (GPS coordinates and descriptions) Point A:</i> 40.281630, -104.534630				
<i>End point: (GPS coordinates and descriptions) Point B:</i> 40.285735, -104.529553				
<i>USCS Soil Type:</i> CL and SW			<i>Estimated Depth to Groundwater:</i> Groundwater not encountered	
<i>Hydrocarbon Impacted Soils / Spills : (Note estimated size and if impact appears to be surficial or extends to an unknown depth)</i> None observed				
<i>Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)</i> None observed				
Flowlines				
<i>Flowline type</i>	Multiphase			
<i>Depth</i>	3-4 feet			
<i>Age</i>	12/27/1985 - Spud date			
<i>Length</i>	3045 feet			
<i>Construction Material</i>	Steel			
<i>Were flowlines pulled?</i>	Yes			
<i>Visual Integrity of lines</i>	Good			
<i>Visual impacts if trenched</i>	None			
<i>PID Readings if trenched</i>	5.4			
<i>Sample taken?</i>	Yes, see attached			
<i>Location/Sample ID#</i>				
<i>Photo Number(s)</i>	See attached			
<i>Other observations regarding on loction flowlines:</i> None				
Summary				
<i>Was impacted soil identified?</i> <b>No</b> Yes - less than 10 cubic yards      Yes - more than 10 cubic yards				
<i>Total number of samples field screened:</i> 37			<i>Total number of samples collected:</i> 18	
<i>Highest PID Reading:</i> 5.4			<i>Total number of samples submitted to lab for analysis:</i> 18	
<i>If more than 10 cubic yards of impacted soil were observed:</i>				
<i>Vertical extent:</i>			<i>Estimated spill volume:</i>	
<i>Lateral extent:</i>			<i>Volume of soil removed:</i>	
<i>Is additional investigation required? Yes, supplemental source mass removal</i>				
<i>Was groundwater encountered during the investigation?</i> <b>No</b> Yes - not impacted or in contact with impacted soils      Yes - groundwater impacted and/or in contact with impacted soils				
<i>Measured depth to groundwater:</i>			<i>Was remedial groundwater removal conducted? Yes      No</i>	
<i>Date Groundwater was encountered:</i>			<i>Commencement date of removal:</i>	
<i>Sheen on groundwater?      Yes      No</i>			<i>Volume of groundwater removed prior to sampling:</i>	
<i>Free product observed?      Yes      No</i>			<i>Volume of groundwater removed post sampling:</i>	
<i>Total number of samples collected:</i>			<i>Total Volume of groundwater removed:</i>	
<i>Total number of samples submitted to lab for analysis:</i>				



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## **RBU CHECKLIST**

# Chevron Rockies Business Unit

## Field Qualitative Criteria for ECMC Reporting Associated with the Discovery of Potentially Impacted Material

If answered **Yes** to any of the questions listed below, this may suggest the presence of potentially impacted materials as outlined in ECMC Rule 912. Out of an abundance of caution, a “Yes” response will be reported to the ECMC within 24 hours after discovery, regardless of laboratory results. **Immediately notify the RBU Remediation Team.** Include a copy of this Field Qualitative Spill Criteria Checklist in the field Report.

Please answer the following questions when on-site:

1. Is there visible petroleum hydrocarbon staining in the soil?  
(Yes / **No**)
2. Does the soil sample from the stained area have a petroleum odor?  
(Yes / **No**)
3. Is there a petroleum hydrocarbon sheen on the nearby surface water?  
(Yes / **No**)
4. Does there appear to be a sheen on the surface of accumulated groundwater or seeps within the excavation indicative of petroleum?  
(Yes / **No**)
5. Is stained soil in contact with groundwater?  
(Yes / **No**)

Please Include relevant photos of the site conditions for items 1-5.

---

Location name: BORN-SITZMAN 5 FL (REM # 32829)

Please Circle Facility Type: Well / **Flowline** / Production Facility / Other