







<b>Equipment ID:</b> FL01-01 @3'		<b>Equipment Type:</b>		<b>Equipment ID:</b> FL01-02 @3'		<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> FACING S.				<b>Notes/Conditions:</b> FACING N.			



<b>Equipment ID:</b> FL01-03@3'		<b>Equipment Type:</b>		<b>Equipment ID:</b> FL01R-W@3'		<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> FACING N.				<b>Notes/Conditions:</b> FACING N.			



<b>Equipment ID:</b> FLOWLINES		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b> FACING E.			

<b>Equipment ID:</b>		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>			



<b>SITE NAME:</b> HOFFMAN C02-65HN TANK BATTERY							<b>DATE:</b> 10/17/2024	<b>REM. PROJECT #:</b> 20160	<b>WEATHER:</b> SUNNY, 60s		
<b>SITE DIRECTIONS:</b> CR 48//57, E 0.48mi, N 0.50mi, W 0.10mi into site							<b>CLIENT:</b> Noble				
<b>LEGALS AND LAT/LONG:</b> 40.341153, -104.519553							<b>TASMAN PERSONNEL:</b> MW				
<b>SOIL TYPES:</b> Well Graded Sand - SW							<b>SURFACE GRADIENT:</b> West				
SOIL SAMPLING							FACILITY INFRASTRUCTURE				
Date/Time	Soil Sample ID	PID (ppm)	Visual	Olfactory	Photo?	Grab or Lab Sample?	EQUIPMENT	Quantity	Photo?		
							Above Ground Storage Tank (AST)	3			
10-17-2024 08:13	AST01@0-6"	0.1	No Staining	No Odor	Yes	Lab	Buried or Partially Buried Vessel	1			
10-17-2024 08:15	AST02@0-6"	0.1	No Staining	No Odor	Yes	Lab	Separator	3			
10-17-2024 08:17	AST03@0-6"	0.1	No Staining	No Odor	Yes	Lab	Emission Control Device (ECD)	2			
10-17-2024 11:51	PWV01-B@4'	0.0	Organic Cont	No Odor	Yes	Lab	Dump Line				
10-17-2024 11:39	PWV01-N@3'	0.1	No Staining	No Odor	Yes	On-hold	Wellhead				
10-17-2024 11:42	PWV01-E@3'	0.1	No Staining	No Odor	Yes	Lab	Flowline				
10-17-2024 11:45	PWV01-S@3'	0.0	No Staining	No Odor	Yes	On-hold	Other:				
10-17-2024 11:48	PWV01-W@3'	0.0	Organic Cont	No Odor	Yes	On-hold	Soil Loads Removed				
10-17-2024 08:04	FLARE01@0-6"	0.2	No Staining	No Odor	Yes	Grab	IMPACTED SOIL IDENTIFIED?				
10-17-2024 08:05	FLARE02@0-6"	0.2	No Staining	No Odor	Yes	Grab	ESTIMATED VOLUME OF IMPACTS:				
10-17-2024 08:22	GS01@0-6"	0.1	No Staining	No Odor	Yes	Grab	Date	Number	CY		
10-17-2024 08:23	GS02@0-6"	0.1	No Staining	No Odor	Yes	Grab					
10-17-2024 08:27	MH01@0-6"	0.2	No Staining	No Odor	Yes	Grab					
10-17-2024 10:43	SEP01-DL@3'	0.1	No Staining	No Odor	Yes	Lab					
10-17-2024 10:48	SEP01-FL@3'	0.2	No Staining	No Odor	Yes	Lab					
10-17-2024 10:52	SEP02-DL@3'	0.3	No Staining	No Odor	Yes	Lab	Total Removed	0	0		
10-17-2024 10:55	SEP02-FL@3'	0.5	No Staining	No Odor	Yes	Lab	Disposal Facility:				
10-17-2024 10:58	SEP03-DL@3'	0.0	No Staining	No Odor	Yes	Lab	Groundwater Recovery				
10-17-2024 11:00	SEP03-FL@3'	0.1	No Staining	No Odor	Yes	Lab	DATE GW ENCOUNTERED:	DEPTH:			
10-17-2024 12:40	BKG01@0-6"	0.0	No Staining	No Odor	Yes	Lab	GROUNDWATER IN CONTACT WITH IMPACTED SOIL?				
10-17-2024 12:41	BKG01@3'	0.0	No Staining	No Odor	Yes	Lab					
10-17-2024 12:42	BKG01@4'	0.0	No Staining	No Odor	Yes	Lab	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:				





<b>Equipment ID:</b> BKG01@0-6", 3', 4'		<b>Equipment Type:</b>		<b>Equipment ID:</b> SEP02-FL@3'		<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> FACING N.				<b>Notes/Conditions:</b> FACING E.			

**TABLE 1**  
**FIELD DATA SUMMARY TABLE**  
**NOBLE ENERGY, INC. - 100322**  
**HOFFMAN C02-65HN FLOWLINE, WELD COUNTY, COLORADO**  
**REM # 20268**

Sample ID	Sample Date	Depth (ft. bgs)	GPS Data Latitude/Longitude		PDOP Value	VOC Concentration (ppm)
FL01R-W@3'	10/17/24	3	40.340768	-104.518263	0.8	0.1
FL01-01@3'	10/17/24	3	40.341002	-104.518929	0.9	0.1
FL01-02@3'	10/17/24	3	40.340845	-104.518504	1.0	0.0
FL01-03@3'	10/17/24	3	40.340797	-104.518389	1.0	0.0
SEP02-FL@3' <sup>[a]</sup>	10/17/24	3	40.341151	-104.519331	0.9	0.5
BKG01@0-6" <sup>[a]</sup>	10/17/24	0.5	40.341083	-104.518692	0.8	0.0
BKG01@3' <sup>[a]</sup>	10/17/24	3	40.341083	-104.518692	0.8	0.0
BKG01@4' <sup>[a]</sup>	10/17/24	4	40.341083	-104.518692	0.8	0.0

**Notes:**

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).

a. Sample was submitted under nearby tank battery Hoffman C02-65HN (Remediation #20160).

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

bgs = Below ground surface

TABLE 2  
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA  
NOBLE ENERGY, INC. - 100322  
HOFFMAN C02-65HN FLOWLINE, WELD COUNTY, COLORADO  
REM # 20268

Sample ID	Sample Date	Depth (ft. bgs)	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**		
FL01R-W@3'	10/17/24	3	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
SEP02-FL@3' <sup>[a]</sup>	10/17/24	3	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
BKG01@0-6" <sup>[a]</sup>	10/17/24	0-0.5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
BKG01@3' <sup>[a]</sup>	10/17/24	3	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
BKG01@4' <sup>[a]</sup>	10/17/24	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50

**Notes:**

1. **Bold** values exceed the ECMC Table 915-1 limit(s).
  2. Pink & 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.
- a. Sample was submitted under nearby tank battery Hoffman C02-65HN (Remediation #20160). z

ECMC = Energy & Carbon Management Commission

(<) = 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

TABLE 3  
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA  
NOBLE ENERGY, INC. - 100322  
HOFFMAN CO2-65HN FLOWLINE, WELD COUNTY, COLORADO  
REM # 20268

Sample ID	Sample Date	Depth (ft. bgs)	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	1,800	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
FL01R-W@3'	10/17/24	3	<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
SEP02-FL@3' <sup>(a)</sup>	10/17/24	3	<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
BKG01@0-6" <sup>(a)</sup>	10/17/24	0-0.5	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BKG01@3' <sup>(a)</sup>	10/17/24	3	<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
BKG01@4' <sup>(a)</sup>	10/17/24	4	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

**Notes:**

1. **Bold** values exceed the ECMC Table 915-1 limit(s).
2. Pink & 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.

a. Sample was submitted under nearby tank battery Hoffman CO2-65HN (Remediation #20160).

ECMC = Colorado Energy & Carbon Management Commission

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

ft. = Feet

bgs = Below ground surface

mg/kg = Milligrams per kilogram

**TABLE 4**  
**SUMMARY OF SOIL SUITABILITY FOR RECLAMATION**  
**NOBLE ENERGY, INC. - 100322**  
**HOFFMAN C02-65HN FLOWLINE, WELD COUNTY, COLORADO**  
**REM # 20268**

Sample ID	Sample Date	Depth (ft. bgs)	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
FL01R-W@3'	10/17/2024	3	7.96	0.970	1.65	<2.00
SEP02-FL@3' <sup>[a]</sup>	10/17/24	3	8.21	0.128	0.168	<2.00
BKG01@0-6" <sup>[a]</sup>	10/17/24	0.5	7.93	2.98	1.75	<2.00
BKG01@3' <sup>[a]</sup>	10/17/24	3	8.00	1.72	5.87	<2.00
BKG01@4' <sup>[a]</sup>	10/17/24	4	8.22	1.71	5.50	<2.00
Mean Root Background Concentration (0 - 3 ft)			7.97	-	-	-
Maximum Root Background Concentration (0 - 3 ft)			8.00	-	-	-
Mean Background Concentration			8.05	-	-	-
Max Background Concentration			8.05	-	-	-

**Notes:**

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.
  - a. Sample was submitted under nearby tank battery Hoffman C02-65HN (Remediation #20160).

ECMC = Colorado Energy & Carbon Management Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

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

ft. = Feet

bgs = Below ground surface

TABLE 5  
SUMMARY OF METALS IN SOIL CHEMISTRY DATA  
NOBLE ENERGY, INC. - 100322  
HOFFMAN C02-65HN FLOWLINE, WELD COUNTY, COLORADO  
REM # 20268

Sample ID	Sample Date	Depth (ft. bgs)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) <sup>(4)</sup> (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	15,000	71	0.3	3,100	400	1,500	390	390	23,000
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FL01R-W@3'	10/17/24	3	<b>0.770</b>	<b>244</b>	<0.200	<0.30	2.58	6.99	1.96	<0.260	0.0678	8.66
SEP02-FL@3' <sup>(a)</sup>	10/17/24	3	1.54	42.4	<0.200	<0.30	4.58	3.89	3.46	<0.260	0.0222	13.1
BKG01@0-6' <sup>(a)</sup>	10/17/24	0.5	2.23	63.5	<0.200	<0.30	4.49	6.44	4.02	<0.260	0.0310	18.8
BKG01@3' <sup>(a)</sup>	10/17/24	3	4.18	95.2	0.315	<0.30	6.98	10.7	6.36	<0.260	0.0920	25.1
BKG01@4' <sup>(a)</sup>	10/17/24	4	2.84	76.5	0.219	<0.30	5.56	7.16	4.96	<0.260	0.0672	21.0
Maximum Background Concentration			4.18	95.2	-	-	-	-	-	-	-	-
Maximum Background Concentration X 1.25			5.23	119	-	-	-	-	-	-	-	-
Mean Background Concentration			3.08	78.4	-	-	-	-	-	-	-	-
Mean Background Concentration X 1.25			3.85	98.0	-	-	-	-	-	-	-	-

**Notes:**

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 are above native background concentrations.
3. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL).
4. Compound falls within ECMC Table 915-1 Footnote 9.
5. Non-detect background results accounted for in the highest background concentration by using the reporting limit.

a. Sample was submitted under nearby tank battery Hoffman C02-65HN (Remediation #20160).

ECMC = Energy & Carbon Management Commission

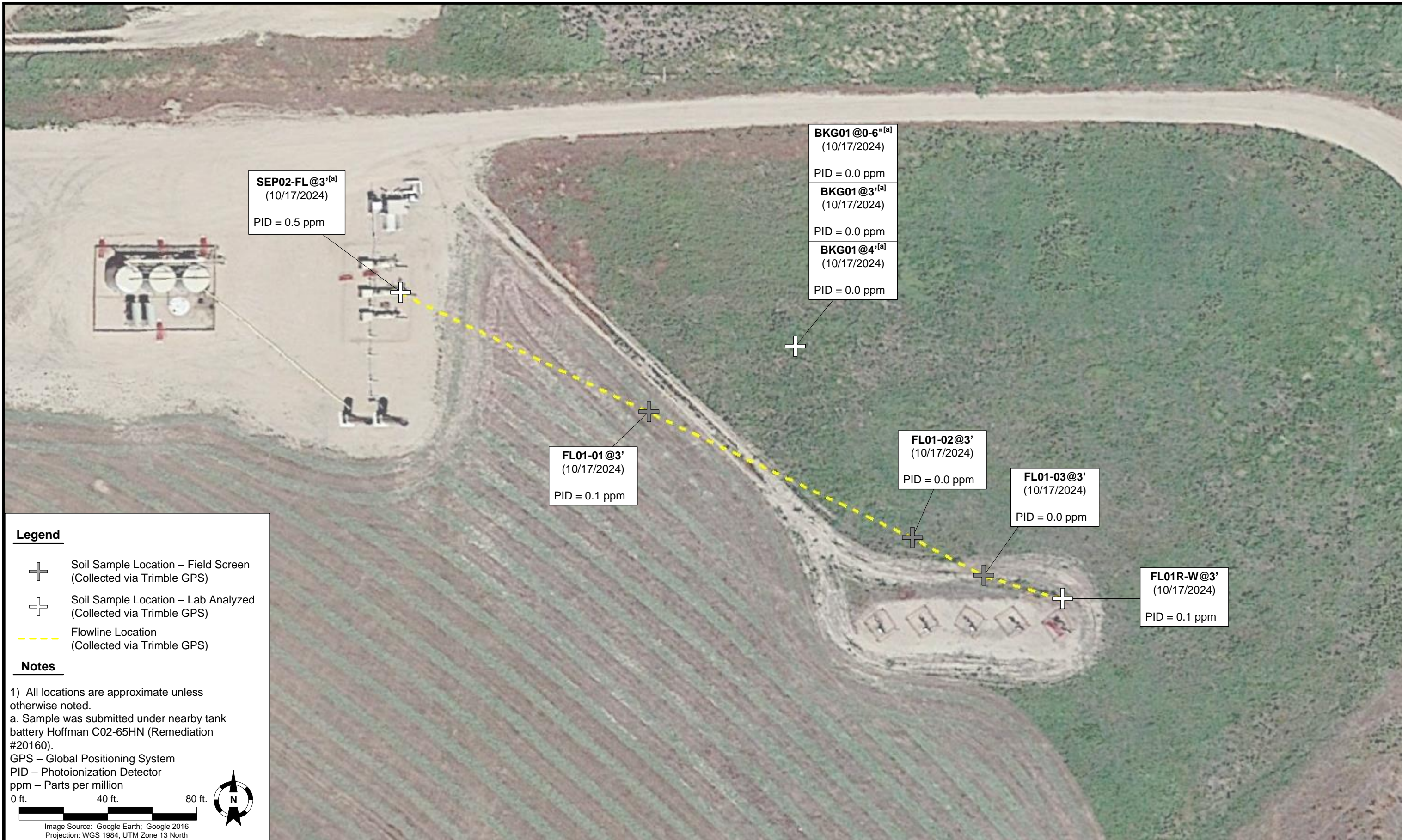
(<) = Analytical result is less than the indicated laboratory reporting limit.

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

\* Indicates laboratory minimum detection limit in excess of SSL



**SEP02-FL@3'<sup>[a]</sup>**  
 (10/17/2024)  
 PID = 0.5 ppm

**BKG01 @0-6'<sup>[a]</sup>**  
 (10/17/2024)  
 PID = 0.0 ppm  
**BKG01 @3'<sup>[a]</sup>**  
 (10/17/2024)  
 PID = 0.0 ppm  
**BKG01 @4'<sup>[a]</sup>**  
 (10/17/2024)  
 PID = 0.0 ppm

**FL01-01@3'**  
 (10/17/2024)  
 PID = 0.1 ppm

**FL01-02@3'**  
 (10/17/2024)  
 PID = 0.0 ppm

**FL01-03@3'**  
 (10/17/2024)  
 PID = 0.0 ppm

**FL01R-W@3'**  
 (10/17/2024)  
 PID = 0.1 ppm

**Legend**

- Soil Sample Location – Field Screen  
(Collected via Trimble GPS)
- Soil Sample Location – Lab Analyzed  
(Collected via Trimble GPS)
- Flowline Location  
(Collected via Trimble GPS)

**Notes**

1) All locations are approximate unless otherwise noted.  
 a. Sample was submitted under nearby tank battery Hoffman C02-65HN (Remediation #20160).  
 GPS – Global Positioning System  
 PID – Photoionization Detector  
 ppm – Parts per million

0 ft.      40 ft.      80 ft.

Image Source: Google Earth; Google 2016  
 Projection: WGS 1984, UTM Zone 13 North

DATE:	October 17, 2024
DESIGNED BY:	J. Whritenour
DRAWN BY:	L. Reed

**TASMAN** Tasman, Inc.  
 6855 W 119<sup>th</sup> Avenue  
 Broomfield, CO 80020

**Noble Energy, Inc. – 100322 – DJ Basin**  
**Hoffman C02-65HN Flowline**  
 NESW, Section 2, Township 4 North, Range 64 West  
 Weld County, Colorado

SOIL SAMPLE  
 LOCATION MAP  
 (FLOWLINE)

FIGURE  
 1