







Proposed Background Sample Location Map

Novacek C28-27D

SESE-SEC-21-T4N-R64W

Weld County, Colorado

Noble Energy

-  Wellhead
-  Proposed Background Sample
-  Soil Sample
-  Screening Location



SITE NAME: Novacek C28-27D							DATE: 6/6/2024	REM. PROJECT #: 34736	WEATHER: 80s sunny		
SITE DIRECTIONS: CR55 & 42, W 400', NW 600', W into							CLIENT: Noble				
LEGALS AND LAT/LONG: 40.29306803, -104.5499824							TASMAN PERSONNEL: E. Hossink				
SOIL TYPES: Poorly Graded Sand - SP							SURFACE GRADIENT: Southwest				
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)				
6/6/2024 13:40	FL01R-W @ 3.5'	1.6	No Staining	No Odor	Yes	Lab	Buried or Partially Buried Vessel				
6/6/2024 13:58	FL01-01 @ 3.5'	0.4	No Staining	No Odor	Yes	Lab	Separator				
6/6/2024 14:24	FL01-02 @ 3.5'	0.1	No Staining	No Odor	Yes	Lab	Emission Control Device (ECD)				
6/6/2024 14:35	FL01-03 @ 3.5'	0.0	No Staining	No Odor	Yes	Lab	Dump Line				
6/6/2024 14:50	FL01R-S @ 3.5'	0.0	No Staining	No Odor	Yes	Lab	Wellhead				
							Flowline	1			
6/6/2024 14:40	BKG01 @ 3.5'	0.0	No Staining	No Odor	Yes	Lab	Other:				
							Soil Loads Removed				
							IMPACTED SOIL IDENTIFIED?				
							ESTIMATED VOLUME OF IMPACTS:				
							Date	Number	CY		
							Total Removed	0	0		
							Disposal Facility:				
							Groundwater Recovery				
							DATE GW ENCOUNTERED:	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	0			
							Disposal Facility:				



Equipment ID: FL01R-W@3.5'		Equipment Type:		Equipment ID: FL01-01		Equipment Type:	
Material:	Volume:	Contents:		Material:	Volume:	Contents:	
Notes/Conditions:				Notes/Conditions:			



Equipment ID: FL01-02		Equipment Type:		Equipment ID: FL01-03		Equipment Type:	
Material:	Volume:	Contents:		Material:	Volume:	Contents:	
Notes/Conditions:				Notes/Conditions:			



Equipment ID: FL01R-S		Equipment Type:		Equipment ID: BKG01		Equipment Type:	
Material:	Volume:	Contents:		Material:	Volume:	Contents:	
Notes/Conditions:				Notes/Conditions:			

TABLE 1
FIELD DATA SUMMARY TABLE
NOBLE - 100322
NOVACEK C28-27D, WELD COUNTY, COLORADO
REM # 34736

Sample ID	Sample Date	Depth (ft. bgs)	GPS Data		PDOP Value	VOC Concentration (ppm)
			Latitude	Longitude		
FL01-01@3.5'	6/6/2024	3.5	40.292490	-104.549533	0.8	0.4
FL01-02@3.5'	6/6/2024	3.5	40.292761	-104.549770	1.0	0.1
FL01-03@3.5'	6/6/2024	3.5	40.293038	-104.550042	1.1	0.0
FL01R-S@3.5'	6/6/2024	3.5	40.293066	-104.549976	1.2	0.0
FL01R-W@3.5'	6/6/2024	3.5	40.292216	-104.549398	1.3	1.6
BKG01@3.5'	6/6/2024	3.5	40.292233	-104.549285	1.1	0.0

Notes:

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

in. = Inches

ft. = Feet

bgs = Below ground surface

TABLE 2
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE - 100322
NOVACEK C28-27D, WELD COUNTY, COLORADO
REM # 34736

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**		
FL01-01@3.5'	6/6/2024	3.5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL01-02@3.5'	6/6/2024	3.5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL01-03@3.5'	6/6/2024	3.5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL01R-S@3.5'	6/6/2024	3.5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL01R-W@3.5'	6/6/2024	3.5	<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

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 - 100322
NOVACEK C28-27D, WELD COUNTY, COLORADO
REM # 34736

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	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
FL01-01@3.5'	6/6/2024	3.5	<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
FL01-02@3.5'	6/6/2024	3.5	<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
FL01-03@3.5'	6/6/2024	3.5	<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
FL01R-S@3.5'	6/6/2024	3.5	<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
FL01R-W@3.5'	6/6/2024	3.5	<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

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

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 - 100322
NOVACEK C28-27D, WELD COUNTY, COLORADO
REM # 34736

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
FL01-01@3.5'	6/6/2024	3.5	8.73	0.102	0.0704	<2.00
FL01-02@3.5'	6/6/2024	3.5	8.50	0.126	0.0656	<2.00
FL01-03@3.5'	6/6/2024	3.5	6.73	0.0580	0.0162	<2.00
FL01R-S@3.5'	6/6/2024	3.5	7.87	0.0449	0.0144	<2.00
FL01R-W@3.5'	6/6/2024	3.5	8.39	0.267	0.341	<2.00
BKG01@3.5'	6/6/2024	3.5	8.86	0.147	0.437	NA
Maximum Background Concentration			8.86	-	-	-

Notes:

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) above native background concentrations.
3. Brown highlighted soil analytical values indicate a regulatory exceedance.

ECMC = Colorado Energy & Carbon Management Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

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

ft. = Feet

bgs = Below ground surface

TABLE 5
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
NOBLE - 100322
NOVACEK C28-27D, WELD COUNTY, COLORADO
REM # 34736

Sample ID	Sample Date	Depth (ft. bgs)	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
FL01-01@3.5'	6/6/2024	3.5	4.63	15.2	0.277	<0.30*	11.8	9.38	9.53	<0.260	0.0380	53.0
FL01-02@3.5'	6/6/2024	3.5	8.92	20.4	0.224	<0.30*	12.4	12.7	13.5	<0.260	0.0377	65.5
FL01-03@3.5'	6/6/2024	3.5	3.43	133	0.275	<0.30*	6.80	6.40	7.88	<0.234	0.0230	31.2
FL01R-S@3.5'	6/6/2024	3.5	4.33	702	0.209	<0.30*	6.69	6.42	8.27	<0.260	<0.0200	29.3
FL01R-W@3.5'	6/6/2024	3.5	15.4	589	1.20	<0.30*	17.5	9.67	16.7	0.282	0.0423	59.6
BKG01@3.5'	6/6/2024	3.5	2.26	104	0.280	<0.30	10.8	8.17	6.51	<0.260	0.0634	36.7
Maximum Background Concentration X 1.25			2.83	130	0.350	-	-	-	-	-	-	-

Notes:

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) 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.

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



Legend

--- Flowline Location

+ Soil Sample Location –Lab Analyzed (Collected via Trimble GPS)

Notes

1) All locations are approximate unless otherwise noted.
 2) Buried infrastructure has been spatially projected.
 3) Color coded sample exceedances are in reference to ECMC Table 915-1 Organic Compounds in Soil.

GPS – Global Positioning System
 mg/kg – Milligrams per kilogram
 PID – Photoionization Detector
 ppm – Parts per million

0 ft. 60 ft. 120 ft.

Image Source: Google Earth; Google 2020

DATE:	07/30/2024
DESIGNED BY:	JW
DRAWN BY:	LM



TASMAN Tasman, Inc.
 6855 W 119th Avenue
 Broomfield, CO 80020

Noble Energy, Inc. – DJ Basin
Novacek C28-27D
 SESE, Section 21, Township 4 North, Range 64 West
 Weld County, Colorado

Flowline Closure & Soil
 Analytical Results Map
 (06/06/2024)

FIGURE
 1