



16 June 2025

HSR-Tudor #11-31A

Remediation #27627

Operator # 100322

This Supplemental Site Investigation Report has been prepared by Environmental Resources Management, Inc. (ERM), on behalf of Noble Energy, Inc. (Noble), for the HSR-Tudor #11-31A (Remediation #27627) Site.

Confirmatory sampling conducted in June 2023 as part of the initial flowline closure activities at HSR-Tudor #11-31A, revealed exceedances of the Colorado Energy and Carbon Management Commission (ECMC) Table 915-1 regulatory standards for soil quality. Closure activities are documented in the Site Investigation and Remediation Work Plan (Supplemental Form 27), submitted to the ECMC on 19 December 2024 (Document #403906432).

Soil samples collected during the initial closure activities indicated the following exceedances of ECMC Table 915-1 standards:

Flowline Sample(s):

- Sample FL01-B@4' pH level exceeded the ECMC Table 915-1 regulatory range of 6.0–8.3 Standard Units (SUs), with an analytical result value of 5.29 SU.

This exceedance necessitated further investigation to delineate soil quality at the site and assess its relationship to background conditions.

On 16 August 2024, 19 August 2024, and 20 August 2024, ERM conducted shallow delineation and background soil sampling, using a hand auger, in locations associated with the former flowline as shown in **Figure 1**. Results from the August 2024 supplemental site investigation activities are summarized in the following sections.

SITE INVESTIGATION ACTIVITIES

SOIL SAMPLING

ERM advanced 4 delineation soil borings (FL-01-N, FL-01-E, FL-01-S, FL-01-W) located north, east, south and west of FL01-B@4' sample location associated with the former flowline, within the former operations boundary of the HSR-Tudor #11-31A Site to assess the previously identified pH exceedances. Samples were collected at the 2-, 4-, and 6-feet below ground surface (bgs) intervals at each respective boring location.

ERM advanced 8 background soil borings (BG-01 through BG-08) to serve as nearby, non-impacted sampling locations to evaluate background concentrations for the respective target

analytes with previous exceedances. Samples were collected at 2-, 4-, and 6-foot bgs at all background sampling locations.

A total of 36 soil samples, comprising 12 delineation samples and 24 background samples, were submitted to Summit Scientific Laboratory, an accredited facility located in Golden, Colorado, for pH analysis by EPA method 9045D.

RESULTS

The August 2024 site investigation results are detailed in **Table 1**, with sampling locations and associated analytical data depicted in **Figure 1**. The complete encrypted analytical report from Summit Scientific Laboratory will be included as an attachment with the respective Form 27 submittal of this report.

Upon receipt of laboratory analytical results, data were reviewed for general quality control and quality assurance measures. The following key observations and data qualifiers were noted:

- Three sets of soil samples were submitted to the lab on 08/16/24, 08/19/24, and 08/20/24. The soil samples temperatures measured at the time of laboratory receipt on 08/16/24 and 08/20/2024 were 8.3 and 6.9 degrees Celsius (°C), respectively, which is outside the acceptable range of 0 to 6°C but were delivered same day to the lab and actively cooling on ice when delivered. Soil samples temperature measured at the time of laboratory receipt on 08/19/24 were 3.5 degrees Celsius (°C), inside the acceptable range of 0 to 6°C.
- All sample bottles were received intact, and samples analyzed within their respective hold times.
- Some sample IDs and times on sample bottle ware did not match the chain of custody at the time of laboratory receipt. However, this was corrected by the laboratory upon receipt.
- No data qualifier codes were flagged in the analytical results.

FLOWLINE DELINEATION SAMPLES

- Flowline FL01-B@4' delineation sample FL-01-E exceed the ECMC Table 915-1 standard of 6-8.3 SU for pH. The pH analytical results for this sample is 8.81 SU.
- All remaining flowline FL01-B@4' delineation samples results are below the ECMC Table 915-1 ECMC Table 915-1 standard of 6-8.3 SU for pH.

BACKGROUND SAMPLES

- None of the background samples exceed the ECMC Table 915-1 standard of 6-8.3 SU for pH. pH analytical results range from 6.69 to 8.02 SU.

SOIL SUITABILITY FOR RECLAMATION STATUS

The analytical results for the delineation soil samples FL-01-E associated with the HSR-Tudor #11-31A flowline exceed the ECMC Table 915-1 soil standards for pH. When compared to the maximum pH concentration 8.02 SU of nearby background soil samples, the delineation sample results are found to be above the background maximum value. ERM recommends further

assessment of pH above at FL-01-E and applicability to Soil Reclamation Criteria in 4th Quarter 2025.



ERM

TABLE

Table 1
SUMMARY OF SOIL SUITABILITY RECLAMATION IN SOIL CHEMISTRY DATA
OPERATOR NOBLE 100322
HSR-Tudor #11-31A, Weld COUNTY, Colorado
REM# 27627

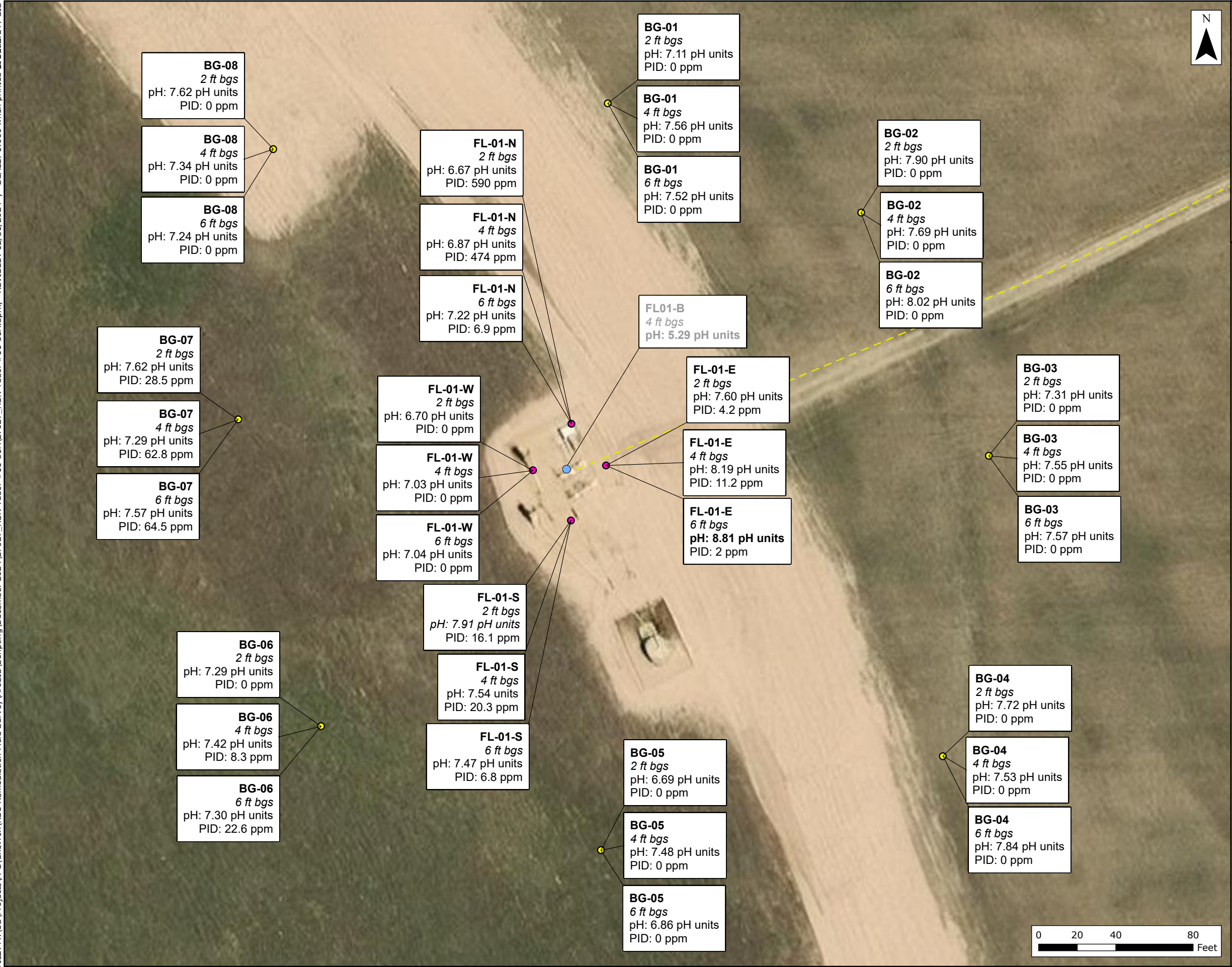
Analyte			pH (Standard Units)
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			6-8.3
Sample ID	Sample Date	Depth (ft)	Sample Results
Background Samples			
BG-01	08/16/2024	2 ft	7.11
BG-01	08/16/2024	4 ft	7.56
BG-01	08/16/2024	6 ft	7.52
BG-02	08/16/2024	2 ft	7.90
BG-02	08/16/2024	4 ft	7.69
BG-02	08/16/2024	6 ft	8.02
BG-03	08/16/2024	2 ft	7.31
BG-03	08/16/2024	4 ft	7.55
BG-03	08/16/2024	6 ft	7.57
BG-04	08/16/2024	2 ft	7.72
BG-04	08/16/2024	4 ft	7.53
BG-04	08/16/2024	6 ft	7.84
BG-05	08/19/2024	2 ft	6.69
BG-05	08/19/2024	4 ft	7.48
BG-05	08/19/2024	6 ft	6.86
BG-06	08/19/2024	2 ft	7.29
BG-06	08/19/2024	4 ft	7.42
BG-06	08/19/2024	6 ft	7.30
BG-07	08/19/2024	2 ft	7.62
BG-07	08/19/2024	4 ft	7.29
BG-07	08/19/2024	6 ft	7.57
BG-08	08/19/2024	2 ft	7.62
BG-08	08/19/2024	4 ft	7.34
BG-08	08/19/2024	6 ft	7.24
Flow Line Delineation Samples			
FL-01-N	08/20/2024	2 ft	6.67
FL-01-N	08/20/2024	4 ft	6.87
FL-01-N	08/20/2024	6 ft	7.22
FL-01-E	08/16/2024	2 ft	7.60
FL-01-E	08/16/2024	4 ft	8.19
FL-01-E	08/16/2024	6 ft	8.81
FL-01-S	08/16/2024	2 ft	7.91
FL-01-S	08/16/2024	4 ft	7.54
FL-01-S	08/16/2024	6 ft	7.47
FL-01-W	08/16/2024	2 ft	6.70
FL-01-W	08/16/2024	4 ft	7.03
FL-01-W	08/16/2024	6 ft	7.04

Notes:
pH units = pH units

CO-ECMC-RES-SO = Residential Soil Screening Level Concentrations
SAR = Sodium Adsorption Ratio
CO-ECMC = Colorado Energy and Carbon Management Commission
Bold and blue analytical result values exceed the ECMC Table 915-1 limit(s)



FIGURE



Legend

- Background
- Flowline Delineation
- Wellhead Delineation
- Former Sample Location
- - Former Flowline

Notes:

Bold values exceed the ECMC criteria for soil suitability.
ft bgs = feet below ground surface;

ECMC = Energy and Carbon Management Commission
PID = Photo Ionization Detector
ppm = parts per million

ECMC Table 915-1 limit(s)
pH = 6.0-8.3 pH units

Figure 1
Soils Analytical Data
16-20 August 2024
HSR-Tudor #11-31A
REM# 27643
Operator: 100322
 RBUR Remediation Field Survey
 Chevron
 Weld County, Colorado

