



## **Excavation Environmental Report**

Nakagawa PMB13-16 Wellhead

ECMC Remediation Project #33881

Weld County, Colorado

### **Attachments:**

**Figure 1 – General Location Map**

**Figure 2 – Initial Facility Closure Soil Sample and Field Screening Locations**

**Figure 3 – Excavation Extent and Soil Sample Locations**

**Table 1 – Soil Sample and Field Screening Location Information**

**Table 2 – Soil Analytical Results Summary Table – Volatile Organics**

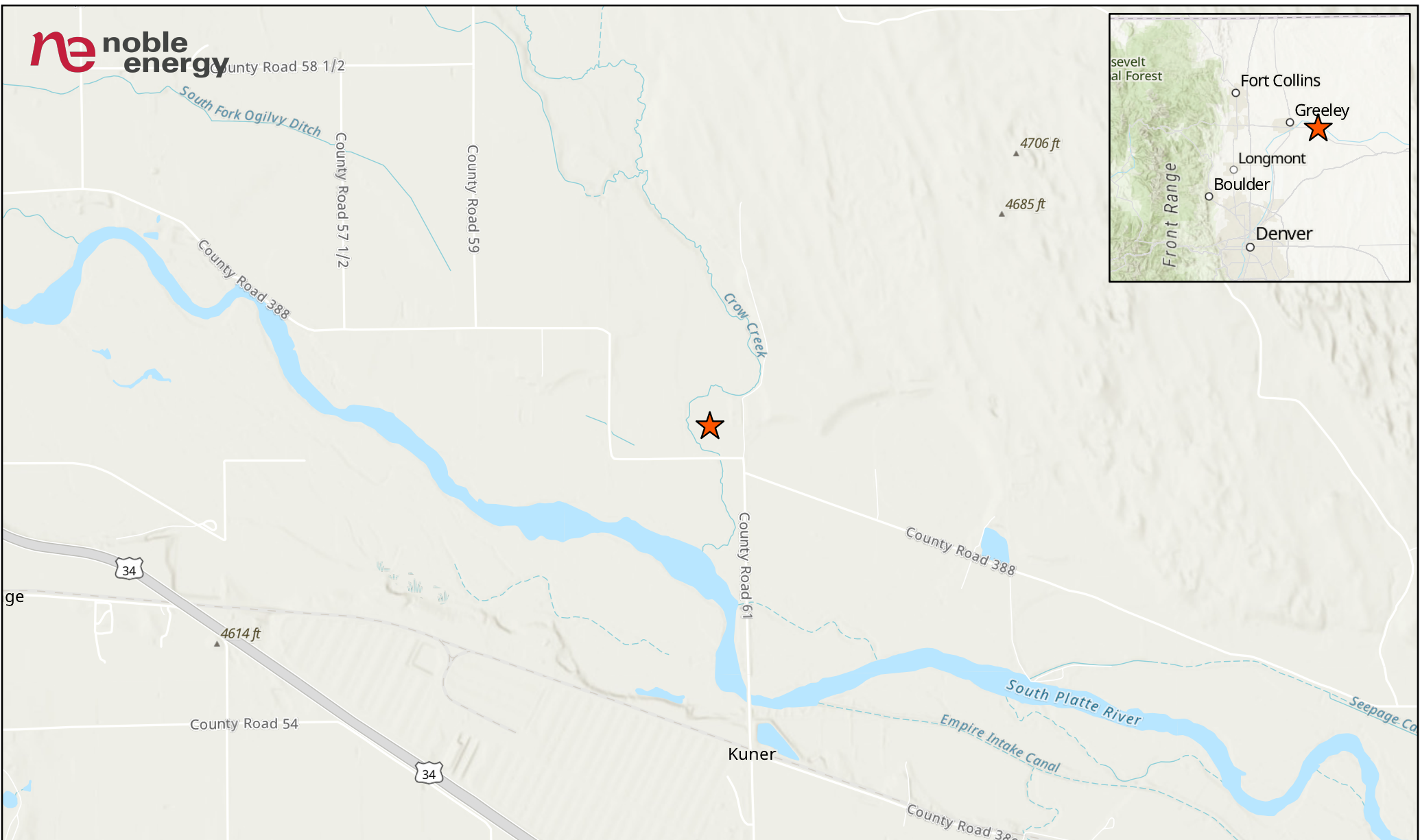
**Table 3 – Soil Analytical Results Summary Table – PAHs**

**Table 4 – Soil Analytical Results Summary Table – Soil Suitability**

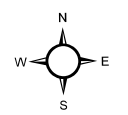
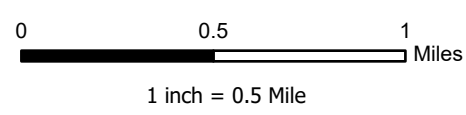
**Table 5 – Soil Analytical Results Summary Table – Metals**

**Attachment A: Photographic Log**

## **FIGURES**



**LEGEND**  
 Site Location



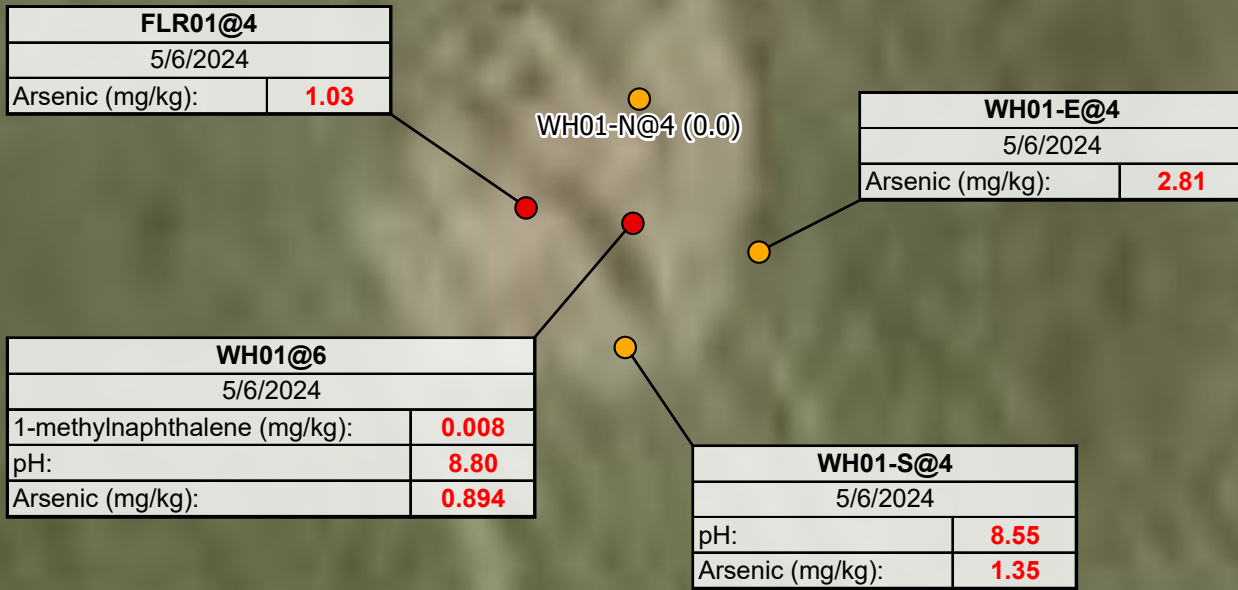
Project No:	024-179
Map By:	JW
Date:	06/28/2024

**NAKAGAWA PMB13-16 WELLHEAD  
 GENERAL LOCATION MAP**  
 NOBLE ENERGY  
 SE 1/4 SE 1/4 SECTION 13  
 T5N R64W, 6TH PM  
 WELD COUNTY, COLORADO



1843 Sunlight Dr.  
 Longmont, CO 80504  
 303.378.4036

Figure
1



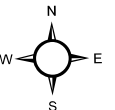
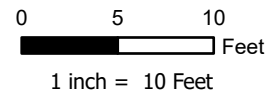
**LABEL LEGEND**  
 XXXX@X: SAMPLE NAME @ DEPTH IN FEET  
 WH: WELLHEAD SAMPLE  
 FLR: FLOWLINE RISER SAMPLE  
**RED**: ABOVE ECMC TABLE 915-1 GWSSL

Maxar, Microsoft

**Legend**

- Soil Sample
- Screening Location

**NOTES:**  
 - Sample Label (PID Result in ppm)  
 - ppm = parts per million  
 - PID = photoionization detector



Project No: 024-179  
 Map By: JW  
 Date: 06/27/2024

**NAKAGAWA PMB13-16 WELLHEAD  
 INITIAL FACILITY CLOSURE  
 SOIL SAMPLE AND FIELD SCREENING LOCATIONS**  
 NOBLE ENERGY  
 SE 1/4 SE 1/4 SECTION 13  
 T5N R64W, 6TH PM  
 WELD COUNTY, COLORADO



1843 Sunlight Drive  
 Longmont, CO 80504  
 303.378.4036

Figure  
 2

EX04@4	
3/24/2025	
pH:	<b>8.90</b>
Arsenic (mg/kg):	<b>2.07</b>

EX01@8	
3/24/2025	
pH:	<b>9.16</b>
Arsenic (mg/kg):	<b>1.47</b>

EX03@4	
3/24/2025	
pH:	<b>8.85</b>
Arsenic (mg/kg):	<b>2.11</b>

EX05@4	
3/24/2025	
pH:	<b>8.60</b>
Arsenic (mg/kg):	<b>2.51</b>

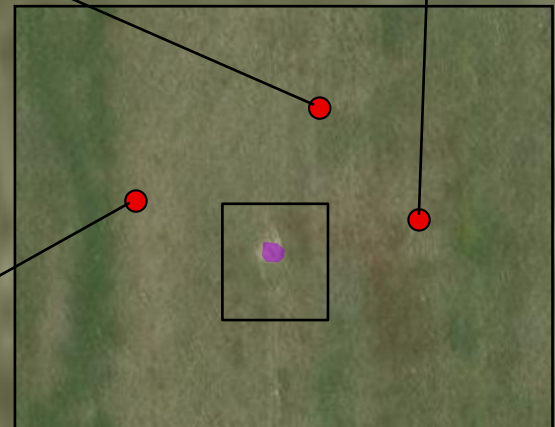
EX02@4	
3/24/2025	
pH:	<b>8.59</b>
Arsenic (mg/kg):	<b>2.41</b>

BKG01@4	
3/24/2025	
pH:	<b>8.90</b>
Arsenic (mg/kg):	<b>1.53</b>
BKG01@8	
3/24/2025	
pH:	<b>8.46</b>
Arsenic (mg/kg):	<b>1.31</b>

BKG02@4	
3/24/2025	
pH:	<b>8.50</b>
Arsenic (mg/kg):	<b>1.50</b>
BKG02@8	
3/24/2025	
pH:	<b>8.48</b>
Arsenic (mg/kg):	<b>0.877</b>

BKG03@4	
3/24/2025	
pH:	<b>8.32</b>
Arsenic (mg/kg):	<b>1.79</b>
BKG03@8	
3/24/2025	
pH:	<b>8.52</b>
Arsenic (mg/kg):	<b>1.86</b>

LABEL LEGEND	
XXXX@X: SAMPLE NAME @ DEPTH IN FEET	
EX: EXCAVATION SAMPLE	
BKG: BACKGROUND SAMPLE	
<b>RED:</b> ABOVE ECMC TABLE 915-1 STANDARDS	
<b>BOLD:</b> ABOVE ECMC TABLE 915-1 GWSSL, REPRESENTATIVE OF BACKGROUND LEVELS	



**Legend**

- Soil Sample
- Excavation Extent

0 5 10 Feet  
1 inch = 10 Feet

Project No: 024-179	<b>NAKAGAWA PMB13-16 WELLHEAD</b> <b>EXCAVATION EXTENT AND SOIL SAMPLE LOCATIONS</b> NOBLE ENERGY SE 1/4 SE 1/4 SECTION 13 T5N R64W, 6TH PM WELD COUNTY, COLORADO		610 Garrison St., Unit T Lakewood, CO 80215 303.378.4036	Figure
Map By: JW				3
Date: 05/12/2025				

Source: Figure 3 - Nakagawa PMB13-16 Wellhead - Excavation Sample Locations

## **TABLES**

**TABLE 1**  
**FIELD DATA SUMMARY TABLE**  
**NOBLE 100322**  
**NAKAGAWA PMB13-16 WELLHEAD, WELD COUNTY, COLORADO**  
**REM # 33881**

Sample ID	Sample Date	Depth (ft-bgs)	GPS Data		VOC Concentration (ppm)
			Latitude	Longitude	
WH01@6	5/6/2024	6	40.393774	-104.491379	31.8
FLR01@4	5/6/2024	4	40.393777	-104.491399	1.1
WH01-E@4	5/6/2024	4	40.393770	-104.491356	30.0
WH01-S@4	5/6/2024	4	40.393757	-104.491381	30.1
WH01-N@4	5/6/2024	4	40.393792	-104.491378	0.0
EX01@8	3/24/2025	8	40.393774	-104.491371	7.2
EX02@4	3/24/2025	4	40.393754	-104.491384	0.9
EX03@4	3/24/2025	4	40.393775	-104.491409	4.8
EX04@4	3/24/2025	4	40.393794	-104.491382	4.1
EX05@4	3/24/2025	4	40.393772	-104.491348	2.3
BKG01@4	3/24/2025	4	40.393840	-104.490969	1.3
BKG01@8	3/24/2025	8	40.393840	-104.490969	8.1
BKG02@4	3/24/2025	4	40.394082	-104.491244	1.0
BKG02@8	3/24/2025	8	40.394082	-104.491244	4.1
BKG03@4	3/24/2025	4	40.393888	-104.491762	1.2
BKG03@8	3/24/2025	8	40.393888	-104.491762	2.6

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).

ppm = Parts per million

ft-bgs = feet below ground surface

TABLE 2  
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA  
NOBLE 100322  
NAKAGAWA PMB13-16 WELLHEAD, WELD COUNTY, COLORADO  
REM # 33881

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**		
WH01@6	5/6/2024	6	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	0.002	0.256	0.256	<25.0	<100
FLR01@4	5/6/2024	4	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.002	<125.200	<0.200	<25.0	<100
WH01-E@4	5/6/2024	4	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.002	0.216	0.216	<25.0	<100
WH01-S@4	5/6/2024	4	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.002	0.517	0.517	<25.0	<100
EX01@8	3/24/2025	8	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<100.50	<0.50	<50	<50
EX02@4	3/24/2025	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<100.50	<0.50	<50	<50
EX03@4	3/24/2025	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<100.50	<0.50	<50	<50
EX04@4	3/24/2025	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<100.50	<0.50	<50	<50
EX05@4	3/24/2025	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<100.50	<0.50	<50	<50

1. Grey highlighted soil analytical values indicate result is less than laboratory reporting limit

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

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

ft-bgs - feet below ground surface

mg/kg - milligrams per kilogram

  = Material excavated and transported off site for disposal.

TABLE 3  
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA  
NOBLE 100322  
NAKAGAWA PMB13-16 WELLHEAD, WELD COUNTY, COLORADO  
REM # 33881

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
WH01@6	5/6/2024	6	<0.020	<0.020	<0.005	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.008	0.009
FLR01@4	5/6/2024	4	<0.020	<0.020	<0.005	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002
WH01-E@4	5/6/2024	4	<0.020	<0.020	<0.005	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.002	0.003
WH01-S@4	5/6/2024	4	<0.020	<0.020	<0.005	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.003	0.004
EX01@8	3/24/2025	8	<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
EX02@4	3/24/2025	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
EX03@4	3/24/2025	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
EX04@4	3/24/2025	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
EX05@4	3/24/2025	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

1. Grey highlighted soil analytical values indicate result is less than laboratory reporting limit

ft-bgs - feet below ground surface

mg/kg - milligrams per kilogram

Material excavated and transported off site for disposal.

**TABLE 4**  
**SUMMARY OF SOIL SUITABILITY FOR RECLAMATION**  
**NOBLE 100322**  
**NAKAGAWA PMB13-16 WELLHEAD, WELD COUNTY, COLORADO**  
**REM # 33881**

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
WH01@6	5/6/2024	6	<b>8.80</b>	0.295	0.616	0.217
FLR01@4	5/6/2024	4	8.08	0.164	0.549	0.120
WH01-E@4	5/6/2024	4	8.14	0.215	0.334	0.134
WH01-S@4	5/6/2024	4	<b>8.55</b>	0.220	0.485	0.208
EX01@8	3/24/2025	8	<b>9.16</b>	0.116	0.0913	<2.00
EX02@4	3/24/2025	4	<b>8.59</b>	0.145	0.0501	<2.00
EX03@4	3/24/2025	4	<b>8.85</b>	0.138	0.173	<2.00
EX04@4	3/24/2025	4	<b>8.90</b>	0.126	0.0941	<2.00
EX05@4	3/24/2025	4	<b>8.60</b>	0.407	0.530	<2.00
BKG01@4	3/24/2025	4	<b>8.90</b>	0.119	0.0869	<2.00
BKG01@8	3/24/2025	8	<b>8.46</b>	0.211	0.106	<2.00
BKG02@4	3/24/2025	4	<b>8.50</b>	0.347	0.424	<2.00
BKG02@8	3/24/2025	8	<b>8.48</b>	0.395	0.364	<2.00
BKG03@4	3/24/2025	4	<b>8.32</b>	0.144	0.106	<2.00
BKG03@8	3/24/2025	8	<b>8.52</b>	0.205	0.301	<2.00
Maximum Background Concentration			8.90	0.395	0.424	-

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)

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

4. Grey highlighted soil analytical values indicate result is less than laboratory reporting limit

ft-bgs - feet below ground surface

EC - Electrical Conductivity

SAR - Sodium adsorption ratio

mmhos/cm - millimhos per centimeter

mg/L - milligrams per liter

= Material excavated and transported off site for disposal.

TABLE 5  
SUMMARY OF METALS IN SOIL CHEMISTRY DATA  
NOBLE 100322  
NAKAGAWA PMB13-16 WELLHEAD, WELD COUNTY, COLORADO  
REM # 33881

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
WH01@6	5/6/2024	6	<b>0.894</b>	18.9	<0.0891	<0.146*	<8.91	8.86	1.48	<0.232	<0.0891	<33.0
FLR01@4	5/6/2024	4	<b>1.03</b>	14.6	<0.0862	<0.0979*	<8.62	5.57	1.03	<0.224	0.112	<31.9
WH01-E@4	5/6/2024	4	<b>2.81</b>	40.5	0.120	<0.0987*	<8.57	8.32	1.94	<0.223	0.117	<31.7
WH01-S@4	5/6/2024	4	<b>1.35</b>	27.4	<0.0946	<0.108*	<9.46	5.62	1.53	<0.246	0.114	<35.0
EX01@8	3/24/2025	8	<b>1.47</b>	29.3	<0.200	<0.30*	1.45	3.46	1.23	<0.260	<0.0200	6.35
EX02@4	3/24/2025	4	<b>2.41</b>	22.5	<0.200	<0.30*	1.78	3.59	1.65	<0.260	<0.0200	7.93
EX03@4	3/24/2025	4	<b>2.11</b>	13.0	<0.200	<0.30*	0.987	2.48	1.14	<0.260	<0.0200	4.66
EX04@4	3/24/2025	4	<b>2.07</b>	22.4	<0.200	<0.30*	1.65	2.66	1.80	<0.260	<0.0200	6.88
EX05@4	3/24/2025	4	<b>2.51</b>	12.9	<0.200	<0.30*	1.40	2.46	1.63	<0.260	<0.0200	6.63
BKG01@4	3/24/2025	4	<b>1.53</b>	21.7	<0.200	<0.30*	2.04	3.12	1.80	<0.260	<0.0200	8.30
BKG01@8	3/24/2025	8	<b>1.31</b>	31.3	<0.200	<0.30*	2.59	4.23	2.39	<0.260	0.0207	12.0
BKG02@4	3/24/2025	4	<b>1.50</b>	25.7	<0.200	<0.30*	2.35	4.42	2.29	<0.260	<0.0200	11.7
BKG02@8	3/24/2025	8	<b>0.877</b>	22.9	<0.200	<0.30*	1.42	3.13	1.40	<0.260	<0.0200	7.19
BKG03@4	3/24/2025	4	<b>1.79</b>	27.2	<0.200	<0.30*	3.29	5.32	2.76	<0.260	0.0297	16.3
BKG03@8	3/24/2025	8	<b>1.86</b>	26.2	<0.200	<0.30*	2.34	4.02	2.07	<0.260	<0.0200	11.5
1.25 x Maximum Background Concentration			2.33	39.1	-	-	4.11	6.65	3.45	-	0.0371	20.4

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)

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

4. Grey highlighted soil analytical values indicate result is less than laboratory reporting limit

\* Indicates laboratory reporting or minimum detection limit in excess of SSL

ft-bgs - feet below ground surface

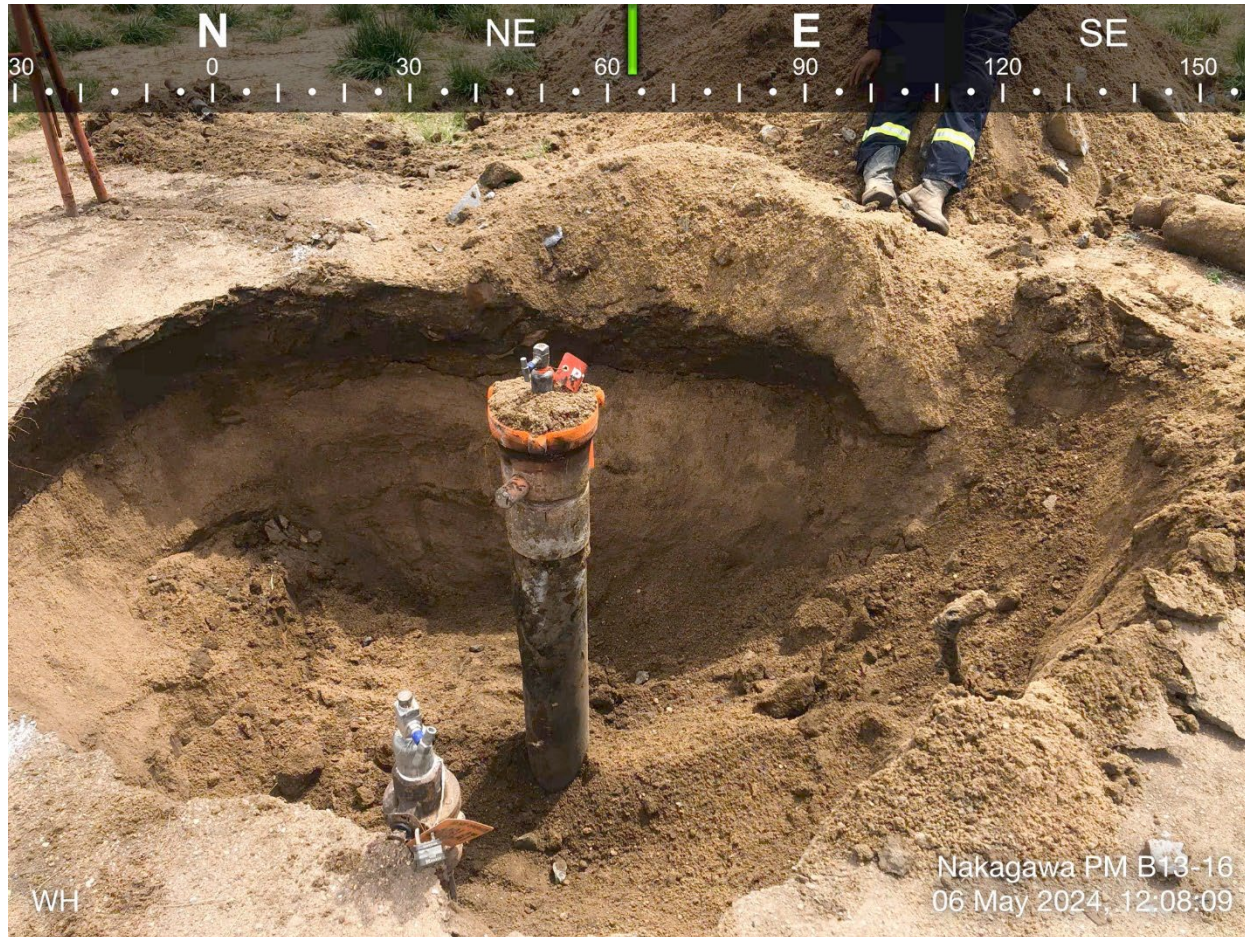
mg/kg - milligrams per kilogram

= Material excavated and transported off site for disposal.

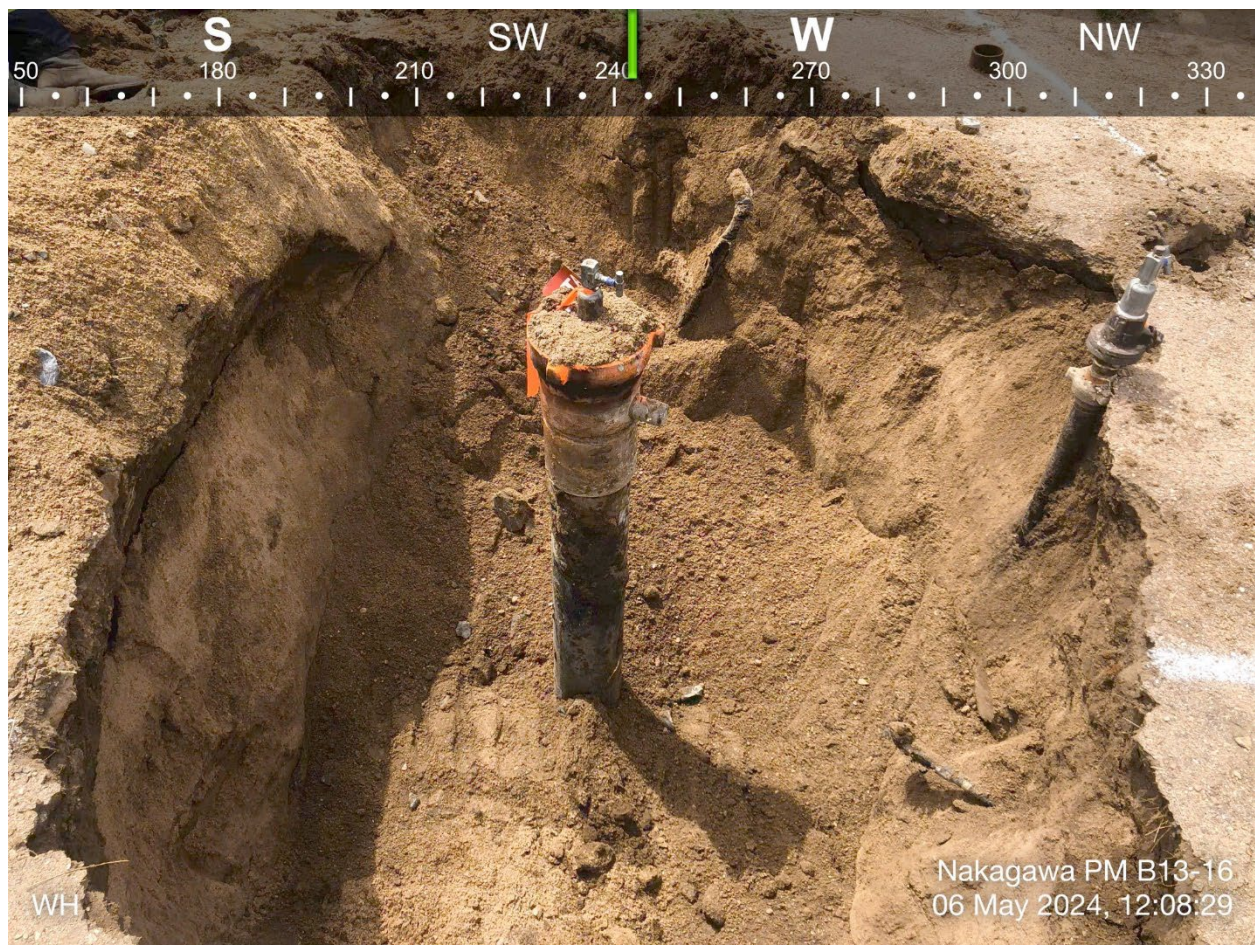
**ATTACHMENT A  
PHOTOGRAPHIC LOG**

# Nakagawa PMB13-16 Wellhead Photographic Log

Initial Wellhead Facility Closure – May 6, 2024



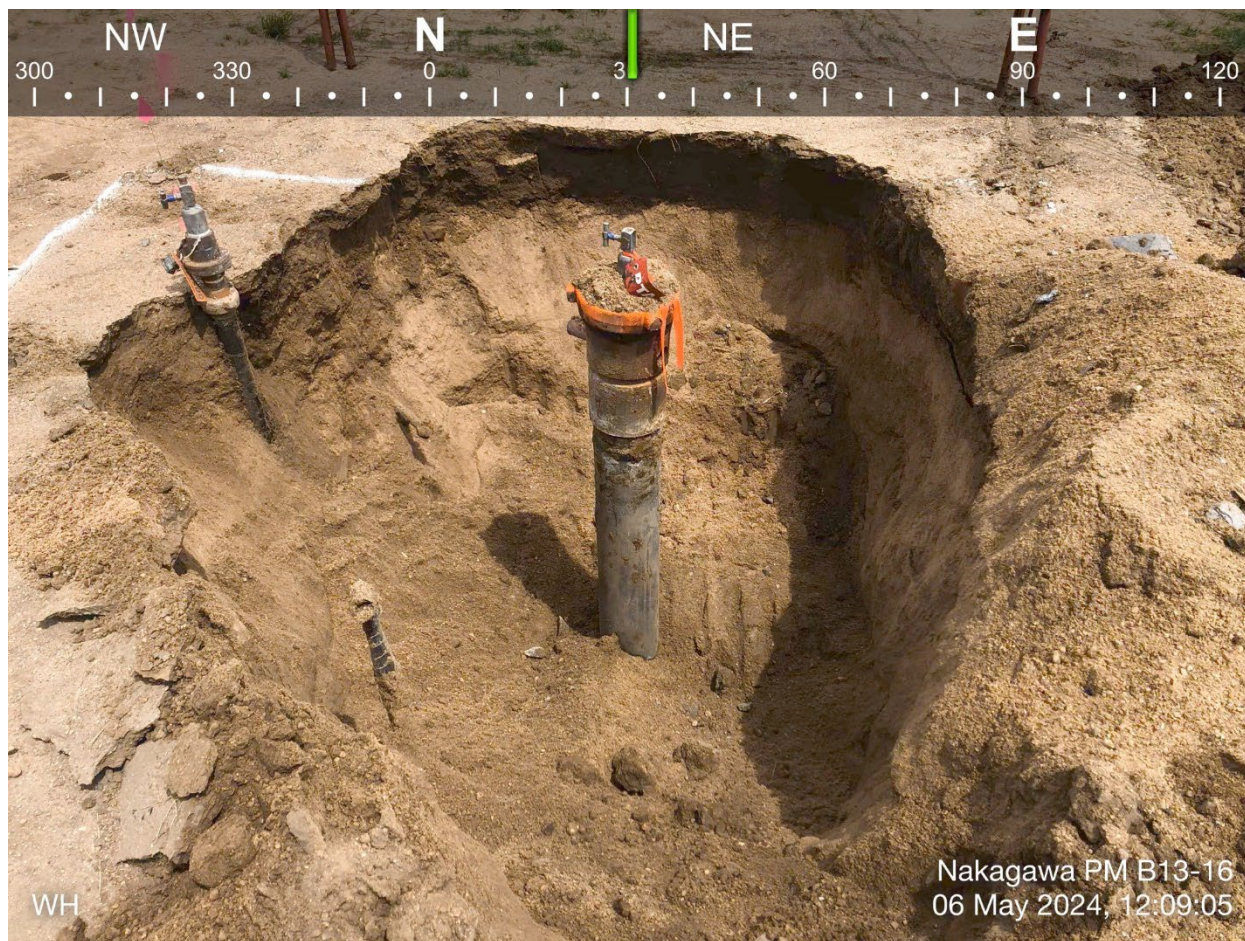
# Nakagawa PMB13-16 Wellhead Photographic Log



Nakagawa PMB13-16 Wellhead Photographic Log

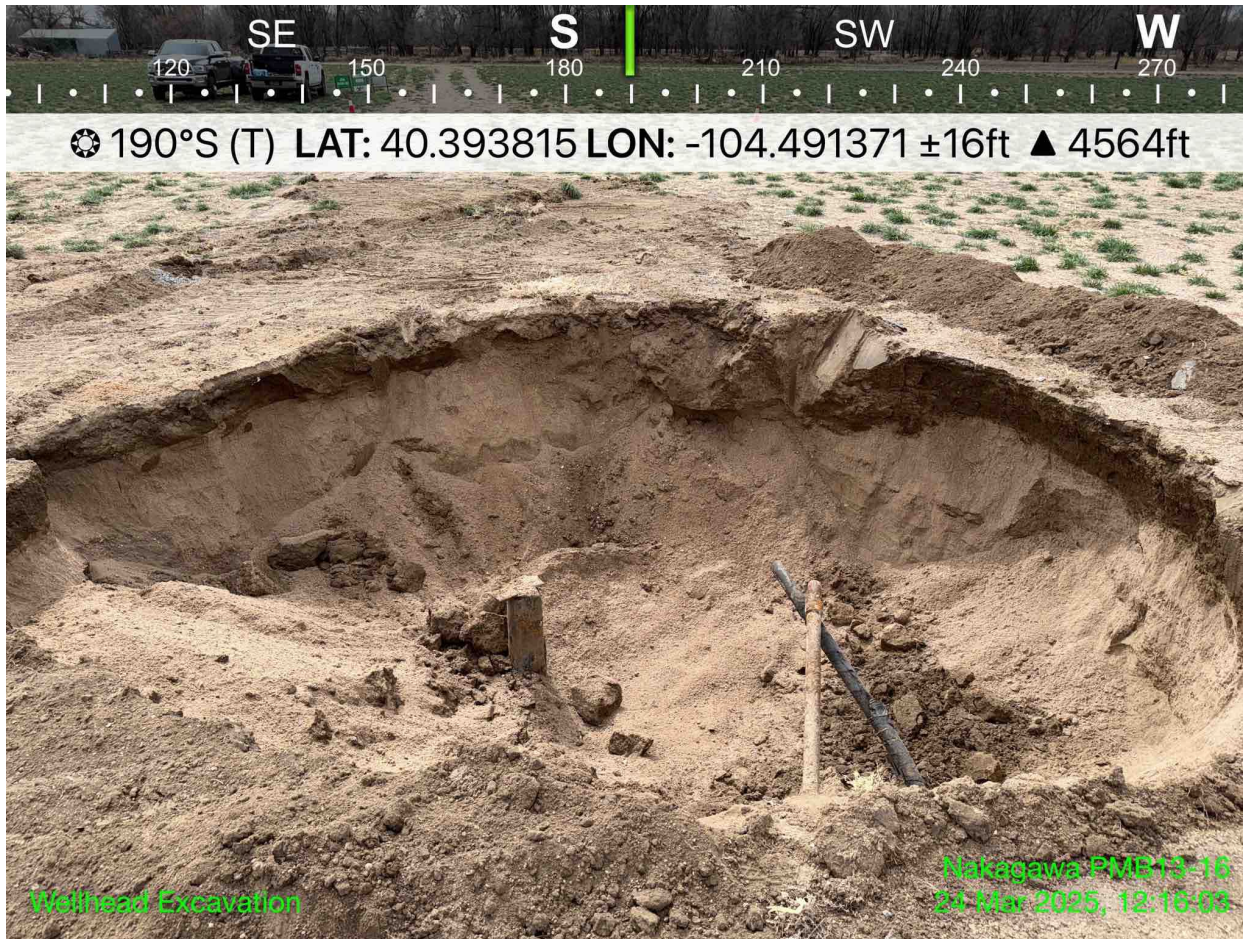


# Nakagawa PMB13-16 Wellhead Photographic Log

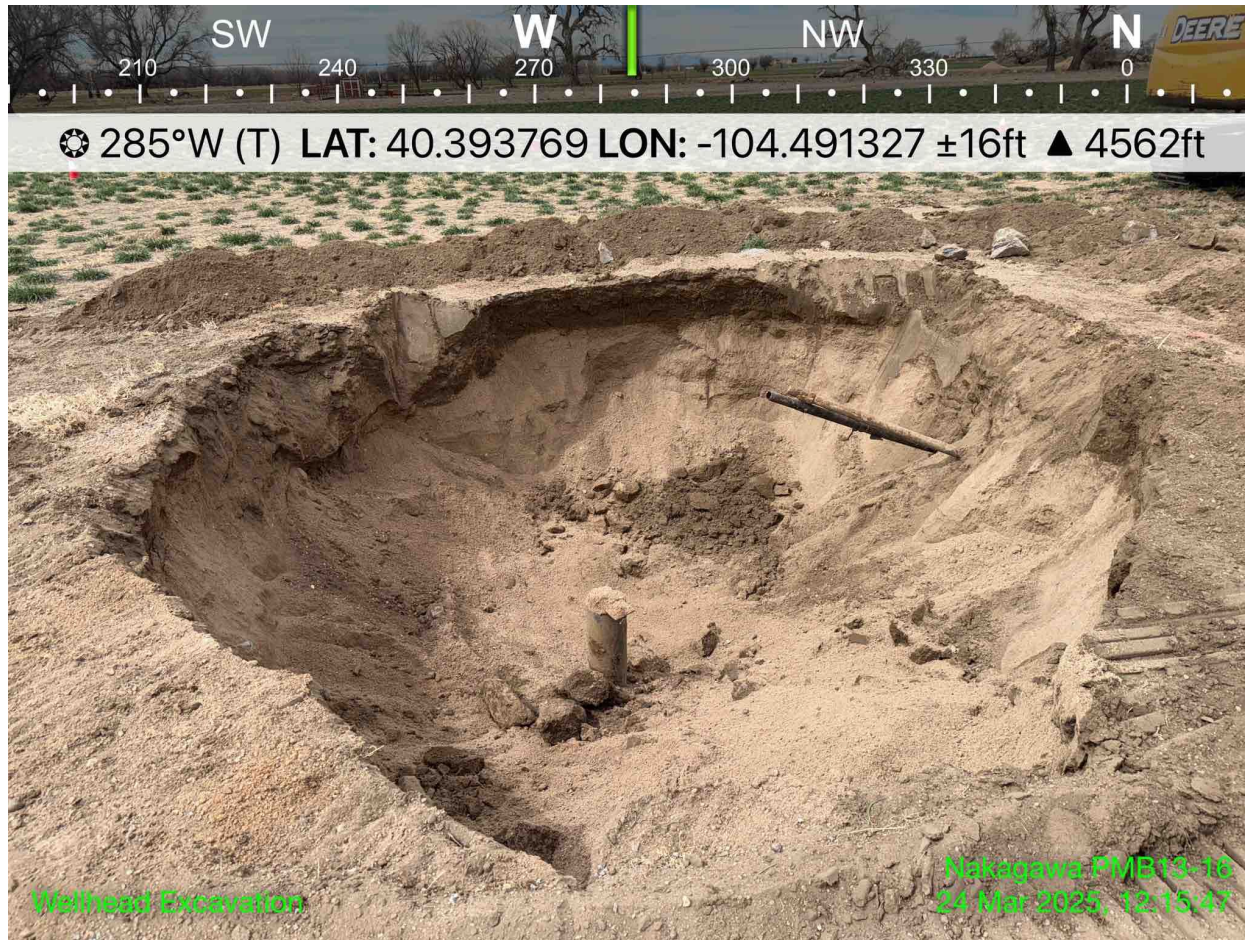


# Nakagawa PMB13-16 Wellhead Photographic Log

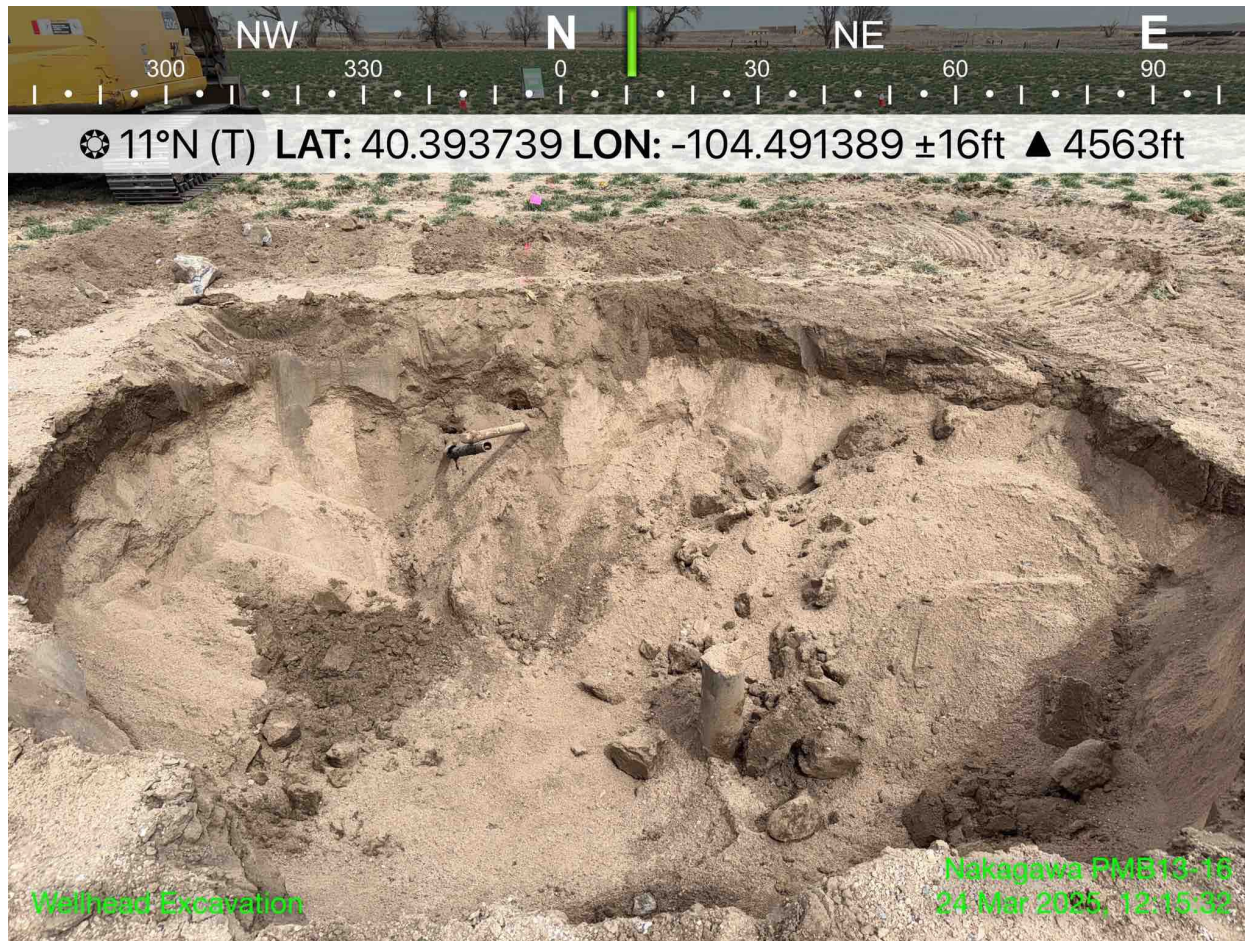
Historical Release Excavation – March 24, 2025



Nakagawa PMB13-16 Wellhead Photographic Log



Nakagawa PMB13-16 Wellhead Photographic Log



Nakagawa PMB13-16 Wellhead Photographic Log

