



CDH Consulting, LLC
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Wellhead Closure Investigation and Environmental Summary

STATE 16-1214 Wellhead
ECMC Remediation Project #34127
Weld County, Colorado

Attachments:

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Figure 2 – Background Soil and Groundwater Sample Locations Map

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Attachment A: Photographic Log

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FIGURES

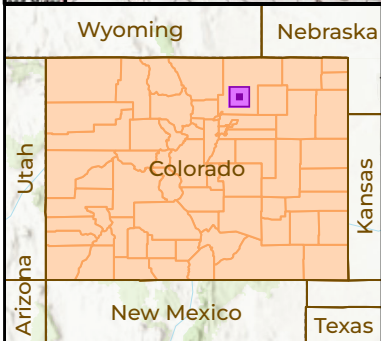
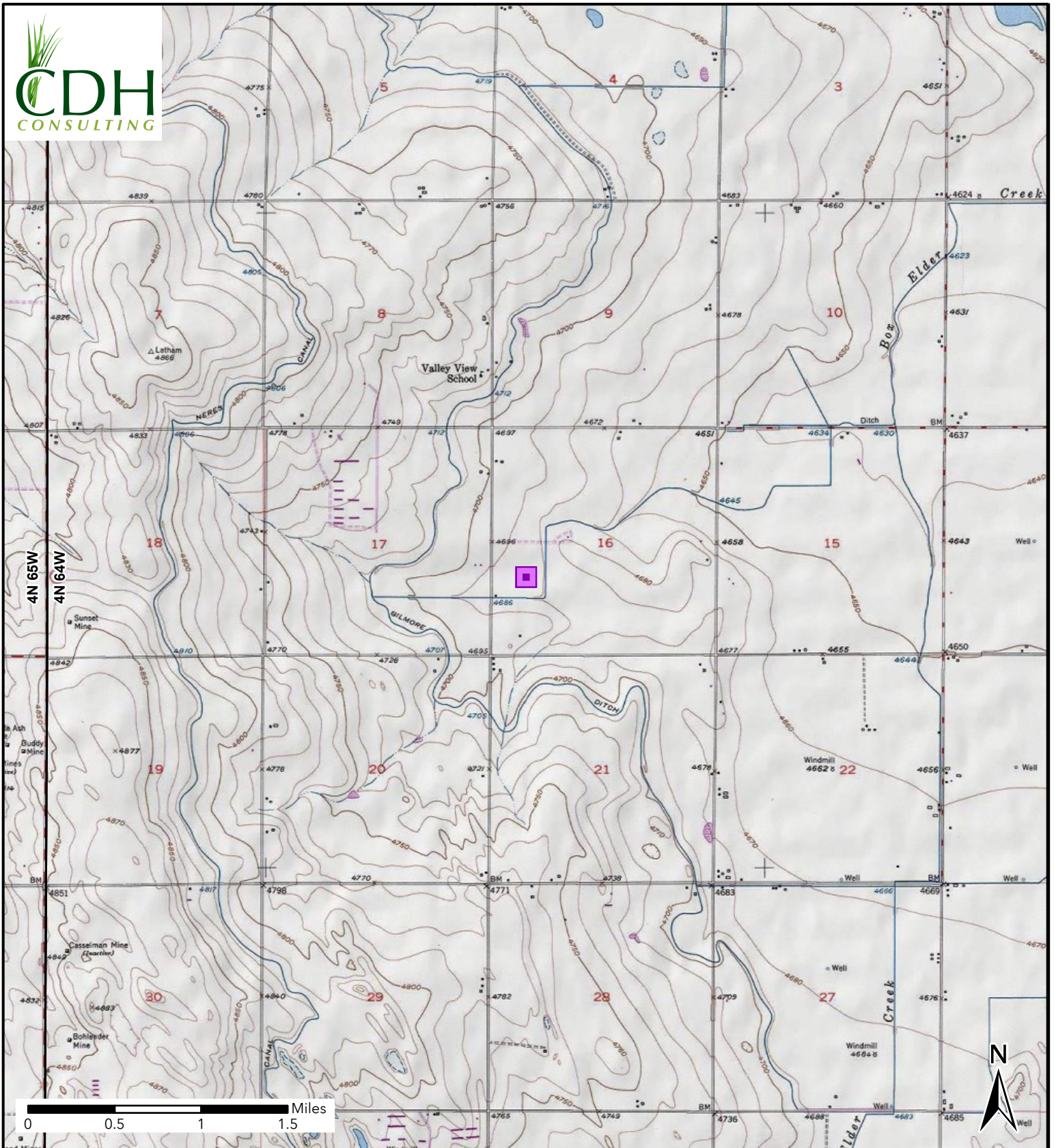


Figure 1
Site Location
STATE 16-1214
NWSW-SEC 16-T4N-R64W
Weld County, Colorado
Chevron

 Site Location

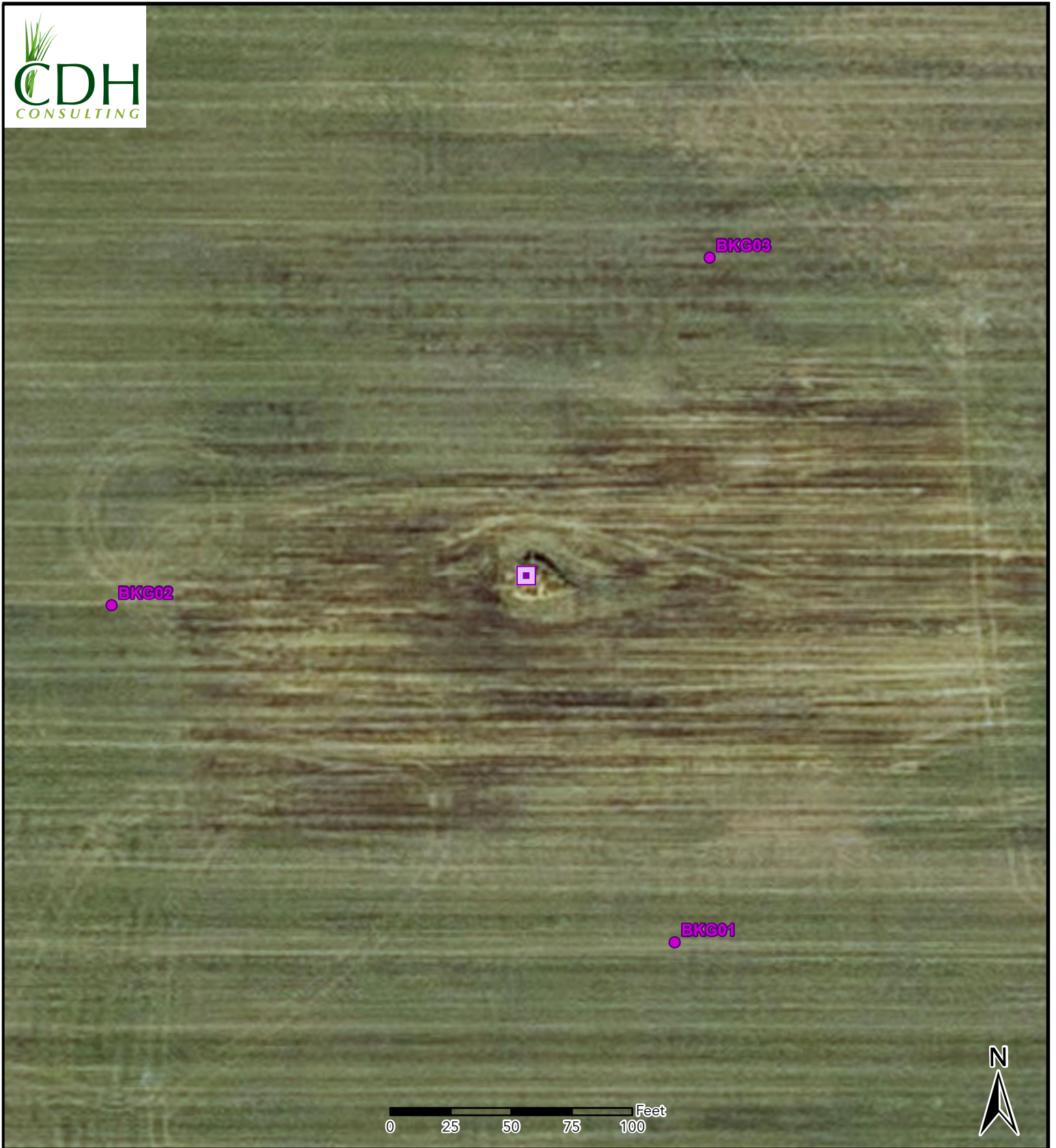




Figure 2
Background Sample
Location Map
STATE 16-1214
NWSW-SEC 16-T4N-R64W
Weld County, Colorado
Chevron

-  Site Location
-  Background Soil and Groundwater Sample



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TABLES

TABLE 1
FIELD DATA SUMMARY TABLE
NOBLE 100322
STATE 16-1214 WELLHEAD, WELD COUNTY, COLORADO
REM # 34127

Sample ID	Sample Date	Depth (ft)	GPS Data		VOC Concentration (ppm)
			Latitude	Longitude	
WH01@6	5/30/2024	6	40.310087	-104.562054	0.0
WH01-N@4	5/30/2024	4	40.310119	-104.56206	0.0
WH01-W@4	5/30/2024	4	40.310087	-104.56209	0.0
WH01-E@4	5/30/2024	4	40.310087	-104.56202	44.8
WH01-S@4	5/30/2024	4	40.310063	-104.56205	0.0
GW01	5/30/2024	5.5	40.310079	-104.56207	NM
BKG001@6'	3/28/2025	6	40.309670	-104.561837	0.0
BKG002@6'	3/28/2025	6	40.310059	-104.562665	0.0
BKG003@6'	3/28/2025	6	40.310446	-104.561774	0.0
BKG01-GW	3/28/2025	4	40.309670	-104.561837	NM
BKG02-GW	3/28/2025	4.5	40.310059	-104.562665	NM
BKG03-GW	3/28/2025	4.5	40.310446	-104.561774	NM

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

ft = Feet

TABLE 2
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE 100322
STATE 16-1214 WELLHEAD, WELD COUNTY, COLORADO
REM # 34127

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**		
WH01@6	5/30/2024	6	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.002	<125.200	<0.200	<25.0	<100

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
AP = Analysis pending
NA = Not analyzed

TABLE 3
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
NOBLE 100322
STATE 16-1214 WELLHEAD, WELD COUNTY, COLORADO
REM # 34127

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
WH01@6	5/30/2024	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	<0.002	<0.002

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
AP = Analysis pending
NA = Not analyzed

TABLE 4
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
NOBLE 100322
STATE 16-1214 WELLHEAD, WELD COUNTY, COLORADO
REM # 34127

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
WH01@6	5/30/2024	6	8.21	0.666	3.37	0.455
BKG001@6'	3/28/2025	6	8.12	1.310	5.37	0.514
BKG002@6'	3/28/2025	6	8.28	0.732	2.46	0.277
BKG003@6'	3/28/2025	6	8.37	0.564	3.62	0.206
Maximum Background Concentration			8.37	1.31	5.37	0.514

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.

AP = Analysis pending

NA = Not analyzed

TABLE 5
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
NOBLE 100322
STATE 16-1214 WELLHEAD, WELD COUNTY, COLORADO
REM # 34127

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
WH01@6	5/30/2024	6	3.29	84.5	0.15	<0.334*	<9.47	6.46	6.92	<0.246	<0.0947	<35.0
BKG001@6'	3/28/2025	6	5.24	102	0.147	<1.00*	7.16	7.74	10.3	0.359	<0.500	34.8
BKG002@6'	3/28/2025	6	3.40	96.1	0.115	<1.00*	5.85	5.73	7.35	0.352	<0.500	24.2
BKG003@6'	3/28/2025	6	3.04	153	0.176	<1.00*	7.23	6.80	8.94	0.378	<0.500	28.4
1.25x Maximum Background Concentration			6.55	191.3	0.220	NA	9.04	9.68	12.88	0.473	NA	43.5

- Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within 1.25x background concentrations.
- Bold** faced values exceed the ECMC Table 915-1 limit(s) and native background concentrations.
- Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL).
- 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

AP = Analysis pending

NA = Not analyzed

TABLE 6
SUMMARY OF GROUNDWATER ELEVATION DATA AND ORGANIC CHEMISTRY DATA
NOBLE 100322
STATE 16-1214 WELLHEAD, WELD COUNTY, COLORADO
REM # 34127

Sample ID	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-Trimethyl-Benzene (µg/L)	1,3,5-Trimethyl-Benzene (µg/L)	TOC Elevation (ft)	Depth to Groundwater Below TOC (ft)	Depth to Groundwater Below Ground Surface (ft)	Groundwater Elevation (ft)	LNAPL Thickness (ft)
ECMC Table 915-1 Limits		5.0	560	700	1400	140	67	67					
GW01	05/30/24	<1.00	<1.00	<1.00	<1.00	<2.00	<2.00	4.79	NM	NM	5.5	NM	NM

1. Bold values exceed the ECMC limit(s)

2. Red highlighted groundwater analytical values indicate a regulatory exceedance

NP - No measurable LNAPL, NA - Not Analyzed, NL - No Limit, INA - Inaccessible, IW - Insufficient Water, DES - Destroyed

TABLE 7
SUMMARY OF INORGANIC GROUNDWATER CHEMISTRY DATA
NOBLE 100322
STATE 16-1214 WELLHEAD, WELD COUNTY, COLORADO
REM # 34127

Sample ID	Sample Date	Total Dissolved Solids (mg/L)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)
ECMC Table 915-1 Limits*		<1.25 x local background	250 or <1.25 x local background	250 or <1.25 x local background
GW01	5/30/24	1360	256	317
BKG01-GW	3/28/25	3490	700	1210
BKG02-GW	3/28/25	1460	283	283
BKG03-GW	3/28/25	2100	281	644
Background Concentration (Current)		4363	875	1513

1. Bold values exceed the ECMC limit(s)

2. Blue highlighted groundwater analytical values indicate a regulatory exceedance

NP - No measurable LNAPL, NA - Not Analyzed, INA - Inaccessible, IW - Insufficient Water, DES - Destroyed

*Dissolved metals refer to Colorado Regulation 41 Standards



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ATTACHMENT A
PHOTOGRAPHIC LOG

Attachment A - Photographic Log

STATE 16-1214

Chevron REM #34127

3/28/2025

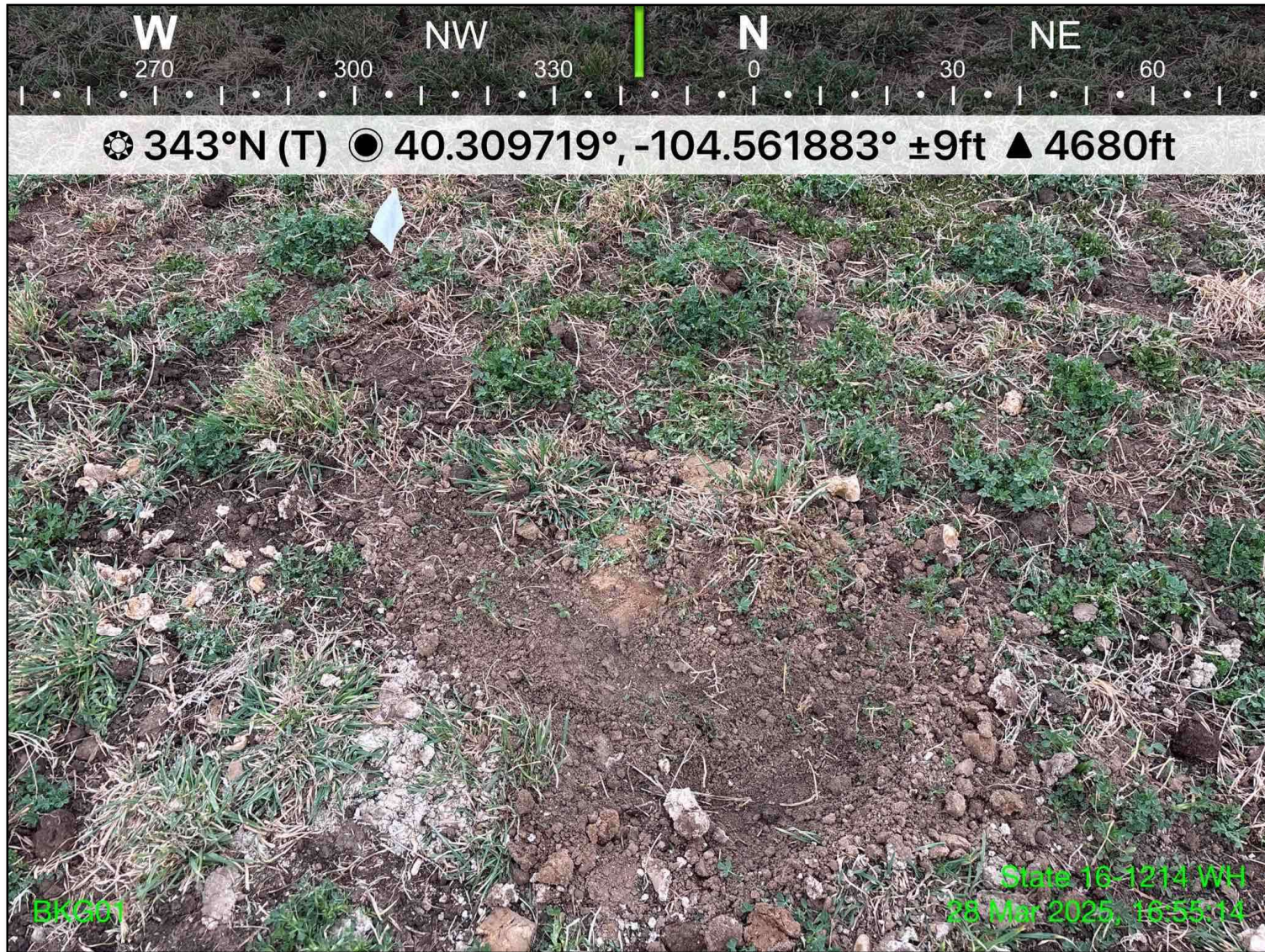


Photo 1: View of background sample location 1, facing north

Attachment A - Photographic Log

STATE 16-1214

Chevron REM #34127

3/28/2025



Photo 2: View of background sample location 2, facing north

Attachment A - Photographic Log

STATE 16-1214

Chevron REM #34127

3/28/2025



Photo 3: View of background sample location 3, facing north



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ATTACHMENT B
FIELD DECOMMISSIONING FORM

SITE NAME / REM: STATE 16-1214 REM #34127								DATE: 3/28/25	WEATHER: SUNNY AND 60	
TYPE OF WORK: Background sampling near the wellhead								CLIENT: Chevron		
LAT/LONG: 40.31009, -104.56203								PERSONNEL: RJ		
ESTIMATED DEPTH TO GROUNDWATER: 4'								OTHER OBSERVATIONS: None		
SOIL SAMPLING								FACILITY INFRASTRUCTURE		
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)	-	
3/28/2025	BKG001@6'	SP-SC	0	N	N	12:20	Y	Buried or Partially Buried Vessel	-	
3/28/2025	BKG002@6'	SP	0	N	N	12:30	Y	Separator	-	
3/28/2025	BKG003@6'	SP	0	N	N	12:40	Y	Emission Control Device (ECD)	-	
								Dump Line	-	
								Wellhead	-	
								Flowline	-	
								Third Party Equipment:	-	
								Other:		
								Soil Loads Removed		
								IMPACTED SOIL IDENTIFIED? None		
								ESTIMATED VOLUME OF IMPACTS: NA		
								Date	Number	CY
								Total Removed		
								Disposal Facility:		
								Groundwater Recovery		
								DATE GW ENCOUNTERED:	DEPTH: 4	
								3/28/25		
								GROUNDWATER IN CONTACT WITH IMPACTED SOIL?		
								No		
								LNAPL OR SHEEN OBSERVED ON GW? No		
GROUNDWATER SAMPLING								Date	BBLs	
Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?	Sent to lab on Ice? (Y/N)			
3/28/2025	BKG01-GW	4	Y	N	N	N	Y			
3/28/2025	BKG02-GW	4.5	Y	N	N	N	Y			
3/28/2025	BKG03-GW	4.5	Y	N	N	N	Y	Total Removed		
								Disposal Facility:		

