



CDH Consulting, LLC
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Wellhead Closure Investigation and Environmental Summary

LUNDVALL J 18-12 Wellhead
ECMC Remediation Project #42297
Weld County, Colorado

Attachments:

Field Form

Figure 1 – Site Location Map

Figure 2 – Soil Sample and Field Screening Locations Map

Figure 3 – Supplemental Source Mass Removal Map

Table 1 – Field Data Summary Table

Table 2 – Summary of Volatile Organic Soil Chemistry Data

Table 3 – Summary of Polycyclic Aromatic Hydrocarbon Soil Chemistry Data

Table 4 – Summary of Soil Suitability for Reclamation

Table 5 – Summary of Metals in Soil Chemistry Data

Photographic Log

Wellhead Closure Checklist



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FIELD FORM

SITE NAME / REM: LUNDVALL J 18-12 / REM #42297								DATE: 10/27/25	WEATHER: 40 F, Sunny	
TYPE OF WORK: Wellhead Cap & Cut								CLIENT: PDC Energy Inc.		
LAT/LONG: 40.3976, -104.826								PERSONNEL: DT, NI		
ESTIMATED DEPTH TO GROUNDWATER: Groundwater not encountered								OTHER OBSERVATIONS: Flowline previously sampled and removed.		
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)		0
10/27/2025	WH01@4.5'	SC	0.3	N	N	9:57	Y	Buried or Partially Buried Vessel		0
10/27/2025	WH01-N@3.5'	SC	0.3	N	N	9:58	N	Separator		0
10/27/2025	WH01-S@3.5'	SC	0.4	N	N	9:59	N	Emission Control Device (ECD)		0
10/27/2025	WH01-E@3.5'	SC	0.3	N	N	10:00	N	Dump Line		0
10/27/2025	WH01-W@3.5'	SC	0.6	N	N	10:01	N	Wellhead		1
10/27/2025	BKG01@4'	SP	1.0	N	N	10:48	Y	Flowline		0
10/27/2025	BKG02@4'	SP	1.6	N	N	10:26	Y	Third Party Equipment:		0
10/27/2025	BKG03@4'	SP	1.9	N	N	9:56	Y	Other:		0
								Soil Loads Removed		
								IMPACTED SOIL IDENTIFIED? No		
								ESTIMATED VOLUME OF IMPACTS:		
								Date	Number	CY
								Total Removed		
								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?	Sent to lab on Ice? (Y/N)			
								Total Removed		
								Disposal Facility:		





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FIGURES

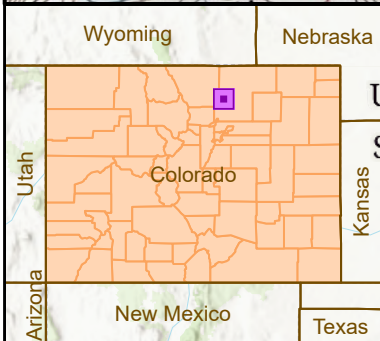
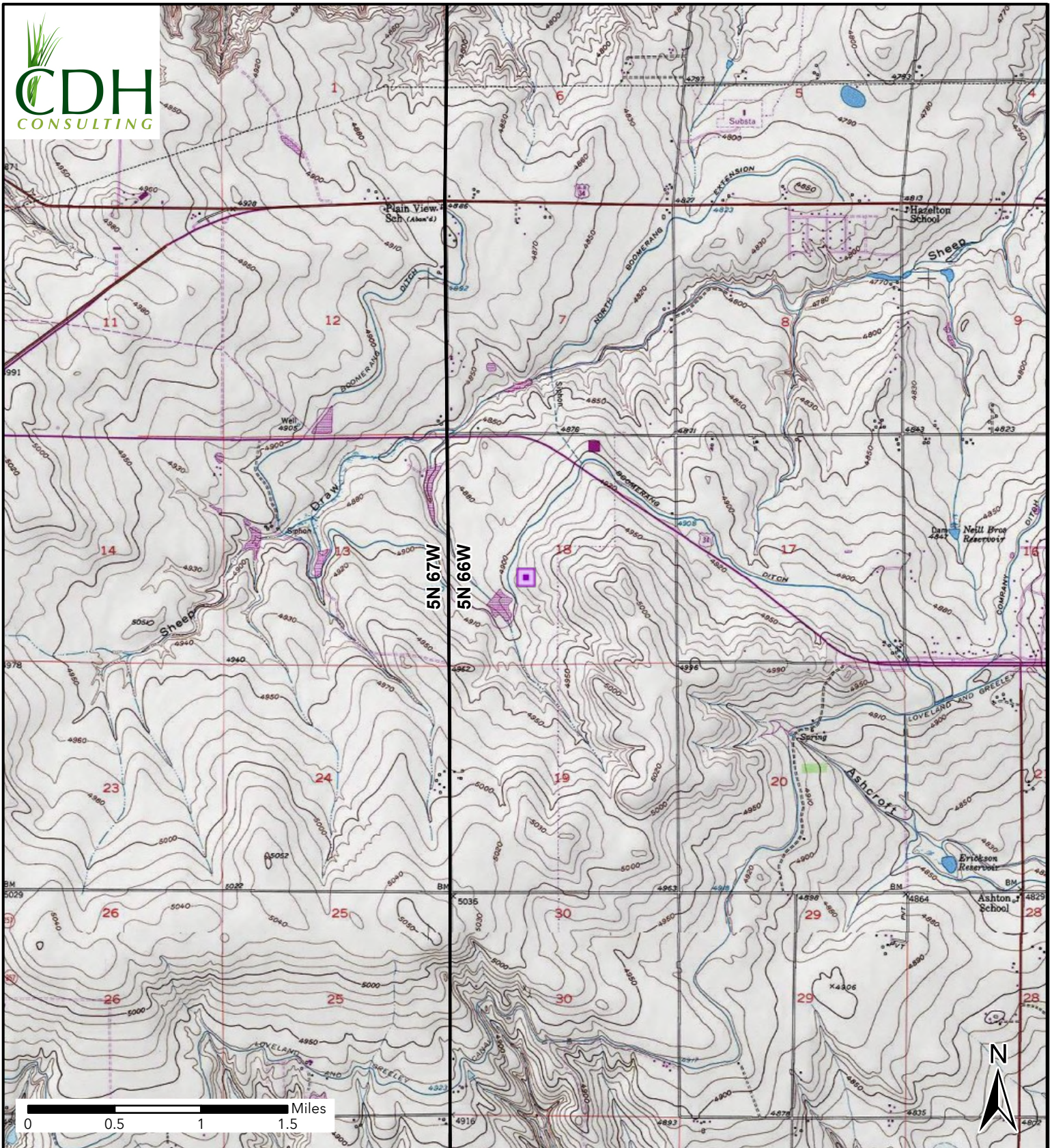
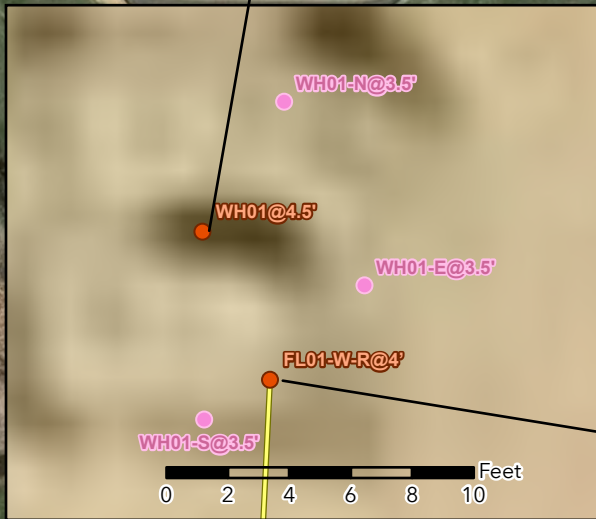


Figure 1
Site Location
LUNDVALL J18-12
L1 SEC 18-T5N-R66W
Weld County, Colorado
PDC Energy Inc

 Site Location



WH01@4.5'
 Date: 10/27/2025
 Barium: **362 mg/kg**



FL01-W-R@4'
 Date: 6/26/2025
 Benzo (a) Anthracene: **0.0663 mg/kg**

FL01-W-R@4'
 Date: 6/26/2025
 Benzo (a) Anthracene: **0.0663 mg/kg**

FL01-S-R@3'
 Date: 6/25/2025
 pH: **8.41**

NOTE:
 XXXX@X = Sample Name @ Depth in Feet
BOLD - Above ECMC Table 915-1 Standards
 "mg/kg" = milligrams per kilogram

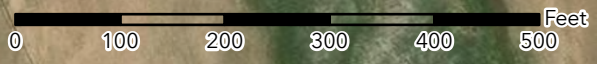


Figure 2
Sample Location Map
 LUNDVALL J 18-12
 L1 SEC 18-T5N-R66W
 Weld County, Colorado
 PDC Energy Inc.

- Soil Sample
- Screening Point
- Background Sample
- Flowline Abandoned In Place

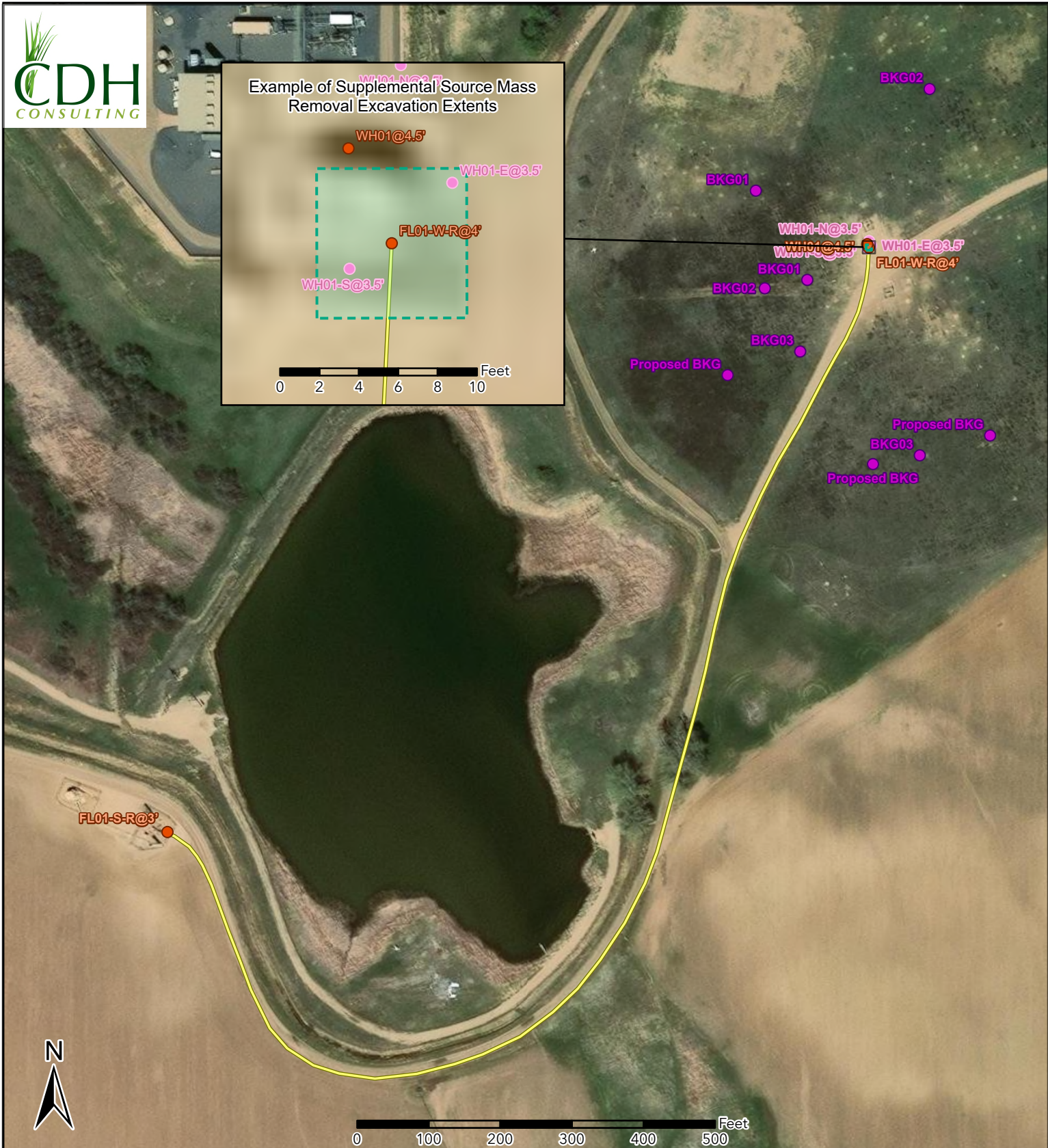
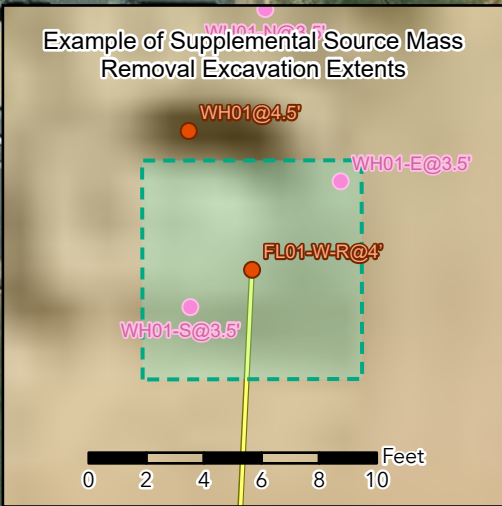


Figure 3 Supplemental Source Mass Removal Map

LUNDVALL J 18-12
 L1 SEC 18-T5N-R66W
 Weld County, Colorado
 PDC Energy Inc.

- Soil Sample
- Background Sample
- Screening Point
- Flowline Abandoned In Place
- 10' x 10' Proposed Excavation



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TABLES

TABLE 1
FIELD DATA SUMMARY TABLE
PDC 69175
LUNDVALL J 18-12, WELD COUNTY, COLORADO
REM # 42297

Sample ID	Sample Date	Depth (ft)	GPS Data Latitude/Longitude		PDOP Value	VOC Concentration (ppm)
FL01-S-R@3'	6/25/2025	3	40.395365	-104.829158	1.100000	0.1
FL01-W-R@4'	6/26/2025	4	40.397594	-104.825623	0.900760	1.9
BKG01@3.5'	6/26/2025	3.5	40.397471	-104.825933	0.979868	0.3
BKG02@3.5'	6/26/2025	3.5	40.397439	-104.826146	0.943478	0.4
BKG03@3.5'	6/26/2025	3.5	40.397196	-104.825969	0.849066	0.7
WH01@4.5'	10/27/2025	4.5	40.397607	-104.825631	0.900000	0.3
WH01-N@3.5'	10/27/2025	3.5	40.397619	-104.825622	0.900000	0.3
WH01-S@3.5'	10/27/2025	3.5	40.397590	-104.825631	0.900000	0.4
WH01-E@3.5'	10/27/2025	3.5	40.397602	-104.825612	0.900000	0.3
WH01-W@3.5'	10/27/2025	3.5	40.397604	-104.825642	0.900000	0.6
BKG01@4'	10/27/2025	4	40.397820	-104.826200	1.000000	1.0
BKG02@4'	10/27/2025	4	40.398208	-104.825327	1.000000	1.6
BKG03@4'	10/27/2025	4	40.396804	-104.825380	0.900000	1.9

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
PDC 69175
LUNDVALL J 18-12, WELD COUNTY, COLORADO
REM # 42297

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**		
FL01-S-R@3'	6/25/2025	3	<0.00100	<0.0100	<0.0100	<0.100	<0.00500	<0.00500	<0.00300	<8.100	<0.100	<4.00	<4.00
FL01-W-R@4'	6/26/2025	4	<0.00100	<0.0100	<0.0100	<0.100	<0.00500	<0.00500	<0.00300	34.5	<0.100	11.5	23.0
WH01@4.5'	10/27/2025	4.5	<0.00110	<0.00220	<0.00220	<0.00220	<0.00220	<0.00220	<0.00220	52.80	<0.220	20.2	32.6

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
 5. Samples are reported as dry weight unless otherwise indicated in the laboratory PDF report(s)
- (<) = 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

TABLE 3
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
PDC 69175
LUNDVALL J 18-12, WELD COUNTY, COLORADO
REM # 42297

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
FL01-S-R@3'	6/25/2025	3	<0.0330	<0.0330	<0.00600	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.00300	<0.0120
FL01-W-R@4'	6/26/2025	4	<0.0330	<0.0330	0.0663	0.0489	0.0663	<0.0330	0.0531	<0.0330	0.155	<0.0330	<0.0330	0.109	<0.00300	<0.0120
WH01@4.5'	10/27/2025	4.5	<0.00440	<0.00440	<0.00550	<0.00440	<0.00440	<0.00440	<0.00440	<0.00440	<0.00440	<0.00440	<0.00440	<0.00440	<0.00440	<0.00440

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. Samples are reported as dry weight unless otherwise indicated in the laboratory PDF report(s)
- (<) = Analytical result is less than the indicated laboratory reporting limit.
mg/kg = Milligrams per kilogram
ft = Feet

TABLE 4
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
PDC 69175
LUNDVALL J 18-12, WELD COUNTY, COLORADO
REM # 42297

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
FL01-S-R@3'	6/25/2025	3	8.41	0.215	0.140	0.137
FL01-W-R@4'	6/26/2025	4	8.00	0.558	0.534	<0.100
WH01@4.5'	10/27/2025	4.5	8.25	0.970	2.56	<0.500
BKG01@3.5'	6/26/2025	3.5	7.93	0.274	0.0982	<0.100
BKG02@3.5'	6/26/2025	3.5	7.99	0.205	0.0812	<0.100
BKG03@3.5'	6/26/2025	3.5	8.04	0.220	0.107	<0.100
BKG01@4'	10/27/2025	4	8.32	0.390	1.59	<0.500
BKG02@4'	10/27/2025	4	8.03	0.510	2.78	<0.500
BKG03@4'	10/27/2025	4	7.76	0.720	0.767	<0.500
Maximum Background Concentration			8.32	0.720	2.78	NA

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.

4. Samples are reported as dry weight unless otherwise indicated in the laboratory PDF report(s)

ft = Feet

EC = Electrical Conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligrams per liter

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

NA = Not analyzed

TABLE 5
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
PDC 69175
LUNDVALL J 18-12, WELD COUNTY, COLORADO
REM # 42297

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
FL01-S-R@3'	6/25/2025	3	3.21	56.4	<0.100	<0.195*	<10.0	<10.0	<10.0	0.151	<0.500	<50.0
FL01-W-R@4'	6/26/2025	4	4.92	112	0.229	<0.200 *	<10.0	<10.0	<10.0	0.225	<0.500	<50.0
WH01@4.5'	10/27/2025	4.5	5.30	362	0.130	<0.460 *	8.90	8.10	7.60	<0.210	<0.110	41.8
BKG01@3.5'	6/26/2025	3.5	3.67	85.5	0.115	<0.200 *	<10.0	<10.0	<10.0	0.183	<0.500	<50.0
BKG02@3.5'	6/26/2025	3.5	3.01	57.0	<0.100	<0.200 *	<10.0	<10.0	<10.0	0.167	<0.500	<50.0
BKG03@3.5'	6/26/2025	3.5	2.67	52.9	<0.100	<0.200 *	<10.0	<10.0	<10.0	0.138	<0.500	<50.0
BKG01@4'	10/27/2025	4	2.80	66.8	<0.0880	<0.400 *	5.10	4.50	6.3	<0.180	<0.0880	20.1
BKG02@4'	10/27/2025	4	4.60	104	0.170	<0.440 *	7.80	6.90	11.6	<0.200	<0.100	33.0
BKG03@4'	10/27/2025	4	2.90	69.0	<0.110	<0.420 *	5.00	4.70	6.3	<0.220	<0.110	19.4
1.25x Maximum Background Concentration			5.75	130	0.213	NA	9.75	8.63	14.5	0.229	NA	41.3

- Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within 1.25x background concentrations.
- Red** 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.
- Samples are reported as dry weight unless otherwise indicated in the laboratory PDF report(s)

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

NA = Not analyzed



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PHOTOGRAPHIC LOG

Photographic Log
LUNDVALL J 18-12 (REM #42297)
PDC Energy, Inc.
10/27/2025



Photo 1: View of wellhead excavation, facing north

Photographic Log
LUNDVALL J 18-12 (REM #42297)
PDC Energy, Inc.
10/27/2025



Photo 2: View of wellhead excavation, facing northwest

Photographic Log
LUNDVALL J 18-12 (REM #42297)
PDC Energy, Inc.
10/27/2025

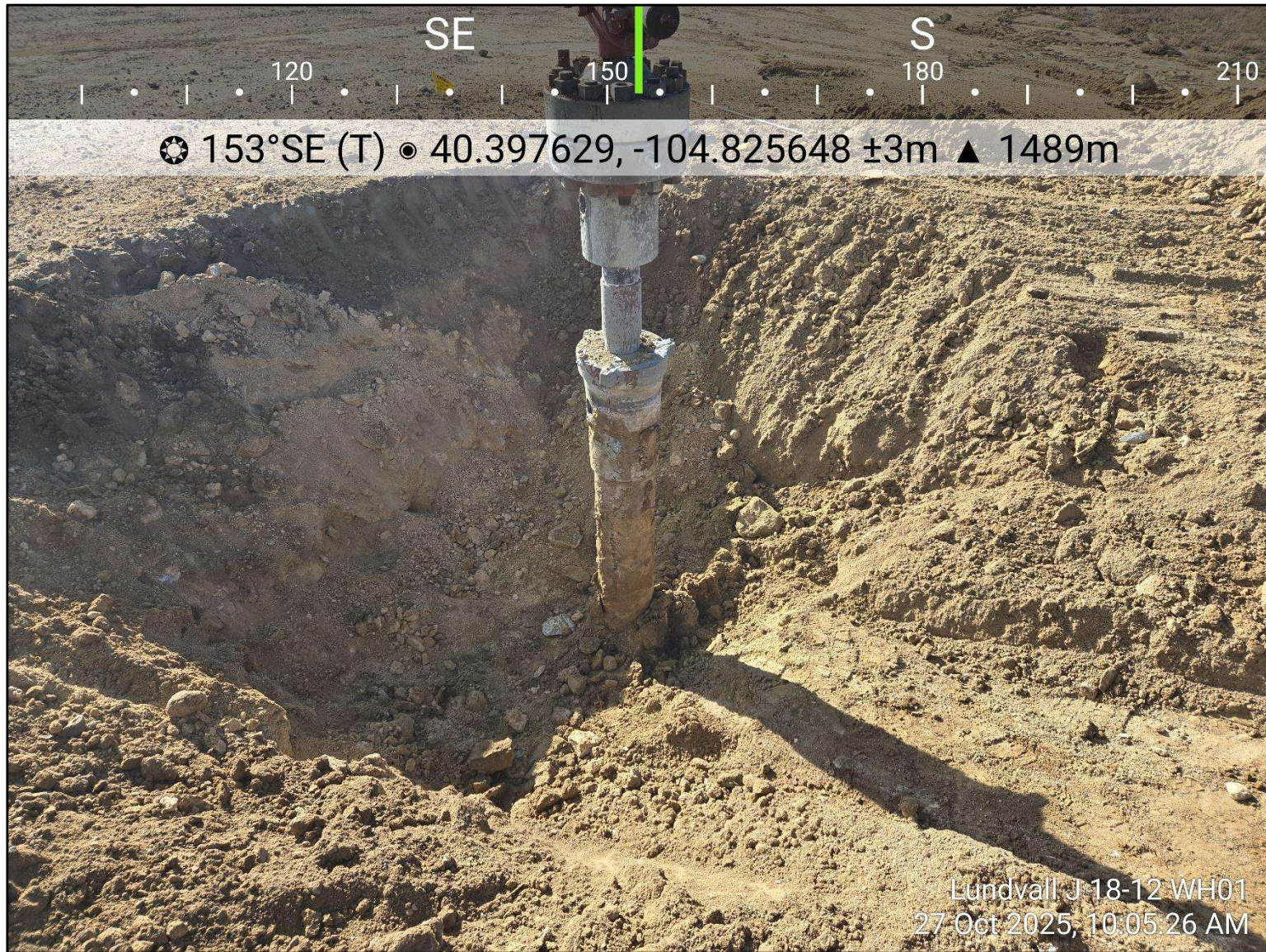


Photo 3: View of wellhead excavation, facing south - southeast

Photographic Log
LUNDVALL J 18-12 (REM #42297)
PDC Energy, Inc.
10/27/2025

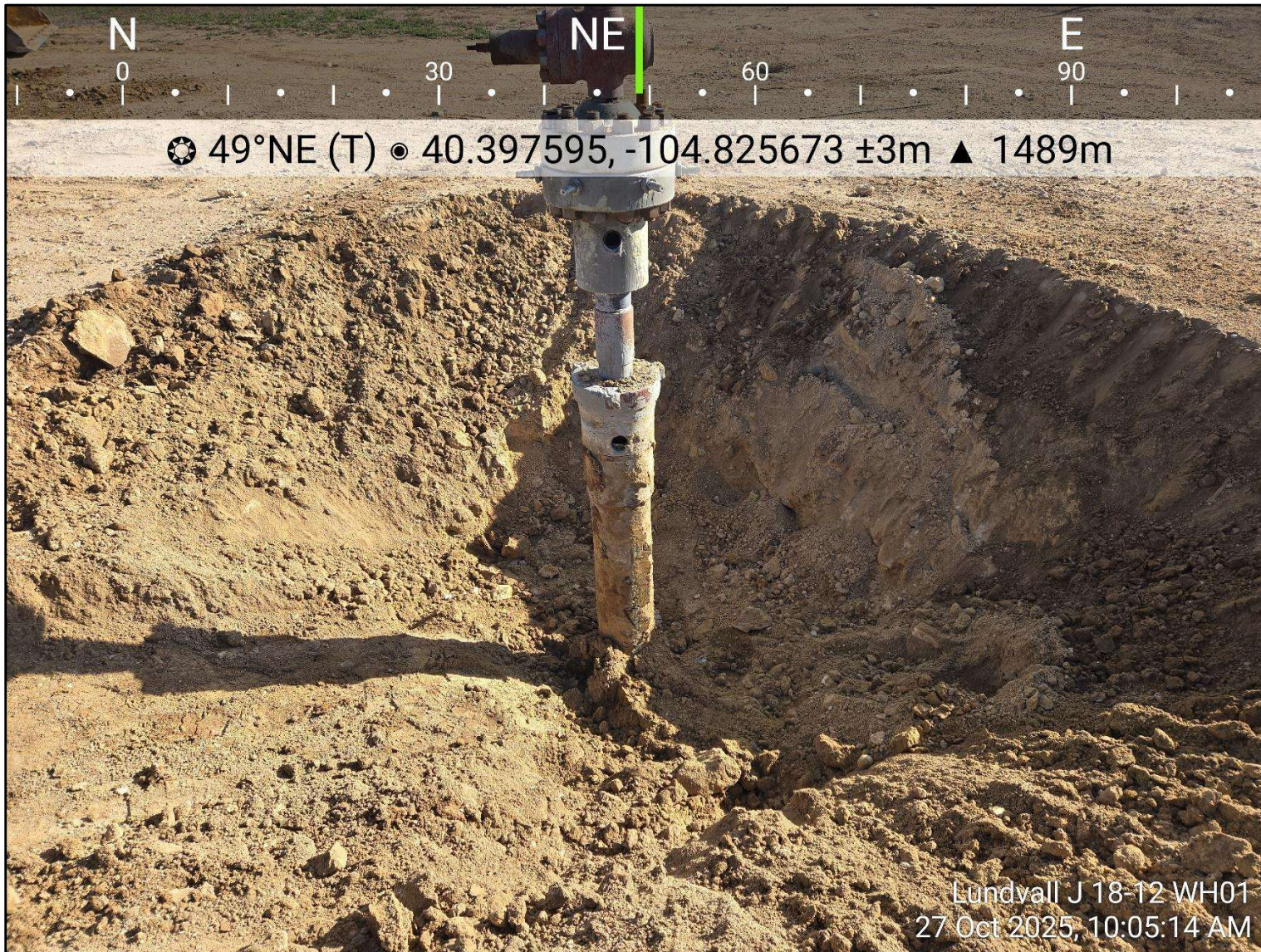


Photo 4: View of wellhead excavation, facing northeast

Photographic Log
LUNDVALL J 18-12 (REM #42297)
PDC Energy, Inc.
10/27/2025



Photo 5: View of background location 1, facing east

Photographic Log
LUNDVALL J 18-12 (REM #42297)
PDC Energy, Inc.
10/27/2025



Photo 6: View of background location 2, facing south - southwest

Photographic Log
LUNDVALL J 18-12 (REM #42297)
PDC Energy, Inc.
10/27/2025



Photo 7: View of background location 3, facing east



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WELLHEAD CLOSURE CHECKLIST

Wellhead Closure Checklist

ECMC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

Additional attachments (optional):		Pit Closure		Tank Battery Closure		Flowline Closure		Partially Buried Vault Closure	
Site Name & ECMC Facility Number: LUNDVALL J 18-12 / # 277446		Date: 10/27/2025						Remediation Project #: 42297	
Associated Wells: LUNDVALL J 18-12		Age of Site: 1/24/2006 (spud date)						Number of Photos Attached: 7	
Location: 40.397600, -104.825630								Estimated Facility Size (acres): 0.1	
General Condition of Site: Good									
USCS Soil Type: Clayey Sands (SC)				Estimated Depth to Groundwater: Groundwater not encountered					
Hydrocarbon Impacted Soils / Spills: Not encountered									
Salt Crusted Soils or Impacted Vegetation: Not encountered									
Wellhead(s)									
Well API	05-123-22962								
Age	1/24/2006 (spud date)								
Condition of surface around wellhead	Good								
PID Readings	0.3 - 0.6 ppm								
Condition of subsurface	Good								
PID Readings	0.3 - 0.6 ppm								
Sample taken? Location/Sample ID#	WH01@4.5'								
Photo Number(s)	See attached								
Other observations regarding wellheads: None									
Summary									
Was impacted soil identified? No Yes - less than 10 cubic yards Yes - more than 10 cubic yards									
Total number of samples field screened: 5				Total number of samples collected: 1					
Highest PID Reading: 0.6 ppm				Total number of samples submitted to lab for analysis: 1					
If more than 10 cubic yards of impacted soil were observed:									
Vertical extent:				Estimated spill volume:					
Lateral extent:				Volume of soil removed:					
Is additional investigation required?									
Was groundwater encountered during the investigation? No Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils									
Measured depth to groundwater:				Was remedial groundwater removal conducted? Yes No					
Date Groundwater was encountered:				Commencement date of removal:					
Sheen on groundwater?		Yes	No	Volume of groundwater removed prior to sampling:					
Free product observed?		Yes	No	Volume of groundwater removed post sampling:					
Total number of samples collected:				Total Volume of groundwater removed:					
Total number of samples submitted to lab for analysis:									