



## **Facility Closure Investigation and Environmental Summary**

Arens G26-19 Wellhead

ECMC Remediation Project #34770

Weld County, Colorado

### **Attachments:**

**Figure 1 – General Location Map**

**Figure 2 – Wellhead Soil Sample and Field Screening 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**

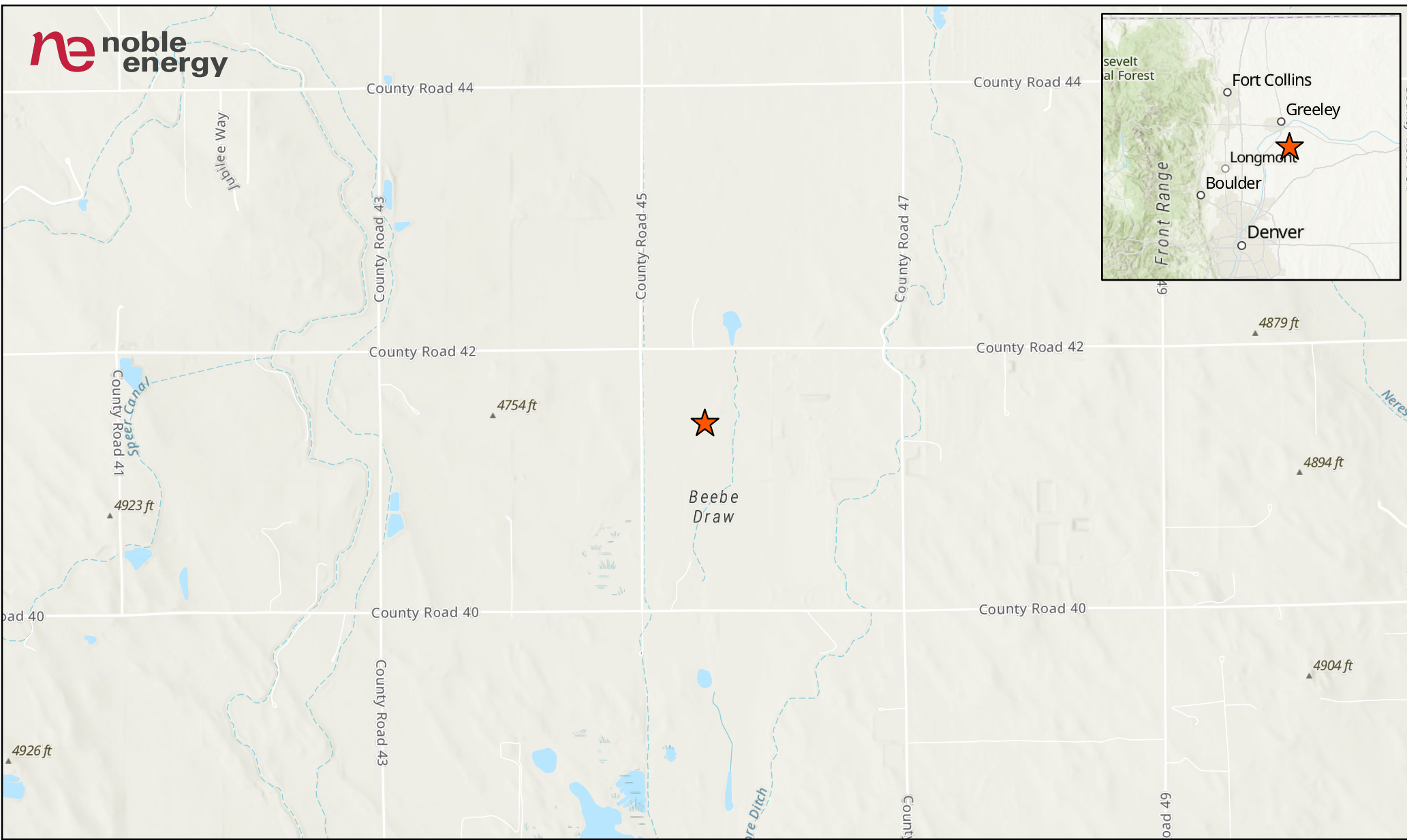
**Table 5 – Soil Analytical Results Summary Table – Metals**

**Attachment A: Photographic Log**

**Attachment B: Facility Closure Checklists**

**Attachment C: Laboratory Analytical Reports**

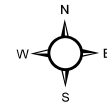
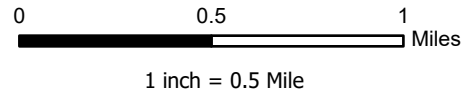
## FIGURES



**LEGEND**



Site Location



Project No: 024-206

Map By: JW

Date: 07/21/2024

**ARENS G26-19 WELLHEAD  
GENERAL LOCATION MAP**  
NOBLE ENERGY  
SW 1/4 NW 1/4 SECTION 26  
T4N R65W, 6TH PM  
WELD COUNTY, COLORADO



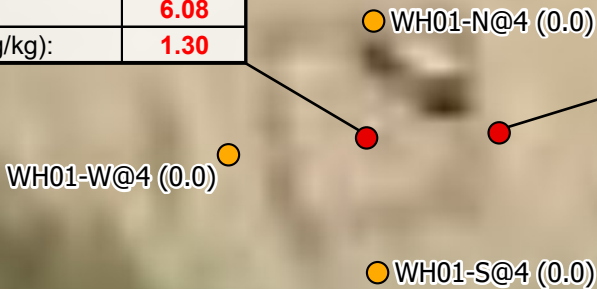
1843 Sunlight Dr.  
Longmont, CO 80504  
303.378.4036

Figure

1

WH01@6	
5/17/2024	
pH:	8.49
SAR:	6.08
Arsenic (mg/kg):	1.30

FLR01@4	
5/17/2024	
pH:	8.42
SAR:	8.11
Arsenic (mg/kg):	2.72
Lead (mg/kg):	19.1



#### LABEL LEGEND

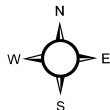
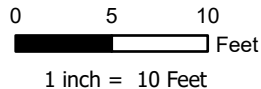
XXXX@X: SAMPLE NAME @ DEPTH IN FEET  
 WH: WELLHEAD SAMPLE  
 FLR: FLOWLINE RISER SAMPLE  
 SAR: SODIUM ADSORPTION RATIO  
**RED**: ABOVE ECMC TABLE 915-1 GWSSL

#### Legend

● Soil Sample ● Screening Location

#### NOTES:

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



Project No: 024-206

Map By: JW

Date: 07/17/2024

**ARENS G26-19 WELLHEAD**  
**SOIL SAMPLE AND FIELD SCREENING LOCATIONS**  
 NOBLE ENERGY  
 SW 1/4 NW 1/4 SECTION 26  
 T4N R65W, 6TH PM  
 WELD COUNTY, COLORADO



1843 Sunlight Drive  
 Longmont, CO 80504  
 303.378.4036

Figure

2

## **TABLES**

**TABLE 1**  
**FIELD DATA SUMMARY TABLE**  
**NOBLE 100322**  
**ARENS G26-19 WELLHEAD, WELD COUNTY, COLORADO**  
**REM # 34770**

Sample ID	Sample Date	Depth (ft-bgs)	GPS Data Latitude/Longitude		VOC Concentration (ppm)
WH01@6	5/17/2024	6	40.286500	-104.635377	0.0
FLR01@4	5/17/2024	4	40.286501	-104.635352	0.0
WH01-S@4	5/17/2024	4	40.286481	-104.635375	0.0
WH01-W@4	5/17/2024	4	40.286498	-104.635403	0.0
WH01-N@4	5/17/2024	4	40.286517	-104.635375	0.0

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  
ARENS G26-19 WELLHEAD, WELD COUNTY, COLORADO  
REM # 34770

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	5/17/2024	6	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.002	<125.200	<0.200	<25.0	<100
FLR01@4	5/17/2024	4	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.002	<125.200	<0.200	<25.0	<100

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  
ft-bgs = feet below ground surface  
mg/kg - milligrams per kilogram

TABLE 3  
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA  
NOBLE 100322  
ARENS G26-19 WELLHEAD, WELD COUNTY, COLORADO  
REM # 34770

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	5/17/2024	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
FLR01@4	5/17/2024	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

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



TABLE 4  
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION  
NOBLE 100322  
ARENS G26-19 WELLHEAD, WELD COUNTY, COLORADO  
REM # 34770

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	5/17/2024	6	8.49	1.61	6.08	0.245
FLR01@4	5/17/2024	4	8.42	2.32	8.11	0.556

1. **RED** - Above ECMC Table 915-1 Standards

ft-bgs = feet below ground surface

EC - Electrical Conductivity

SAR - Sodium adsorption ratio

mmhos/cm - millimhos per centimeter

mg/L - milligrams per liter

TABLE 5  
SUMMARY OF METALS IN SOIL CHEMISTRY DATA  
NOBLE 100322  
ARENS G26-19 WELLHEAD, WELD COUNTY, COLORADO  
REM # 34770

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	5/17/2024	6	1.30	53.3	<0.0912	<0.341*	<9.12	3.76	3.27	<0.237	<0.0912	<33.7
FLR01@4	5/17/2024	4	2.72	66.7	0.102	<0.306*	<9.38	19.1	4.58	<0.244	<0.0938	<34.7

1. **RED** - Above ECMC Table 915-1 Standards
  2. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)
  3. 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

**ATTACHMENT A**  
**PHOTOGRAPHIC LOG**

# Arens G26-19 Wellhead Photographic Log



## Arens G26-19 Wellhead Photographic Log

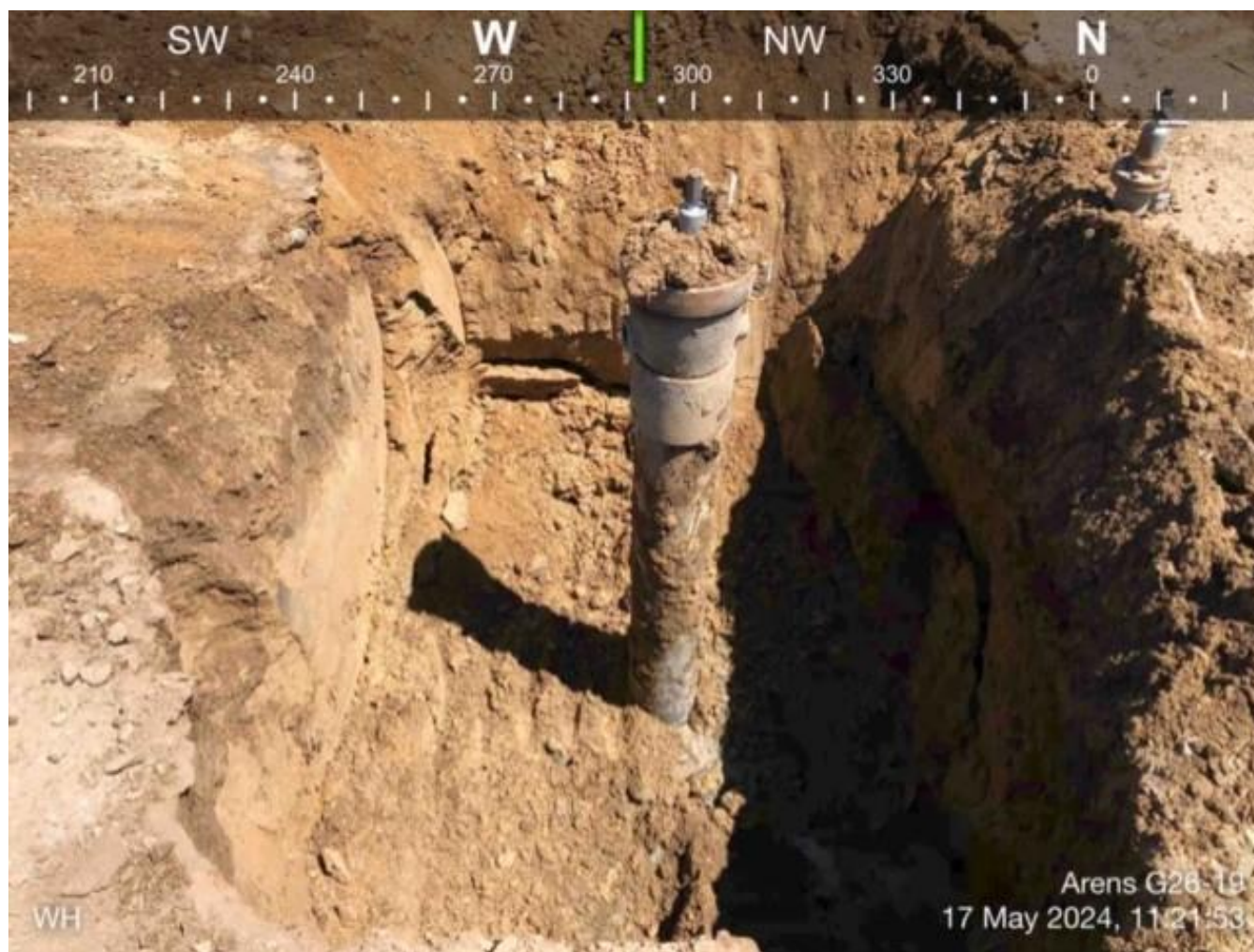




# Arens G26-19 Wellhead Photographic Log



# Arens G26-19 Wellhead Photographic Log



**ATTACHMENT B**  
**FACILITY CLOSURE CHECKLISTS**



# Wellhead Closure Checklist

## COGCC 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 & COGCC Facility Number: Arens G26-19, 413190		Date: 05/17/2024					Remediation Project #: 34770	
Associated Wells: NA		Age of Site: 03/12/2010- spud date					Number of Photos Attached: 4	
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple) 40.286500 / -104.635360							Estimated Facility Size (acres): ~0.01	
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)								
Overall good, some staining								
USCS Soil Type: Silty Sand (SM)					Estimated Depth to Groundwater: Unknown as none encountered			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)								
None encountered or observed								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)								
None encountered or observed								
Wellhead(s)								
Well API	05-123-30608							
Age	03/12/2010- spud date							
Condition of surface around wellhead	Good							
PID Readings	0.0 ppm							
Condition of subsurface (staining present)	Staining							
PID Readings	0.0 ppm							
Sample taken? Location/Sample ID#	WH01@6, FLR01@4							
Photo Number(s)	1-4							
Other observations regarding wellheads:								
Staining observed on the north side of the wellhead; organics suspected								
Summary								
Was impacted soil identified? No <input checked="" type="checkbox"/> Yes - less than 10 cubic yards <input type="checkbox"/> Yes - more than 10 cubic yards <input type="checkbox"/>								
Total number of samples field screened: 5					Total number of samples collected: 5			
Highest PID Reading: 0.0 ppm					Total number of samples submitted to lab for analysis: 2			
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? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - not impacted or in contact with impacted soils <input type="checkbox"/> 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:								