

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
403597922  
Receive Date:  
11/30/2023  
Report taken by:  
Laurel Anderson

Site Investigation and Remediation Workplan (Supplemental Form)

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. However, this shall not preclude the Operator from taking immediate action to protect public health or safety, the environment, wildlife, or livestock.

This Form 27 describes site conditions as currently understood by the Operator; approval of this Form 27 by COGCC is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form 27. This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATION

Name of Operator: <u>PDC ENERGY INC</u>	Operator No: <u>69175</u>	Phone Numbers Phone: <u>(303) 860-5800</u> Mobile: <u>( )</u>
Address: <u>1099 18TH STREET SUITE 1500</u>		
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>Karen Olson</u>	Email: <u>taspillremediationcontractor@pdce.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 29948 Initial Form 27 Document #: 403423698

PURPOSE INFORMATION

- Rule 913.c.(1): Pit or Cuttings Trench closure.
- Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- Rule 913.g: Changes of Operator.
- Rule 915.b: Request to leave elevated inorganics in situ.
- Other: \_\_\_\_\_

SITE INFORMATION

Yes  Multiple Facilities

Facility Type: <u>WELL</u>	Facility ID: _____	API #: <u>123-14554</u>	County Name: <u>WELD</u>
Facility Name: <u>BRIGGS AGGREGATE 1-25</u>	Latitude: <u>40.016944</u>	Longitude: <u>-104.841111</u>	
** correct Lat/Long if needed: Latitude: <u>40.017041</u>		Longitude: <u>-104.841218</u>	
QtrQtr: <u>SESW</u>	Sec: <u>25</u>	Twp: <u>1N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>LOCATION</u>	Facility ID: <u>327357</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>BRIGGS AGGREGATE-61N67W 25SESW</u>	Latitude: <u>40.016979</u>	Longitude: <u>-104.841401</u>	
** correct Lat/Long if needed: Latitude: <u>40.016775</u>		Longitude: <u>-104.841505</u>	
QtrQtr: <u>SESW</u>	Sec: <u>25</u>	Twp: <u>1N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: SPILL OR RELEASE Facility ID: 485096 API #: \_\_\_\_\_ County Name: WELD  
 Facility Name: Briggs Aggregate 1-25 Latitude: 40.016751 Longitude: -104.841125  
 \*\* correct Lat/Long if needed: Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_  
 QtrQtr: SESW Sec: 25 Twp: 1n Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 485126 API #: \_\_\_\_\_ County Name: WELD  
 Facility Name: Briggs Aggregate 1-25 - Sales Line Latitude: 40.018607 Longitude: -104.843987  
 \*\* correct Lat/Long if needed: Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_  
 QtrQtr: NWSW Sec: 25 Twp: 1N Range: 67W Meridian: 6 Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Residential / Commercial  
 Is domestic water well within 1/4 mile? Yes Is surface water within 1/4 mile? Yes  
 Is groundwater less than 20 feet below ground surface? Yes

**Other Potential Receptors within 1/4 mile**

Tank Battery: Nearest Well: Monitoring / Sampling - 81' SE; Surface Water: Freshwater pond - 366' N; Occupied Building: 202' W; Livestock: 202' W; FWS Wetlands: 235' S Freshwater Emergent Wetland (PEM1C); 100-Year Floodplain 190' SSE of Tank Battery.  
 Wellhead (Briggs Aggregate 1-25): Monitoring / Sampling - 149' S; Surface Water: Freshwater pond - 279' NNW; Occupied Building: 298' WSW; Livestock: 298' WSW; FWS Wetlands: 293' ESE Freshwater Emergent Wetland (PEM1C); 100-Year Floodplain 275' NE of Wellhead.

**SITE INVESTIGATION PLAN**

**TYPE OF WASTE:**

E&P Waste  Other E&P Waste  Non-E&P Waste  
 Produced Water  Workover Fluids \_\_\_\_\_  
 Oil  Tank Bottoms  
 Condensate  Pigging Waste  
 Drilling Fluids  Rig Wash  
 Drill Cuttings  Spent Filters  
 Pit Bottoms  
 Other (as described by EPA) \_\_\_\_\_

**DESCRIPTION OF IMPACT**

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	Refer to Table 5 & Figures 3&5	Confirmation Groundwater Sampling
Yes	SOILS	Refer to Tables 1-4 & Figures 1-6	Confirmation Soil Sampling

**INITIAL ACTION SUMMARY**

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

Between August 24 and 30, 2023, field screening and confirmation soil sampling activities were conducted in accordance with the ECOM Rule 911 during the decommissioning of the Briggs Aggregate 1-25 tank battery (TB), wellhead (WH), and associated flowline (Figures 1-4). Based on the initial analytical results, it was determined that two separate historic releases were discovered below former separator dump-line (SEP-DL) and below a bend in the gas sales line (SL). Following the discovery, mitigation activities were initiated to delineate and remove remaining hydrocarbon impacts below the former SEP-DL and SL. Approximately 1,329 CY have been removed from the SEP-DL excavation and approximately 9 CY have been removed from the SL excavation. Additionally, approximately 3 CY of potentially impacted material were removed beneath the above ground storage tanks (ASTs) onsite and approximately 9 CY of potentially impacted material were removed adjacent to the wellhead. A total of 1,341 CY of material were removed from this location and transported to North Weld Waste Management Facility, Buffalo Ridge Waste Management Facility, Front Range Landfill, and Republic Services facility for disposal under PDC manifests. Due to site access and time constraints, source mass removal activities were discontinued at the SL location. During excavation activities, groundwater was encountered in the SEP-DL excavation at approximately 10 feet bgs and during confirmation soil sampling activities at the SL at approximately 17 feet bgs. Consequently, groundwater vacuum recovery was conducted concurrent with excavation activities at the SEP-DL. A total of 3,990 barrels (bbls) of impacted groundwater were removed from the location and transported to the NGL C1 and C6 facilities for disposal under PDC waste manifests.

**PROPOSED SAMPLING PLAN**

## Proposed Soil Sampling

Will soil samples be collected as part of this investigation? ( Number, type (grab/composite), analyses, and locations of samples ):

On August 28 and September 5, 2023, three soil samples (SEP01-DL-N, SEP01-DL-B, & WC03) were collected from impacted source material adjacent to the SEP-DL at depths of approximately 3 feet, 6 feet, & 12 feet bgs, respectively. The soil samples were submitted for laboratory analysis of the full COGCC Table 915-1 analytical suite. Final analytical results indicated that site specific COCs include BTEXN, 1,2,4-TMB, 1,3,5-TMB, TPH(C6-C36), Table 915-1 PAHs (excluding anthracene, benzo(k)fluoranthene, & dibenzo(A,H)anthracene), & cadmium. Between August 30 & September 19, 2023, thirty-two (32) soil samples (SS01-SS12, SS14-SS16, SS18-SS29, & SS31-SS35) were collected from the sidewalls and base of the excavation at depths ranging between 6 feet & 13 feet bgs and were submitted for the aforementioned COC list. Laboratory analytical results indicated that organic compound concentrations were below the applicable Table 915-1 POG SSLs in all samples collected from the final excavation extent.

## Proposed Groundwater Sampling

Will groundwater samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

On August 30, 2023, groundwater was encountered in the SEP-DL excavation at approximately 10 feet bgs. On September 21, 2023, groundwater was encountered in the SL test pit at approximately 17 feet bgs. Consequently, one groundwater sample (GW01) was collected from the SEP-DL excavation, and one groundwater sample (GW02) was collected from the SL test pit. Both samples were submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-TMB, and 1,3,5-TMB. Analytical results for GW01 indicated that organic compounds were observed in exceedance of the applicable Table 915-1 Standards. Analytical results for GW02 indicated that all analyzed constituents were below the applicable Table 915-1 Standards. The groundwater sample locations are illustrated on Figure 3 and Figure 5 and the analytical results are summarized on Table 5.

## Proposed Surface Water Sampling

Will surface water samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

## Additional Investigative Actions

Additional alternative investigative actions described in attached Site Investigation Plan ( summary ):

On August 30, 2023, two soil samples (SL01-06-S & SL01-06-B) were collected from impacted source material adjacent to the SL at depths of approximately 6 feet and 7 feet bgs, respectively. The soil samples were submitted for laboratory analysis of the Table 915-1 organic compounds in soil (BTEXN, 1,2,4-TMB, 1,3,5-TMB, TPH(C6-C36) and PAHs). Final analytical results indicated that site specific COCs include BTEXN, 1,2,4-TMB, 1,3,5-TMB, TPH(C6-C36), benzo(b)fluoranthene, fluorene, pyrene, 1-M, and 2-M. The above requested COC list was limited to Table 915-1 organic compounds in accordance with Rule 915.E.(2).C. guidance of the released E&P waste being oil. Following initial mitigation activities, one test pit (TP05) was advanced at the location of the release and one soil sample (TP05) was collected at approximately 16 feet bgs and submitted for the aforementioned COCs. Analytical results indicated organic concentrations were in exceedance of applicable Table 915-1 standards.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

Soil	NA / ND
Number of soil samples collected <u>50</u>	-- Highest concentration of TPH (mg/kg) <u>1470</u>
Number of soil samples exceeding 915-1 <u>9</u>	-- Highest concentration of SAR <u>4.19</u>
Was the areal and vertical extent of soil contamination delineated? <u>No</u>	BTEX > 915-1 <u>Yes</u>
Approximate areal extent (square feet) <u>3500</u>	Vertical Extent > 915-1 (in feet) <u>16</u>
<b>Groundwater</b>	
Number of groundwater samples collected <u>2</u>	-- Highest concentration of Benzene (µg/l) <u>26</u>
Was extent of groundwater contaminated delineated? <u>No</u>	-- Highest concentration of Toluene (µg/l) <u>20</u>
Depth to groundwater (below ground surface, in feet) <u>10</u>	-- Highest concentration of Ethylbenzene (µg/l) <u>89</u>
Number of groundwater monitoring wells installed <u>0</u>	-- Highest concentration of Xylene (µg/l) <u>370</u>
Number of groundwater samples exceeding 915-1 <u>1</u>	NA Highest concentration of Methane (mg/l) <u></u>
<b>Surface Water</b>	
<u>0</u> Number of surface water samples collected	
<u></u> Number of surface water samples exceeding 915-1	
If surface water is impacted, other agency notification may be required.	

## OTHER INVESTIGATION INFORMATION

Were impacts to adjacent property or offsite impacts identified?

Were background samples collected as part of this site investigation?

On August 24 and September 19, 2023, nine (9) soil samples (BKG01-BKG03) were collected from native material adjacent to the former tank battery locations and were submitted for laboratory analysis of the Table 915-1 metals. Analytical results indicated that arsenic, barium, cadmium, lead, selenium, and silver were in exceedance of the applicable table 915-1 standards in native material.

Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards) 1341 Volume of liquid waste (barrels) 3990

Is further site investigation required?

During initial site investigative activities, soil impacts in exceedance of the applicable Table 915-1 SSLs were discovered at the SL excavation at 16 feet bgs and in the vicinity of active third party infrastructure. Due to the depth of the remaining impacts and proximity of active infrastructure, source mass removal activities were discontinued. Between November 20 & 22, 2023, fourteen (14) soil borings were advanced to vertically and horizontally delineate hydrocarbon impacts. Volatile organic compound (VOC) concentrations using a photoionization detector (PID) and lithologic descriptions were recorded for each borehole. Soil samples were collected from each soil boring at the highest observed VOC concentration, and at the terminus of each borehole and submitted for laboratory analysis of the proposed COCs at the SL. Soil boring locations are illustrated on Figure 7, analytical results are currently pending and will be summarized in a forthcoming Supplemental Form 27. Finalized soil boring logs will also be included in a forthcoming Supplemental Form 27. A remediation strategy for the SL release location will be determined following review of site investigation analytical results.

Eight (8) groundwater monitoring wells will be installed to delineate dissolved-phase hydrocarbon impacts within and surrounding the SEP-DL excavation extent. VOC concentrations using a PID and lithologic descriptions will be recorded for each borehole. If elevated VOC concentrations are encountered during the investigation, a sample will be collected from the interval exhibiting the highest VOC concentration from the borehole and submitted for laboratory analysis of the ECMC approved SEP-DL release COCs. Proposed monitoring well locations are illustrated on Figure 8.

## REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? No

### SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Between August 24 and September 19, 2023, a total of 1,341 CY of material were removed from this location and transported to North Weld Waste Management Facility, Buffalo Ridge Waste Management Facility, Front Range Landfill, and Republic Services facility for disposal under PDC manifests. Additionally, A total of 3,990 barrels (bbls) of impacted groundwater were removed from the location and transported to the NGL C1 and C6 facilities for disposal under PDC waste manifests. Any future hydrocarbon impacted material removed will be transported off-site to a licensed disposal facility in accordance with Rules 905 and 906.

### REMEDICATION SUMMARY

Describe how remediation of existing impacts to soil and groundwater is to be accomplished (i.e. summarize remedial action plan). Provide a brief narrative description including: technical justification, schedule for implementation, estimated time to attain NFA status, plus plans and specifications for the selected remedial action technology.

During initial decommissioning activities conducted between August 24 & September 19, 2023, soil encountered on-site and below production equipment was visually inspected and field screened for VOC concentrations using a PID. Per the approved proposed soil sampling plan, one soil sample (SEP01-FL) was collected beneath the flowline riser at the separator, one soil sample (SLR01) was collected beneath the sales flowline riser, and five soil samples (SL01-03, SL01-05, & SL01-07) and were submitted for analysis of BTEX, N, 1,2,4-TMB, 1,3,5-TMB, and TPH (C6-C36).

Due to elevated PID readings observed below the wellhead, approximately 9 CY of impacted material was removed from the location and disposed under a PDC waste manifest. Two soil samples (WH01-W & WH01-B) were collected at approximately 4 feet & 6 feet bgs from the wellhead excavation base and sidewall which exhibited the highest PID reading. Due to elevated PID readings observed below the AST, approximately 3 CY of impacted material was removed from the location and disposed under a PDC waste manifest. Two soil samples (AST01-N & AST01-B) were collected at approximately 2 feet & 4 feet bgs from the AST excavation base and sidewall which exhibited the highest PID reading. Soil samples from the two excavations were submitted for laboratory analysis of the Full 915-1 analytical suite. Analytical results indicated all organic, inorganic and metal compound concentrations were below Table 915-1 standards or applicable background concentrations in the aforementioned decommissioning samples.

### Soil Remediation Summary

In Situ

Ex Situ

       Bioremediation ( or enhanced bioremediation )

       Yes        Excavate and offsite disposal

       Chemical oxidation

       If Yes: Estimated Volume (Cubic Yards)        1341

       Air sparge / Soil vapor extraction

       Name of Licensed Disposal Facility or COGCC Facility ID #       

       Natural Attenuation

       Excavate and onsite remediation

       Other       

       Land Treatment

       Bioremediation (or enhanced bioremediation)

       Chemical oxidation

       Other

## Groundwater Remediation Summary

- \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )
- \_\_\_\_\_ Chemical oxidation
- \_\_\_\_\_ Air sparge / Soil vapor extraction
- \_\_\_\_\_ Natural Attenuation
- \_\_\_\_\_ Other \_\_\_\_\_

## GROUNDWATER MONITORING

If groundwater has been impacted, describe proposed monitoring plan, including # of wells or sample points, monitoring schedule, analytical methods, points of compliance. Attach a groundwater monitoring location diagram.

Based on the analytical data collected during source mass removal activities, PDC will conduct quarterly groundwater monitoring at the eight proposed monitoring wells until closure criteria are met. Groundwater samples will be submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-TMB, and 1,3,5-TMB by EPA Method 8260B, as well as total dissolved solids (TDS), chlorides, and sulfates in accordance with Table 915-1.

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

### Approved Reporting Schedule:

Quarterly    Semi-Annually    Annually    Other   Confirmation Sample Summary, Analyte Reduction Request, Supplemental Site Investigation Proposal, TU

### Request Alternative Reporting Schedule:

Semi-Annually    Annually    Other   \_\_\_\_\_

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

**Report Type:**    Groundwater Monitoring    Land Treatment Progress Report    O&M Report  
 Other   Confirmation Sample Summary, Analyte Reduction Request, Supplemental Site Investigation Proposal, TU

## Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).  
If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

Operator does not have site-specific financial assurance for this project; however, Operator has inactive well, blanket, and surface bonding including Surety IDs 106077122, 106473808, and 106473820, as well as commercial general liability and/or umbrella/excess insurance meeting the requirements of Rule 705.b. Operator does not anticipate making an insurance claim for this project.

- SEP-DL release: Investigation and delineation has been completed in soil.
- Monitoring wells will be installed, and groundwater will be monitored.
- SL Release: A path forward will be determined following the receipt of confirmation sampling final analytical results.
- Facility and infrastructure were decommissioned and the location will be reclaimed in accordance with the COGCC 1000 Series.

Costs included herein are estimates only and may change over time based on numerous factors. Accordingly, Operator makes no guarantees as to the accuracy of such cost estimates, thus providing an estimate for the next year below.

Operator anticipates the remaining cost for this project to be: \$ 100000

## WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? Yes

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

No beneficial use.

Volume of E&P Waste (solid) in cubic yards 1341

E&P waste (solid) description Hydrocarbon impacted soils

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: North Weld Waste Management

Volume of E&P Waste (liquid) in barrels 3990

E&P waste (liquid) description Hydrocarbon impacted groundwater

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: NGL C1, C6

# REMEDIATION COMPLETION REPORT

## REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No

If YES:

- Compliant with Rule 913.h.(1).  
 Compliant with Rule 913.h.(2).

Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards? \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations? \_\_\_\_\_

Does Groundwater meet Table 915-1 standards? \_\_\_\_\_

Is additional groundwater monitoring to be conducted? \_\_\_\_\_

Operator shall comply with the COGCC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

## RECLAMATION PLAN

### RECLAMATION PLANNING

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing.

Following wellhead and tank battery decommissioning and source mass removal activities, the location will be backfilled, compacted, and re-contoured to match preexisting conditions. The location will be reclaimed in accordance with the ECMC 1000 series.

Is the described reclamation complete? Yes \_\_\_\_\_

Does the reclamation described herein constitute interim or final reclamation of the Oil and Gas Location?

Interim  Final

Did the Surface Owner provide the seed mix? \_\_\_\_\_

If YES, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

Did the local soil conservation district provide the seed mix? \_\_\_\_\_

### SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. 08/24/2023

Proposed date of completion of Reclamation. 11/28/2028

## IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

### PRIOR DATES

Date of Surface Owner notification/consultation, if required. 03/13/2023

Actual Spill or Release date, or date of discovery. 08/29/2023

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/26/2023

Proposed site investigation commencement. 11/20/2023

Proposed completion of site investigation. 11/22/2023

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 08/24/2023

Proposed date of completion of Remediation. 11/22/2028

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

The site investigation dates were adjusted to detail the soil boring site investigation dates to conduct vertical and horizontal delineation activities. Site investigation analytical results will be summarized in a forthcoming Supplemental Form 27 and a path forward will be determined. The proposed date of remediation completion has been adjusted to allow adequate time for mitigation and groundwater monitoring activities.

## OPERATOR COMMENT

Based on analytical results for the waste characterization samples SEP01-DL-N, SEP01-DL-B, & WC03 collected from the SEP-DL source area, PDC is requesting that the COCs for the historic release discovered at the Briggs Aggregate 1-25 Tank Battery (separator dump-line) be reduced to the following: benzene, toluene, ethylbenzene, xylene(s), naphthalene, 1,2,4-TMB, 1,3,5-TMB, TPH(C6-C36), acenaphthene, benz(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, chrysene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 1-methylnaphthalene, 2-methylnaphthalene, pyrene, & cadmium.

Following landowner approval & the approval of this form, PDC will install and conduct quarterly groundwater monitoring at the eight proposed monitoring wells at the SEP-DL release.

Based on analytical results for the waste characterization samples SL01-06-S & SL01-06-B collected from the SL source area, PDC is requesting that the COCs for the historic release discovered at the Briggs Aggregate 1-25 Tank Battery (sales line) be reduced to the following: benzene, toluene, ethylbenzene, xylene(s), naphthalene, 1,2,4-TMB, 1,3,5-TMB, TPH(C6-C36), benzo(b)fluoranthene, fluorene, pyrene, 1-M, and 2-M. The above requested COC list was limited to Table 915-1 organic compounds in accordance with Rule 915.E.(2).C. guidance of the released E&P waste being oil.

PDC conducted a supplemental site investigation between November 20 & 22, 2023, to delineate hydrocarbon impacts at the SL source area. Analytical results are pending, as such, a summary of the analytical results and field activities will be summarized in a forthcoming Supplemental Form 27 within 90 days post completion of the supplemental site investigation or receipt of final analytical results.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: Karen Olson

Title: Senior Program Manager

Submit Date: 11/30/2023

Email: taspillremediationcontractor@pdce.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: Laurel Anderson

Date: 02/23/2024

Remediation Project Number: 29948

## COA Type

## Description

	ECMC agrees to the reduced analyte list based on the waste characterization samples and Operator's process knowledge; this approval is contingent on ECMC approval of Operator's justification for the use of BG03 @ 3' for their site-specific background determination on the subsequent Supplemental Form 27. Additional confirmation sampling for metals may be required.
	Analytical data from background sample BKG03 does not appear to be representative of background conditions near the production facility and release. Operator shall provide justification for the use of BG03 @ 3' for their site-specific background determination.  Operator shall reevaluate the analytical data collected to date and determine the need for additional background sampling, site investigation and/or remediation.
	Per Form 19s (Doc #403598295) for Spill ID #485126 (Briggs Aggregate 1-25 - Sales Line Release): "PDC is investigating to confirm the release source."  On the subsequent Supplemental Form 27 Operator shall provide an update on the source of the historic release discovered at the sales line.
	During soil boring and monitoring well installation at the Separator DL release (Spill ID 485096), Operator shall collect confirmation soil samples from the interval(s) displaying the highest degree of impacts or in the absence of apparent impacts from the interval in which organic compounds were previously detected or the soil-groundwater interface from each boring during monitoring well installation.

	<p>Due to the presence of impacted soil in contact with groundwater at the Briggs Aggregate 1-25 - Sales Line Release (Spill ID #485126) Operator shall:</p> <ul style="list-style-type: none"> <li>- Comply with Table 915-1 Protection of Groundwater Soil Screening Level Concentrations.</li> <li>- Operator will install monitoring wells (within the spill/release area, cross-gradient, down-gradient, and up-gradient) to properly characterize groundwater pursuant to Rule 915 and determine hydraulic gradient, as required by Rule 915.e.(3)A.ii.</li> <li>- All monitoring wells shall be constructed as permanent monitoring wells in accordance with the State Engineer's Water Well Construction and Permitting Rules.</li> <li>- Operator shall collect confirmation soil samples from the interval(s) displaying the highest degree of impacts or in the absence of apparent impacts from the interval in which organic compounds were previously detected or the soil-groundwater interface from each boring during monitoring well installation.</li> </ul>
	<p>ECMC added Spill ID 485096 and Spill ID 485126 and selected Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912 and Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1, in addition to the current selection. Operator shall include this information on subsequent Supplemental Form 27s.</p>
6 COAs	

### **Attachment Check List**

Upon approval, the approved Form 27 and all listed attachments will be indexed to the Remediation Project file. Only the approved Form 27 will also be indexed to the related Facilities.

<b><u>Att Doc Num</u></b>	<b><u>Name</u></b>
403597922	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403606639	PHOTO DOCUMENTATION
403606661	ANALYTICAL RESULTS
403606671	SOIL SAMPLE LOCATION MAP
403696948	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 5 Files

### **General Comments**

<b><u>User Group</u></b>	<b><u>Comment</u></b>	<b><u>Comment Date</u></b>
		Stamp Upon Approval

Total: 0 comment(s)