FORM 27 Rev 3/16

State of Colorado
Oil and Gas Conservation Commission

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Report taken by:

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.
Refer to Rules 340, 905, 906, 907, 908, 909, and 910

OPERATOR INFORMATON

Name of Operator: DCP OPERATING COMPANY LP Operator No: 4680
Address: 370 17TH STREET - SUITE 2500
City: DENVER State: CO Zip: 80202
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PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 14898 Initial Form 27 Document #: 402282471

PURPOSE INFORMATION

- [ ] 901.e. Sensitive Area Determination
- [ ] 909.c.(1), Rule 905: Pit or PW vessel closure
- [x] 909.c.(2), Rule 906: Spill/Release Remediation
- [ ] 909.c.(3), Rule 907.e.: Land treatment of oily waste
- [ ] 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure
- [ ] 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
- [ ] Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b.
- [ ] Rule 909.e.(2)B.: Closure of remediation project
- [ ] Rule 906.c.: Director request
- [ ] Other

SITE INFORMATION

N Multiple Facilites (in accordance with Rule 909.c.)

Facility Type: SPILL OR RELEASE Facility ID: 469293 API #: County Name: WELD
Facility Name: SPILL/RELEASE POINT Latitude: 40.267356 Longitude: -104.735617
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: NESE Sec: 35 Twp: 4N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications: SM

Most Sensitive Adjacent Land Use: Agriculture farmland and an irrigation ditch to the north of the Site.

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? No

Other Potential Receptors within 1/4 mile

The Colorado Division of Water Resources Water Well Database was consulted for depth to groundwater around the Site. The nearest registered water well (Permit #141254) has a noted static water level of 107 feet below ground surface. However, another registered water well (Permit #34070-MH), located approximately 1,650 feet southwest of the spill area has a noted static water level of 21 feet below ground surface. A water supply canal named the Platte Valley Canal owned by the Farmer's Reservoir & Irrigation Company (FRICO) is located to the north of the Gas Plant.

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	See Attached Figures	Groundwater lab analysis
Yes	SOILS	175' x 200'	Soil sample analysis

INITIAL ACTION SUMMARY

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

The release was discovered on November 17, 2019 when Operations noticed a drain valve on a condensate stabilizer re-boiler was leaking by to the produced water sump and overfilling the sump with a mixture of condensate and produced water. Operations immediately actuated the valve stopping the release. A vac truck was quickly deployed to remove the liquids within the sump and on the ground. Due to consistent freezing temperatures after the release, further Site investigation and remediation activities were delayed due to a thick frost layer and an initial site investigation was completed in May 2020 to assist in defining the extent of the impacted soils area. Initial actions and completed remedial measures were submitted and approved by the COGCC in the Form 19 Initial (#402242020) and Form 19 Supplemental (#402283236). The Initial Form 27 Site Investigation and Remediation Work Plan (#402282471), approved by the COGCC issued Spill tracking facility ID #469293 and Remediation Project #14898 for the Site. Ongoing Site Investigations and remedial activities completed through March 2021 have been previously provided to the COGCC and approved in subsequent Form 27 Supplemental reports (#402426799, #402500881, #402564545 and #402595482). The most recent F27S document (#402595482) also established a site-specific interim sampling and analysis plan (SAP). With approval from COGCC and the Farmers Reservoir & Irrigation Company (FRICO), in March and April 2021, DCP completed nine soil boring and monitoring well installations to determine the lateral and vertical extents of petroleum hydrocarbon impacts in the subsurface. Details of the March and April 2021 soil and groundwater investigation are provided herein.

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):

A total of 9 soil borings were completed to delineate the extent of impacts at the Site. Soil samples were collected from multiple intervals within each soil boring including at the highest PID reading and the terminal depth of the boring. Surface soil samples were also collected from the base of the FRICO canal and from the associated dredging spoil pile on the south side of the canal. Per the approved F27S (#402595482), samples were submitted for analysis of the constituents of concern (COC) listed in the Site-Specific Interim SAP. The results of the soil sampling and delineation investigation are presented on Figure 3 and in Tables 1, 2, and 3. The laboratory reports, soil boring, and monitoring well construction logs are provided as attachments to this F27S.

Proposed Groundwater Sampling

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

Through March and April 2021, nine monitoring wells were installed, developed, and sampled for groundwater characterization. Soil boring and well construction logs are provided as an attachment with this F27S. Groundwater samples were submitted for laboratory analysis of the COC listed in the approved SAP. Groundwater elevation data are presented on Table 4 and laboratory analytical data are presented on Table 5 and Figure 5. Based on the data collected and because of the FRICO Canal, which is not lined, DCP proposes to complete quarterly groundwater monitoring through the remainder of 2021 at the nine existing monitoring well locations to observe and evaluate groundwater conditions and what affect water within the FRICO canal has, if any, on the localized groundwater table at the Site. Additional details of the groundwater monitoring events, and proposed investigation plan are described in this report and the laboratory reports provided in the attachments to this document.

Proposed Surface Water Sampling

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

The FRICO owned Platte Valley Canal is approximately 80 feet north of the northeast corner of the Mewbourn Gas Plant facility boundary. Surface water within the canal is intermittent and is only present when FRICO is running water through the canal to fill a downstream reservoir. A surface water sample (Surface Water-01) was collected from the canal on March 19th, 2021. The sample was collected from flowing water in the bottom of the canal, but FRICO was not running water through the canal at full volume at that time. DCP collected the surface water sample to determine if surrounding groundwater was infiltrating and impacting the bottom of the canal. Surface water results are presented on Figure 5 and Table 5, and the laboratory analytical reports are attached with this Form 27. Based on the surface water data and the January and March 2021 meetings with FRICO personnel, the Canal likely acts as a losing stream when water is flowing through it and is not impacted by groundwater.

Additional Investigative Actions

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

Based on the COGCC approved F27S (#42595482) and the SAP, DCP collected soil and groundwater samples to determine the horizontal and vertical extents of impacted material. Two wells at the Site (MW07 and MW09), which are located upgradient and side-gradient, respectively, exhibited results below both the soil and groundwater Table 915 standards. In addition, DCP collected soil samples for inorganics to establish site specific soil standards for the Site. Based on the results, arsenic and selenium were above the Table 915-1 soil standards at all the sampled locations, however, both background locations MW07 and MW09 exhibited elevated concentrations not only above the COGCC standards for both constituents but also the highest levels observed at the Site. Since these wells were unimpacted and appear to be representative of background conditions, DCP proposes that the inorganic constituents are removed from the Site-Specific Soil SAP during future investigations.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected: 20

Number of soil samples exceeeding 910-1: 6

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet): 60000

NA / ND

-- Highest concentration of TPH (mg/kg): 1500

-- Highest concentration of SAR: 3.1

BTEX > 910-1: Yes

Vertical Extent > 910-1 (in feet): 19

Groundwater

Number of groundwater samples collected: 9

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet): 20`

Number of groundwater monitoring wells installed: 9

Number of groundwater samples exceeding 910-1: 6

-- Highest concentration of Benzene (µg/l): 1900

-- Highest concentration of Toluene (µg/l): 3.8

-- Highest concentration of Ethylbenzene (µg/l): 510

-- Highest concentration of Xylene (µg/l): 1020

NA Highest concentration of Methane (mg/l):

Surface Water

1 Number of surface water samples collected

0 Number of surface water samples exceeding 910-1

If surface water is impacted, other agency notification may be required.

OTHER INVESTIGATION INFORMATION

☒ Were impacts to adjacent property or offsite impacts identified?

Soil samples were also collected for pH, EC, SAR and boron at eight of the boring/monitoring well locations to establish the vertical and lateral concentrations across the Site for background consideration and the results are provided on Table 3. Based on the results being within the COGCC standards at multiple locations across the Site, DCP proposes to remove those parameters from the Site-Specific Soil SAP.

☐ Were background samples collected as part of this site investigation?

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

Volume of solid waste (cubic yards): 2000

Volume of liquid waste (barrels): 0

☒ Is further site investigation required?

In mid-April 2021, FRICO “turned on” the Platte Valley Canal to begin the spring filling of the downstream reservoir. DCP proposes to continue with quarterly monitoring through the end of 2021 (2nd, 3rd, and 4th quarters) at the existing nine site groundwater monitoring wells to evaluate what affect the FRICO canal has on the localized groundwater table and concentrations. This monitoring period will be beneficial for several reasons including evaluation of seasonal groundwater trends in conjunction with the FRICO canal water, it will provide requisite data for DCP to effectively determine where additional groundwater monitoring and potential remediation wells are required, and will aid in developing a comprehensive Site-Specific Remedial Action Plan. Additionally, several remediation methods are currently being evaluated, and based on continued monitoring data and Site conditions, the most effective alternative for the Site will be presented for COGCC approval.

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.

During the excavation activities in December 2020, approximately 2,000 cubic yards (yd3) of material was removed for disposal. Soil samples from the southeast, southwest, and northwest sidewalls of the excavation indicate that impacted shallow soil above 16 feet bgs has been removed. Based on the samples collected from the southeast wall, additional impacted material remains below 16 feet bgs. However, due to the proximity to facility infrastructure, any remaining source material at that location will likely require in-situ remediation. Once a point to the south was reached that further excavation could no longer be performed safely, the southern portion was backfilled, and excavation efforts were focused to the north on DCP property. Excavation activities were suspended due to proximity to facility infrastructure and the FRICO canal. Due to the facility and surrounding infrastructure, remaining impacts to soil and groundwater will likely require in-situ remediation.

REMEDIATION 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.

The release was discovered on November 17, 2019 when Operations noticed a drain valve on a condensate stabilizer re-boiler was leaking by to the produced water sump and overfilling the sump with a mixture of condensate and produced water. Operations immediately actuated the valve stopping the release. A vac truck was quickly deployed to remove the liquids within the sump and on the ground. Due to consistent freezing temperatures after the release, further Site investigation and remediation activities were delayed due to a thick frost layer. A Site Investigation was completed on May 13, 2020 to assist in defining the extents of the impacted soils vertically and horizontally. Impacted soils encountered during the December 2020 excavation were removed via mechanical and hydrovacuum excavation, and hand shoveling near facility infrastructure. Based on the soil and groundwater sample analytical results from the December 2020 through April 2021 remediation and investigation activities as provided in this Form 27, additional Site characterization is warranted prior to implementing further remedial actions. DCP proposes to perform groundwater monitoring activities at the existing nine groundwater monitoring wells through the end of 2021 to evaluate what affect the FRICO canal as well as seasonal variations have on the localized groundwater table, flowrate, hydraulic conductivity, and concentrations. This information will be used to develop a comprehensive Site-Specific Remedial Action Plan to include additional proposed groundwater monitoring and/or potential remediation wells.

Soil Remediation Summary

In Situ

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

Ex Situ

- Yes Excavate and offsite disposal
  - If Yes: Estimated Volume (Cubic Yards) 2000
  - Name of Licensed Disposal Facility or COGCC Facility ID # ____
- ____ Excavate and onsite remediation
  - ____ Land Treatment
  - ____ Bioremediation (or enhanced bioremediation)
  - ____ Chemical oxidation
  - ____ Other ____

Groundwater Remediation Summary

- No Bioremediation (or enhanced bioremediation)
- No Chemical oxidation
- No Air sparge / Soil vapor extraction
- No Natural Attenuation
- No 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.

A total of nine monitoring wells are currently installed at the Site (Figure 2). Groundwater monitoring activities were conducted on 3/16/21, 3/19/21 and 4/12/21 at the well locations illustrated on Figure 2. Water levels were measured to evaluate the hydraulic characteristics and fluctuations at the Site. The depth to groundwater measurements and calculated elevations are presented on Table 4, a groundwater elevation contour map is provided as Figure 4, and the groundwater analytical data are presented on Table 5 and Figure 5. The laboratory reports for the groundwater events, soil samples, and the well construction logs for the newly installed wells are provided in the attachments to this report. Groundwater samples were submitted to Summit Scientific and Origins Laboratory Inc. for analysis of the parameters listed in COGCC Table 915 and per the approved SAP, using USEPA Methods. Analytical results for groundwater were reported below applicable COGCC Table 915-1 standards and/or laboratory detection limits at 6 of the 9 well locations that were sampled. In addition, all nine wells were sampled for the Table 915-1 inorganic parameters TDS, chloride, and sulfate to determine background levels. Concentrations ranged from ranging from 436 to 1,050 mg/L for TDS, 4.55 to 6291 mg/L for chloride and 4.34 mg/L to 2,140 mg/L for sulfate. While these parameters were returned above the Table 915-1 standards, the reported concentrations for these parameters appear to be representative of the local background conditions. At COGCC directive, Benzo(a)anthracene and Fluorene were analyzed in groundwater samples and the results were below the applicable standards. Therefore, DCP proposed to remove TDS, chloride, sulfate, benzo(a)anthracene, and fluorene from the Site-Specific Groundwater SAP. Groundwater monitoring will continue on a quarterly basis and DCP also proposes to collect groundwater elevations at the Site on a monthly basis through the end of 2021 for evaluation.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☒ Quarterly ☐ Semi-Annually ☐ Annually ☐ Other

Report Type: ☐ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report ☒ Other Form 27 Supplemental Site Characterization Remediation Workplan

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:

Approximately 2,000 cubic yards of soil was transported to the Waste Management Buffaldo Ridge Landfill in Keenesburg, CO for disposal.

Volume of E&P Waste (solid) in cubic yards 2000

E&P waste (solid) description Petroleum Hydrocarbon Impacted Soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Waste Management Buffalo Ridge Landfill

Volume of E&P Waste (liquid) in barrels 0

E&P waste (liquid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

REMEDIATION COMPLETION REPORT

REMEDIATION COMPLETION SUMMARY

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

Do all soils meet Table 910-1 standards?

Does the previous reply indicate consideration of background concentrations?

Are the only residual soil impacts pH, SAR, or EC at depths greater than 3 feet below ground surface?

Does Groundwater meet Table 910-1 standards?

Is additional groundwater monitoring to be conducted?

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.

The excavated area at the northern boundary of the facility has been backfilled with clean structural fill, and the facility perimeter wall and fence that was removed to allow for excavation has been reconstructed. Following implementation of remedial actions at the Site, landscaping and grading on the outside of the facility will be completed to match pre-remediation conditions.

Is the described reclamation complete? No

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

☐ Interim? ☐ Final?

Did the Surface Owner approve the seed mix?

If NO, does the seed mix comply with local soil conservation district recommendations?

IMPLEMENTATION SCHEDULE

PRIOR DATES

Date of Surface Owner notification/consultation, if required. 11/17/2019

Actual Spill or Release date, if known. 11/17/2019

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 11/18/2019

Date of commencement of Site Investigation. 05/13/2020

Date of completion of Site Investigation.

REMEDIAL ACTION DATES

Date of commencement of Remediation. 12/01/2020

Date of completion of Remediation.

SITE RECLAMATION DATES

Date of commencement of Reclamation.

Date of completion of Reclamation.

OPERATOR COMMENT

This Form 27S is being submitted to present the soil and groundwater investigation and monitoring activities conducted in March and April 2021 at the Site. Based on these data, site specific background concentrations have been established for arsenic and selenium and DCP proposes to omit these from the Site-Specific Soil SAP. Additionally, DCP proposes to remove TDS, chloride, sulfate, benzo(a)anthracene, and fluorene from the Site-Specific Groundwater SAP. Additional operational activities within the ROW for the Canal must be reviewed and approved by FRICO prior to implementing work activities. Based on the investigation results as provided in this Document, additional Site characterization and evaluation activities are warranted and will be conducted with COGCC and FRICO approval as necessary. DCP proposes to continue quarterly monitoring through the end of 2021 at the existing groundwater monitoring well network to evaluate what affect the FRICO canal has on the localized groundwater table. This monitoring period will be beneficial for several reasons including evaluation of seasonal groundwater trends in conjunction with the FRICO canal water, it will provide requisite data for DCP to effectively determine supplemental locations for groundwater monitoring and potential remediation wells, and will aid in developing a comprehensive Site-Specific Remedial Action Plan. DCP will continue quarterly groundwater monitoring at the Site and as a part of the continued groundwater monitoring effort, proposes to perform groundwater elevation gauging on a monthly basis at the monitoring well network for evaluation purposes through the end of 2021. The results of 2021 groundwater monitoring data will be presented to the COGCC via quarterly Form 27S reports and a comprehensive Site-Specific Remedial Action Plan will be presented to COGCC for approval in the First Quarter 2022 following the proposed evaluation period.

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

Signed:` Chandler Cole

Title: Compliance Coordinator

Submit Date:`

Email: COGCCnotification@dcpmidstream.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:

Date:

Remediation Project Number: 14898

COA Type	Description

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.

Att Doc Num	Name
402689312	MONITORING REPORT

Total Attach: 1 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)