

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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Document Number:

403931777

Receive Date:

10/01/2024

Report taken by:

Kari Brown

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 ECMC 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: PETRO OPERATING COMPANY LLC	Operator No: 10583	Phone Numbers
Address: 9033 E EASTER PLACE SUITE 112		Phone: (713) 408-7174
City: CENTENNIAL	State: CO	Zip: 80112-2105
Contact Person: Alex Corey	Email: alex.corey@iptwell.com	Mobile: ()

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 23474 Initial Form 27 Document #: 402977325

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: WELL	Facility ID: _____	API #: 123-09092	County Name: WELD
Facility Name: DI-TA (JOHN DITIRRO) 2	Latitude: 40.110909	Longitude: -104.824469	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 30	Twp: 2N	Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: LOCATION	Facility ID: 311313	API #: _____	County Name: WELD
Facility Name: DI-TA (JOHN DITIRRO)-62N66W 30SEW	Latitude: 40.111000	Longitude: -104.824530	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 30	Twp: 2N	Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: OFF-LOCATION FLOWLINE		Facility ID: 476988	API #: _____	County Name: WELD	
Facility Name: Wellhead Line 30SEnw		Latitude: 40.110877	Longitude: -104.828401		
		** correct Lat/Long if needed: Latitude: 40.110877	Longitude: -104.828401		
QtrQtr: SENW	Sec: 30	Twp: 2N	Range: 66W	Meridian: 6	Sensitive Area? Yes

Facility Type: SPILL OR RELEASE		Facility ID: 483174	API #: _____	County Name: WELD	
Facility Name: DiTa Tank Battery		Latitude: 40.110934	Longitude: -104.829488		
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____		
QtrQtr: SWNW	Sec: 30	Twp: 2N	Range: 66W	Meridian: 6	Sensitive Area? Yes

Facility Type: SPILL OR RELEASE		Facility ID: 486111	API #: _____	County Name: WELD	
Facility Name: DI-TA (John Ditiro) 2		Latitude: 40.110909	Longitude: -104.824469		
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____		
QtrQtr: SENW	Sec: 30	Twp: 2N	Range: 66W	Meridian: 6	Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications	GW	Most Sensitive Adjacent Land Use	Industrial Gravel Mining
Is domestic water well within 1/4 mile?	No	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

A jurisdictional Wetlands as mapped on the National Wetland Inventory Maps is located approximately 2,500 feet east of the release location. In the event that operations encroach upon the wetlands, the US Army Corps of Engineers will be contacted regarding compliance with Sections 401 and 404 of the Clean Water Act. Petro Operating will submit all communications/permits obtained to the ECMC via Form 4 Sundry. The release location is located within an identified high priority habitat. The release location is located within a 100 year flood plain and a riverine wetland is located east of the well head location.

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
No	GROUNDWATER	None	Water samples and laboratory analysis
Yes	SOILS	To be determined	Soil samples and laboratory 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.

During facility closure activities on October 25, 2022, hydrocarbon-impacted soil was identified during field observations along the flowline near the separator. Investigation activities were conducted under Form 27, Document 402977325, submitted to the Colorado Energy & Carbon Management Commission (ECMC) on May 24, 2022. The historical release was reported to the ECMC through Form 19, dated October 25, 2022, under Document 403207907. On May 24, 2022, Form 27, Document 402977325, was submitted to the ECMC to propose a sampling plan for P&A activities.

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):

Exceedances of total petroleum hydrocarbons (TPH) near the wellhead have not been fully delineated horizontally, and the flowline has not yet been assessed. Fifteen soil borings are proposed to better define the extent of impacts around the separator, delineate the horizontal impacts around the wellhead, and complete the assessment of the flowline. Additional soil borings may be advanced ,as needed, to further delineate hydrocarbon impacts. In alignment with the Condition of Approval (COA) issued by the ECMC in Document 403354617, Petro requests analysis of all future soil samples for TPH and benzene, toluene, ethylbenzene, xylenes (BTEX).

Proposed Groundwater Sampling

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

A comprehensive assessment of the existing soil characterization data at the site confirms that vertical impacts from the historical release have been fully delineated and are not in contact with groundwater. Additionally, four temporary groundwater monitoring wells verified no detectable concentrations of Table 915-1 organic contaminants of concern in groundwater within the investigation area. Additionally, the entire mine cell, which encompasses the wellhead, flowline, and former production area, is isolated by slurry walls that extend to consolidated bedrock. This effectively removes groundwater as a potential receptor and eliminates the pathway to groundwater risk. Upon completion of mining, the cell will be utilized for surface water storage. There will be no backfill and no future risk to groundwater. Petro requests comparison to ECMC Table 915-1 Residential Soil Screening Levels (RSSLs) for all characterization and remediation at the site.

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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 33
Number of soil samples exceeding 915-1 33
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 16000
0

NA / ND

-- Highest concentration of TPH (mg/kg) 4648
-- Highest concentration of SAR 6.02
BTEX > 915-1 Yes
Vertical Extent > 915-1 (in feet) 27

Groundwater

Number of groundwater samples collected 4
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 21
Number of groundwater monitoring wells installed 0
Number of groundwater samples exceeding 915-1 0

ND Highest concentration of Benzene (µg/l)
ND Highest concentration of Toluene (µg/l)
ND Highest concentration of Ethylbenzene (µg/l)
ND Highest concentration of Xylene (µg/l)
NA Highest concentration of Methane (mg/l)

Surface Water

0 Number of surface water samples collected
 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?

A total of 10 background soil samples were collected and were analyzed for Table 915-1 metals.

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

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

☒ Is further site investigation required?

See Proposed Soil Sampling Section

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.

To be determined.

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.

Four temporary groundwater monitoring wells confirmed no detectable concentrations of Table 915-1 organic contaminants in groundwater. The entire mine cell, encompassing the wellhead, flowline, and former production area, is isolated by slurry walls extending to consolidated bedrock. As part of the ongoing mining operations, groundwater is pumped from the cell to allow excavation from the surface to bedrock, typically between 25 to 35 feet bgs, effectively removing groundwater as a potential receptor and eliminating the groundwater risk pathway.

Organic exceedances at SB05 are likely due to vehicle maintenance activities by the gravel pit, rather than oil and gas production. Historical aerial imagery, shown in the attached photolog, depicts oil staining around a former concrete service platform, which has since been removed and is likely the source of the contamination. This impacted soil will be removed during the ongoing mining activities.

Given the site's future use as a gravel mine, the current assessment of soil suitability for reclamation (SSR) constituents is no longer applicable. All soil will be excavated to bedrock, and the area will be converted into a holding pond surrounded by slurry walls, meaning traditional land reclamation will not occur.

Although arsenic levels exceeding Table 915-1 RSSLs remain in the investigation area, samples from SB07, the northernmost point, are consistent with native background levels, indicating SB07 represents natural site conditions.

Exceedances of TPH near the wellhead have not been fully delineated horizontally, and the flowline has not yet been assessed. Petro proposes to advance additional soil borings to better define the extent of impacts around the separator, delineate the horizontal impacts around the wellhead, and complete the assessment of the flowline. Petro request analysis of all future soil samples for TPH and BTEX. See the attached ROWC for details.

Soil Remediation Summary

☐ In Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

☐ Ex Situ

_____ Excavate and offsite disposal

_____ If Yes: Estimated Volume (Cubic Yards) _____

_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____

_____ Excavate and onsite remediation

_____ 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.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

☒ Quarterly☐ Semi-Annually☐ Annually☐ Other

☐ 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 Q3 Update and Proposed Sampling Plan

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.

Petro Operating is bonded per Rule 702 and in compliance with the general liability requirements per Rule 705.

Operator anticipates the remaining cost for this project to be: \$ 75000

WASTE DISPOSAL INFORMATION

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

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

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

E&P waste (solid) description _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____

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

E&P waste (liquid) description _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____

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 ECMC 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.

The location is within an active sand and gravel mining operation. This location will be reclaimed in accordance with Surface Owner agreement to support their ongoing use.

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 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. _____

Proposed date of completion of Reclamation. _____

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. 10/27/2022

Actual Spill or Release date, or date of discovery. 10/27/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/27/2022

Proposed site investigation commencement. 10/27/2022

Proposed completion of site investigation. 10/31/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 05/01/2024

Proposed date of completion of Remediation. 12/31/2024

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:

OPERATOR COMMENT

A comprehensive assessment of the existing soil characterization data at the site confirms that vertical impacts from the historical release have been fully delineated and did not contact groundwater. Additionally, four temporary groundwater monitoring wells verified no detectable concentrations of Table 915-1 organic contaminants of concern in groundwater within the investigation area. Additionally, the entire mine cell, which encompasses the wellhead, flowline, and former production area, is isolated by slurry walls that extend to consolidated bedrock. As part of the mine plan, which is currently underway, all groundwater is pumped from the cell to allow mining from the surface to bedrock, which, according to the mine operator, is typically observed between 25 to 35 ft bgs. Upon completion of mining, the cell will be utilized for surface water storage. All overburden and pit run material will have been removed from the surface to bedrock. Petro requests comparison to Table 915-1 RSSLs for all characterization and remediation at the site.

The organic exceedances observed at SB05 are likely attributed to vehicle or equipment maintenance activities conducted at the gravel pit rather than oil and gas production. As documented in the attached photolog, historical aerial imagery clearly shows what appears to be oil staining around the former concrete service platform, which was likely used for vehicle and equipment maintenance. This platform, now removed, is the probable source of the organic contamination observed. Notably, SB05 is located approximately 130 ft from the nearest production equipment, with three delineation points (SB03, SB04, and SB06) between SB05 and the potential source, further supporting the conclusion that the exceedances are unrelated to production operations. Additionally, the impacted soil at this location will be removed as part of the ongoing mining activities, mitigating any future concerns.

Given the current land use as a gravel mine, and future land use as a water storage reservoir, the current evaluation of soil suitability for reclamation (SSR) constituents should no longer be required. All soil within the gravel mine, as shown in the attached site diagram, will be excavated to consolidated bedrock and the area transformed into a reservoir enclosed by slurry walls. Reclamation of the land surface, as traditionally understood, will not occur. The reservoir will effectively render any concerns about soil quality irrelevant, as the surficial soil and all underlying material will be entirely removed as part. Petro requests to remove SSR constituents from the future analytical suite as they are not applicable to the site's future use.

Although levels of arsenic exceeding Table 915-1 RSSLs remain in the investigation area, samples collected from SB07, the furthest northern extent, indicate these results are within native levels at the Location. Although SB07 was originally proposed as a characterization or delineation sample, it is evident based on its distance from any oil and gas production-related equipment and that no organic impacts were identified within this boring that it is reasonable to conclude that SB07 is representative of native conditions at the Location. Petro requests an alternative allowable limit for arsenic of 4.81 mg/kg, in accordance with Table 915-1 Footnote 11.

Assuming the proposed soil screening levels and alternative allowable limits are approved, TPH concentrations exceeding Table 915-1 RSSLs still remain within the investigation area. TPH exceedances near the wellhead have not been fully delineated horizontally, and the flowline has not yet been assessed. Petro proposed to advance additional soil borings to better define the extent of impacts around the separator, delineate the horizontal impacts around the wellhead, and complete the assessment of the flowline. Petro requests analysis of all future soil samples for TPH and BTEX. See the attached ROWC for details.

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

Signed: Alex Corey

Title: Engineering Manager

Submit Date: 10/01/2024

Email: alex.corey@iptwell.com

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

ECMC Approved: Kari Brown

Date: 10/23/2024

Remediation Project Number: 23474

COA Type

Description

	Operator will analyze soil samples for TPH (C6-C36) and Table 915-1 Organic Compounds in Soil
	ECMC approves the use of RSSLs for this location.
2 COAs	

ATTACHMENT 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

403931777	INVESTIGATION/REMEDIATION WORKPLAN (SUPPLEMENTAL)
403941213	SITE INVESTIGATION REPORT
403966896	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 3 Files

General Comments

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

Total: 0 comment(s)