

State of Colorado
Energy & Carbon Management Commission

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Document Number:
403753802
Receive Date:
04/15/2024

Report taken by:
Candice (Nikki) Graber

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 Mobile: ()
Contact Person: Alex Corey Email: alex.corey@iptenergyservices.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 33683 Initial Form 27 Document #: 403616884

PURPOSE INFORMATION

- [X] 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.
- [X] 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: TANK BATTERY Facility ID: 470203 API #: County Name: WELD
Facility Name: Counter 1-Ad battery Latitude: 40.116053 Longitude: -104.828560
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: NWNW Sec: 30 Twp: 2N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications GM Most Sensitive Adjacent Land Use Sand and Gravel Quarry
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

The location maps adjacent to Mule Deer Migration Corridor.

Freshwater emergent wetlands is approximately 393 feet to the east.

Location is adjacent to County Road 18 to the north.

Bald Eagle Active Next Site Half Mile buffer is within 1/4 mile of the tank battery location.

There is one occupied RBU approximately 500 feet to the southwest.

DENIED

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
UNDETERMINED	GROUNDWATER	TBD	Lab analysis, if encountered
UNDETERMINED	SOILS	TBD	Lab 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.

Initial sampling was conducted on 4/1/2024. 8 soil samples and 1 background were collected at 18' bgs. All samples are with below the background levels for SAR. Arsenic samples were elevated above Table 915-1 standards, and the W Pit sample exceeded pH Table 915-1 Standards. Petro requests a reduced analytical suite for Arsenic and pH analysis only. Further samples at 3' bgs along with 3 additional background samples at 3' bgs will be taken for testing of Arsenic and pH.

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):

Petro requests a reduced analytical suite for Arsenic and pH analysis only. Further samples will be taken at 3' bgs for testing of Arsenic and pH. Petro requests a reduced analytical suite for Arsenic and pH analysis only.

Proposed Groundwater Sampling

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

If groundwater is encountered during facility decommissioning activities, a minimum of one grab sample will be collected as soon as practical.

Groundwater samples will be submitted to an accredited laboratory for analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene, using standard methods appropriate for detecting the target analytes in ECOM Table 915-1.

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

NA / ND

Number of soil samples collected 9

ND Highest concentration of TPH (mg/kg)

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.

REMOVED

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 _____

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 is in compliance with Rule 705 insurance requirements as well as Rule 702 Financial Assurance.

Operator anticipates the remaining cost for this project to be: \$ 5000 _____

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 site will be reclaimed in accordance with the surface owner's intention for the surface and applicable ECMC rules.

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? No

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

Did the local soil conservation district provide the seed mix? No

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. 03/04/2024

Proposed date of completion of Reclamation. 10/14/2024

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. _____

Actual Spill or Release date, or date of discovery. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/29/2023

Proposed site investigation commencement. _____

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. _____

Proposed date of completion of Remediation. _____

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

Denied 07/11/2024

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

Signed: Amber Barnett

Title: Compliance Specialist

Submit Date: 04/15/2024

Email: abarnett@ardorenvironmental.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:

Date:

Remediation Project Number: 33683

COA Type**Description**

0 COA	
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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**

403753802	FORM 27-SUPPLEMENTAL-SUBMITTED
403754257	SITE INVESTIGATION REPORT

Total Attach: 2 Files

General Comments**User Group****Comment****Comment Date**

Environmental	ECMC does not approve the use of Table 915-1 Residential Soil Screening Levels (RSSLs). Operator shall comply with Table 915-1 Protection of Groundwater Soil Screening Level Concentrations. If Operator believes the use of RSSLs is appropriate, then Operator shall provide justification per Rule 915.a Soil Concentrations - Determination of Pathway to Groundwater guidance document.	07/02/2024
Environmental	Information provided in this submittal indicates that a historical spill was discovered at this location. Operator has failed to submit a Form 19 in accordance with Rule 912. Warning Letter Document #403851750 has been issued.	07/02/2024
Environmental	ECMC has denied the subject form as the subject form and its attachments contain multiple inaccuracies and previous conditions of approval have not been addressed. Operator is directed to submit a replacement Form 27 within 14 days (July 25, 2024), this submittal shall contain the following: Per COA on Form 27i Doc #403616884: "Operator shall fully populate the Implementation schedule in accordance with Rule 913.d on the subsequent Supplemental Form 27." Per COA on Form 27i Doc #403616884: "Operator shall conduct a closure investigation in accordance with Rule 911.a.(4) and Rule 911.c. Pit Closure Guidance Documents and have all soil samples analyzed for the complete Table 915-1 Contaminants of Concern." Operator has not conducted a closure investigation in accordance with the Rule 915.e.(2) and Rule 911.c. Pit Closure Guidance Documents. Further site investigation is needed.	07/02/2024
Environmental	Operator has not reported the discovery of a historic release (elevated PID reading, multiple contaminants of concern in soil exceed ECMC Table 915-1 Allowable Levels). If Operator discovers impacts exceed the reporting thresholds, Operator will report the Spill or Release pursuant to Rule 912.b. The Form 19 will reference the ECMC Remediation Project Number. Operator will investigate and remediate impacts pursuant to Rule 913. Operator has not proposed additional site investigation nor remediation of the release.	07/02/2024

Environmental	<p>The following issues were identified in the attached Analytical Summary Table</p> <ul style="list-style-type: none"> - Multiple inaccuracies - References Residential Soil Screening Levels. Operator shall correct the Analytical Summary Table to compare concentrations to Table 915-1 Protection of Groundwater Soil Screening Levels. - Concentrations for organic contaminants of concern on the lab report for the W TANK sample were reported as Background (18") on the analytical summary table - Concentrations reported do not match laboratory report. For example: incorrect significant figures reported or NA reported when samples were analyzed. (i.e. TPH-RRO reported as NA, however, lab report indicates residual range organics were analyzed. 1,3,5-TMB listed as 0.01 mg/kg for W TANK; however, lab report indicates 0.00674 mg/kg). <p>The Analytical Summary Table must reflect the laboratory report. If the analyte is Not Detected, Operator shall list the concentration as less than the laboratory method detection limit and/or reporting limit as shown on the lab report (i.e. acenaphthene and anthracene for the W TANK soil sample should be reported as <0.01 and <0.00584, respectively)</p>	07/02/2024
Environmental	ECMC does not approve the use of Table 915-1 Residential Soil Screening Levels (RSSLs). Operator shall comply with Table 915-1 Protection of Groundwater Soil Screening Level Concentrations. If Operator believes the use of RSSLs is appropriate, then Operator shall provide justification per Rule 915.a Soil Concentrations - Determination of Pathway to Groundwater guidance document.	07/02/2024
Environmental	All samples will be analyzed for contaminants of concern pursuant to Rule 915 - Concentrations and Sampling for Soil and Groundwater using standard methods (including but not limited to EPA SW-846, as incorporated by reference in Rule 901.b) appropriate for detecting the target analyte. The method selected will have detection limits less than or equal to the cleanup concentrations in Table 915-1 and WQCC Regulation 41, as incorporated by reference in Rule 901.b. Note: To prevent loss of volatile constituents prior to analysis, samples for volatile organic compounds ("VOC's") will be collected in a manner that minimizes disturbance of the sample and will be immediately placed in an appropriate laboratory supplied container and placed on ice.	07/02/2024
Environmental	<p>Operator has not provided photo documentation/field notes for work performed to date. Operator shall keep field documentation and provide with the Form 27 observations of hydrocarbon or salt staining or odor included on field screening logs and photo logs collected during the removal of equipment from a Location and during any required subsurface investigation. Operator will collect and submit discrete grab samples for final confirmation purposes. Operator will collect samples on a bias; from areas and depths where the highest concentrations would be expected based on visible contamination, odor characteristics, field screening results, Release characteristics, soil type and, if available, information from prior investigations.</p> <p>Note: If field screening is to be used in conjunction with laboratory reports to define the horizontal and vertical extent of impacts to soil, Operator will also report the results of field screening readings and coordinates where readings were taken or observed.</p>	07/02/2024
Environmental	When surface equipment is removed, the Operator will document the conditions under the equipment through observation, field screening, and sampling and analysis to determine if produced fluids or E&P Waste were released. Specific areas of concern are where subsurface piping connects to surface equipment, where Above Ground Storage Tanks ("ASTs"), valves, pumps, compressors, or other process equipment were used on a location and at joints, hammer unions, or previous repairs in above ground or subsurface pipe. Operator will keep field documentation and provide with the Form 27 observations of hydrocarbon or salt staining or odor included on field screening logs and photo logs collected during the removal of equipment from a Location and during any required subsurface investigation. Operator will collect and submit discrete grab samples for final confirmation purposes.	07/02/2024
Environmental	Above Ground Storage Tanks (AST): Upon removing any AST, Operator will conduct a visual inspection of the soil within the former berm footprint underlying the AST. At a minimum, Operator will submit one sample per tank for laboratory analysis pursuant to Rule 915. Operator will submit a sample from an area exhibiting the highest degree of impact, or in the absence of apparent impacts from the area directly below the service hatch, where a load out valve was connected to an AST, or where subsurface piping connected to the AST at the surface. Operator will provide photographs of the bottom of the AST and the footprint after removal.	07/02/2024
Environmental	Separator(s): Operator will visually inspect the footprint of the separator after removal.	07/02/2024

	Operator will submit a minimum of one sample per separator for laboratory analysis pursuant to Rule 915. Operator will submit a sample from an area exhibiting the highest degree of impact, or in the absence of apparent impacts samples will be collected from below the inlet line(s) to the separator and from below the dump lines exiting the separator. Operator will provide photographs of the footprint of the separator.	
Agency		07/02/2024
Environmental	ECMC has denied the subject form as the subject form and its attachments contain multiple inaccuracies and previous conditions of approval have not been addressed.	07/02/2024
Environmental	Per COA on Form 27i Doc #403616884: "Operator shall fully populate the Implementation schedule in accordance with Rule 913.d on the subsequent Supplemental Form 27." Operator has not fully populated the implementation schedule.	07/02/2024
	BG >915	07/02/2024
Environmental	Separator(s): Operator will visually inspect the footprint of the separator after removal. Operator will submit a minimum of one sample per separator for laboratory analysis pursuant to Rule 915. Operator will submit a sample from an area exhibiting the highest degree of impact, or in the absence of apparent impacts samples will be collected from below the inlet line(s) to the separator and from below the dump lines exiting the separator. Operator will provide photographs of the footprint of the separator.	07/02/2024
Environmental	Above Ground Storage Tanks (AST): Upon removing any AST, Operator will conduct a visual inspection of the soil within the former berm footprint underlying the AST. At a minimum, Operator will submit one sample per tank for laboratory analysis pursuant to Rule 915. Operator will submit a sample from an area exhibiting the highest degree of impact, or in the absence of apparent impacts from the area directly below the service hatch, where a load out valve was connected to an AST, or where subsurface piping connected to the AST at the surface. Operator will provide photographs of the bottom of the AST and the footprint after removal.	07/02/2024
Environmental	When surface equipment is removed, the Operator will document the conditions under the equipment through observation, field screening, and sampling and analysis to determine if produced fluids or E&P Waste were released. Specific areas of concern are where subsurface piping connects to surface equipment, where Above Ground Storage Tanks ("ASTs"), valves, pumps, compressors, or other process equipment were used on a location and at joints, hammer unions, or previous repairs in above ground or subsurface pipe. Operator will keep field documentation and provide with the Form 27 observations of hydrocarbon or salt staining or odor included on field screening logs and photo logs collected during the removal of equipment from a Location and during any required subsurface investigation. Operator will collect and submit discrete grab samples for final confirmation purposes.	07/02/2024
Environmental	Operator will collect samples on a bias; from areas and depths where the highest concentrations would be expected based on visible contamination, odor characteristics, field screening results, Release characteristics, soil type and, if available, information from prior investigations. Note: If field screening is to be used in conjunction with laboratory reports to define the horizontal and vertical extent of impacts to soil, Operator will also report the results of field screening readings and coordinates where readings were taken or observed.	07/02/2024
Environmental	All samples will be analyzed for contaminants of concern pursuant to Rule 915 - Concentrations and Sampling for Soil and Groundwater using standard methods (including but not limited to EPA SW-846, as incorporated by reference in Rule 901.b) appropriate for detecting the target analyte. The method selected will have detection limits less than or equal to the cleanup concentrations in Table 915-1 and WQCC Regulation 41, as incorporated by reference in Rule 901.b. Note: To prevent loss of volatile constituents prior to analysis, samples for volatile organic compounds ("VOC's") will be collected in a manner that minimizes disturbance of the sample and will be immediately placed in an appropriate laboratory supplied container and placed on ice.	07/02/2024
Environmental	ECMC does not approve the use of Table 915-1 Residential Soil Screening Levels (RSSLs). Operator shall comply with Table 915-1 Protection of Groundwater Soil Screening Level Concentrations. If Operator believes the use of RSSLs is appropriate, then Operator shall provide justification per Rule 915.a Soil Concentrations - Determination of Pathway to Groundwater guidance document.	07/02/2024
Environmental	The following issues were identified in the attached Analytical Summary Table - Multiple inaccuracies - References Residential Soil Screening Levels. Operator shall correct the Analytical Summary Table to compare concentrations to Table 915-1 Protection of Groundwater Soil	07/02/2024

	<p>Screening Levels.</p> <ul style="list-style-type: none"> - Concentrations for W TANK on lab report were reported as Background (18") on the analytical summary table - Concentrations reported do not match laboratory report. For example: incorrect significant figures reported or NA reported when samples were analyzed. (i.e. TPH-RRO reported as NA, however, lab report indicates residual range organics were analyzed. 1,3,5-TMB listed as 0.01 mg/kg for W TANK; however, lab report indicates 0.00674 mg/kg). <p>The Analytical Summary Table must reflect the laboratory report. If the analyte is Not Detected, Operator shall list the concentration as less than the laboratory method detection limit and/or reporting limit as shown on the lab report (i.e. acenaphthene and anthracene for the W TANK soil sample should be reported as <0.01 and <0.00584, respectively)</p>	
Environmental	<p>Operator has not reported the discovery of a historic release (elevated PID reading, multiple contaminants of concern in soil exceed ECMC Table 915-1 Allowable Levels). If Operator discovers impacts exceed the reporting thresholds, Operator will report the Spill or Release pursuant to Rule 912.b. The Form 19 will reference the ECMC Remediation Project Number. Operator will investigate and remediate impacts pursuant to Rule 913.</p>	07/02/2024
Environmental	<p>Per COA on Form 27i Doc #403616884: "Operator shall conduct a closure investigation in accordance with Rule 911.a.(4) and Rule 911.c. Pit Closure Guidance Documents and have all soil samples analyzed for the complete Table 915-1 Contaminants of Concern." -Operator has not conducted a closure investigation in accordance with the Rule 915.e.(2) and Rule 911.c. Pit Closure Guidance Documents.</p> <p>ECMC does not approve Operator's analyte reduction request. Operator has not provided adequate information for an analyte reduction; therefore, Operator shall collect confirmation soil samples as described in the Rule 915.e.(2) Guidance Document. Operator will analyze soil samples for TPH (C6-C36), Table 915-1 Organic Compounds in Soil, Table 915-1 metals, and Table 915-1 Soil Suitability for Reclamation (Electrical conductivity, Sodium adsorption ratio, and pH by saturated paste method, boron (hot water soluble)). Further site investigation is needed.</p>	07/02/2024
Environmental	<p>Per COA on Form 27i Doc #403616884: "Operator has not included a list off all potential receptors within ¼ mile. Operator shall provide a comprehensive list of all potential receptors within ¼ mile on the subsequent Supplemental Form 27." Operator has not provided a comprehensive list of potential receptors within ¼ mile of the tank battery and former pit, including, but not limited to:</p> <ul style="list-style-type: none"> -100-Year Floodplain Effective (2020) -Mule Deer Migration Corridor -Bald Eagle Active Nest 1/2 Mile -Multiple Domestic Water Wells -Riverine Wetlands -Freshwater Emergent Wetlands -Occupied Structures -CR-18 	07/02/2024

Total: 25 comment(s)